

HP Business Availability Center

for the Windows and Solaris operating systems

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Using Service Level Management

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Table of Contents

Welcome to This Guide

This guide describes how to use HP Business Availability Center Service Level Management to monitor the contracts your organization has with service providers and customers, both internal and external, and produce reports that measure service level agreement (SLA) compliance.

This chapter includes:

- How This Guide Is Organized on page 11
- Who Should Read This Guide on page 12
- Getting More Information on page 12

How This Guide Is Organized

The guide contains the following parts:

Part I Service Level Management Administration

Describes how to work with the Service Level Management Administration component to define Business Service CIs and service agreements mapped to IT metrics, to represent the business services and business SLAs maintained by your organization.

Part II Service Level Management Reports

Describes how to work with the Service Level Management application to produce reports that track and analyze service levels, and check compliance with business objectives.

Part III Service Level Management Repositories

Describes the KPI Repository and the Business Rule Repository that enable you to manage the Key Performance Indicators (KPIs) and business rules available in Service Level Management.

Who Should Read This Guide

This guide is intended for the following users of HP Business Availability Center:

- HP Business Availability Center administrators
- HP Business Availability Center application administrators
- HP Business Availability Center end users

Readers of this guide should be knowledgeable about navigating and using enterprise applications, and be familiar with HP Business Availability Center and enterprise monitoring and management concepts.

Getting More Information

For a complete list of all online documentation included with HP Business Availability Center, additional online resources, information on acquiring documentation updates, and typographical conventions used in this guide, see the *HP Business Availability Center Deployment Guide* PDF.

Part I

Service Level Management Administration

1

Introducing Service Level Management

This chapter introduces Service Level Management and discusses general topics that relate to working with Service Level Management.

This chapter includes:

Concepts

- Service Level Management - Overview on page 15
- The Audit Log on page 20
- Data Purging on page 20

Service Level Management - Overview

In Service Level Management, an administrator defines service agreements that represent the formal and informal contracts your organization has with your service providers, customers, and with internal business units. Service agreements include Service Level Agreements (SLAs), Operational Level Agreements (OLAs), and underpinning contracts (UCs).

Service Level Management determines compliance with your service agreements by measuring your business applications. You can define business service entities (Business Service CIs) that represent the service offerings in your service catalog, and map measurements for service-related processes and network components to each Business Service CI. The Business Service CIs are added to your service agreements. You can also add CIs representing service-related processes and components, directly to your service agreements.

The data produced by the service-related measurements helps you determine whether the availability and performance requirements of users and infrastructure are being met. Service Level Management calculates Key Performance Indicator values from the received availability and performance data, and compares them with required service level objectives. The results are displayed in reports.

You begin by examining performance trends and setting baselines for a variety of business processes. These baselines in turn enable you to establish realistic service level objectives for system availability and performance, within the different subsidiaries, geographical locations, or organizations that you serve.

Note: In general, the usage of the terms **Agreement** or **SLA**, in both the Business Availability Center user interface and in the documentation, includes SLAs, OLAs, and UCs; one exception to this is in the user interface pages where you specifically select **SLA** as the agreement type.

Service Level Management administration and reporting are accessed from two different areas of HP Business Availability Center:

- “Service Level Management Administration” on page 17
- “Service Level Management Application” on page 19

Service Level Management Administration

To access the Service Level Management administration pages, select **Admin > Service Level Management**.

Service Level Management Administration includes the following tabs:

- **Agreements Manager.** From this tab, you can create an agreement and recalculate existing agreements.
 - **Agreements.** You manage SLAs, OLAs, and UCs that reflect actual agreements you have with your service providers or with internal business units. The agreements enable you to build reports showing the level of service management. For details, see “Building Agreements with the Agreements Wizard” on page 27.
 - **Recalculations.** You can run recalculations on an SLA, usually after making retroactive changes. For details, see “Recalculation for Agreements” on page 50.
- **Services Manager.** In this tab, you define business service CIs to represent services provided and consumed by your department, and service offerings that set service objectives. For details, see “Services Manager and Business Services” on page 113.
- **Downtime Events.** In this tab, you can define downtime or incidents that represent actual event occurrences that may skew results and which you may want to exclude from reports. For details, see “Downtime Events” on page 161.

- ▶ **KPI Assignments.** In this tab, you can view and modify:
 - ▶ the definitions for the automatic assignment of KPIs and business rules to monitoring CIs included in an agreement.
 - ▶ the definitions for the automatic propagation of KPIs to higher-level CIs.

For details, see “KPI Assignment Management Overview” on page 178.

- ▶ **Repositories.** From this tab, you can define global service offerings, calendars, and outage categories, and edit or create KPIs and rules.
 - ▶ **Global Service Offerings.** Global service offerings are service offerings that are available to associate with any Business Service CI. For details, see “Global Service Offerings” on page 138.
 - ▶ **Calendars.** Calendars specify periods during which objectives must be checked. Service Level Management provides two default calendars (**24x7** and **Business Hours**); you can define more if needed. For details, see “Calendars” on page 227.
 - ▶ **Outage Categories.** Outage categories can be used in Service Level Management reports, to make results more meaningful. Service Level Management provides default categories (Database, Network, Undefined, and Webserver); you can define more outages categories if needed. For details, see “Status Alerts for Agreements” on page 52.
 - ▶ **KPIs.** Service Level Management includes default KPIs that you use when defining agreements and service offerings. For details, see “KPI Repository” on page 367.
 - ▶ **Business Rules.** Service Level Management includes default business rules (also known as business logic) that are used with the KPIs. For details, see “Business Rule Repository” on page 403.

The Rules API can be used to create new rules; for details see “Rules API” on page 511.

Service Level Management Application

To access the Service Level Management application pages, select **Applications > Service Level Management**.

The Service Level Management application includes the following tabs:

- ▶ **Status Snapshot.** In this tab, you view current and forecast status for the best-performing or worst-performing agreements, and a summary of status in previous periods. For details, see “Status Snapshot Report” on page 353.
- ▶ **SLA Reports.** From this tab, you can access Service Level Management reports that show you results for KPIs, enable you to see how well service levels compare with your goals, and provide information on current, forecast, and over-time statuses for agreements and CIs. For details, see “Service Level Management Reports - Overview” on page 276.
- ▶ **Outage Reports.** From this tab, you can access reports that show data on outages that have occurred for CIs included in agreements. For details, see “Outage Reports” on page 283.
- ▶ **SLA Management.** In this tab, you select service-related views to view information about the connections between your business services, business units, and agreements. You can link to related reports that assist you in understanding the connection. For details, see “About SLA Management” on page 284.

The Audit Log

You use the audit log to track configuration changes to your agreements and services. The audit log displays all configuration changes that can affect reports.

As the audit log can become very long, you can use filters to display only those agreements and services in which you are interested.

The audit log tracks the following changes:

- ▶ creation or deletion of an agreement
- ▶ any changes made to an agreement
- ▶ the addition of a configuration item (CI) to, or removal from, an agreement
- ▶ any changes made to a CI included in an agreement
- ▶ any changes made to business services, service offerings, and business units
- ▶ any changes to downtime or event scheduling, including the creation, editing, and removal of SLM and BPM events
- ▶ any changes to the calendars
- ▶ any changes to user permissions

For details on using the audit log, see “Audit Log” in *Platform Administration*.

Data Purging

Data collection tables can grow to a very large size, and thus need occasional purging. For details on managing historical data and the Purging Manager, see “Partitioning and Purging Historical Data from Profile Databases” in *Platform Administration*.

Service Level Management calculates aggregated data for agreement reports, and this aggregated data is stored for long periods. However, the raw data from the various monitoring sources is stored in the database for limited periods, according to the purging policy for each data type (see the settings on the **Admin > Platform > Setup and Maintenance > Data Partitioning and Purging** page).

If you want to re-aggregate data (when doing agreement recalculations) from earlier periods, you need to make sure that the raw data is available to do the calculations for those periods. For example, if there is a two week purging policy for SiteScope data, but your organization sometimes needs to recalculate agreements 4 weeks retroactively, then you need to change the purging policy for SiteScope to 4 weeks so that SiteScope data is available for the calculations.

If you need to re-aggregate data for further back than three months, then as well as making sure that the raw data is available, you must also change the default three month limit for the recalculation policy. To modify the limit, select **Admin > Platform > Setup and Maintenance > Infrastructure Settings**, choose **Applications**, select **Service Level Management**, and locate the **Recalculation period limit** entry. Modify the value according to the period you need. (It is not recommended to lengthen the period because of the increased time required for the recalculation task.)

For information on recalculation, see “Recalculation for Agreements” on page 50.

Important:

- If you recalculate an agreement for a period when the raw data has already been purged, you lose the previously calculated data for that period.
 - Increasing the data stored in the database can impact on system performance. Changes to the purging policy and recalculation policy settings are advanced tasks that should be performed only by an administrator or HP Software Support.
-

2

Agreements in Service Level Management

This chapter describes the main concepts and administration for agreements in Service Level Management.

This chapter includes:

Concepts

- ▶ Agreements Manager - Overview on page 24
- ▶ Building Agreements with the Agreements Wizard on page 27
- ▶ Business Units for Services and Agreements on page 32
- ▶ SLAs, OLAs, and UCs on page 33
- ▶ CIs and KPIs in Agreements on page 33
- ▶ Impact Model in Service Level Management on page 37
- ▶ Dynamic Update of Business Process Locations to Agreements on page 38
- ▶ Outages in Agreements on page 40
- ▶ Weights for KPI Calculations on page 41
- ▶ Imported Transaction Thresholds on page 43
- ▶ Six Sigma for Agreements on page 46
- ▶ Viewing PNR Data for Agreements in Dashboard on page 46
- ▶ Integration with HP SOA Systinet on page 47
- ▶ Agreements for Monitoring Web Services Per Consumer on page 48
- ▶ Integration with HP Operations Manager on page 49
- ▶ Permissions for Working with Agreements on page 50
- ▶ Recalculation for Agreements on page 50

- ▶ Status Alerts for Agreements on page 52

Tasks

- ▶ Define a Service Agreement - Workflow on page 53
- ▶ Define a Web Service Agreement for Specific Consumers on page 64
- ▶ Dynamically Update Locations in Agreements on page 68
- ▶ Display Hidden Rule Parameters for KPIs on page 73
- ▶ Customize Target Names on page 75

Reference

- ▶ Agreements Manager User Interface on page 76
- ▶ Troubleshooting and Limitations on page 111

Agreements Manager - Overview

Note: In general, the usage of the terms **Agreement** or **SLA**, in both the Business Availability Center user interface and the documentation, includes SLAs, OLAs, and UCs; one exception to this is in the user interface pages where you specifically select **SLA** as the agreement type.

You use the Agreements Manager to create and manage your agreements, and to recalculate existing agreements.

You create service level agreements (SLAs, OLAs, and UCs) that represent contracts entered into by your department with service providers, customers, and internal business units. You define the agreements by extracting information from actual service agreements and duplicating the information in Service Level Management.

Service Level Management monitors the agreements to check compliance with your service contracts. Your users can view Service Level Management reports to see how well actual service levels compare with agreement goals.

The agreements are based on CIs representing the services you need to monitor. There are two options for building the agreements: You can add Business Service CIs that are mapped to the service-related CI topology that supports the service (the CIs that actually measure the performance of your network components and business applications); or you can add the service-related CIs directly to the agreement. For details, see “Building Agreements with the Agreements Wizard” on page 27.

Before you start defining business services and agreements, the Business Availability Center views containing the service-related CIs must be set up. For details, see “IT Universe Manager” in *Model Management*.

Compliance with agreement objectives is measured using Key Performance Indicator (KPI)s (KPIs). Service Level Management includes default KPIs and KPI rules, which can be attached automatically to the CIs included in agreements. The assignment of KPIs to monitor CIs, and propagation of the KPIs up the hierarchy, is managed from the KPI Assignments page—for details, see “KPI Assignment and Propagation in Service Level Management” on page 177. You can also attach additional KPIs to the CIs within each agreement.

If you want to use your own custom KPIs and rules with the CIs, you should define them before creating agreements. For details, see “Customize a KPI” on page 368 and “Customize a Business Rule” on page 411.

Note: Service Level Management uses its own KPIs and rules, and not those of Dashboard.

Note: Service Level Management supports the SLM Web Services API. This integration tool enables the administration of agreements from an application either internal or external to Business Availability Center. For more details, see the BAC_8.05_new_content.pdf (addendum to the readme).

Example of Interpreting a Service Level Agreement

The following is an example of clauses in a service level agreement:

Users will be able to access the HP Web site within 8 seconds for 98% of the time during West Coast business hours. After business hours, they will be able to access the site within 12 seconds for 95% of the time.

...

The average round-trip transmission between a UUNET-designated Hub Router in the Sunnyvale metropolitan area and a UUNET-designated Hub Router in the Chicago metropolitan area will take 120 milliseconds or less during business hours and 150 milliseconds or less after business hours.

When defining an agreement in Service Level Management to represent this SLA, the clauses are interpreted as the following calendars and KPI objectives (for previously created Business Process Monitor, SiteScope, and Real User Monitor CIs):

Term	During Business Hours	After Business Hours
Calendar	9 AM to 5 PM, Monday to Friday PST	5 PM to 9 AM, Monday to Friday PST 5 PM Friday to 9 AM Monday PST
CI 1 (measures availability objective)	98%	95%
CI 2 (measures response time objective)	Home page must download within 8 seconds.	Home page must download within 12 seconds.
CI 3 (measures network response time)	120 milliseconds from hub router in Sunnyvale to hub router in Chicago	150 milliseconds from hub router in Sunnyvale to hub router in Chicago

Building Agreements with the Agreements Wizard

The Create Agreement Wizard provides two alternative wizard processes for building your agreement, service-based or CI-based.

Note to HP Software-as-a-Service users: By default, you can create up to ten agreements. To increase this number, contact HP Software-as-a-Service Support.

Building agreements is described in the following sections:

- ▶ “Building Agreements—Service-Based Process” on page 27
- ▶ “Workflow for Using the Service-Based Process” on page 28
- ▶ “Building Agreements—CI-Based Process” on page 30
- ▶ “Workflow for Using the CI-Based Process” on page 30

Building Agreements—Service-Based Process

The Create Agreement Wizard has the option to use a service-based process to build your agreement, and this is the recommended process to use. The service-based option enables you to build an agreement based on defined business services. This service-oriented approach bases your agreements on ITIL standards, and facilitates integration with other service-based solutions.

Each business service is represented by a Business Service CI. You can define the Business Service CIs in the Services Manager tab, or define them while creating a service-based agreement in the Create Agreement Wizard.

A Business Service CI contains all the CIs in the CMDB that are related to that service. For example, you might create a Business Service CI called *Online Payment Service*, and attach all CIs in the system that are related to the online payment service to that Business Service CI. The *Online Payment Service* CI can then be added to any agreement you create that involves the online payment service.

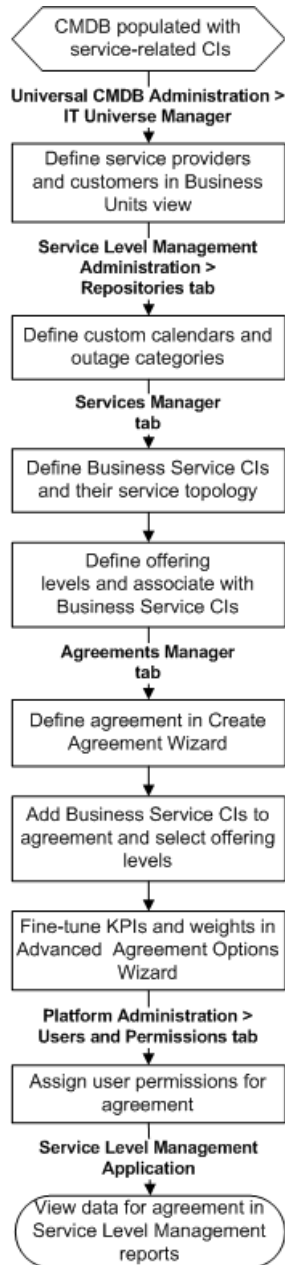
After adding a Business Service CI to your agreement in the Create Agreement Wizard, you have the option to filter the service-related CIs that are included in the business service topology. For example, the Online Payment Service CI includes all CIs that monitor a particular Web server. This Web server is not applicable for the agreement you are creating, so you filter the Online Payment Service topology to exclude the unnecessary CIs. All other service-related CIs that are part of the Online Payment Service CI topology remain attached to the agreement.

When there is a need to fine-tune information for the CIs (KPIs, objectives, outages, weights), you can do this after the agreement has been added to the Agreements Manager tab, in the Advanced Agreement Options Wizard (intended for users with advanced understanding of CI and KPI functioning).

See “Workflow for Using the Service-Based Process” on page 28.

Workflow for Using the Service-Based Process

The following provides a suggested workflow for working with Service Level Management to build agreements based on business services. Many of the steps shown are optional, and do not need to be performed in the order shown. For an explanation, see “Building Agreements—Service-Based Process” on page 27. For more detailed information on the steps involved, see “Define a Service Agreement - Workflow” on page 53.



Building Agreements—CI-Based Process

The Create Agreement Wizard has an option to use a CI-based process to build your agreement. The CI-based version enables you to build an agreement by adding all CIs relating to the agreement services, and then fine-tuning the information for the CIs (KPIs, objectives, outages, weights).

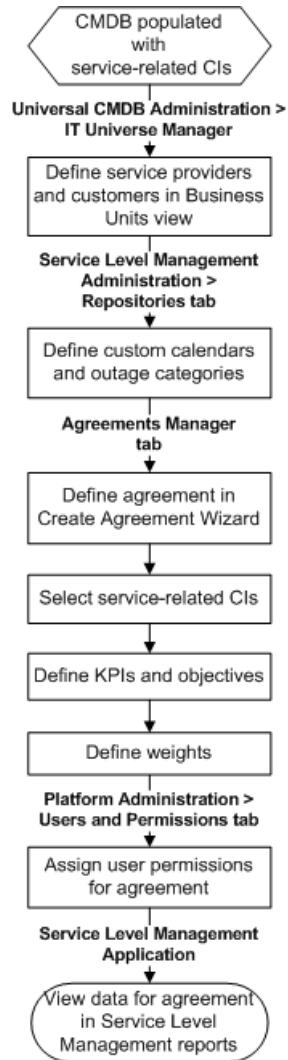
The CI-based version of the Create Agreement Wizard does not support the new features offered with the service-based version, such as service offerings and imported transaction thresholds. It is generally recommended that you use the service-based wizard to build agreements, in order to provide better ITIL management for your service contracts. (For details, see “Building Agreements—Service-Based Process” on page 27.)

The CI-based process should, however, be used for building agreements for Business Process Insight and TransactionVision data. For more information, see “Agreements for Business Process and Business Transaction CIs - Overview” on page 242.

See “Workflow for Using the CI-Based Process” on page 30.

Workflow for Using the CI-Based Process

The following provides a suggested workflow for working with Service Level Management to build agreements using the CI-based process. Many of the steps shown are optional, and do not need to be performed in the order shown. For an explanation, see “Building Agreements—CI-Based Process” on page 30. For more detailed information on the steps involved, see “Define a Service Agreement - Workflow” on page 53.



Business Units for Services and Agreements

You create business units to manage business entities such as service providers, customers, and any other entities with which you conduct business. They can be part of your internal IT department or external. For each business unit, you can build a hierarchy of components.

Business Unit CIs representing your providers and customers can be defined in the Business Units view in the **Admin > Universal CMDB > Modeling > IT Universe Manager** page. After they are added to the Business Units view, they are available for associating with agreements (providers and customers) and business services (providers only). If required, you can associate a provider with each business service, and associate a different provider with the agreement that contains those services.

You associate providers with business services in the Create Business Service Wizard (see “Define Business Service Properties Page” on page 123), and associate providers and customers with agreements in the Create Agreement Wizard (see “Define Agreement Properties Page” on page 81).

After linking business units to your agreements, you can see information organized by providers and customers in some of the Service Level Management reports and in the SLA Management tab. You can also see information on the business services associated with providers in the Service Providers view (available in the SLA Management tab and in Dashboard).

SLAs, OLAs, and UCs

When defining an agreement in Service Level Management, you can classify it as one of the following agreement types:

- ▶ **OLA (Operational Level Agreement).** An internal agreement covering the delivery of services which support the IT organization in their delivery of services. OLA is usually used to indicate that the contract addresses system hardware (machines, routers, and so on).
- ▶ **SLA (Service Level Agreement).** Written agreement between a service provider and the customer(s), that documents agreed service levels for a service. SLA is usually used to indicate that the contract addresses services (applications, services, business processes, and so forth).
- ▶ **Underpinning contract.** A contract with an external supplier covering delivery of services that support the IT organization in their delivery of services.

These classifications are used to filter and organize agreement data in Service Level Management reports.

CIs and KPIs in Agreements

Service Level Management agreements are based on the CIs that measure the performance of your service-related network components and applications. The KPIs attached to each CI compare the data received for the CI with defined objectives, to provide an indication of how well agreement goals are being met.

For example, you might add the following CIs to your agreements, to check if availability percentages and performance times reflect the terms of the agreement:

- ▶ A Business Process Monitor CI that measures the time taken to add a purchase to a shopping cart.
- ▶ A SiteScope CI that measures runtime for a servlet on a WebLogic 6.x application server.

- ▶ A SiteScope Monitor CI that measures the percentage of free disk space on a database server.

Important: The **Health** SiteScope groups that are automatically created for every SiteScope machine have no business impact. The SiteScope Monitor CIs that are included in the **Health** groups should not be included in agreements.

The following sections describe adding CIs and KPIs to agreements:

- ▶ “Adding CIs to Agreements” on page 34
- ▶ “Attaching KPIs to CIs” on page 35

Adding CIs to Agreements

You add service-related CIs to agreements in one of the following ways:

- ▶ by selecting them directly, when defining a CI-based agreement.
- ▶ by adding a Business Service CI that contains all the service-related CIs, when defining a service-based agreement.

For details, see “Building Agreements with the Agreements Wizard” on page 27.

By default, you can define up to 500 CIs in an agreement. To increase this value, select **Admin > Platform > Setup and Maintenance > Infrastructure Settings**, choose **Applications**, select **Service Level Management**, and locate the **Maximum number of CIs for SLA** entry. Modify the value as required; however, be aware that increasing the number of CIs may impact on performance.

Some CIs cannot be added to an agreement. For example, monitoring CIs that are defined to receive non-persistent samples cannot be included in an agreement. (Persistent data refers to data that is stored in the database, while non-persistent data is reported only to the bus.) When working in the CI-based Agreement Wizard, if you try to add prohibited CIs to the agreement, you get an error message on the Select CIs Page. When working in the service-based Agreement Wizard, if a business service containing a prohibited CI is added to the agreement, the prohibited CI is automatically excluded from the agreement.

The non-persistent CITs are defined in the **Prohibited configuration item types** XML file, accessed from the Infrastructure Settings Manager. To modify the list of CITs, select **Admin > Platform > Setup and Maintenance > Infrastructure Settings**, choose **Applications**, select **Service Level Management**, and locate the **Prohibited configuration item types (CIT)** entry. Modify the values in the file as required.

Attaching KPIs to CIs

Service Level Management includes default KPIs, business rules, and objective thresholds that are attached automatically to the monitoring CIs that you add to an agreement.

Service Level Management assigns the KPIs, rules, and thresholds to the CIs as follows:

- ▶ In service-based agreements, the assignments are based on a combination of KPI assignment group definitions, and the service offerings defined for the business services.
- ▶ In CI-based agreements, the assignments are based on the KPI assignment group definitions and, in some cases, the objective thresholds defined in the **KPI Default Thresholds** XML file.

For details on the different assignment types, see “Assignment Mechanism” on page 180.

In addition, you can manually attach KPIs to the CIs within an agreement, and edit the attached KPIs. You can attach a KPI to any CI, at any level in the agreement hierarchy. For details on attaching and editing KPIs, see “KPI Definition Dialog Box” on page 100.

The KPIs, whether attached automatically or manually, propagate up the CI hierarchy in the agreement based on KPI propagation definitions. For details on propagation definitions, see “Propagations” on page 183.

Note the following:

- ▶ A maximum of 6 KPIs can be attached to any CI.
- ▶ The KPIs that you attach to a CI, or changes that you make to a KPI for a CI, are only active within the current agreement. These changes have no effect on the CI or KPIs within other agreements.
- ▶ During agreement creation, Service Level Management displays only the applicable rules for each KPI in the KPI Definition window. In cases where there are no applicable predefined rules for that KPI, the **Business Rule** list displays only API rules. (The applicable rules displayed for the KPI may vary, depending on the specific CI type to which the KPI is attached.)
- ▶ Service Level Management uses its own KPIs, only viewable in Service Level Management reports. The exception to this is the PNR KPI, which is used to show agreement data in Dashboard. For details, see “Viewing PNR Data for Agreements in Dashboard” on page 46.
- ▶ When the Performance KPI and BPM Percentile rule are used for a BPM Transaction from Location CI in a service-based agreement, the definition for the rule includes an import mechanism that imports the transaction threshold settings. For details, see “Imported Transaction Thresholds” on page 43.
- ▶ Status for a SiteScope Monitor CI is calculated from the various measurements monitored by that CI. For example, the Disk Space on C SiteScope Monitor CI receives data for two measurements: percent full, and MB free.

If you want to see performance status based on a single measurement type, you can use the System Performance KPI, and set filtering for the relevant measurement. For details, see “Enable SiteScope Measurement Type Filtering” on page 413.

Impact Model in Service Level Management

The Business Availability Center impact model determines the direction of impact between CIs, using calculated relationships. These calculated relationships determine the propagation direction between parent and child CIs.

The Business Logic Engine (BLE) for Service Level Management performs agreement calculations using the calculated relationships in the impact model. When there is no calculated relationship between a parent CI and a child CI, then the child CI is automatically excluded from the topology for a business service.

For more information on the impact model used by Business Availability Center, see “Impact Modeling” in *Model Management*.

Upgraded Agreements

Agreements that were created in earlier versions still work as previously after upgrading to Business Availability Center 8.00, without affect by the impact model. This means that, for certain topologies, the propagation impact is reversed when the topology is viewed in Dashboard, but the propagation direction is unchanged for the same topology in a legacy agreement.

If you want to align the impact propagation with the Dashboard views, you need to recreate the agreement.

For more information on the affect of impact when upgrading to Business Availability Center 8.00, see the *HP Business Availability Center Deployment Guide* PDF.

Dynamic Update of Business Process Locations to Agreements

The Agreement Wizard includes an **Include Locations** option, enabling the agreement to be dynamically updated with the results from all current and future locations for a Business Process Monitor transaction.

This option is applicable only when Business Availability Center is set to work in **Transaction/Location** hierarchy structure (defined in **Admin > Universal CMDB > Source Manager > Business Process Monitoring** source adapter). When working with a transaction/location hierarchy, the source adapter creates a BPM Transaction from Location CI for each Business Process Monitor location running the transaction. The BPM Transaction from Location CIs are added under the relevant Business Process Step CI.

In Service Level Management, when you add a Business Process Step CI to an agreement (either directly, in a CI-based agreement, or as part of a business service, in a service-based agreement), the BPM Transaction from Location CIs that are currently under the Business Process Step CI are automatically included in the agreement. However, if you want the agreement to be dynamically updated with results for new BPM Transaction from Location CIs that are added in the future (or that have been added since you defined the agreement), you must select the Include Locations option.

When the Include Locations option is applied, Service Level Management aggregates the Business Process Monitor transaction data from all locations under each relevant Business Process Step CI. The KPIs and rules that are normally applied at the BPM Transaction from Location CI level are applied instead to the Business Process Step CI. (A consequence of this is that you cannot view a breakdown by locations for the agreement in the Service Level Management reports.)

Note:

- ▶ If you have changed the default rule or modified rule parameters for a Business Process Step KPI, your changes are overridden when the KPI rule is changed by the Include Locations option.
 - ▶ The Include Locations option does not work with Business Process Step CIs that are created manually in IT Universe Manager.
-

If you choose not to select the Include Locations option, then any BPM Transaction from Location CIs that are added under the Business Process Step in the future are not automatically included in the agreement—they must be added manually.

For more information on applying and removing the Include Locations functionality, see “Dynamically Update Locations in Agreements” on page 68.

Outages in Agreements

An outage is a period of time during which a measurement fails. Service Level Management calculates outages using the Outage KPI attached to a CI: a CI is considered to have failed if it does not meet the criteria defined in the KPI rule. For example, a CI can fail because the failure has a duration of at least the minimum duration defined in the outage rule. A CI can also fail if a minimum number of failures has been reached.

The Outage KPI can be attached only once to each CI. The Outage KPI and corresponding outage rule are generally attached automatically to monitoring CIs in agreements, according to the assignment definitions. The KPI then propagates up the hierarchy using the propagation definitions for each CI type. For details, see “KPI Assignment and Propagation in Service Level Management” on page 177.

You can view the Outage KPI definitions for each CI within an agreement in the Add Outage dialog box, described in “Add Outage Dialog Box” on page 76. You can change the rule for the Outage KPI, modify the rule parameters, and define an outage category (see “Outage Categories” on page 41).

For information on the outage rules, see “Outage Business Rules” on page 408.

The Outage KPI does not itself appear in reports; however, it must be attached to a CI in order to view data in the outage reports (for details, see “Outage Reports” on page 283). If you want to view outage information in other Service Level Management reports, you can attach outage-connected KPIs to the CI, such as Number of Outages, Outage Duration, and Time Between Outages. These KPIs can be displayed in many of the reports in the SLA Reports tab.

Note: Changing the rule for the Outage KPI may affect results for the other outage-connected KPIs.

Outage Categories

Outage categories are used in Service Level Management reports, to make results more meaningful. The outage categories enable you to categorize the probable outage cause for a CI.

You can assign an outage category to a CI as part of the Outage KPI definition (see “Add Outage Dialog Box” on page 76); you can also assign an outage category to an outage in the Outage Summary report (see “Outage Summary Report” on page 337). However, it is recommended to categorize outages during agreement creation.

Service Level Management contains preconfigured outage categories for **Database**, **Network**, **Webserver**, and **Undefined** (for outages from non-defined sources). You can create your own additional outage categories. For details, see “Outage Categories Page” on page 106.

Note: You cannot delete any outage categories, whether preconfigured or user-created.

Weights for KPI Calculations

You can define weights for CIs included in agreements, either in the Agreement Wizard for CI-based agreements (see “Define Weights Page” on page 93) or in the Advanced Agreement Options Wizard for service-based agreements (see “Define Weights Page” on page 79).

You define weights on child CIs, so that the weighted child CI has more impact on the KPI calculations for the parent CI. The weights are only applied for KPIs that have a rule that uses weights, for example, if the rule calculates a percentage.

For example, your agreement includes a Business Process Group CI that contains two Business Process Step CIs. One child CI simulates a user buying a product at one location and the other CI simulates a user at a second location. You decide that availability and performance at the first location are more important than at the second, and so you give the CIs weights of 2 and 1. When Service Level Management calculates the Availability and Performance KPI values for the Business Process Group CI, child CI 1 contributes two thirds of the overall score and CI 2 contributes one third.

Tip: When assigning weights to CIs, it may be helpful to consider the percentage weight you want to give each CI. For example, say you have two CIs and you think one should carry 40% of the weight and the other 60%, you could set their weights at 40 and 60 respectively.

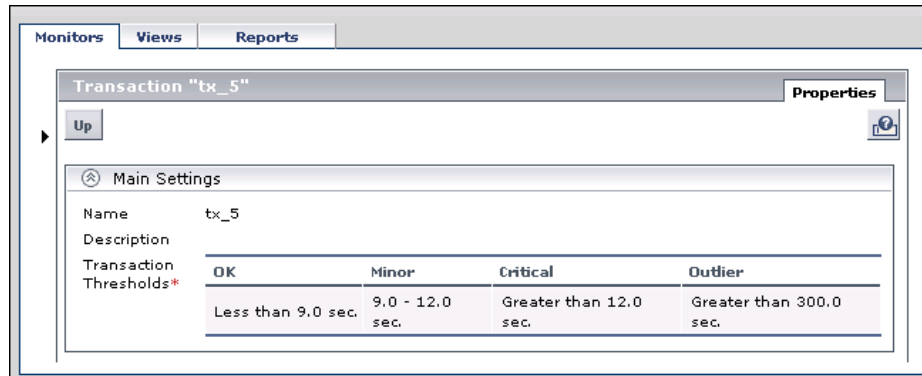
Note: By default, Six Sigma calculations do not take weighting into account.

Imported Transaction Thresholds

The following sections describe how Service Level Management automatically imports Business Process Monitor transaction thresholds, and how to override the import process.

How Imported Transaction Threshold Works

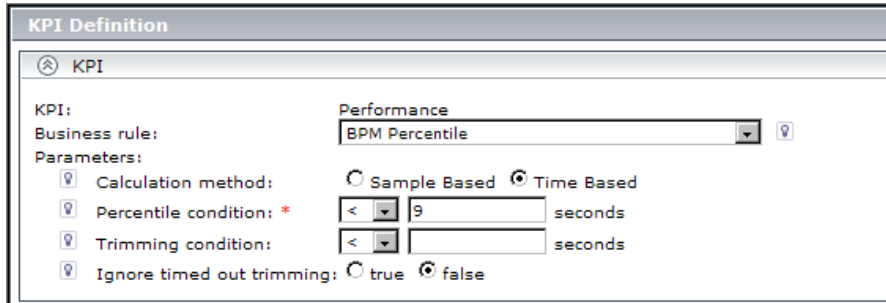
BPM Transaction from Location CIs are created based on the transaction monitors defined in **Admin > End User Management**. The transaction monitors include transaction threshold settings, defining OK, Minor, and Critical statuses for the monitor.



The screenshot shows a software interface with tabs for 'Monitors', 'Views', and 'Reports'. The 'Monitors' tab is active, displaying a window for 'Transaction "tx_5"'. Below the window title is an 'Up' button and a 'Properties' button. The main content area is titled 'Main Settings' and contains a table of transaction thresholds.

Transaction Thresholds*	OK	Minor	Critical	Outlier
	Less than 9.0 sec.	9.0 - 12.0 sec.	Greater than 12.0 sec.	Greater than 300.0 sec.

When the Performance KPI using the BPM Percentile rule is defined for a BPM Transaction from Location CI in a service-based agreement, the definition for the rule includes an import threshold mechanism that imports the value defined for the monitor's **OK** threshold into the **Percentile Condition** parameter for the rule. (For information on the rule, see "BPM Percentile" on page 441.)



KPI Definition

⊕ KPI

KPI: Performance

Business rule: BPM Percentile

Parameters:

Calculation method: Sample Based Time Based

Percentile condition: * < 9 seconds

Trimming condition: < seconds

Ignore timed out trimming: true false

Note the following:

- ▶ The import mechanism is only for Transaction from Location CIs in service-based agreements.
- ▶ You can override the imported threshold by editing the KPI in the Advanced Agreement Options Wizard.
- ▶ If the monitor does not have a threshold value in End User Management, or if the import mechanism fails, the threshold defined for the Percentile Condition parameter in the Rule repository is used.

Hard Code the Percentile Condition Parameter

If you want to hard code a different value for the Percentile Condition parameter, you can do so in the KPI assignment definitions for the Transaction from Location CIs. On the KPI Assignments page, open the **HP Business Process Monitor** assignment group for editing, then open the **BPM TX From Location CIs** assignment for editing. For more information on editing the assignments, see “Manage KPI Assignment Groups – Scenario” on page 203.

Define Assignment Configuration

Name: *

Description:

Condition

<condition cmdb-class="bpm_tx_from_location"/>

Task

```

<kpi-config type="106">
  <rule type="204">
    <rule-parameter key="Percentile condition" type="String" value="&lt;XXX{0}&gt;"
      <rule-parameter-attribute
        formattingMethod="convertMilisecToSec"
        placeholderKey="0" propertyName="rank_1_from"/>
    </rule-parameter>
  </rule>
  <objective>
    <operator type="GREATER_THAN"/>
    <threshold type="EXCEEDED" value="98"/>
    <threshold type="MET" value="95"/>
    <threshold type="MINOR_BREACHED" value="90"/>
    <threshold type="BREACHED" value="85"/>
  </objective>
</kpi-config>
<kpi-config isOutage="true" type="200">
  <rule type="311"/>
  <objective>

```

The Performance KPI has ID# 106, and the BPM Percentile rule has ID# 204. Change the value for the rule's Percentile condition parameter to the required value. For example, you might change the Percentile condition to **Value="10"**.

Six Sigma for Agreements

You can produce certain Service Level Management reports that show data from a Six Sigma perspective. To see Six Sigma data for a CI, you associate a Six Sigma KPI with the CI in the agreement (either in the Agreement Wizard or in the Advanced Agreement Options Wizard). Service Level Management uses two KPIs for measuring Six Sigma compliance, Availability Six Sigma and Performance Six Sigma.

When defining the Six Sigma KPI, you enter Six Sigma objective values between 0 and 6 with up to three decimal points. This defines the objective against which Service Level Management measures the time taken to execute a CI, or the time that a business application or a service is up and running.

For details on Six Sigma KPIs and rules, see “Six Sigma Rules” on page 409.

Viewing PNR Data for Agreements in Dashboard

In the views displayed in Business Availability Center Dashboard, you can include PNR (point of no return) data for CIs that are included in your agreements.

The PNR KPI enables you to view how well agreement objectives are being met. When the PNR KPI is defined for a CI, a bar is displayed in Dashboard indicating how much more time (in percentages) the CI can be unavailable before the agreement is in breach of contract.

The PNR KPI is defined for the CI in Dashboard Administration, and is calculated based on the Availability KPI attached to the CI in Service Level Management. For details on configuring the PNR KPI, see the example in “Configure a KPI – Workflow” in *Using Dashboard*.

Integration with HP SOA Systinet

If Business Availability Center is integrated with HP SOA Systinet, you can drill down to HP SOA Systinet during agreement creation or editing to view contract information for Web services in HP SOA Systinet. This information can then be used when configuring the agreement, enabling you to monitor the contract details in Service Level Management.

To enable the linkage with HP SOA Systinet, you must include in your agreement a CI that represents an HP SOA Systinet Web service. You can then drill down to HP SOA Systinet from the Define KPIs page, by first selecting the Web service CI, then clicking the **Drill down to Systinet** link that is displayed under the Outage KPI section. HP SOA Systinet opens in a new window.

- ▶ For service-based agreements, the linkage is from the Define KPIs Page in the Advanced Agreement Options Wizard (see “Define KPIs Page” on page 79).
- ▶ For CI-based agreements, the linkage is from the Define KPIs Page in the Agreement Wizard (see “Define KPIs Page” on page 90).

For more information on the integration, see “Integration of HP SOA Systinet” in *Solutions and Integrations*. For details on working with HP SOA Systinet, see the HP SOA Systinet documentation.

Agreements for Monitoring Web Services Per Consumer

Within your SOA environment, your Web services are likely to service multiple consumers, with each consumer requiring a different level of service. You can monitor the level of service per consumer, by creating agreements that monitor Web service data for one or more specified consumers.

For example, you have a Web service with two consumers: Consumer A requires a high level of availability for the Web service over 24x7, while Consumer B requires high availability only during working hours. You create an SLA containing the Web service and clone it. You can then edit the two SLA versions, so that one monitors performance data for the Web service when used by Consumer A, and the second monitors performance data for the Web service when used by Consumer B.

These agreements are created using the CI-based process, for SOA Web services that are monitored by HP Diagnostics. You set up the agreement so that it monitors operations data for the Web service, when the data is filtered by one or more named consumers (the consumer information is added to the KPIs of the monitor CIs).

The consumer names are taken from the incoming samples from HP Diagnostics. This name may be in the form of a consumer ID, a consumer IP, or a consumers' group name. You can view a list of the Web service consumers in the Consumer Summary report in **Applications > Business Availability Center for SOA**. For details, see “Consumer Summary Report” in *Solutions and Integrations*.

For details on how to define the agreements, see “Define a Web Service Agreement for Specific Consumers” on page 64.

Integration with HP Operations Manager

If Business Availability Center is integrated with HP Operations Manager (previously named HP OVO), you can include EMS Monitor CIs for the monitored Operations Manager system in your agreements. For information on setting up the integration, see “HP Operations Manager Integration” in *Solutions and Integrations*.

Service Level Management contains KPIs and rules specifically configured for the Operations Manager EMS Monitor CIs. There are four KPIs that are attached automatically to the CIs: **Application**, **Network**, **Security**, and **System**. The assignment of these KPIs and their rules is defined on the KPI Assignments page, as part of the Enterprise Management System assignment group.

- ▶ **Application.** Displays information on the status of the Operations Manager application, as supplied by the Application field in the Operations Manager sample. This KPI uses the **Application Quality** monitor rule.
- ▶ **Network.** Displays information on the status of the network in the Operations Manager application, as supplied by the Network field in the Operations Manager sample. This KPI uses the **Network Quality** monitor rule.
- ▶ **Security.** Displays information on security in the Operations Manager application, as supplied by the Security field in the Operations Manager sample. This KPI uses the **Security Quality** monitor rule.
- ▶ **System.** Displays information on system status in the Operations Manager application, as supplied by the System field in the Operations Manager sample. This KPI uses the **System Quality** monitor rule.

For more information on the KPIs, see “List of Service Level Management KPIs” on page 370.

Permissions for Working with Agreements

After defining an agreement, the HP Business Availability Center administrator must give users permission to work with the agreement. Users with view permission can view or generate reports for their agreements. You define permissions in **Admin > Platform > Users and Permissions**.

For general information on defining permissions, see “Permissions Overview” in *Platform Administration*.

Note: If you change a user’s permissions for a specific agreement, the user must log out and log in again to view the changes.

Recalculation for Agreements

Note for HP Software-as-a-Service customers: HP Operations administers the recalculation task functionality. For information about recalculation, contact HP Software-as-a-Service Support.

Service Level Management automatically recalculates the agreement data once an hour, for the data received two hours ago. That is, if the time is now 07:30 AM, Service Level Management recalculated the data at 7:00 AM for data that was received between 05:00 AM and 06:00 AM.

Note: If you create a new agreement for a period in the past, then Service Level Management automatically runs recalculation.

In addition, you can schedule recalculation tasks to update the data in your agreements. You generally use recalculation after making retroactive changes. For example:

- ▶ After defining a downtime event for the previous week, you should run the recalculation process to show the effect of the event on results.
- ▶ In the case of a connection problem with a site where data is sent after a one day delay, you should run recalculation so that this data is also included in calculations. (Service Level Management automatically supports "late arrivals," that is, data that reaches the database up to one hour after the data is recorded. However, for data reaching the database after a longer period of time, you must run the recalculation function.)
- ▶ After viewing the reports of a specific agreement, you notice that the objective definition was set too high. You edit the objective and run recalculation so that the change is reflected in the historical data.

Service Level Management performs aggregation retroactively on existing data only when an agreement is recalculated. If the agreement is not recalculated, previous data is displayed in the report even though it may not answer the criteria set by the changes.

Recalculation tasks are scheduled from the "Agreements Manager Page" on page 96. Recalculation is only enabled if an agreement can be recalculated. The functionality is disabled for agreements with state **Preliminary** or **Pending**, and for **Terminated** agreements that ended too long ago for recalculation.

After scheduling a recalculation task, you can cancel the scheduled task if has not yet begun running. Once the task is running, a message is displayed in the **State** column on the Agreements Manager page, for example, Recalculation Progress: 25%.

By default, the earliest date at which the recalculation process can begin running is three months back (default set in the Infrastructure Settings Manager). For details, see “Data Purging” on page 20.

Important: If you recalculate an agreement for a period when the raw data has already been purged, you lose the data that was already calculated for that period. For more information, see “Data Purging” on page 20.

Status Alerts for Agreements

You can create alert schemes to notify users if an agreement is not reaching its targets, or if its status is changing for the worse. You can also create alert schemes based on changes in the forecasted status.

The SLA Alerts report provides information on triggered alerts.

For details, see “SLA Alerts” in *Alerts*.

Define a Service Agreement - Workflow

This task describes a suggested working order for setting up an agreement in Service Level Management, either based on Business Service CIs (the recommended method) or using the CI-based process.

Note:

- Some of the steps are optional.
 - The optional steps can generally be performed at any point after you have created the agreement.
-

To view a workflow for creating an agreement based on business services, see “Workflow for Using the Service-Based Process” on page 28.

To view a workflow for creating an agreement using the CI-based process, see “Workflow for Using the CI-Based Process” on page 30.

This task includes the following steps:

- “Define Calendars” on page 54
- “Define Business Units - Optional” on page 54
- “Define Outage Categories - Optional” on page 55
- “Define Services and Service Offerings” on page 55
- “Define an Agreement” on page 57
- “Fine-Tune KPIs and Weights” on page 59
- “Grant Permissions” on page 62
- “Define Downtime Events - Optional” on page 62
- “View Agreement Data in Reports” on page 63

1 Define Calendars

If you require custom calendars for your organization, to calculate data for periods other than those defined in the default calendars, define them using the Calendar Wizard. For details on the wizard user interface, see “Calendar Wizard” on page 234.

For examples of setting up a calendar, see “Calendar Examples” on page 231.

Example

Acme Publishing house has an internal contract between the IT and eBusiness departments for a database service with a required service offering. The Service Level Administrator wants to set up a service level agreement in Service Level Management to monitor compliance for the contract.

Acme has business hours that differ from the predefined Business Hours calendar, so the administrator creates a custom calendar for the company hours:

Calendars		
Name ↕	Period Type	Description
24x7	Weekly	24 hours, 7 days a week
Acme business week	Weekly	9:00-18:30, Monday to Friday
Business Hours	Weekly	8:00-17:00, Monday-Friday

2 Define Business Units - Optional

Create Business Unit CIs in the Business Units view to represent your service providers and customers. The Business Unit CIs are then associated with the business services and agreements that you define. For more information, see “Business Units for Services and Agreements” on page 32.

For task details on how to add a CI to a view, see “Create CIs and Relationships in the CMDB”.

3 Define Outage Categories - Optional

Define custom outage categories (to add to the preconfigured ones) to help categorize probable outage causes for the service-related CIs when generating Outage reports.

For details on the outage categories user interface, see “Outage Categories Page” on page 106.

Example

The Service Level Administrator adds a custom outage category, Layer4, that he wants to use for the Outage reports:

Outage Categories	
Name ▲	Description
Database	Database category
Layer4	
Network	Network category
Undefined	Outages from non-defined sources
Webserver	Webserver category

4 Define Services and Service Offerings

(This step is only applicable if you are creating an agreement based on Business Service CIs.)

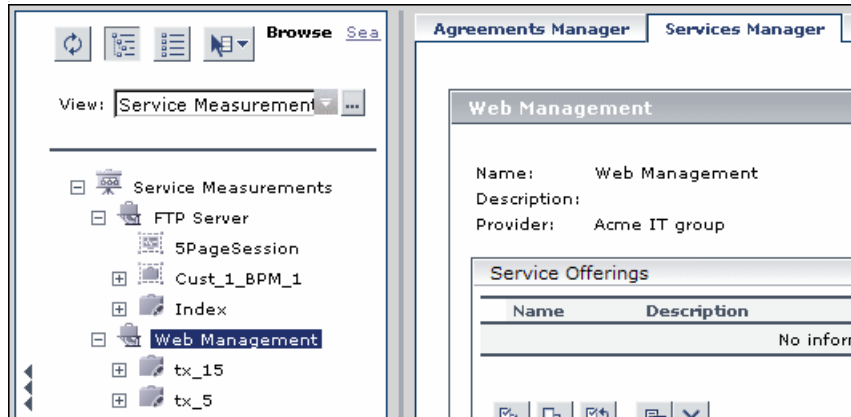
Create Business Service CIs in the Services Manager to represent your IT services, and associate service offerings with each business service. Each Business Service CI is mapped to the service topology that supports the service, and the service offerings define the KPI objectives to be used with the service topology.

For task details on defining Business Service CIs, see “Define Business Services for Agreements” on page 115.

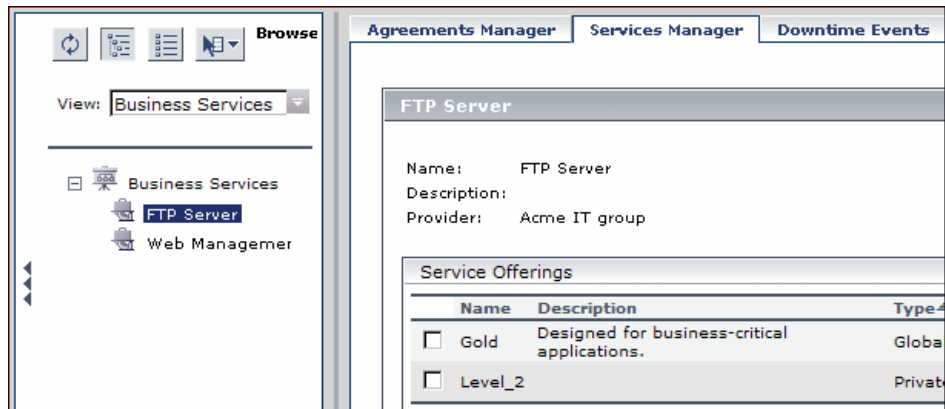
For task details on associating service offerings, see “Create and Apply Service Offerings for Service-Based Agreements” on page 145.

Example

The Service Level Administrator accesses the Services Manager page and creates the two Business Service CIs, FTP Server and Web Management, that the agreement is to monitor, and defines the service-related CIs that support the services:



The administrator associates the **Gold** global service offering, and a private service offering called **Level_2** (which includes the Acme business week calendar), with the FTP Server and Web Management Business Service CIs:



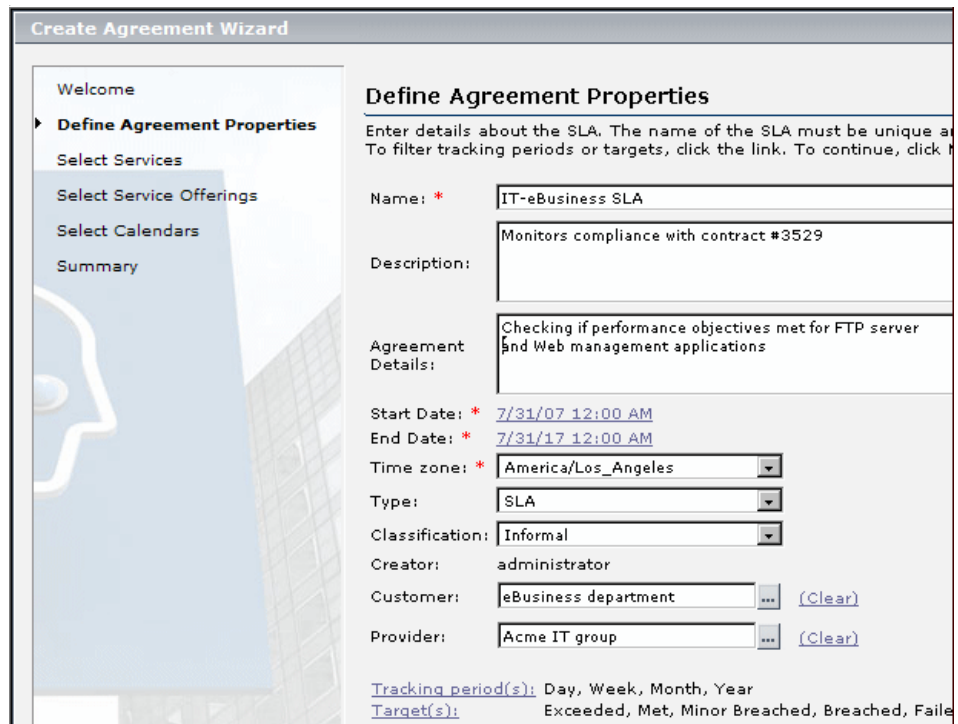
5 Define an Agreement

Create an agreement in the Create Agreement Wizard, using the service-based or CI-based process as required.

For details on the wizard user interface, see “Agreement Wizard” on page 80.

Example

The Service Level Administrator opens the Create Agreement Wizard to define the agreement, IT-eBusiness SLA. He selects the service-based process, and defines the agreement properties, including the tracking periods and target objectives for which he wants to see data in the reports:



Create Agreement Wizard

Welcome

- Define Agreement Properties
- Select Services
- Select Service Offerings
- Select Calendars
- Summary

Define Agreement Properties

Enter details about the SLA. The name of the SLA must be unique and
To filter tracking periods or targets, click the link. To continue, click the

Name: * IT-eBusiness SLA

Description: Monitors compliance with contract #3529

Agreement Details: Checking if performance objectives met for FTP server and Web management applications

Start Date: * 7/31/07 12:00 AM

End Date: * 7/31/17 12:00 AM

Time zone: * America/Los_Angeles

Type: SLA

Classification: Informal

Creator: administrator

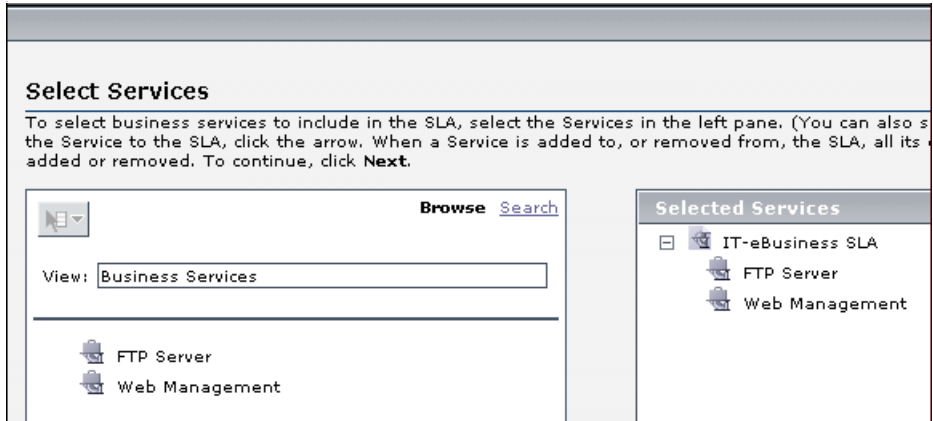
Customer: eBusiness department (Clear)

Provider: Acme IT group (Clear)

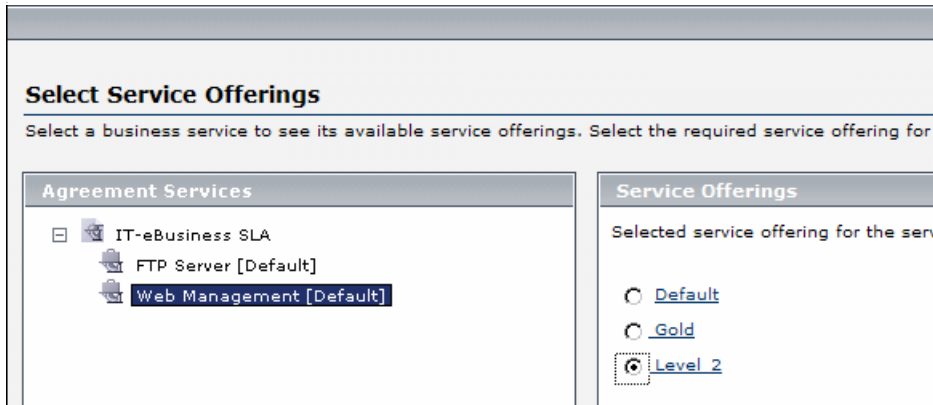
[Tracking period\(s\):](#) Day, Week, Month, Year

[Target\(s\):](#) Exceeded, Met, Minor Breached, Breached, Failed

In the Select Services page of the wizard, the administrator adds the two Business Service CIs to the agreement:



In the Select Service Offerings page of the wizard, the administrator selects the Level_2 service offering for the business services:



In the Select Calendars page of the wizard, the administrator selects both the 24x7 and the Acme business week (included in the Level_2 service offering) calendars for monitoring by the agreement:

Calendars	
Select Calendars	
Calendar Name	Service Name
<input checked="" type="checkbox"/> 24x7	FTP Server , Web Management
<input checked="" type="checkbox"/> Acme business week	FTP Server , Web Management

6 Fine-Tune KPIs and Weights

(Optional step, only applicable if you are editing an agreement based on Business Service CIs, intended for users with advanced understanding of CI and KPI functioning.)

If required, open the Advanced Agreement Options Wizard for the agreement you created, to fine-tune the KPIs, objectives, and weights.

For details on the wizard user interface, see “Advanced Agreement Options Wizard” on page 78.

Example

The Service Level Administrator opens the Advanced Agreement Options Wizard for the new agreement in order to fine-tune some of the agreement details.

In the Define KPIs page, the administrator changes the default Outage rule for some of the CIs:

Advanced Agreement Options Wizard

Define KPIs

Define Weights

Select the CIs in the SLA for which you want to set KPIs. You can define KPIs and outages for multiple CIs in a single definition. To add a KPI, click **Add KPI**. To edit a KPI, click its **Edit** button. To add or edit an outage definition, click its **Add Outage** or click its **Edit** button. To define KPIs and outages for multiple CIs in a single definition, click one CI and click each additional CI to display the Global Settings pane. To continue, click **Next**.

SLA: IT-eBusiness SLA

- IT-eBusiness SLA
 - FTP Server
 - Web Management
 - tx_15
 - tx_5
 - tx_5

Item: tx_5

KPIs	
KPI	Business Rule
<input type="checkbox"/> Availability	BPM Average Availability
<input type="checkbox"/> Performance	BPM Percentile

Outage: Outage Based on Availability

In the Define Weights page, the administrator adds weights for some of the CIs:

Define Weights

To change the weight of a CI's direct descendants, select the CI and enter a new weighting value for those descendant have greater importance. Values can be any real number between 0 and 100, with up to 3 digits after the decimal point. To enter one value for all items, enter the number in the All Items field, and click **Apply**. To continue, click **Finish**.

Browse Search

SLA:

- IT-eBusiness SLA
 - FTP Server
 - Cust_1_BPM_1
 - Index
 - Web Management

CI: Cust_1_BPM_1

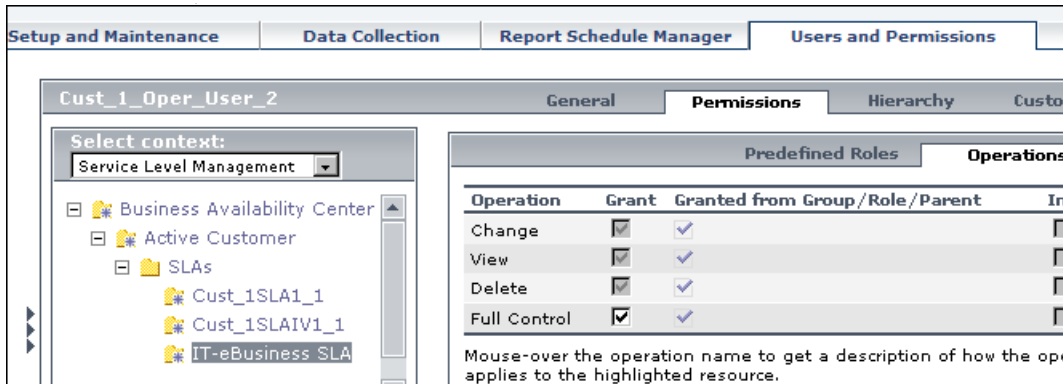
Name	Weight
tx_10	<input style="width: 50px;" type="text" value="1.0"/>
tx_1_failed	<input style="width: 50px;" type="text" value="2.0"/>
tx_15	<input style="width: 50px;" type="text" value="1.0"/>
tx_2_failed	<input style="width: 50px;" type="text" value="2.0"/>
tx_5	<input style="width: 50px;" type="text" value="1.0"/>
Total Weight of Children	<input style="width: 50px;" type="text" value="7"/>
All CIs	<input style="width: 50px;" type="text" value="1.0"/> <input style="margin-left: 10px;" type="button" value="Apply"/>

7 Grant Permissions

Grant permission to users for the created agreement, so that other users can view, modify, or generate reports for the agreement. For details, see “Permissions for Working with Agreements” on page 50.

Example

In the Platform Administration Users and Permissions page, the Service Level Administrator sets permissions for the new agreement, IT-eBusiness SLA:



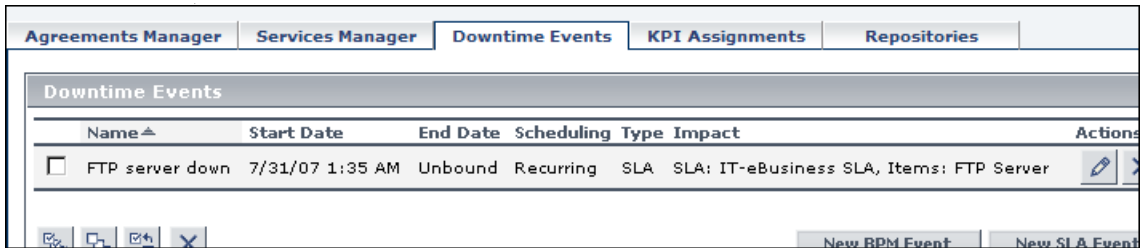
8 Define Downtime Events - Optional

Define downtime events to exclude periods of planned downtime or scheduled events from the agreement calculations.

For details on the user interface, see “Downtime Event Schedule Dialog Box” on page 171.

Example

In the Downtime Events page, the Service Level Administrator defines an event for the weekly downtime of the FTP server for maintenance purposes:



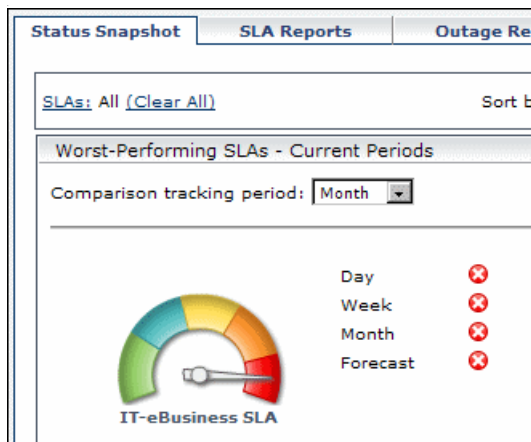
9 View Agreement Data in Reports

Once data has been collected and aggregated for the agreement, you can view performance results in the various report tabs of the Service Level Management application.

For details on viewing reports, see “View SLA and Outage Reports” on page 302.

Example

Users can see status for the IT-eBusiness SLA agreement in the Status Snapshot page:



Define a Web Service Agreement for Specific Consumers

This task describes how to set up an agreement in Service Level Management to monitor Web service operations for specific consumers. For more information, see “Agreements for Monitoring Web Services Per Consumer” on page 48.

For general task details on how to define an agreement, see “Define a Service Agreement - Workflow” on page 53.

This task includes the following steps:

- “Prerequisites” on page 64
- “Create a CI-Based Agreement” on page 64
- “Add Web Services and Default KPIs to the Agreement” on page 65
- “Define Consumer Name in KPIs” on page 65
- “Results” on page 68

1 Prerequisites

You should have HP Diagnostics monitoring set up, sending the topology of the relevant Web services (the Web service with its operations and monitors) to the UCMDB. The received samples should contain the consumer name.

For more information on HP Diagnostics-monitored Web services, see “Integration of HP Diagnostics Data with SOA” on page 26.

2 Create a CI-Based Agreement

On the **Admin > Service Level Management > Agreements Manager** page, click **New Agreement** to open the Create Agreement Wizard. Define a CI-based agreement, and give the agreement a meaningful name, for example, Service for Acme Bank Consumer.

For details on the wizard page, see “Define Agreement Properties Page” on page 81.

3 Add Web Services and Default KPIs to the Agreement

In the Select CIs page, display the SOA Web Services view and add the relevant Web services to the agreement.

Check that **Automatically define default KPIs is selected**, and click **Next**.

For details on the wizard page, see “Select CIs Page” on page 88.

4 Define Consumer Name in KPIs

In the Define KPIs page, expand the Web service topology and select the Diagnostics Web Service Monitor CI for the Web service. The KPIs for the CI are displayed in the right pane. For details on the wizard page, see “Define KPIs Page” on page 90.

Each of the default KPIs for the monitor CI (Availability, Performance, Response Time, and Throughput), using the default rule for the KPI, includes a **Consumer** parameter. Edit each KPI by clicking the Edit button to open the KPI Definition Dialog Box. Define the required consumer names in the **Consumer** parameter box, noting the following:

- ▶ You can define up to three consumer names for the parameter.
- ▶ Enter each consumer name separated by ";"
- ▶ Each name must be entered exactly as defined the incoming samples from HP Diagnostics (case-sensitive). You can view the consumer names in the Consumer Summary report—for details, see “Consumer Summary Report” in *Solutions and Integrations*.
- ▶ The same names must be defined for all four KPIs.

Repeat this for every Diagnostics Web Service Monitor CI included in the agreement, as required.

Tip: You have the option of defining the Consumer parameter for multiple CIs, in a single operation per KPI. For details, see “Right Pane: Global Settings” on page 93.

Example

The Administrator added a Web Service CI to the SLA for ACME agreement. On the Define KPIs page, he selects the Diagnostics Web Service Monitor CI, Real Monitor on Divide, for the Divide operation. The KPIs for the monitor are displayed in the right pane:

Define KPIs

Select the CIs in the SLA for which you want to set KPIs. You can define KPIs and outages for multiple CIs in a single definition. To add a KPI, click **Add KPI**. To edit a KPI, click its **Edit** button. To add or edit an outage definition, click **Add Outage** or click its **Edit** button. To define KPIs and outages for multiple CIs in a single definition, click one CI, hold down Ctr and click each additional CI to display the Multiple CIs Actions pane. To continue, click **Next**.

SLA: SLA for ACME

- [-] SLA for ACME
 - [-] ThrowSoapException
 - [-] Divide
 - [-] **Real Monitor on Divide**

CI Type: Diagnostics Web Service Monitor

Item: Real Monitor on Divide

KPI	Business Rule	Actions
<input type="checkbox"/> Availability	SOA Diagnostics Availability	
<input type="checkbox"/> Performance	SOA Diagnostics Performance Percentile	
<input type="checkbox"/> Response Time	SOA Diagnostics Average Response Time	
<input type="checkbox"/> Throughput	SOA Diagnostics Average Throughput	

Add KPI

Outage: Outage Based on Availability

The Administrator opens the Availability KPI for editing, and enters the consumer names in the **Consumer** parameter:

KPI Definition

⊕ KPI

KPI: Availability

Business rule: SOA Diagnostics Availability

Parameters:

Consumer: acme;17.59.63.241

⊕ Objectives

To add an objective, click a cell, enter the objective values, then click the cell again (or click a cell). To add an objective to all periods of a calendar, click a calendar, enter the objective values, then click the calendar again (or click a cell).

Calendar	Day	Week	Month
24x7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

✔ Exceeded > 98.0 %

✘ Failed Otherwise

5 Results

For each monitor with defined consumers in the SLA, data is taken only from the monitor samples that include one of the consumer names. So results for the SLA in the Service Level Management reports reflect usage of the Web service by those consumers.

Dynamically Update Locations in Agreements

The following tasks describe how to use the Include Locations option, to enable your agreements to be dynamically updated with the results from future added Business Process Monitor transaction locations. For more information, see “Dynamic Update of Business Process Locations to Agreements” on page 38.

This section includes the following tasks:

- ▶ “To apply Include Locations functionality:” on page 68
- ▶ “To remove Include Locations functionality from a service-based agreement:” on page 71
- ▶ “To remove Include Locations functionality from a CI-based agreement:” on page 72

To apply Include Locations functionality:

- 1 From the Agreements Manager page (**Admin > Service Level Management > Agreements Manager**), open the Create Agreement Wizard or Edit Agreement Wizard. (See “Define a Service Agreement - Workflow” on page 53.)
- 2 At the bottom of the Define Agreement Properties page, select the **Include Locations** check box.
- 3 Continue defining or editing the agreement requirements in the wizard.
 - ▶ If you are editing an existing agreement, save your changes and exit the wizard. Service Level Management automatically updates the Business Process Monitor CIs.

- ▶ If you are defining a service-based agreement, then after saving the agreement Service Level Management automatically updates the Business Process Monitor CIs included in the Business Service CIs.
- ▶ If you are defining a CI-based agreement, then when you add the required Business Process Groups/Steps to the right pane in the Select CIs page, the tree displays the child BPM Transaction from Location CIs.

When you move to the Define KPIs page, the Business Process Monitor branches are automatically updated, as described in the following step.

4 After applying the **Include Locations** option, you can see the following changes to the Business Process Monitor branches in the Define KPIs page of the Agreement Wizard (for CI-based agreements) or in the Define KPIs of the Advanced Agreement Options Wizard (for service-based agreements):

- ▶ All child BPM Transaction from Location CIs that are under Business Process Step CIs are removed from the agreement.
- ▶ The rule for each KPI attached to a Business Process Step CI is changed from a group rule to a monitor (leaf) rule. (Service Level Management defines a selector expression on the Business Process Step CI.)
- ▶ The Response Time KPI is added to each Business Process Step CI.

Define KPIs window before applying Include Locations:

Define KPIs

Select the CIs in the SLA for which you want to set KPIs. You can define KPIs and outages for multiple CIs in a single definition. To add a KPI, click **Add KPI**. To edit a KPI, click its **Edit** button. To add or edit an outage definition, click **Add Outage** or click its **Edit** button. To define KPIs and outages for multiple CIs in a single definition, click one CI, hold down Ctrl, and click each additional CI to display the Multiple CIs Actions pane. To continue, click **Next**.

SLA:

- Company X SLA
 - MyBPM
 - bx1**
 - bx1 from virtual_host_1
 - bx1 from virtual_host_10
 - bx1 from virtual_host_2
 - bx1 from virtual_host_3

Item: bx1

KPIs		
KPI	Business Rule	Actions
<input type="checkbox"/> Availability	Group Average Value	
<input type="checkbox"/> Performance	Group Average Value	

Add KPI

Outage: Outage Based on Availability

Define KPIs window after applying Include Locations:

Define KPIs

Select the CIs in the SLA for which you want to set KPIs. You can define KPIs and outages for multiple CIs in a single definition. To add a KPI, click **Add KPI**. To edit a KPI, click its **Edit** button. To add or edit an outage definition, click **Add Outage** or click its **Edit** button. To define KPIs and outages for multiple CIs in a single definition, click one CI, hold down Ctrl, and click each additional CI to display the Multiple CIs Actions pane. To continue, click **Next**.

SLA:

- Company X SLA
 - MyBPM
 - bx1**

Item: bx1

KPIs		
KPI	Business Rule	Actions
<input type="checkbox"/> Availability	BPM Average Availability	
<input type="checkbox"/> Performance	BPM Percentile	
<input type="checkbox"/> Response Time	BPM Average Response Time	

Add KPI

Outage: BPM Outage

To remove Include Locations functionality from a service-based agreement:

- 1** From the Agreements Manager page (**Admin > Service Level Management > Agreements Manager**), open the Edit Agreement Wizard.
- 2** At the bottom of the Define Agreement Properties page, clear the **Include Locations** check box.
- 3** In the Select Services page, open the **SLA Fine Tuning** dialog box and select the check boxes for all required BPM Transaction from Location CIs.

Note: An alternative method is to remove the business services containing BPM Transaction from Location CIs from the agreement, save the changes, then add the business services back into the agreement.

- 4** Save and close the Edit Agreement Wizard.
- 5** Open the Advanced Agreement Options Wizard for the agreement. In the Define KPIs page, make the following changes for each Business Process Step CI:
 - Delete the Response Time KPI.
 - Change the rule for the Availability and Performance KPIs to the Group Average Value Rule.
- 6** Save your changes.

To remove Include Locations functionality from a CI-based agreement:

- 1** From the Agreements Manager page (**Admin > Service Level Management > Agreements Manager**), open the Edit Agreement Wizard.
- 2** At the bottom of the Define Agreement Properties page, clear the **Include Locations** check box.
- 3** In the Select CIs page, re-add to the agreement all relevant Business Process Steps. The right-pane tree displays the child BPM Transaction from Location CIs under each Business Process Step CI that you add again.
- 4** The updates are shown in the Define KPIs page, as follows:
 - ▶ The child BPM Transaction from Location CIs are included under the Business Process Step CIs, with all their KPIs.
 - ▶ The rule for each KPI attached to a Business Process Step CI is changed from a monitor rule to a group rule. (Service Level Management clears the selector expression defined for the Business Process Step CI.)
 - ▶ The Response Time KPI is removed from each Business Process Step CI.

Display Hidden Rule Parameters for KPIs

This task describes how to display the rule parameters that, by default, are hidden from view.

When editing KPIs in an agreement, the KPIs Definition dialog box and Add Outage dialog box display parameters used by the business rule, enabling users to modify the default parameter values or define new values, for that specific instance of the KPI. Parameters that are intended for users with an advanced knowledge of Service Level Management are not displayed. To display these hidden parameters, follow the instructions below.

To display hidden rule parameters:

- 1** Open the **Admin > Platform > Setup and Maintenance > Infrastructure Settings** page.
- 2** Select the context **Applications**, then select **Service Level Management** from the dropdown list.
- 3** Locate the **Display advanced business logic parameters** entry. Change the value to **True**.

Example

The following example shows the BPM Percentile rule before and after changing the flag to display the advanced parameters. In the second picture, the parameter **No data timeout** has been added to the displayed parameters.

The image displays two screenshots of the 'KPI Definition' interface, illustrating the configuration of the 'BPM Percentile' rule. Both screenshots show the 'KPI' section with 'Performance' selected and 'BPM Percentile' as the business rule. The parameters are as follows:

- Calculation method:** Sample Based, Time Based
- Percentile condition:** seconds
- Trimming condition:** seconds
- Ignore timed out trimming:** true, false

In the second screenshot, an additional parameter is visible:

- No data timeout:** seconds

Customize Target Names

This task describes how to change the names used for the Service Level Management targets, for example, if you want to change the name of the Breached SLA target.

To customize target names:

- 1 Open the **Admin > Platform > Setup and Maintenance > Infrastructure Settings** page.
- 2 Select the context **Applications**, then select **Service Level Management** from the dropdown list.
- 3 Locate the **Targets** entry. Modify the values in the file as required.

For example, to change the default name of **Breached SLA** to **Contravened SLA**, change:

```
<Target Color="ff3333" Default="true" Id="0"  
Name="settings.slm.targets.def.target.breached.text"/>
```

to:

```
<Target Color="ff3333" Default="true" Id="0" Name="Contravened SLA"/>
```

Agreements Manager User Interface

This section describes:

- ▶ Add Outage Dialog Box on page 76
- ▶ Advanced Agreement Options Wizard on page 78
- ▶ Agreement Wizard on page 80
- ▶ Agreements Manager Page on page 96
- ▶ Calendars Dialog Box on page 100
- ▶ KPI Definition Dialog Box on page 100
- ▶ Outage Categories Page on page 106
- ▶ Recalculation Task Dialog Box on page 107
- ▶ Select Customer Dialog Box on page 108
- ▶ Select Provider Dialog Box on page 109
- ▶ SLA Fine Tuning Dialog Box on page 109
- ▶ Targets Dialog Box on page 110
- ▶ Tracking Periods Dialog Box on page 111

Add Outage Dialog Box

Description	Enables you to define the business rule and parameters for an Outage KPI attached to a CI in an agreement. To access: In the Agreement Wizard or Advanced Agreement Options Wizard, click Add Outage in the Define KPIs page.
Included in Tasks	“Define a Service Agreement - Workflow” on page 53
Useful Links	“Status Alerts for Agreements” on page 52 For information on outage business rules and parameters, see “Outage Business Rules” on page 408.

The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A–Z)	Description
Business Rule	<p>Select the business rule that you want to use for the outage KPI. Only the rules appropriate to the CI are included in the dropdown list.</p> <p>Tooltip: For a short explanation of the business rule, place the cursor over the icon to the right of the box.</p>
Default Category	<p>Select the outage category that defines the most probable cause of an outage for this CI, or leave the category as Undefined. The outage categories can be used to filter and organize data in the outage reports.</p> <p>You can also assign an outage category after an outage occurs, in the Outage Summary report page (see “Outage Summary Report” on page 337). However, it is recommended to categorize outages during agreement creation.</p>
New Outage Category	<p>Click to open the Outage Category dialog box, where you define a name and description for the new outage category. The new outage category is automatically added to the list on the Admin > Service Level Management > Repositories > Outage Categories tab.</p>
Parameters	<p>Edit the rule parameters as required.</p> <p>Tooltip: For a short explanation of the parameters, place the cursor over the parameter name.</p>

Advanced Agreement Options Wizard

Description	<p>Enables you to fine-tune KPIs and weights for the CIs included in the service topologies in a service-based agreement.</p> <p>To access: On the Admin > Service Level Management > Agreements Manager page, click the Define advanced options for agreement button.</p>
Important Information	<ul style="list-style-type: none"> ▶ The Advanced Agreement Options Wizard is only applicable for service-based agreements. ▶ All fine-tuning functionality provided in the wizard is optional. ▶ Fine-tuning should be performed by users with advanced knowledge of CI processes.
Included in Tasks	<p>“Define a Service Agreement - Workflow” on page 53</p>
Wizard Map	<p>The Advanced Agreement Options Wizard contains: Define KPIs Page > Define Weights Page</p>
Useful Links	<p>“Building Agreements—Service-Based Process” on page 27</p>

 **Define KPIs Page**

Description	Enables you to edit the KPIs (including the Outage KPI) that were automatically assigned to the CIs in the agreement, and define new KPIs.
Important Information	<ul style="list-style-type: none"> ▶ General information about the wizard is available in “Advanced Agreement Options Wizard” on page 78. ▶ This page contains the same elements as the Define KPIs page in the Agreement Wizard. For an explanation, see “Define KPIs Page” on page 90. ▶ A maximum of 6 KPIs can be attached to a CI. ▶ The service offering attached to a CI has no influence on the thresholds of new KPIs that you define for the CI. For more information, see “Creating and Editing Service Offerings” on page 141. ▶ If Business Availability Center is integrated with HP SOA Systinet, you can drill down from certain CIs to view Web service information in HP SOA Systinet. Right-click a CI in the left pane of the Define KPIs page, and select Drill down to Systinet to open HP SOA Systinet in a new window. For more information, see “Integration with HP SOA Systinet” on page 47.
Wizard Map	The Advanced Agreement Options Wizard contains: Define KPIs Page > Define Weights Page
Useful Links	“CIs and KPIs in Agreements” on page 33

 **Define Weights Page**

Description	Enables you to define a weight for each CI to reflect its relative importance in KPI calculations.
Important Information	This page contains the same elements as the Define Weights page in the Agreement Wizard. For an explanation, see “Define Weights Page” on page 93.
Wizard Map	The Advanced Agreement Options Wizard contains: Define KPIs Page > Define Weights Page

Useful Links	“Weights for KPI Calculations” on page 41
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Agreement Wizard

Description	<p>Enables you to define and edit entities representing your service contracts: Service Level Agreements (SLAs), Operational Level Agreements (OLAs), and underpinning contracts (UCs).</p> <p>To access:</p> <ul style="list-style-type: none"> ▶ On the Admin > Service Level Management > Agreements Manager page, click New Agreement, or click the Edit button for an existing agreement. ▶ On the Admin > Service Level Management > Services Manager page, right-click a service and select Create new SLA from Business Service.
Important Information	<p>There are two modes for the Agreement Wizard:</p> <ul style="list-style-type: none"> ▶ Service-based process. Define an agreement based on business services. For details, see “Building Agreements—Service-Based Process” on page 27. Note: You can select existing business services, or define new business services during the creation of the agreement. ▶ CI-based process. Define an agreement by adding service-related CIs (this is the process used in previous versions). For details, see “Building Agreements—CI-Based Process” on page 30. <p>You select the process you want on the Welcome page (if you are creating an agreement from a business service, the wizard is automatically set to the service-based process). The pages included in the wizard depend on the process that is selected. See the appropriate Wizard Map, below.</p>
Included in Tasks	“Define a Service Agreement - Workflow” on page 53

Wizard Map - Service-Based Process	The Agreement Wizard contains: Welcome > Define Agreement Properties Page > Select Services Page > Select Service Offerings Page > Select Calendars Page > Summary Page
Wizard Map - CI-Based Process	The Agreement Wizard contains: Welcome > Define Agreement Properties Page > Select CIs Page > Define KPIs Page > Define Weights Page > Summary Page
Useful Links	“Agreements in Service Level Management” on page 23

 **Define Agreement Properties Page**

Description	Enables you to define properties for the agreement, and set criteria for data storage and calculations.
Important Information	Much of the information defined in the Define Agreement Properties page can be displayed in Service Level Management reports; for details, see “Advanced Options Dialog Box” on page 307.
Wizard Map - Service-Based Process	The Agreement Wizard contains: Welcome > Define Agreement Properties Page > Select Services Page > Select Service Offerings Page > Select Calendars Page > Summary Page
Wizard Map - CI-Based Process	The Agreement Wizard contains: Welcome > Define Agreement Properties Page > Select CIs Page > Define KPIs Page > Define Weights Page > Summary Page

The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A–Z)	Description
Agreement details	Enter details about the agreement that you want available to Service Level Management users, for example, the agreement aims, provisioning, and special information. The length of the string must not be longer than 600 characters.
Calendar(s)	(Only displayed for CI-based agreements) Click the link to open the Calendars dialog box where you select the calendars to be monitored by the agreement.
Classification	Select how you want the agreement classified: <ul style="list-style-type: none"> ▶ Formal. ▶ Informal. Default value: Formal
Creator	Displays the user name of the person that defined the agreement.
Customer	The customer associated with the agreement. Click the Select customer (ellipsis) button to open the Select Customer dialog box, where you can select a customer from the Business Units view.
Description	Enter a description of the agreement. The length of the string must not be longer than 600 characters.
End date	The date and time that the agreement stops calculating, according to the time zone selected for the agreement. To change the date, click the date link to open a calendar, and select the date and time you require. Default value: 10 years after the current date and time.
Include Locations	Select the check box to set the agreement to dynamically include new locations for Business Process Monitor transactions. For more information, see “Dynamic Update of Business Process Locations to Agreements” on page 38.

GUI Element (A–Z)	Description
Name	Define a name for the agreement. The name must be unique and must not be longer than 100 characters.
Provider	The service provider associated with the agreement. Click the Select provider (ellipsis) button to open the Select Provider dialog box, where you can select a provider from the Business Units view.
Start date	<p>The date and time from which the agreement starts calculations, according to the time zone selected for the agreement.</p> <p>To change the date, click the date link to open a calendar, and select the date and time you require. The start date cannot be more than 3 months prior to the current date. (If you need longer than 3 months, the data purging policy for Service Level Management must be changed. For details, see “Data Purging” on page 20.)</p> <p>Default value: The current date and time (to the nearest hour).</p> <p>Note: When a new agreement starts running from the current date and time, Service Level Management immediately begins calculations. However, the agreement does not have results of value until at least an hour after raw data is available in the database for calculations.</p>
Target(s)	Click the link to open the Targets dialog box, where you select the KPI statuses to be used with this agreement. KPI target objectives are only defined for these statuses, within the current agreement.
Time zone	<p>Specify the time zone for the agreement. Service Level Management calculates the data in reports according to this time zone.</p> <p>Default value: The time zone of the user.</p>

GUI Element (A–Z)	Description
Tracking period(s)	<p>Click the link to open the Tracking Periods dialog box where you select the tracking periods for compiling agreement data, and for viewing data in Service Level Management reports.</p> <p>Default value: Day, Week, Month</p>
Type	<p>Select the type of agreement:</p> <ul style="list-style-type: none"> ▶ OLA (Operational Level Agreement) ▶ SLA (Service Level Agreement) ▶ UC (Underpinning contract) <p>Default value: SLA</p> <p>For more information, see “SLAs, OLAs, and UCs” on page 33.</p>

 **Select Services Page**

Description	<p>Important: Part of service-based wizard.</p> <p>Enables you to select the business services to include in the agreement.</p>
Important Information	<p>This page is included in the Agreement Wizard if you selected the Service-based process on the Welcome page.</p>
Wizard Map - Service-Based Process	<p>The Agreement Wizard contains:</p> <p>Welcome > Define Agreement Properties Page > Select Services Page > Select Service Offerings Page > Select Calendars Page > Summary Page</p>
Useful Links	<p>“View Explorer” in <i>Model Management</i></p> <p>“Services Manager and Business Services” on page 113</p> <p>“Building Agreements—Service-Based Process” on page 27</p> <p>“CIs and KPIs in Agreements” on page 33</p>

The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A–Z)	Description
<Left pane>	<p>Enables you to select the business services on which the agreement is based. The pane displays the contents of the Business Services view, and uses View Explorer functionality.</p> <p>Add services from the Business Services view to the Selected Services list:</p> <ul style="list-style-type: none"> ▶ To add a Business Service CI to the Selected Services list, select the Business Service CI in the left pane and use the upper arrow. ▶ To remove a Business Service CI from the Selected Services list, select the service in the list and use the lower arrow. ▶ Select multiple CIs by holding down the Ctrl key while making your selections.
Create New Business Service	<p>Opens the Business Service Wizard, where you can define a new business service without exiting the Agreement Wizard. The new Business Service CI is automatically added to the Business Services view and displayed in the left pane.</p>
Selected Services pane	<p>Lists the business services included in the agreement.</p>
SLA Fine Tuning	<p>Opens the SLA Fine Tuning dialog box, where you can add and remove CIs included in the business service topologies.</p>

 **Select Service Offerings Page**

Description	Important: Part of service-based wizard. Enables you to select the service offering to be applied for each business service.
Important Information	This page is included in the Agreement Wizard if you selected the Service-based process on the Welcome page.
Wizard Map - Service-Based Process	The Agreement Wizard contains: Welcome > Define Agreement Properties Page > Select Services Page > Select Service Offerings Page > Select Calendars Page > Summary Page
Useful Links	“Service Offerings” on page 135

The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A–Z)	Description
Agreement Services	Lists the business services included in the agreement. Select a service to view its service offerings in the Service Offerings pane.
Service Offerings	Displays the service offerings associated with the selected service. Select the radio button for the service offering you want to apply to the service within the current agreement. Click a service offering name to open the relevant Service Offering Definition window, where you can view the thresholds set for each KPI (non-editable). Default value: The Default service offering is selected. Tooltip: Hold the cursor over a service offering name to display its description.

 **Select Calendars Page**

Description	<p>Important: Part of service-based wizard.</p> <p>Enables you to select the calendars that are monitored by the agreement.</p>
Important Information	<ul style="list-style-type: none"> ▶ This page is included in the Agreement Wizard if you selected the Service-based process on the Welcome page. ▶ Only calendars that are included in at least one of the selected service offerings are listed. ▶ If any of your selected calendars are not used by one or more of the included services, an information message is displayed.
Wizard Map - Service-Based Process	<p>The Agreement Wizard contains:</p> <p>Welcome > Define Agreement Properties Page > Select Services Page > Select Service Offerings Page > Select Calendars Page > Summary Page</p>
Useful Links	<p>“Calendars” on page 227</p>

 **Select CIs Page**

Description	<p>Important: Part of CI-based process wizard.</p> <p>Enables you to select configuration items (CIs) to include in the agreement, representing the services on which the agreement is based.</p>
Important Information	<ul style="list-style-type: none"> ▶ This page is included in the Agreement Wizard if you selected the CI-based process on the Welcome page. ▶ After selecting CIs, you can click Finish to move directly to the Summary page; Service Level Management applies default KPIs and weights to the selected CIs (the Automatically define default KPIs for CIs option must be selected). ▶ If you clear the Automatically define default KPIs for CIs option and move forward in the wizard, the functionality cannot be applied later for the CIs you have already added to the agreement, only for new CIs that you add.
Wizard Map - CI-Based Process	<p>The Agreement Wizard contains:</p> <p>Welcome > Define Agreement Properties Page > Select CIs Page > Define KPIs Page > Define Weights Page > Summary Page</p>
Useful Links	<p>“View Explorer” in <i>Model Management</i></p> <p>“CIs and KPIs in Agreements” on page 33</p>

The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A–Z)	Description
<Left pane>	<p>Enables you to select the CIs to include in the agreement. The pane uses View Explorer functionality. Select the view containing the required CIs from the View list, or use the Search option to search for the required CIs. (You can select CIs from more than one view to include in the agreement.)</p> <p>Add CIs from the left pane to the Selected Configuration Items list:</p> <ul style="list-style-type: none"> ▶ To add a CI to the Selected Configuration Items list, select the service in the left pane and use the upper arrow. ▶ To remove a CI from the Selected Configuration Items list, select the CI in the list and use the lower arrow. ▶ Select multiple CIs by holding down the CTRL key while making your selections. <p>If you select a parent CI, all descendants are automatically selected. (This is known as recursive selection.)</p>
Automatically define default KPIs for new CIs	<p>Directs Service Level Management to automatically assign the relevant KPI configuration (KPIs, business rules, and status thresholds, as defined in the KPI assignments) to all monitor CIs included in the agreement. The KPIs are propagated up the agreement hierarchy according to the propagations. For details about the KPI assignments and propagation, see “KPI Assignment and Propagation in Service Level Management” on page 177.</p> <p>If you clear the option, none of the new monitoring CIs that you added to the agreement are assigned default KPIs.</p>
Selected Configuration Items	Displays the CIs added to the agreement.

 **Define KPIs Page**

Description	Important: Part of CI-based process wizard. Enables you to define and edit KPIs and outage conditions for the CIs in the agreement.
Important Information	<ul style="list-style-type: none"> ▶ This page is included in the Agreement Wizard if you selected the CI-based process on the Welcome page. ▶ From this page, you can click Finish to move directly to the Summary page (in which case Service Level Management applies default weights to the CIs in the agreement). ▶ A maximum of 6 KPIs can be attached to a CI. ▶ If Business Availability Center is integrated with HP SOA Systinet, you can drill down from certain CIs to view Web service information in HP SOA Systinet. For more information, see “Integration with HP SOA Systinet” on page 47.
Wizard Map - CI-Based Process	The Agreement Wizard contains: Welcome > Define Agreement Properties Page > Select CIs Page > Define KPIs Page > Define Weights Page > Summary Page
Useful Links	<p>“CIs and KPIs in Agreements” on page 33</p> <p>“Status Alerts for Agreements” on page 52</p>

Left Pane: SLA Tree

Description	Enables you to select a CI or multiple CIs in the agreement, so that you can view and edit KPI and outage information for those CIs in the right pane.
Important Information	The left pane uses partial View Explorer functionality, enabling you to search for CIs within the agreement.
Useful Links	“View Explorer” in <i>Model Management</i>



The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A–Z)	Description
<SLA tree>	<p>Displays the hierarchy of CIs that are associated with the current agreement (according to your selections on the Select CIs page).</p> <ul style="list-style-type: none"> ▶ Select a CI to display information for that CI in the right pane. For details, see “Right Pane: Single CI Settings” on page 92. ▶ Select multiple CIs by holding down the CTRL key while making your selections. After selecting multiple CIs, the right pane changes to display the Global Settings area. For details, see “Right Pane: Global Settings” on page 93. <p>Context Menu: Right-click a CI to view menu options. For certain CIs, the menu options include Drill down to Systinet. Select this option to open HP SOA Systinet in a new window.</p>
SLA	Displays the name of the current agreement.

Right Pane: Single CI Settings

Description	Displays KPI and outage information for a single CI selected in the left pane, and enables you to add and edit KPIs and outage settings.
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The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A–Z)	Description
	Click the Delete button for a KPI or for Outage to remove the KPI from the CI; or you can remove multiple KPIs from the CI by selecting the relevant check boxes and clicking the Delete button under the KPIs list.
	Click the Edit button for a KPI or for Outage to edit the KPI rule and parameters.
Add KPI	Opens the KPI Definition dialog box, where you can define a new KPI to attach to the CI.
Add Outage	Click to open the Add Outage dialog box, where you can define parameters for the Outage KPI for the CI.
KPIs	Lists the KPIs associated with the CI, together with the Business Rule for each KPI.
Outage	Describes the outage rule that is used with the Outage KPI for the CI.

Right Pane: Global Settings

Description	Enables you to edit the KPIs and outage settings for multiple CIs. Displayed by selecting more than one CI in the left pane (hold down the CTRL key while making your selections).
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The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A–Z)	Description
Add/Replace KPI	Opens the KPI definition dialog box, where you can define a new KPI to attach to all selected CIs. If the KPI is already attached to one of the selected CIs, then the new KPI definition replaces the previous one (for example, the new KPI definition may use a different business rule than the old one).
Add/Replace Outage	Opens the Add Outage dialog box, where you can define Outage KPI parameters for all selected CIs. The defined parameters replace any previous outage definition.
Delete KPI	Opens the Delete KPI dialog box where you select the KPI to delete from all selected CIs.
Delete Outage	Click to remove the Outage KPI from all selected CIs.

Define Weights Page

Description	Important: Part of CI-based process wizard. Enables you to define a weight for each CI to reflect its relative importance in KPI calculations.
Important Information	<ul style="list-style-type: none"> ▶ This page is included in the Agreement Wizard if you selected the CI-based process on the Welcome page. ▶ This page is optional. All CIs are given a weighting of 1 by default.

Wizard Map - CI-Based Process	The Agreement Wizard contains: Welcome > Define Agreement Properties Page > Select CIs Page > Define KPIs Page > Define Weights Page > Summary Page
Useful Links	“Weights for KPI Calculations” on page 41

Left Pane: SLA Tree

Description	Select a CI in the current agreement, so that you can view and edit (in the right pane) the weights assigned to the children of that CI. For details, see “Right Pane: CI Weights Information,” below.
Important Information	The left pane uses partial View Explorer functionality, enabling you to search for CIs within the agreement.
Useful Links	“View Explorer” in <i>Model Management</i>

Right Pane: CI Weights Information

Description	Displays weights information for the children of the CI selected in the left pane.
Important Information	If you set all weights to zero, KPIs are marked with a hyphen for all calculated reports.

The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A–Z)	Description
All CIs	To assign the same weight to all the displayed CIs, enter the value in the All CIs box and click Apply .
Name	Lists the child CIs of the CI currently selected in the left pane.
Weight	Displays the weight assigned to each CI. Enter a new weight in the box. Weights can be between 0 and 100, with up to 3 digits after the decimal point.

 **Summary Page**

Description	Displays a summary of the agreement details, and enables you to start running the agreement.
Important Information	<ul style="list-style-type: none"> ▶ Use the Back button to modify the agreement details. You cannot change the wizard process used for the agreement. ▶ You can display most of the information on this page in Service Level Management reports. For details, see “Additional Values in Reports” on page 295. ▶ After creating the agreement, you must verify that users are granted permissions to work with it.
Wizard Map - Service-Based Process	The Agreement Wizard contains: Welcome > Define Agreement Properties Page > Select Services Page > Select Service Offerings Page > Select Calendars Page > Summary Page
Wizard Map - CI-Based Process	The Agreement Wizard contains: Welcome > Define Agreement Properties Page > Select CIs Page > Define KPIs Page > Define Weights Page > Summary Page
Useful Links	“Permissions for Working with Agreements” on page 50



The following element is included (unlabeled GUI elements are shown in angle brackets>):





GUI Element (A–Z)	Description
Start SLA	Select this check box for Service Level Management to begin running the agreement immediately. If you clear this check box, the agreement is at preliminary state, and you can manually start the agreement at a later time from the Agreements Manager Page.




Agreements Manager Page

Description	You use this page to create agreements or to perform actions on existing agreements. Service Level Management displays those agreements which you, the logged-in user, have permissions to change or delete. To access: Select Admin > Service Level Management > Agreements Manager
Important Information	Note for HP Software-as-a-Service users: By default, you can create up to ten agreements. To increase this number, contact HP Software-as-a-Service Support.
Included in Tasks	“Define a Service Agreement - Workflow” on page 53 “Recalculation for Agreements” on page 50
Useful Links	“Agreements in Service Level Management” on page 23

The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A–Z)	Description
 	Click the Schedule recalculation task button to open the Recalculation Task dialog box where you can schedule recalculation of the agreement. Click the Cancel scheduled recalculation task button to cancel the recalculation. For details, see “Recalculation for Agreements” on page 50. Tooltip: Displays the date and time of the last calculation for the agreement data. Service Level Management recalculates the agreement data once an hour, for the previous hour. That is, if the time is now 07:30 AM, Service Level Management recalculated the data at 7:00 AM for data that was received between 05:00 AM and 06:00 AM.

GUI Element (A-Z)	Description
	Click to begin running the agreement. You can use this button to immediately start running an agreement, even when it is set to begin running in the future.
	Click to terminate the agreement. A terminated agreement cannot be restarted.
	<p>Opens the Edit Agreement Wizard, where you can modify most agreement properties.</p> <p>Note the following:</p> <ul style="list-style-type: none"> ▶ If the agreement to be edited is not in a preliminary state, the agreement start date and time zone cannot be changed and the agreement end date can be changed only to a future date. ▶ If the changes you make to the agreement affect historical data, you must run the recalculation process.
	<p>Opens the Advanced Agreement Options Wizard, where you can modify KPIs and weights for an agreement created using the service-based process.</p> <p>Note: This button is only enabled for service-based agreements.</p>

GUI Element (A–Z)	Description
	<p>Click to clone the agreement. A copy of the agreement is added to the list of agreements, named Copy of <name>. You can then edit the details of the copy, including renaming it</p> <p>The cloned agreement inherits all the properties of the existing agreement. The creator of the new agreement is the user who cloned it.</p> <p>The start date of the clone is the present date and time. If the start and end dates of the original agreement are no longer valid (for example, the agreement terminated a week ago or the start date falls before the allowed start date of the cloned agreement), then Service Level Management sets the following default dates: The start date is the original start date or three months before the current date, and the end date is the original end date.</p> <p>Note: You can clone an agreement on condition that you are an administrator or have been given change permissions on the agreement.</p>
	<p>Click to delete the agreement. This completely removes the agreement, and all calculations for it, from Service Level Management.</p>
	<p>To perform an action on more than one agreement simultaneously, select the check boxes of the relevant agreements, and click the relevant button to start, stop, or delete the agreements.</p>
<p>Description</p>	<p>The description of the agreement. Hold the cursor over the description to view the complete text in a tooltip.</p>
<p>Name</p>	<p>The name of the agreement. For a long name, hold the cursor over the name to view it in full in a tooltip.</p>
<p>New Agreement</p>	<p>Click to open the Agreement Wizard where you define a new agreement.</p>
<p>Start date</p>	<p>The date when Service Level Management began/will begin calculating the agreement.</p> <p>Note: This date is not the agreement creation date.</p>

GUI Element (A–Z)	Description
State	<p>The current state of the agreement. Can be one of the following:</p> <ul style="list-style-type: none"> ▶ Preliminary. The agreement has not begun running. The agreement is at this state if you did not select the Start SLA check box on the Summary page of the Create Agreement Wizard. Click the Start button to start calculations for the agreement. ▶ Pending. The agreement has been started, but its start date is in the future. You can terminate a pending agreement (click the Stop button). ▶ Recalculation Process:<x>%. The agreement is in the process of being recalculated. The progress of the recalculation is shown in percentages. For details, see “Recalculation for Agreements” on page 50. ▶ Running. The agreement begins collecting data. You cannot change the start date and time zone, but you can change the end date to any future end date. That is, the end date cannot be in the past. You can terminate a running agreement (click the Stop button). ▶ Scheduled for <date and time>: The agreement is scheduled for recalculation at the displayed date and time. ▶ Terminated. The agreement finished running and no longer collects data. A terminated agreement cannot be restarted. (However, you can click the Clone button to clone a terminated agreement.) An agreement is terminated in one of two ways: By manually stopping it (clicking the Stop button), or when its end date has passed. The agreement terminates on the next hour after it is stopped. <p>Note: You can recalculate a terminated agreement, up to the termination date.</p>
Type	Whether the agreement is an SLA, OLA, or UC. For an explanation of these agreement types, see “SLAs, OLAs, and UCs” on page 33.

Calendars Dialog Box

Description	<p>Enables you to select the calendars that are monitored by the agreement.</p> <p>To access: Click the Calendars link in the Define Agreement Properties page of the Agreement Wizard.</p>
Important Information	<ul style="list-style-type: none"> ▶ The two default calendars are always included, 24x7 and Business Hours. Additional calendars are defined in the Service Level Management Administration > Repositories > Calendars tab. ▶ You can select up to three calendars per agreement.
Included in Tasks	“Define a Service Agreement - Workflow” on page 53
Useful Links	“Calendars” on page 227

KPI Definition Dialog Box

Description	<p>Enables you to define and edit KPIs and KPI objectives for CIs in agreements.</p> <p>To access: Click Add KPI or the Edit button for a KPI in the Define KPIs page of the Create Agreement Wizard or the Advanced Agreement Options Wizard.</p>
Important Information	<ul style="list-style-type: none"> ▶ The KPI definitions apply only to the KPI within the current agreement; different definitions can be applied to the same KPI defined for the same CI in a different agreement. ▶ The actual areas displayed in the KPI Definition Dialog Box vary, depending on the selected KPI and business rule.

Included in Tasks	“Define a Service Agreement - Workflow” on page 53
Useful Links	<p>“CIs and KPIs in Agreements” on page 33.</p> <p>“Workflow for Using the Service-Based Process” on page 28.</p> <p>“Workflow for Using the CI-Based Process” on page 30.</p> <p>For information on the KPIs used in Service Level Management, see “List of Service Level Management KPIs” on page 370.</p> <p>For general information on working with KPIs, see “KPI Repository” on page 367.</p>

KPI Area

The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A–Z)	Description
Business rule	<p>Select the business logic to be used for calculating the KPI value.</p> <p>Service Level Management displays only those rules that are applicable for both the KPI and the CI type (including API rule templates).</p> <p>Tooltip: Hold the pointer over the icon to the right of the box to display a short explanation of the business rule.</p>
KPI	<p>Select a KPI from the list. Service Level Management displays all KPIs that have not yet been attached to the CI.</p>
Parameters	<p>Define or edit the parameter values, as required. Parameters are generally displayed for monitor rules, and for some group rules.</p> <p>A red asterisk after a parameter name signifies that this parameter is mandatory.</p> <p>Tooltip: Hold the pointer over the icon to the left of the parameter to display a short explanation of the parameter.</p>

API Rule Definitions Area

Description	<p>When you select an API rule in the Business rule list, use this area to define the calculation logic of the API rule.</p> <p>For details, see “Rules API” on page 511.</p>
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The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A–Z)	Description
Aggregated Calculation Script	<p>Enter the aggregated KPI calculation script for the rule you are creating. For details, see “Calculating the KPI’s Aggregated Results” on page 519.</p> <p>The contents of the script depends on the rule type, as follows:</p> <ul style="list-style-type: none"> ▶ API Sample Rule. See “API Sample Rule” on page 522. ▶ API Duration-Based Rule. See “API Duration-Based Sample Rule” on page 524. <p>Note: Displayed only when you select the API Sample rule or the API Duration-Based rule in the Business rule list.</p>
KPI Calculation Script	<p>Enter the KPI calculation script for the rule you are creating, or details, see “Calculating the KPI Based on Samples” on page 518.</p> <p>The contents of the script depends on the rule type, as follows:</p> <ul style="list-style-type: none"> ▶ API Group and Sibling Rule. See “API Group and Sibling Rule” on page 514. ▶ API Sample Rule. See “API Sample Rule” on page 522. ▶ API Duration-Based Rule. See “API Duration-Based Sample Rule” on page 524. <p>Note: Displayed only when you select an API rule in the Business rule list.</p>

GUI Element (A–Z)	Description
Sample and Duration Filter Script	<p>By default, all samples and durations are valid and included in the calculations. Enter a script to exclude samples and durations from the calculation. For details, see “Filtering with the Duration-Based Sample Rule” on page 529.</p> <p>Note: Displayed only when you select the API Duration-Based rule in the Business rule list.</p>
Sample Fields	<p>Enter the names of the sample fields you want to use in the script. Separate between the sample names with a comma.</p> <p>Note: Displayed only when you select the API Sample rule or the API Duration-Based rule in the Business rule list.</p>
Sample Filter Script	<p>By default, all samples are valid and included in the calculations. Enter a script to exclude samples from the calculation. For details, see “API Sample Rule” on page 522 or “API Duration-Based Sample Rule” on page 524.</p> <p>Note: Displayed only when you select the API Sample rule or the API Duration-Based rule in the Business rule list.</p>

Objectives Area

Description	Enables you to define the objective thresholds to be used during each calendar and tracking period, for the KPI.
Important Information	<ul style="list-style-type: none"> ▶ The displayed calendars, tracking periods, and objective categories (targets) depend on the definitions for the agreement that contains the KPI. ▶ If you do not define objectives, Service Level Management still performs calculations for the agreement and Service Level Management reports include data. However, reports do not show status colors. ▶ Most KPIs that are automatically assigned to CIs have default threshold values. When you manually add a KPI to CI, you must define the threshold values. ▶ The objective thresholds must be logical; Service Level Management does not validate the entered values. ▶ For information on defining objectives for Six Sigma KPIs, see “Six Sigma for Agreements” on page 46.


The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A–Z)	Description
<Objective targets>	<p>Displayed below the Calendar table. Each row displays an objective category (target) defined for the agreement, with its corresponding status icon.</p> <p>When a timeslot(s) is selected in the Calendar table:</p> <ul style="list-style-type: none"> ▶ Select the relevant operator to use with the thresholds. ▶ Enter the required threshold value for each objective in the appropriate box. <p>Note: The units that are displayed for the objectives (for example, %) are defined by the selected business rule.</p>
Calendar	<p>Displays a table of the agreement calendars broken down by tracking periods, so that each cell represents a timeslot.</p> <p>Click the appropriate cell, then define objective values for it (below the Calendar table). After entering the values in the objective boxes, click any other cell in the Calendar table; the defined cell changes from empty to selected, and the cell's tooltip changes to Defined.</p> <p>To add the same objective values to all tracking periods of a calendar, click the calendar name, enter the objective values in the target boxes, then click the calendar again (or click any cell).</p>

Outage Categories Page

Description	<p>Lists the outage categories defined for Service Level Management and enables you to create and edit outage categories. The outage categories enable you to categorize the probable outage cause for a CI.</p> <p>To access: Select Admin > Service Level Management > Repositories > Outage Categories</p>
Important Information	<ul style="list-style-type: none"> ▶ You cannot delete an outage category. ▶ New outage categories can also be defined from the Add Outage Dialog Box described on page 76.
Useful Links	<p>“Outages in Agreements” on page 40</p>

The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A-Z)	Description
	Click to edit the outage category name or description. The new name is automatically updated in agreements that use the outage category.
New Outage Category	Click to open the Outage Category dialog box, where you define a new outage category. Enter a name and description for the new outage category.
Outage Categories table	Lists the default and user-defined outage categories.

Recalculation Task Dialog Box

Description	<p>Enables you to run the recalculation process to update the data in your agreements. You generally run recalculation tasks after making retroactive changes.</p> <p>To access: Click the Schedule recalculation task button for an agreement on the Admin > Service Level Management > Agreements Manager page.</p>
Important Information	<p>Note for HP Software-as-a-Service customers: HP Operations administers the recalculation task functionality. For information about recalculation, contact HP Software-as-a-Service Support.</p>
Useful Links	<p>“Recalculation for Agreements” on page 50</p>

The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A–Z)	Description
Recalculate from	<p>Click the date and time link to open the calendar, where you define from when the Service Level Management should recalculate the agreement.</p> <ul style="list-style-type: none"> ▶ The selected date and time must be later than the start date and time for the agreement (this is the date and time displayed by default for the Recalculate from parameter). ▶ The selected date and time should be earlier than the Last Calculation date and time (which you can view from the tooltip for the Schedule recalculation task button in the Agreements Manager page). ▶ The selected date and time cannot be more than the default recalculation period (3 months). For information on changing the default, see “Data Purging” on page 20.

GUI Element (A–Z)	Description
Schedule the task to start	<p>Click the date and time link to open the calendar, where you define when the recalculation task should start.</p> <ul style="list-style-type: none"> ▶ If you select a date and time that has already passed, the recalculation tasks starts immediately. ▶ If the recalculation date and time are in the future, the scheduling information is displayed in the State column on the Agreements Manager page.

Select Customer Dialog Box

Description	<p>Enables you to select the customer associated with the agreement from the Business Units view.</p> <p>To access: Click the Select customer button in the Create Agreement Wizard.</p>
Important Information	<ul style="list-style-type: none"> ▶ You can add customers to the Business Units view in Admin > Universal CMDB > Modeling > IT Universe Manager, by defining a new CI of type Business Unit to represent each provider. ▶ The Select Customer dialog box provides View Explorer search functionality, enabling you to search for CIs within the Business Units view.
Useful Links	<p>“Business Units for Services and Agreements” on page 32</p> <p>“View Explorer” in <i>Model Management</i></p>

Select Provider Dialog Box

Description	<p>Enables you to select the service provider associated with the agreement or business service from the Business Units view.</p> <p>To access: Click the Select provider button in the Create Agreement Wizard or the Create Business Service Wizard.</p>
Important Information	<ul style="list-style-type: none"> ▶ You can add service providers to the Business Units view in Admin > Universal CMDB > Modeling > IT Universe Manager, by defining a new CI of type Business Unit to represent each provider. ▶ The Select Provider dialog box provides View Explorer search functionality, enabling you to search for CIs within the Business Units view.
Useful Links	<p>“Business Units for Services and Agreements” on page 32</p> <p>“View Explorer” in <i>Model Management</i></p>

SLA Fine Tuning Dialog Box

Description	<p>Enables you to fine tune the service topology included in the agreement.</p> <p>To access: Click the SLA Fine Tuning link in the Select Services page of the Create Agreement Wizard.</p>
Important Information	<p>At least one leaf (monitoring) CI must be selected for each business service branch.</p>
Included in Tasks	<p>“Define Business Services for Agreements” on page 115</p>
Useful Links	<p>“Changing the Business Service Topology” on page 114</p>

The following element is included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A–Z)	Description
<Service topology tree>	<p>Displays the service topology for each selected business service. Each CI with a selected check box is included in the agreement.</p> <p>You can select or clear the check box for each CI to include it in, or remove it from, the current agreement. When you clear the check box for a CI, all its subtree is removed (even if it has selected children).</p> <p>Example: If a new monitor CI is added to a service, the new CI is not automatically included in an agreement containing the service—you must open the agreement for editing and select the check box for the new CI in the SLA Fine Tuning dialog box, to include the CI in the agreement.</p>

Targets Dialog Box

Description	<p>Enables you to select the target (objective) categories associated with the agreement. Only the selected targets are available for defining KPI objectives, for the KPIs within this agreement.</p> <p>To access: Click the Targets link in the Define Agreement Properties page of the Agreement Wizard.</p>
Important Information	<ul style="list-style-type: none"> ▶ The Exceeded and Failed targets are always selected by default. ▶ You can change the default names used for the targets. For details, see “Customize Target Names” on page 75.
Included in Tasks	“Define a Service Agreement - Workflow” on page 53

Tracking Periods Dialog Box

Description	<p>Enables you to select the tracking periods that are used to track agreement status and compile data. The tracking periods define the granularity for calculation in Service Level Management reports. For example, data can be compiled per hour or per week.</p> <p>To access: Click the Tracking periods link in the Define Agreement Properties page of the Agreement Wizard.</p>
Important Information	<ul style="list-style-type: none"> ▶ Select SLA period to enable users to view reports that include data from the start date of the agreement until the present. ▶ You must select at least one tracking period (not including SLA period).
Included in Tasks	“Define a Service Agreement - Workflow” on page 53
Useful Links	“Tracking Range and Granularity in Service Level Management” on page 291

Troubleshooting and Limitations

- ▶ **Profile database missing:** Some pages in Service Level Management cannot be displayed until a default profile database is set. For details on setting profile databases, see Database Administration in *Platform Administration*.
- ▶ **Data continuity issue:** If a transaction in an HP Virtual User Generator script is renamed, Business Availability Center considers it as a new transaction. A new BPM Transaction from Location CI is created in the CMDB using the new name, and the CI with the old transaction name is removed after it stops receiving samples. If the CI is included in a Service Level Management agreement, you do not see historical data for it (from before the transaction name change).

3

Services Manager and Business Services

This chapter describes the administration of business services in Service Level Management.

This chapter includes:

Concepts

- ▶ Business Services - Overview on page 114
- ▶ Changing the Business Service Topology on page 114

Tasks

- ▶ Define Business Services for Agreements on page 115
- ▶ Update Business Service Topology in an Agreement on page 121

Reference

- ▶ Services Manager User Interface on page 122

Business Services - Overview

Services Manager (**Admin > Service Level Management > Services Manager**) provides service-level management for the IT services provided by, or consumed by, your organization, such as project management services, application development for departmental applications, Web development services, publishing services, and so forth.

You document each IT service as a Business Service CI, creating a catalog of IT services for internal and external customers in the CMDB. A Business Service CI has a service topology that supports the business service, created by mapping to the CI the key business processes, applications, and infrastructure that the service depends on.

The monitoring metrics collected for the CIs in the service topology propagate up to the Business Service CI, enabling you to see the impact of performance problems on the service, and to analyze trends and performance objectives from a service level.

The Business Service CIs are used as the foundation for service-based agreements, working with defined service offering packages to measure compliance with service level management goals.

For a workflow for working with Business Service CIs, see “Define Business Services for Agreements” on page 115.

Changing the Business Service Topology

After creating a Business Service CI, you can change the service topology by editing the CI from the Services Manager page. In addition, the service topology is dynamically updated when changes are made in the CMDB, for example, if a monitor is added to, or removed from, a service-related branch.

When a CI is removed from the service topology, this change is automatically updated to the agreements containing the Business Service CI. However, CIs that are added to the service topology are not automatically added to agreements, and you must update the agreement to include the change. For details, see “Update Business Service Topology in an Agreement” on page 121.

Define Business Services for Agreements

This task describes how to define a business service to use in a service-based agreement, and a service provider to associate with the service.

This task includes the following steps:

- “Define a Service Provider - Optional” on page 115
- “Customize Custom Global Service Offerings” on page 116
- “Define a Business Service CI” on page 116
- “Add the Business Service CI to an Agreement” on page 120
- “View Business Service and Provider Information in Application Tabs” on page 121

1 Define a Service Provider - Optional

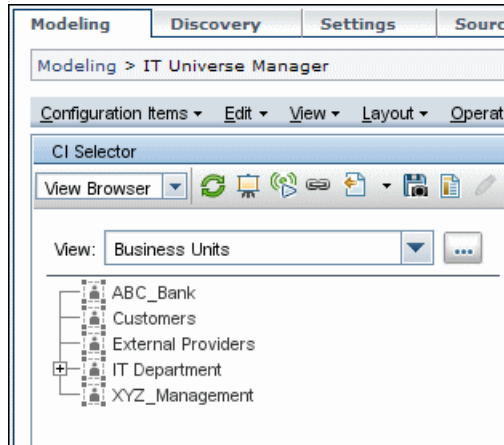
If you want to associate a service provider with your business service, you must define a Business Unit CI representing the provider. For details about service providers, see “Business Units for Services and Agreements” on page 32.

The Business Unit CIs are added to the Business Units view in **Admin > Universal CMDB > Modeling > IT Universe Manager**. For details on the user interface for adding CIs, see “New CI Dialog Box”.

The provider is associated with the business service in the Business Service Wizard (described later in the task).

Example

An administrator defines two Business Unit CIs to represent two service providers for his organization: XYZ_Management is a provider of services within the organization, and ABC_Bank is an external service provider. The Business Unit CIs are added to the Business Units view:



2 Customize Custom Global Service Offerings

If you want to associate global service offerings with the Business Service CI, you should check the preconfigured global service offerings and modify them as required. You can also define new custom global service offerings. For details on the user interface, see “Global Service Offerings Page” on page 156.

3 Define a Business Service CI

Open the **Admin > Service Level Management > Services Manager** page, and display either the Service Measurements or Business Services view in the View Explorer pane.

Right-click the view name or the **Services** CI, to add the new service as a root node, or right-click an existing Business Service CI to add the service as the child of that CI. Select **Create new Business Service** to open the Business Service Wizard, and fill in the required information. For details on the wizard user interface, see “Business Service Wizard” on page 123.

Example

A new Business Service CI, `My_Service`, is defined in the Business Service Wizard. In the Define Business Service Properties Page, the Business Unit CI `XYZ_Management` is selected as the **Provider**:

Business Service Wizard

Welcome

► **Define Business Service Properties**

Add Service Related CIs

Add Service Offerings

Summary

Define Business Service Properties

Enter details about the business service. The name must be unique.

Name: *

Description:

Provision:

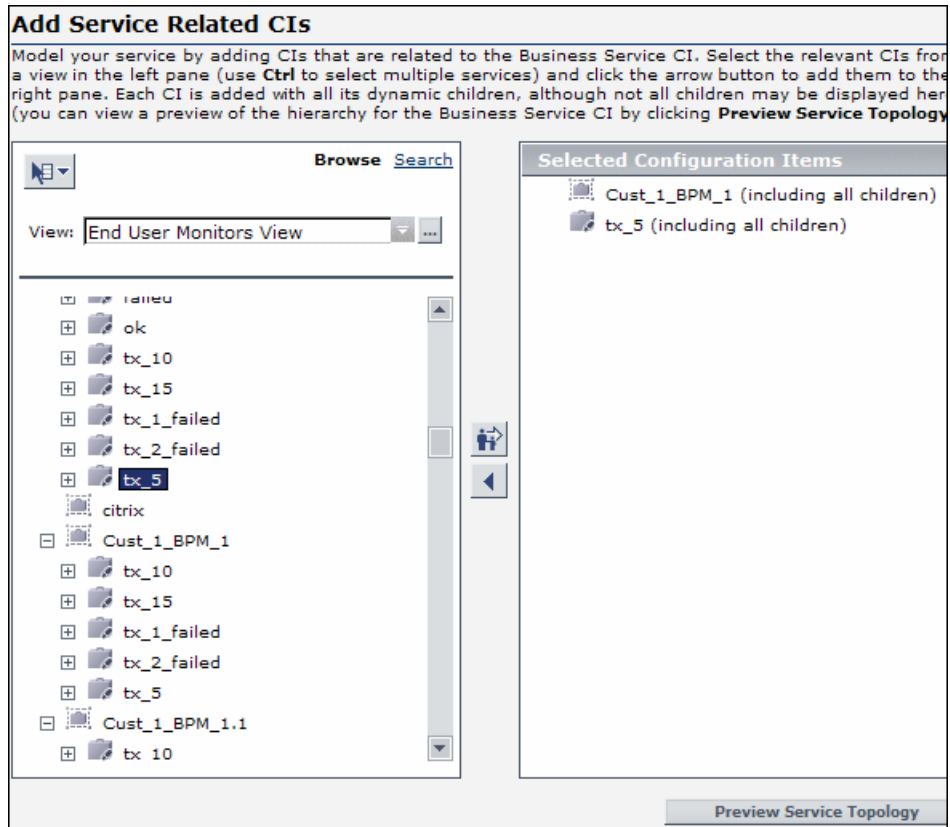
Country:

State:

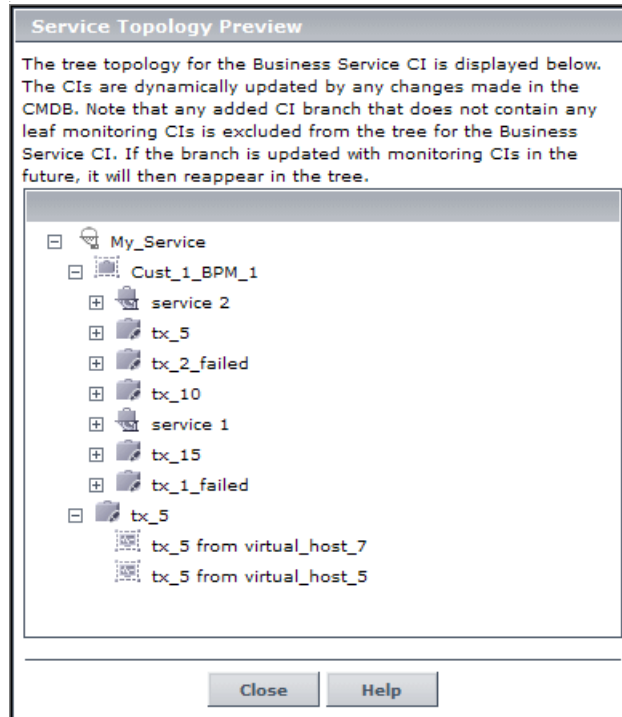
City:

Provider: ... [\(Clear\)](#)

The service-related CIs that monitor the machines and processes related to the service are added in the Add Service Related CIs Page, by selecting the relevant views and dragging the CIs to the right pane. All descendants of the dragged CIs are added automatically to the service, as long as each branch contains at least one monitoring CI.



In the Service Topology Preview Dialog Box (opened by clicking the **Preview Service Topology** button), the branch under the CI **labm1** is not included, because the branch did not contain any monitoring CIs (the **labm1** CI is automatically reactivated if monitoring CIs are added to the branch):



In the Add Service Offerings Page, the custom global service offering Grade1 is attached to the Business Service CI, along with a private service offering My_service_offering. These service offerings are available for the My_Service Business Service CI when it is added to an agreement.

Add Service Offerings

A service offering defines the expected level of service for a business service. You define here the possible service offerings that can be used when your business service is offered within an agreement.

Use the **Attach Global** button to associate global service offerings with the service, or create private service offerings for the service using either the **New Offering** button (to define a new private service offering) or the **Copy from Global** button (to define a private service offering based on one of the global offerings).

	Service Offering Name	Description	Type▲	Actions
<input type="checkbox"/>	Grade1		Global	  
<input type="checkbox"/>	My_service_offering		Private	  

4 Add the Business Service CI to an Agreement

You add the Business Service CI to an agreement using the Agreement Wizard, opened in one of the following ways:

- ▶ On the Services Manager page, right-click the CI and select **Create new SLA from Business Service**.
- ▶ On the Agreements Manager page, click **New Agreement** or open an existing agreement for editing.

For details on how to perform this task, see “Define a Service Agreement - Workflow” on page 53.

5 View Business Service and Provider Information in Application Tabs

You can access reports to view data for the business service from the SLA Reports tab, and view provider information in the **Service Providers** view in the SLA Management tab (both tabs accessible from **Applications > Service Level Management**).

Update Business Service Topology in an Agreement

CI's that are added to the service topology of a Business Service CI are not automatically added to the agreements that contain the Business Service CI. You must update each agreement, as described below.

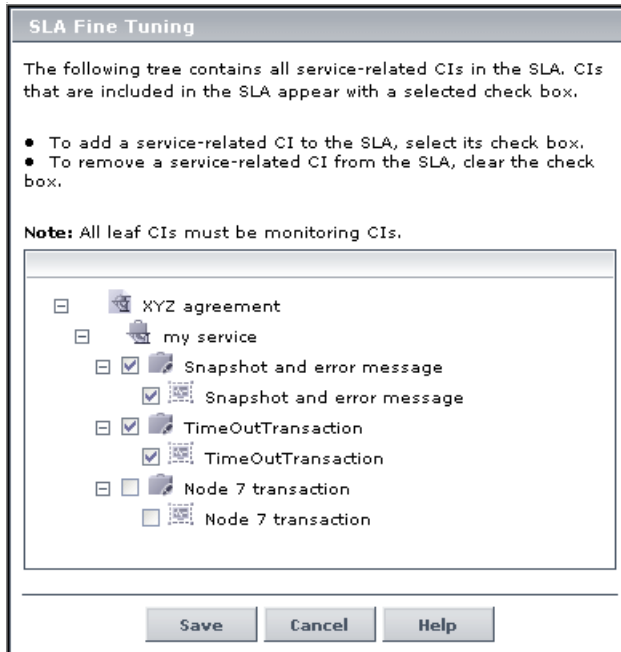
Note: If CI's are removed from the service topology, this change is automatically updated to the agreements containing the Business Service CI.

For more information on service topology changes, see “Changing the Business Service Topology” on page 114.

To update a service-based agreement with an addition to the service topology:

- 1** In the **Service Level Management > Agreements Manager** page, open the Edit Agreement Wizard.
- 2** In the Select Services page, click **SLA Fine Tuning**. In the SLA Fine Tuning dialog box, select the check boxes for the added CI's.

In the example below, the CI Node 7 transaction has been added to the service topology for the CI my service, but is not included in the XYZ agreement as long as the check box for the CI is not selected.



- 3 Save the changes in the SLA Fine Tuning dialog box, and save the Edit Agreement Wizard, to update the new CIs to the agreement.
- 4 Run recalculation for the agreement. For details, see “Recalculation for Agreements” on page 50.

Services Manager User Interface

This section describes:

- ▶ Business Service Wizard on page 123
- ▶ Service Topology Preview Dialog Box on page 129
- ▶ Services Manager Page on page 130

Business Service Wizard

Description	<p>Enables you to define a Business Service CI representing a service provided by or consumed by your organization.</p> <p>To access: In Services Manager, click the Create new Business Service link, or select Create new Business Service or Edit Business Service from the context menu for a CI.</p>
Included in Tasks	“Define Business Services for Agreements” on page 115
Wizard Map	<p>The Create Business Service Wizard contains:</p> <p>Welcome Page > Define Business Service Properties Page > Add Service Related CIs Page > Add Service Offerings Page > Summary Page</p>
Useful Links	“View Explorer” in <i>Model Management</i>

Define Business Service Properties Page

Description	Enables you to define properties for the Business Service CI.
Important Information	The Description, Provider, and Provision information are displayed for the business service in the Service Level Management Application > SLA Management page.
Wizard Map	<p>The Business Service Wizard contains:</p> <p>Welcome Page > Define Business Service Properties Page > Add Service Related CIs Page > Add Service Offerings Page > Summary Page</p>

The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A-Z)	Description
City	Select the city name. The list is automatically updated when you select a country (or state, when applicable).
Country	Select the country relevant to the business service. You must define a geographical location—country, state (if applicable), and city—if you want the Business Service CI to appear on the Geographical Map in Dashboard. For more information, see “Geographical Maps” in <i>Using Dashboard</i> .
Description	Enter a description for the business service. The length of the string must not be longer than 600 characters.
Name	Enter a unique name for the business service, up to 50 characters.
Provider	Defines the service provider. Click the ellipsis button (...) to open the Select Provider dialog box, where you can select the relevant provider from the Business Units view.
Provision	Enter information on the provision used by the service. The length of the string must not be longer than 600 characters.
State	Select the name of the state, when applicable for the selected country. The list is automatically updated when you select a country.

 **Add Service Related CIs Page**

Description	Enables you to define the service topology that supports the Business Service CI.
Important Information	<ul style="list-style-type: none"> ▶ You do not need to define the service-related CIs when defining the Business Service CI; the service-related CIs can be added at a later time. ▶ If service-related CIs are added to the service topology for a Business Service CI <i>after</i> it has been included in an agreement, you must edit the agreement, if you want the agreement to include the new CIs. For details, see “Update Business Service Topology in an Agreement” on page 121.
Wizard Map	The Business Service Wizard contains: Welcome Page > Define Business Service Properties Page > Add Service Related CIs Page > Add Service Offerings Page > Summary Page
Useful Links	<p>“View Explorer” in <i>Model Management</i></p> <p>“Changing the Business Service Topology” on page 114</p>




The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A-Z)	Description
<Left pane>	<p>Enables you to select service-related CIs to add to the business service. The pane uses View Explorer functionality.</p> <p>Select the view containing the required CIs from the View list (or use the Search option to search for the required CIs), then add CIs from the left pane to the Selected Configuration Items list (this adds them to the service topology):</p> <ul style="list-style-type: none"> ▶ To add a CI to the service topology, select the CI in the left pane and use the upper arrow. The CI is added to the Selected Configuration Items list. ▶ To remove a CI from the service topology, select the CI in the list and use the lower arrow. ▶ Select multiple CIs by holding down the CTRL key while making your selections. <p>If you select a parent CI, all descendants for that CI are automatically selected (recursive selection.)</p> <p>You can select CIs from more than one view to include in the service topology.</p>
Preview Service Topology	<p>Click to open the Service Topology Preview window, where you can view the full topology for the business service.</p>
Selected Configuration Items	<p>Lists the CIs added under the business service. If the added CI has child CIs, the child CIs are added to the topology, but are not displayed in the Selected Configuration Items list; you can view them in the full topology by clicking Preview Service Topology.</p>

Add Service Offerings Page

Description	Enables you to associate global and private service offerings with the business service.
Wizard Map	The Business Service Wizard contains: Welcome Page > Define Business Service Properties Page > Add Service Related CIs Page > Add Service Offerings Page > Summary Page
Included in Tasks	“Create and Apply Service Offerings for Service-Based Agreements” on page 145
Useful Links	“Service Offerings” on page 135

The following elements are included in the Service Offerings table (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A–Z)	Description
	Opens the Service Offering Definition dialog box for a private service offering, enabling you to edit the service offering details.
	Opens the Service Offering Definition dialog box for a global service offering in read-only format. You edit details for a global service offering on the Admin > Service Level Management > Repositories > Global Service Offerings page.
	Clones the service offering. The copy of the service offering is added to the table with the name "Copy of <name>". You can then edit the copy as required and rename it.
Actions	The action buttons for a service offering associated with this business service.

GUI Element (A–Z)	Description
Attach Global	<p>Click to open the Add Global Service Offerings dialog box, where you select global service offerings to attach to the business service. (The dialog box includes only those global service offerings that have not yet been attached to the service.)</p> <p>Note: The Default global service offering is not included in the dialog box, because the Default offering is automatically available within agreements to use with every business service.</p>
Copy from Global	<p>Click to open the Add Global Service Offerings dialog box, where you select the global service offerings that you want to clone. (The dialog box includes only those global service offerings that have not been assigned using the Attach Global option.)</p> <p>The copies of the selected global service offerings are added to the table as Private type, and with the name "Copy of <name>." You can then edit the copy as required and rename it.</p>
Description	Description of the service offering.
New Offering	Click to open the Service Offering Definition dialog box, where you define a new private service offering for the business service.
Service Offering Name	Name of a service offering associated with this business service.
Type	Displays Global if the service offering is one of the Global Service Offerings and Private if the service offering is specific to this business service.

 **Service Topology Preview Dialog Box**

Description	<p>Provides a preview of the CI topology for a business service.</p> <p>To access: Click the Preview Service Topology button in the Add Service Related CIs Page of the Business Service Wizard.</p>
Important Information	<ul style="list-style-type: none"> ▶ The topology for each CI included in the tree is automatically updated when a change is made in the CMDB, for example, when a new child CI is added. ▶ Each branch in the tree for the business service should contain at least one monitoring CI (a CI that is receiving monitoring data from the samples on the bus). If a branch does not contain a monitoring CI, then the contents of the branch are hidden in the Service Topology Preview dialog box, and none of the CIs in the branch are attached to the created business service. <p>If a monitoring CI is later added to the branch in the CMDB, then the entire branch is automatically reactivated in the business service tree.</p>
Included in Tasks	“Define Business Services for Agreements” on page 115
Useful Links	<p>“Changing the Business Service Topology” on page 114</p> <p>“The Role of Monitor CIs in a View” in <i>Model Management</i></p>

Services Manager Page

Description	Enables you to manage your business services and associated service offerings. To access: Click Admin > Service Level Management > Services Manager
Important Information	Each business service can be linked to a service provider. For details, see “Business Units for Services and Agreements” on page 32.
Included in Tasks	“Define Business Services for Agreements” on page 115
Useful Links	“Business Services - Overview” on page 114 “View Explorer” in <i>Model Management</i>





The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A–Z)	Description
Left Pane: View Explorer	<p>In View Explorer for Services Manager, you can display one of the following views:</p> <ul style="list-style-type: none"> ▶ Business Services view. Contains the Business Service CIs. ▶ Service Measurements view. Contains the Business Service CIs, and the service-related CIs that are part of the topology for each Business Service CI. <p>Context Menu: Right-click a CI to view menu options. For details on the context menu items see “CI Context Menu” on page 134.</p>
Right Pane: Services Manager	<p>The right pane displays the following information, according to your current selection in View Explorer:</p> <ul style="list-style-type: none"> ▶ When the view name is selected, the right pane displays introductory information about Services Manager, and links to IT Universe Manager and the Global Service Offerings page. It also includes a link to create a new business service. ▶ When a Business Service CI is selected, the right pane displays information for that Business Service CI, and the service offerings associated with the service. You can define new service offerings for the service, or attach global service offerings. For more information, see “Business Service Information Area” on page 132. ▶ When a service-related CI is selected (in the branch for a Business Service CI in the Service Measurements view), the right pane displays properties for the CI (in read-only format). For information on the properties, see “Configuration Item Properties Dialog Box” in <i>Model Management</i>.

Business Service Information Area

Description	When a business service is selected in View Explorer, the right pane displays the name, description, and provider for the business service; and displays the Service Offerings table, containing the service offerings associated with the business service.
Included in Tasks	“Create and Apply Service Offerings for Service-Based Agreements” on page 145
Useful Links	“Service Offerings” on page 135

The following elements are included in the Service Offerings table (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A-Z)	Description
	Opens the Service Offering Definition dialog box for a private service offering, enabling you to edit the service offering details.
	Opens the Service Offering Definition dialog box for a global service offering in read-only format. You edit details for a global service offering on the Admin > Service Level Management > Repositories > Global Service Offerings page.
	Click the Copy button to copy the service offering (or to copy multiple service offerings, if you select the check boxes for multiple entries in the Service Offerings table, and use the Copy button below the table) to the clipboard. You can then attach the service offerings to another business service, by using the Paste button.
	Clones the service offering. The copy of the service offering is added to the table with the name "Copy of <name>". You can then edit the copy as required and rename it.
Actions	The action buttons for a service offering associated with this business service.

GUI Element (A–Z)	Description
Attach Global	<p>Click to open the Add Global Service Offerings dialog box, where you select global service offerings to assign to the business service. (Only global service offerings that have not yet been assigned to the service are listed.)</p> <p>Note: The Default global service offering is not included in the dialog box, because the Default offering is automatically available within agreements to use with every business service.</p>
Copy from Global	<p>Click to open the Add Global Service Offerings dialog box, where you select the global service offerings that you want to clone. (The dialog box includes only those global service offerings that have not been assigned using the Attach Global option.)</p> <p>The copies of the selected global service offerings are added to the table as Private type, and with the name "Copy of <name>." You can then edit the copy as required and rename it.</p>
Description	Description of the service offering.
Name	Name of a service offering associated with this business service.
New Offering	Click to open the Service Offering Definition dialog box, where you define a new private service offering for the business service.
Paste	Click the Paste button to add the service offerings on the clipboard to the Service Offerings table, as type Private . Service offerings can be copied to the clipboard from any Service Offerings table.
Type	Displays Global if the service offering is one of the Global Service Offerings and Private if the service offering is specific to this business service.

CI Context Menu

A context menu is displayed when you right-click an item in the View Explorer pane. The options included in each context menu vary, depending on the selected item.

Menu Items (A–Z)	Description
Create new Business Service	Opens the Business Service Wizard, where you create a new Business Service CI. Note: You can add a new Business Service CI as a child of an existing Business Service CI; the new CI is included in the service-related CIs that form the foundation of the original service.
Create new SLA from Business Service	Opens the Agreement Wizard in service-based mode, where you can create a new agreement that includes the selected Business Service CI.
Delete Business Service	Deletes the Business Service CI. Note: This also deletes the Business Service CI from any agreement in which it is included.
Edit Business Service	Opens the Business Service Wizard in edit mode, where you can modify the business service details.
Properties	Displays the General Properties window for the CI.
Show Related CIs	Displays related CIs in the View Explorer search pane.

4

Service Offerings

This chapter describes service offerings in Service Level Management.

This chapter includes:

Concepts

- ▶ Service Offerings - Overview on page 136
- ▶ Global Service Offerings on page 138
- ▶ Creating and Editing Service Offerings on page 141
- ▶ Editing KPIs in the Advanced Agreement Options Wizard on page 144

Tasks

- ▶ Create and Apply Service Offerings for Service-Based Agreements on page 145

Reference

- ▶ Service Offerings User Interface on page 156

Troubleshooting and Limitations on page 159

Service Offerings - Overview

A service offering is a set of defined objective thresholds for multiple KPIs, designed for use in service-based agreements. Applying service offerings to Business Service CIs avoids the need to edit individually each KPI attached to each service-related CI (in order to assign your required objectives to the KPIs).

Service Level Management uses the service offering defined for each Business Service CI, in conjunction with the relevant KPI assignment groups, to determine the final package of KPIs, business rules, and objective thresholds that are automatically defined for the CIs in a service-based agreement. (For details on KPI assignment groups, see “KPI Assignment and Propagation in Service Level Management” on page 177.)

Service Level Management provides predefined service offerings to use with your Business Service CIs, called global service offerings. You can edit the global service offerings or define new custom global service offerings on the Global Service Offering page. For details, see “Global Service Offerings Page” on page 156.

You can also define a private service offering for a specific Business Service CI. The private service offering can be based on an existing global or private service offering, or you can define a totally new service offering. See “Service Offering Definition Dialog Box” on page 157.

For information and examples on the task flow for defining and applying an offering, see “Create and Apply Service Offerings for Service-Based Agreements” on page 145.

Working With Service Offerings in Agreements

You can associate multiple service offerings (global or private) with each Business Service CI; then, when you create your service-based agreements, you define one of the associated service offerings to be used in the agreement for each Business Service CI. (See “Create and Apply Service Offerings for Service-Based Agreements” on page 145.)

The objectives specified in the service offering are applied to that business service and all its children, within the confines of the agreement. Only calendars included in the selected service offerings are available for use with the agreement.

The following also applies:

- ▶ If you do not associate any service offerings with a Business Service CI, then the **Default** global service offering is automatically used for that Business Service CI in an agreement.
- ▶ If there is more than one instance of a service-based CI in the agreement, attached to different Business Service CIs with different service offerings, then the KPI definitions are merged, so that all relevant KPIs are attached to all instances of the service-based CI. The most stringent threshold values from the attached service offerings are used for each KPI.
- ▶ Only the targets (for example, **Exceeded** and **Failed**) defined for the agreement on the Define Agreement Properties page are included for each attached KPI, regardless of which target thresholds are defined in the service offering.

Note:

- ▶ Service offerings are only used for service-based agreements. If you want to use service offerings with your legacy CI-based agreements, you must redefine the agreements in the Create Agreement Wizard, using the service-based process.
 - ▶ User-defined service offerings (private or global) can be edited and deleted by any user, even if the service offering is associated with a CI within an agreement.
-

Global Service Offerings

Global service offerings are service offerings that are available to associate with any Business Service CI. You associate a global service offering with a Business Service CI in the Business Service Wizard (see “Add Service Offerings Page” on page 127), or in the Services Manager page when a Business Service CI is selected (see “Services Manager Page” on page 130).

Once a global service offering is associated with a Business Service CI, it is added to the Service Offerings table for the CI as type **Global**. It can be opened from the table for viewing, but cannot be edited.

You can view and edit all available global service offerings in the Global Service Offerings page. This page lists the preconfigured global service offerings provided by Service Level Management, and any user-defined global service offerings that your organization adds.

This section contains the following topics:

- ▶ “Preconfigured Global Service Offerings” on page 138
- ▶ “User-Defined Global Service Offerings” on page 140

Preconfigured Global Service Offerings

The **Admin > Service Level Management > Repositories > Global Service Offerings** page lists the four out-of-the-box global service offerings provided by Service Level Management. These contain preconfigured objectives for different quality of service.

The preconfigured service offerings are:

- ▶ **Platinum.** This service offering is designed for mission-critical applications, and systems that must function more or less continuously. Thresholds are set at high levels, for example, the threshold for **Exceeded** status for the **Availability, Performance, and System** KPIs is set at **> 99%**.
- ▶ **Gold.** This service offering is designed for business-critical applications. Thresholds are set at moderately high levels, for example, the threshold for **Exceeded** status for the **Availability, Performance, and System** KPIs is set at **> 97%**.

- **Silver.** This service offering is designed for infrastructure with less demanding availability requirements, such as test and development servers or non-mission critical websites. Thresholds are set at a moderate levels, for example, the threshold for **Exceeded** status for the **Availability**, **Performance**, and **System** KPIs is set at > **95%**.
- **Default.** This service offering is designed to provide standard thresholds for any service without a service offering.

When you add a business service to an agreement, the Default service offering is automatically available as one of the service offering options, together with any other service offerings you associated with the business service in the Services Manager. If there are no associated service offerings, the Default service offering is automatically used for that service.

The Default service offering cannot be associated with a business service from the Services Manager (as it is associated by default with every service).

Each preconfigured service offering covers the two default calendars, **24x7** and **Business Hours**, and has thresholds defined for every target (objective) for the following KPIs:

- Application
- Availability
- MTBF (Mean Time Between Failures)
- MTBSI (Mean Time Between System Incidents)
- MTTR (Mean Time to Repair)
- Performance
- Response Time
- System
- System Availability
- User Availability
- User Performance

To view and edit a preconfigured global service offering, click the appropriate **Edit** button on the Global Service Offering page to open the Service Offering Definition dialog box (described in “Service Offering Definition Dialog Box” on page 157). You can edit thresholds for the KPIs, and you can add additional calendars, but you cannot add additional KPIs.

You cannot delete the preconfigured global service offerings from Service Level Management.

User-Defined Global Service Offerings

You can define your own custom global service offerings, that are then available for associating with any Business Service CI. These service offerings can include any of the Service Level Management KPIs.

You can create a custom global service offering by cloning and editing an existing global service offering; or you can create a totally new one by clicking **New Global Offering**. See “Global Service Offerings Page” on page 156.

For details on defining service offerings, see “Creating and Editing Service Offerings” on page 141.

Note: Any custom global service offerings that you add can be edited and deleted by any user, even if the service offering is associated with a CI within an agreement.

Creating and Editing Service Offerings

You can create and edit service offerings (global and private) for business services in the following locations:

- ▶ In the Global Service Offerings Page. For details, see “Global Service Offerings Page” on page 156.
- ▶ In the Add Service Offerings Page of the Business Service Wizard. For details, see “Add Service Offerings Page” on page 127.
- ▶ In the Services Manager Page, when a Business Service CI is selected. For details, see “Services Manager Page” on page 130.

You can create an entirely new service offering, or use an existing service offering as the base by cloning, or copying and pasting, an existing service offering.

For a task flow and examples for working with service offerings, see “Create and Apply Service Offerings for Service-Based Agreements” on page 145.

This section contains the following topics:

- ▶ “Defining Service Offering Values” on page 141
- ▶ “Modifying Details for Assigned Service Offerings” on page 143

Defining Service Offering Values

You define and edit service offerings details in the Service Offering Definition dialog box. For details on the user interface, see “Service Offering Definition Dialog Box” on page 157.

In the Service Offering Definition dialog box, you select the calendars to be included in the service offering. The list includes all calendars that are defined on the **Admin > Service Level Management > Repositories > Calendars** page.

In the objective tables, you define a threshold for each KPI target during each timeslot. If required, you have the option to select the timeslots for a whole calendar or for the whole table, and so define the values for all in one operation. There is no validation of the entered values, so you must check that they are logically ordered for the selected operator.

It is not mandatory to define a value for every KPI target:

- If you do not define any target values for a KPI during a timeslot, then in the reports the KPI displays the numerical value for the timeslot, but the status is **No Data** (blue).
- If there is at least one target value defined for a timeslot, then in the reports only the defined targets are used for KPI status during that timeslot (regardless of which targets are included in the agreement).

For example, if for a particular timeslot and KPI there is a value defined for **Exceeded**, and all other targets are left undefined, then for that timeslot in the reports the KPI only has two possible statuses, **Exceeded** or **Failed**.

In the following example, there are no threshold values defined for the **Performance** KPI in the **24x7/Day** timeslot:

Objectives Definition

Set thresholds for KPI targets within each time period. You do not have to define a value for time slot or KPI target.

Calendar(s): 24x7, Business Hours

Select all table

Calendar	Hour	Day	Week	Month	Quarter	Year	SLA per
24x7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Business Hours	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

	Unit	Operator	Exceeded	Met	Minor Breached	Breached	Failed
Availability	%	>	95.0	90.0	85.0	80.0	Otherwis
Performance	%	>					Otherwis

This service offering is assigned to a Business Service CI in an agreement that includes all targets and all calendars. In the SLAs Summary report for the agreement, a daily status result is shown for the Performance KPI within the Business Hours calendar, but there is no status for the 24x7 calendar:

SLAs Summary 7/30/07 12:00 AM - 8/2/07 12:00 AM

View: Every:

SLAs: [IT-eBusiness SLA 2 \(Clear All\)](#)

Primary grouping: KPI: Performance

Secondary grouping: [Calendar: All \(Clear All\)](#)

SLAs	24x7	Business Hours	24x7
IT-eBusiness SLA 2	33.333	33.333	

Modifying Details for Assigned Service Offerings

You may need to make changes to both custom and preconfigured service offerings as a result of changes made elsewhere in Service Level Management, and you may need to make these changes after the service offering is used in an agreement. For example:

- If you add new calendars to Service Level Management, you must add definitions for the calendars to the relevant service offerings.
- If you add new KPIs in the repositories, and you want the KPIs to be assigned to service-related CIs, you must add the new KPIs to both the relevant KPI Assignment groups (see “Manage KPI Assignment Groups” on page 200) and to the relevant service offerings.
- If you want to remove a KPI from service-related CIs, you can remove the KPI from the relevant service offerings.
- You may want to change the threshold values used for a KPI by changing the values in the service offerings.

Changes you make to the service offerings are not automatically updated to the agreements where the service offerings are applied:

- ▶ If you added a calendar to the service offering, you can apply the change as follows: Open the relevant Edit Agreement Wizard, then save it. (This process also updates the agreement with any changes made in the service topology.)
- ▶ If you made any other sort of change to the service offering, you can apply the change as follows: Open the relevant Edit Agreement Wizard, select a different service offering, and save. Then open the relevant Edit Agreement Wizard again, select the required service offering, and save. (This process overwrites any manual changes you made to the Agreement in the Advanced Agreement Options Wizard.)

Editing KPIs in the Advanced Agreement Options Wizard

In the Define KPIs page of the Advanced Agreement Options Wizard, you can select a CI to see the KPIs added by the service offering. (See “Advanced Agreement Options Wizard” on page 78.)

You can perform the following actions in the wizard, to fine tune the KPIs included in the agreement:

- ▶ Attach additional KPIs to any CI included in the agreement.

In the Advanced Agreement Options Wizard, you can manually attach KPIs and rules to a CI, within the limitations of the assignment definitions in the Service Level Management Repositories—this can include KPIs that are not defined for the CI in the relevant KPI assignment group, and are not included in the service offering.

- Edit the rule, parameter, or thresholds for any KPI.

The service offerings and KPI assignment definitions that are applied automatically within service-based agreements, are not used for KPIs added manually in the Advanced Agreement Options Wizard.

For example, the objective thresholds defined for the System KPI in a service offering are not applied when that KPI is manually attached to a CI using the Advanced Agreement Options Wizard.

- Delete any KPI added to a CI.

Create and Apply Service Offerings for Service-Based Agreements

This task describes how to create and associate service offerings with a Business Service CI, and to apply service offerings in agreements.

Note: If you need custom calendars for your organization, it is recommended that you define these before creating and editing service offerings (though you can also add them to the service offerings later).

This task includes the following steps:

- “Customize Global Service Offerings” on page 146
- “Create and Associate Service Offerings with a Business Service” on page 146
- “Add the Business Service CI to an Agreement” on page 149
- “Select a Service Offering for the CI” on page 150
- “Select Calendars for the Agreement” on page 151
- “Fine Tune KPI Assignment” on page 152
- “View Results in Reports” on page 155

1 Customize Global Service Offerings

Edit the preconfigured global service offerings according to the requirements of your organization, and define custom ones. For details on the user interface, see “Global Service Offerings Page” on page 156.

For general information on defining and editing service offerings, see “Creating and Editing Service Offerings” on page 141.

2 Create and Associate Service Offerings with a Business Service

Associate global service offerings with the Business Service CI, and/or define private service offerings for the Business Service CI. You do this in one of the following locations:

- ▶ In the Add Service Offerings Page of the Business Service Wizard. For details, see “Add Service Offerings Page” on page 127.
- ▶ In the Services Manager Page, when the Business Service CI is selected. For details, see “Services Manager Page” on page 130.

Use the following methods:

- ▶ **Attach Global.** Click this button to associate a global service offering with the CI.
- ▶ **Copy from Global.** Click this button to clone a global service offering and use it as a base for a private service offering for the business service.
- ▶ **New Offering.** Click this button to define a new private service offering for the business service.
- ▶ **Clone.** Click this button to clone one of the service offerings associated with the business service, and use it as a base for a private service offering for the business service.
- ▶ **Copy/Paste.** Use these buttons to copy to the clipboard a service offering defined for a business service, and then associate it with another business service. (This option is not available in the Business Service Wizard.)

You define and edit service offering definitions in the Service Offering Definition dialog box. For details on the user interface, see “Service Offering Definition Dialog Box” on page 157.

For general information on defining and editing service offerings, see “Creating and Editing Service Offerings” on page 141.

Example

A new custom service offering, Offering_level1, is defined for Business Service CI My_service, with values for three calendars (24x7, Business Hours, Custom_calendar) and for four KPIs (Availability, Performance, Response Time, System Availability). In the following picture, the Custom_calendar link is selected in order to define values for all Custom_calendar timeslots in one operation:

Service Offering Definition

Name: * Offering_level1
 Description:

Objectives Definition
 Set thresholds for KPI targets within each time period. You do not have to define a value for every time slot or KPI target.
 Calendar(s): 24x7, Business Hours, Custom_calendar

Select all table

Calendar	Hour	Day	Week	Month	Quarter	Year	SLA period
24x7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Business Hours	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Custom_calendar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

	Unit	Operator	Exceeded	Met	Minor Breached	Breached	Failed	Action
Response Time	seconds	<	7.0	8.0	10.0	12.0	Otherwise	X
Availability	%	>	99.0	97.0	95.0	85.0	Otherwise	X
System Availability	%	>	99.0	97.0	95.0	85.0	Otherwise	X
Performance	%	>	99.0	97.0	95.0	85.0	Otherwise	X

In addition to the custom service offering, two global service offerings (Platinum, Custom_global) are selected to associate with the Business Service CI:

Add Global Service Offerings

The table below displays the available global service offerings for the selected business service. Select the relevant check boxes and click OK to attach the global service offerings to the service.
(The global service offerings are managed from the **Repositories > Global Service Offerings** page.)

Name	Description
<input checked="" type="checkbox"/> Custom_global	
<input type="checkbox"/> Gold	Designed for business-critical applications.
<input checked="" type="checkbox"/> Platinum	Designed for mission-critical applications and systems that can never go down.
<input type="checkbox"/> Silver	Designed to meet the needs for infrastructure with less demanding availability requirements, such as test and development servers or non-mission critical websites.

All associated service offerings are listed in the Service Offerings area for My_Service:

Agreements Manager
Services Manager
Downtime Events
KPI Assignments
Re...

View: Business Serv

- Business Services
- Online Banking
- My_service

My_service

Name: My_service
Description:
Provider: None

Service Offerings

Name	Description	Type	Actions
<input type="checkbox"/> Offering_level1			
<input type="checkbox"/> Platinum	Designed for mission-critical applications and systems th...	Global	
<input type="checkbox"/> Custom_global		Global	

3 Add the Business Service CI to an Agreement

Include the Business Service CI in a service-based agreement.

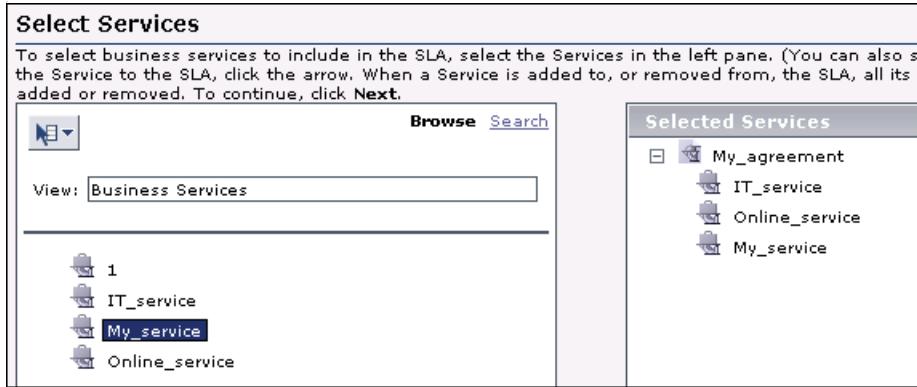
You define an agreement in the Agreement Wizard. For task details, see “Define a Service Agreement - Workflow” on page 53.

Example

A new agreement, My_agreement, is created in the Create Agreement Wizard. The agreement has tracking periods Day and Week, and targets Exceeded, Met, Minor Breached, Failed.

Define Agreement Properties	
Enter details about the SLA. The name of the SLA must be unique across all SLAs. To edit calendars, tracking periods, or targets, click the link. To continue, click Next .	
Name: *	<input type="text" value="My_agreement"/>
Description:	<input type="text"/>
Agreement Details:	<input type="text"/>
Start Date: *	6/18/07 2:00 PM
End Date: *	6/20/17 2:00 PM
Time zone: *	<input type="text" value="America/New_York"/>
Type:	<input type="text" value="SLA"/>
Classification:	<input type="text" value="Formal"/>
Creator:	administrator
Customer:	<input type="text" value="none"/> ... (Clear)
Provider:	<input type="text" value="none"/> ... (Clear)
Tracking period(s):	Day, Week
Target(s):	Exceeded, Met, Minor Breached, Failed

On the Select Services page, the Business Service CIs My_service, IT_service, and Online_service are included in the agreement.

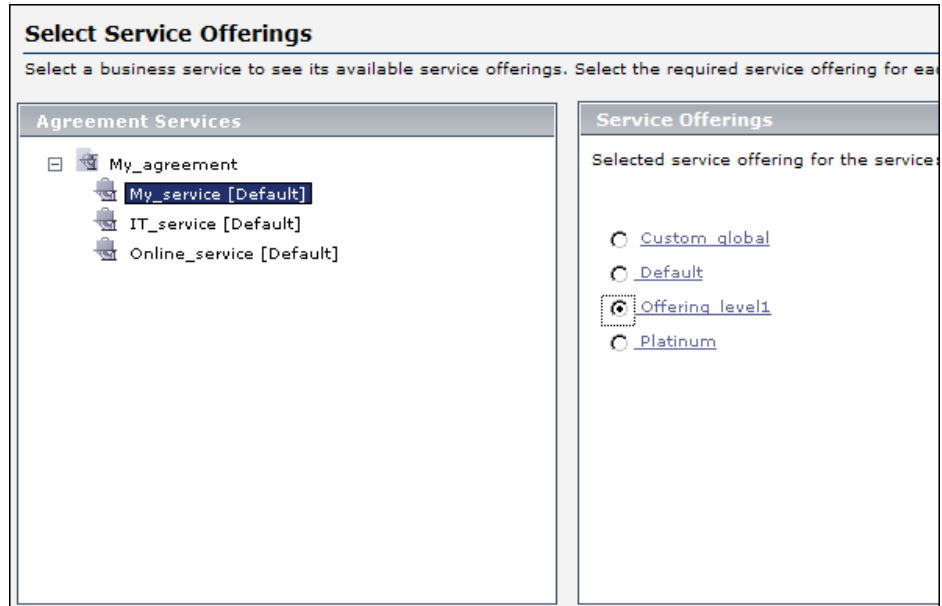


4 Select a Service Offering for the CI

In the Select Service Offerings page of the Agreement Wizard (see “Select Service Offerings Page” on page 86), select the Business Service CI in the left pane, then in the right pane select the service offering that you want to be applied to the CI and its children for the current agreement.

Example

In the Select Service Offerings page of the new agreement, `Offering_level1` is selected as the service offering to use with the `My_service` Business Service CI and all its children, within this agreement.



5 Select Calendars for the Agreement

The Select Calendars page of the Agreement Wizard lists the calendars that are included in all selected service offerings. Select the calendars you want to apply for the current agreement (up to three).

Note: Any calendar that is not selected is ignored for all KPIs, with the result that the KPIs have no results for that calendar.

Example

The 24x7 calendar is not required for My_agreement, and is therefore not selected on the Calendars page.

Calendars		
Select Calendars		
	Calendar Name	Service Name
<input checked="" type="checkbox"/>	Business Hours	IT_service , My_service
<input type="checkbox"/>	24x7	IT_service , My_service
<input checked="" type="checkbox"/>	Custom_calendar	My_service
<input checked="" type="checkbox"/>	Compound T1	Online_service

6 Fine Tune KPI Assignment

If required, after defining a service-based agreement, you can check KPI assignment (as determined by the service offering and the KPI assignment groups), and fine tune KPI details, in the Advanced Agreement Options Wizard.

For details on fine tuning KPI assignment, see “Editing KPIs in the Advanced Agreement Options Wizard” on page 144.

For details on the wizard user interface, see “Advanced Agreement Options Wizard” on page 78.

Example

The Define KPIs page of the Advanced Agreement Options Wizard displays the KPIs assigned to the My_service CI and its CI children, using the assignment rules and the definitions in Offering_level1:

Define KPIs

Select the CIs in the SLA for which you want to set KPIs. You can define KPIs and outages for multiple CIs in a single definition. To add a KPI, click **Add KPI**. To edit a KPI, click its **Edit** button. To add or edit an outage, click its **Edit** button. To define KPIs and outages for multiple CIs in a single definition, click each additional CI to display the Global Settings pane. To continue, click **Next**.

SLA:

- My_agreement
 - IT_service
 - My_service
 - BillPay_MakePayment
 - BillPay_MakePayment
 - BillPay_Service

Item: BillPay_MakePayment

KPI	Business
<input type="checkbox"/> Availability	BPM Ave
<input type="checkbox"/> Performance	BPM Per
<input type="checkbox"/> Response Time	BPM Ave Time

The KPI Definition dialog box for a KPI (opened by clicking the **Edit** button for the KPI) displays the threshold values defined in `Offering_level1`. However, only the calendars, tracking periods, and targets that are defined for the agreement (`My_agreement`) are included for the KPI:

KPI Definition

KPI

KPI: Response Time

Business rule: BPM Average Response Time

Parameters:

Calculation method: Sample Based Time Based

Trimming condition: seconds

Ignore timed out trimming: true false

Objectives

To add an objective, click a cell, enter the objective values, then click the cell again (or click a cell). To add an objective to all periods of a calendar, click a calendar, enter the objective values, then click the calendar again (or click a cell).

Calendar	Day	Week
Compound TI	<input type="checkbox"/>	<input type="checkbox"/>
Custom calendar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Business Hours	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

<input checked="" type="checkbox"/> Exceeded	<	<input type="text" value="7.0"/>	seconds
<input checked="" type="checkbox"/> Met	<	<input type="text" value="8.0"/>	seconds
<input checked="" type="checkbox"/> Minor Breached	<	<input type="text" value="10.0"/>	seconds
<input checked="" type="checkbox"/> Failed	Otherwise		

7 View Results in Reports

The data for the agreement is viewed in the Service Level Management reports. For general information on this topic, see “Service Level Management Reports - Overview” on page 276.

Example

The **Applications > Service Level Management > SLA Reports > CI Summary** report, generated for CI BillPay_MakePayment in SLA My_agreement, displays results for the KPIs assigned to the CI.

The calendar Compound_TI is included in the report because it is defined for the agreement; however, it shows status **No Objectives Defined** because the calendar is not included in Offering_level1, the service offering defined for this CI.

CI Summary 6/20/07 12:00 AM - 6/21/07 12:00 AM America/New_York								
View: Last Day								
CI: BillPay_MakePayment (SLA: My_agreement)								
Primary grouping: KPI		KPI: All (Clear All)						
Secondary grouping: Calendar		Calendar: All (Clear All)						
CI	Availability (%)			Performance (%)			Response Time	
	Business Hours	Compound TI	Custom_calendar	Business Hours	Compound TI	Custom_calendar	Business Hours	Compound TI
BillPay_MakePayment	100,000	100,000	100,000	100,000	100,000	100,000	0.961	0

Service Offerings User Interface




This section describes:

- ▶ Global Service Offerings Page on page 156
- ▶ Service Offering Definition Dialog Box on page 157

Global Service Offerings Page

Description	Enables you to manage the global service offerings, used to set service offerings for multiple business services. To access: Select Admin > Service Level Management > Repositories > Global Service Offerings
Important Information	The Global Service Offerings page includes four preconfigured global service offerings: Default, Gold, Platinum, Silver . You cannot delete these service offerings.
Included in Tasks	“Create and Apply Service Offerings for Service-Based Agreements” on page 145
Useful Links	“Global Service Offerings” on page 138

The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A-Z)	Description
	Opens the Service Offering Definition dialog box, where you can edit the global service offering details.
	Clones the global service offering. The copy of the global service offering is added to the table with the name "Copy of <name>". You can then edit the copy as required and rename it.
	Deletes the global service offering. Note: This service offering is applied by default for all business services.

GUI Element (A–Z)	Description
Description	The description defined for the global service offering. Hold the cursor over the description to view the complete text in a tooltip.
Name	The global service offering name.
New Global Offering	Click to open the Service Offering Definition dialog box, where you define a new global service offering.

Service Offering Definition Dialog Box

Description	<p>Enables you to create a service offering to be used with business services. Each service offering defines the objective thresholds to be used during each calendar and tracking period, for KPIs associated with the Business Service CI.</p> <p>To access:</p> <ul style="list-style-type: none"> ▶ Click the New or Edit button in the Service Offerings area/Global Service Offerings area displayed in the Admin > Service Level Management > Services Manager tab. ▶ Click the Create New button in the Select Service Offerings page of the Agreement Wizard.
Important Information	The objective thresholds must be logical; Service Level Management does not validate the entered values.
Included in Tasks	“Create and Apply Service Offerings for Service-Based Agreements” on page 145
Useful Links	<p>“Service Offerings” on page 135</p> <p>“Creating and Editing Service Offerings” on page 141</p>

The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A-Z)	Description
<Calendar table>	<p>Upper table in the Objectives Definition area. Displays a row for each selected calendar, and a column for each tracking period, so that each cell represents a timeslot. Click the appropriate cell to define objective threshold values for it. After entering the values in the KPIs table, click any other cell; the defined cell changes from empty to selected, and the cell's tooltip changes to Defined.</p> <p>To add the same objective values to all tracking periods of a calendar, click the calendar name, enter the objective target values in the target boxes, then click the calendar again (or click any cell).</p>
<KPIs table>	<p>Lower table in the Objectives Definition area. Displays a row for each KPI associated with this service offering, and a column for each of the KPI targets. When a calendar/tracking period cell is selected, you can define the threshold for each target of each KPI (together with the relevant operator).</p> <p>Availability and Performance KPIs are included in the table by default (but can be removed).</p>
Calendar(s)	<p>Displays the calendars for which this service offering can apply. Click the link to modify the selections.</p> <p>Default values: 24x7, Business Hours</p>
Description	<p>Enter a description of the service offering.</p>
Name	<p>Enter a name for the service offering. The name must not be longer than 100 characters.</p>
Objectives Definition area	<p>Area for defining the service offering objectives. You select time periods in the Calendar table, and define objective thresholds for KPIs during the selected time periods in the KPIs table.</p>

GUI Element (A–Z)	Description
Select all table	Click to select all timeslots in the Calendar table.
Select KPI to add	Select a KPI from the dropdown list to add to the KPIs table, then click Add KPI .

Troubleshooting and Limitations

- ▶ The objective thresholds entered in the Service Offering Definition dialog box must be logical for the operator, and ordered logically; Service Level Management does not validate the entered values.
- ▶ After making changes to a service offering that is in use with an agreement, you must run a recalculation task if you want the changes to be reflected in the previously aggregated data for the reports. For details, see “Recalculation Task Dialog Box” on page 107.

5

Downtime Events

This chapter describes main concepts for downtime events.

This chapter includes:

Concepts

- ▶ Downtime Events - Overview on page 162
- ▶ Retroactive Events on page 163

Tasks

- ▶ Define Downtime Events - Use-Case Scenarios on page 163

Reference

- ▶ Downtime Events User Interface on page 169

Downtime Events - Overview

The Downtime Events page enables you to schedule periods of downtime and other events that affect data in agreements, so that the relevant periods are shown with Downtime status in Service Level Management reports. You can create events only for existing agreements.

You define an event for a specific agreement or for all agreements. You can define BPM and SLA events. You use BPM events when adding an event affecting Business Process Monitor data in agreements, and SLA events when adding an event that affects specific agreements. You can define an event retroactively and you can define a recurring event.

For details on defining a downtime event, see “Downtime Event Schedule Dialog Box” on page 171.

For examples of event definitions, see “Define Downtime Events - Use-Case Scenarios” on page 163.

Note:

- ▶ Service Level Management reports show downtime events defined for a specific agreement and for all agreements. If the Downtime Event Description is displayed for an event defined for all agreements, each of which has a different time zone, the event’s date and time may not be relevant for all the agreements.
- ▶ The maximum duration for an event (not including a one-time event) is 23 hours and 59 minutes.
- ▶ The granularity of downtime events is defined by the granularity of the SLA calculation cycle. This is 5 minutes (by default).

For details, about events for running agreements, see “Retroactive Events” on page 163.

Retroactive Events

If a downtime event is defined for an agreement after the agreement has started running, the event affects only the data received after the event is defined. To have the event affect data retroactively, Service Level Management must recalculate the agreement. For details, see “Recalculation for Agreements” on page 50.

For example, if you change the event frequency, data may now be included in reports that was previously excluded. Once the changes are saved, any generated reports include the updated event.

Define Downtime Events - Use-Case Scenarios

The following scenarios give use-case examples for downtime events running on different schedules.

- “Once” on page 164
- “Daily” on page 165
- “Weekly” on page 167
- “Monthly” on page 168
- “Yearly” on page 169

1 Once

Every morning the VP of eBusiness looks through the previous day's SLAs Summary reports. One morning, she realizes that due to maintenance in the Springfield office, the Web applications server had been down for three hours and all Business Process Monitor CIs from that location have failed. She needs to define a retroactive downtime event and adjust the reports to reflect the downtime.

- ▶ She accesses the Downtime Events tab and creates a new Business Process Monitor event by clicking the **New BPM Event** button.
- ▶ She enters a name and description for the downtime. She leaves the **Exclude data reported** check box selected.

Event Schedule General Properties	
Name:	<input type="text" value="SPRWEB04 down"/>
Description:	<input type="text" value="Web appl server down - txs failed"/>
<input checked="" type="checkbox"/> Exclude data reported during event (use this to remove scheduled maintenance periods from the report)	

- ▶ In the Scheduling section, she chooses the **Once** option and enters the start date, time, and duration of the server downtime.

Scheduling
<input checked="" type="radio"/> Once <input type="radio"/> Daily <input type="radio"/> Weekly <input type="radio"/> Monthly <input type="radio"/> Yearly
Duration and Recurrence range:
Start date: 6/23/05 3:20 AM
<input type="radio"/> End time: 6/23/05 12:26 AM
<input checked="" type="radio"/> Event duration: <input type="text" value="0"/> day(s), <input type="text" value="03"/> hours, <input type="text" value="00"/> minutes.
Note: Dates are specified according to the user timezone which is set to America/Los_Angeles

- ▶ In the Event Schedule Action section, she selects one of the SLAs that cover the Springfield office contracts (she must create an event for each SLA).

Event Schedule Action
SLA: <input type="text" value="Springfield finance server"/>
CI Filter: Please select

- ▶ She clicks **CI Filter** to select the SLA.

- She selects the relevant SLA and then clicks **CI Filter** to select the Springfield location.
- She saves the event.
- She recalculates the SLA over the relevant period of time.
- She next accesses the SLAs Summary page, generates reports for relevant KPIs, and verifies that during this time, the data is ignored and the status of the SLA is **downtime**.

2 Daily

The operations support engineer is told that a server's graphics card is being upgraded for a new map application. A slowdown of the server may be expected for three days beginning today, while the R&D team tests the new application. To minimize problems, the team will be running tests for one hour each day. All SLAs that monitor this server will be affected, and he should define an event to appear in reports to explain the slowdown.

- He defines a new SLA event, and enters a name and detailed description for the downtime (each SLA needs its own event). He clears the **Exclude data reported** check box.

Event Schedule General Properties	
Name:	<input type="text" value="SPRWEB04"/>
Description:	<input type="text" value="running map appl"/>
<input type="checkbox"/> Exclude data reported during event (use this to remove scheduled maintenance periods from the report)	

- ▶ In the Scheduling section, he chooses the **Daily** option and enters a frequency of 1 day (the default). In the Duration and Recurrence range, he chooses today's date and time from the calendar. He chooses a duration of 1 hour, and the end date and time for three days' hence.

The screenshot shows a 'Scheduling' window with the following configuration:

- Frequency: Daily (Other options: Once, Weekly, Monthly, Yearly)
- Frequency: Every day(s)
- Duration and Recurrence range:
 - Start date: [7/26/05 2:26 PM](#)
 - Event duration: hours, minutes.
 - No end date
 - End time: [7/29/05 2:26 PM](#)
- Note: Dates are specified according to the user time zone which is set to GMT

- ▶ In the Event Schedule Action section, he selects the relevant SLA, clicks **CI Filter**, and selects the server.
- ▶ He saves the event.
- ▶ He accesses the CIs Over Time report (**Applications > Service Level Management > SLA Reports > CIs Over Time**) and clicks the Advanced Options link. He selects the **Downtime Event Description** check box.
- ▶ The next day he generates a CIs Over Time report and verifies that the event appears in the report.

Note: The operations support engineer has no need to recalculate the SLA, since the **Exclude data reported** check box was not selected.

3 Weekly

There are two possible scenarios for defining a Weekly frequency.

One possibility is you define an event to occur once every two weeks (2) with a start date of Tuesday, 7 October. For calculation purposes, the first week runs from Monday, 6 October till Monday, 13 October.

October		2008				
M	T	W	T	F	S	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Time: AM 2 00

OK Revert Current Cancel

- If the event is to occur every second Tuesday, the first occurrence of the event is on Tuesday, 7 October.
- If the event is to occur every second Thursday, the first occurrence of the event is on Thursday, 9 October.
- If the event is to occur every second Monday, the first occurrence of the event is on Monday, 20 October.

Another possibility is you define a recurring event that occurs every second week on a Friday and a Sunday, to begin on a Saturday. In the first week, the event runs only on Sunday. In the second week, the event does not run. In the third week, the event runs on Friday and on Sunday, and so on.

4 Monthly

Every other month, on the fourth Sunday, the Web server for the Finance department in the Unionville office is scheduled for maintenance at 1:00 AM for two hours. Therefore, the IT Ops director must define a recurring event and exclude all CIs from reports during this period.

- ▶ The IT Ops director accesses the Events tab and creates a new Business Process Monitor event by clicking the **New BPM Event** button.
- ▶ He enters a name and description for the maintenance. He leaves the **Exclude data reported** check box selected.

Event Schedule General Properties

Name:

Description:

Exclude data reported during event (use this to remove scheduled maintenance periods from the report)

- ▶ In the Scheduling section, he chooses the **Monthly** option. In the Frequency section, he selects **Fourth, Sunday**, and **2**. He enters the start date and time and enters **2** for the event duration. He leaves **No end date** selected.

Scheduling

Once
 Daily
 Weekly
 Monthly
 Yearly

Frequency

Day of every month(s)

The of every month(s)

Last day of every month(s)

Duration and Recurrence range:

Start date: [6/23/05 4:52 AM](#)

Event duration: hours, minutes.

No end date

End time: [6/23/05 4:52 AM](#)

Note: Dates are specified according to the user timezone which is set to America/Los_Angeles

- In the Event Schedule Action section, he selects one of the SLAs that cover the Unionville office contracts (each SLA needs its own event).

Event Schedule Action

SLA:

[CI Filter:](#) Please select

Note that this event will affect results also for the descendants of the selected CIs.

- He selects the SLA CI from the CI filter, so that all descendants are also affected.
- He saves the event.

5 Yearly

The VP of eBusiness likes to be prepared. Each July 5th, her boss sends her an email requesting network statistics for the previous day to compare to their targets. This year, on July 3rd, she prepares an SLA to measure network performance and creates an event that will run throughout the next 24 hours.

In the Scheduling section, she chooses the **Yearly** option. In the Frequency section, she selects **Every, July, and 4**. She enters the start date and time of July 4th at 12:00 AM and sets an event duration of 23 hours and 59 minutes. She leaves **No end date** selected.

On July 5th she is able to reply immediately to her boss's email with the network performance results compared to the target objectives.

Downtime Events User Interface

This section describes:

- CI Selection Dialog Box on page 170
- Downtime Event Schedule Dialog Box on page 171
- Downtime Events Page on page 175

CI Selection Dialog Box

Description	<p>Enables you to select the CIs that are affected by a downtime or scheduled event.</p> <p>To access: In the Downtime Event Schedule dialog box (accessed from the Downtime Events page), click CI Filter.</p>
Important Information	<p>The CI Selection dialog box is used for defining either:</p> <ul style="list-style-type: none"> ▶ CIs in agreements, if you are defining an SLA event. ▶ Business Process Monitor-related CIs, if you are defining a BPM event. <p>The descendants of the selected CIs are also affected by this event (including descendants added in the future to a CI).</p>
Useful Links	<p>“Downtime Events - Overview” on page 162</p> <p>The dialog box uses View Explorer functionality. For details, see “View Explorer” in <i>Model Management</i>.</p>

The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A–Z)	Description
SLA	<p>Displayed if you are defining an SLA event. The SLA box displays the name of the SLA (agreement) you selected in the Downtime Event Schedule dialog box. Select the check boxes for the relevant CIs in the SLA tree.</p>
View	<p>Displayed if you are defining a BPM event. Select one of the End User views from the View list, then select the check boxes for the relevant CIs in the view tree.</p> <p>Note: You can select any of the displayed CIs, even if they are not currently included in the agreement (so they are affected by the event if they are added to the agreement in the future).</p>

Downtime Event Schedule Dialog Box

Description	<p>Enables you to define downtime and other scheduled events affecting agreements, so that the relevant periods are shown with Downtime status in Service Level Management reports.</p> <p>To access: In the Downtime Events page, click New BPM Event or New SLA Event, or click the Edit button for an event.</p>
Important Information	<ul style="list-style-type: none"> ▶ The Downtime Event Schedule dialog box is used for defining both BPM events and SLA events. ▶ When editing a defined event, you cannot change the defined agreement or CIs. ▶ If a new event is to affect agreement data retroactively, or if you make changes to an event that retroactively affects agreement data, you must recalculate the relevant agreements. For more information, see “Retroactive Events” on page 163.
Included in Tasks	“Define a Service Agreement - Workflow” on page 53
Useful Links	<p>“Downtime Events - Overview” on page 162</p> <p>For examples of event definitions, see “Define Downtime Events - Use-Case Scenarios” on page 163</p>

Event Schedule General Properties Area

The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A–Z)	Description
Description	Enter a description of the event. You can view the event description in reports for the event. For details, see “Advanced Options Dialog Box” on page 307.
Exclude data reported during event	Select the check box to exclude data such as scheduled maintenance periods.
Name	Enter the name of the event.

Scheduling Area

Description	Enables you to schedule the time periods during which data is affected. You can define a one-time event (Once) or a recurring event (Daily, Weekly, Monthly, or Yearly)
Important Information	<ul style="list-style-type: none"> ▶ Dates are specified according to the user’s time zone. ▶ The specific elements displayed in this area depend on the schedule type you select.

The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A–Z)	Description
<Schedule type>	<p>Select the schedule type for the event: Either a one-time event (Once) or a recurring event (Daily, Weekly, Monthly, or Yearly).</p> <p>Your selection determines the parameters displayed in the rest of the Scheduling area.</p>
End time	<p>Select the End time radio button if you want to define an end date for the event, or to limit the event recurrences to end at a certain date.</p> <p>Click the date link to set the required end date and time.</p> <p>Default value: Current date and time.</p>
Event duration	<p>For a one-time event, select the Event duration radio button if you want to define a fixed duration for the event, and set the duration in days, hours, and minutes.</p> <p>For a recurring event, set the duration of the event in hours and minutes.</p>
Frequency	<p>In the Frequency area, you define how often a recurring event is to occur. For example, you can set the event to occur:</p> <ul style="list-style-type: none"> ▶ For a Daily event—every 5th day. ▶ For a Weekly event—every 3 weeks, on Tuesday and Friday. ▶ For a Monthly event—on the 10th day of every month, or the first Sunday of every fourth month, or the last day of every sixth month. ▶ For a Yearly event— every July 4th, or the last Friday in December every year.

GUI Element (A–Z)	Description
No end date	Select the No end date radio button if you want the recurring event to be open-ended (unbound).
Start date	Click the link to set the required start date and time. Default value: Current date and time.

Event Schedule Action Area



The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A–Z)	Description
CI Filter	<p>Displays the specific CIs that are impacted by the event.</p> <p>Click the CI Filter link to open the CI Selection dialog box, where you select the CIs that are impacted by the event.</p> <p>Note: When defining an SLA event for All SLAs, the CI Filter parameter is hidden; you do not select specific CIs, the event is recursively defined for all CIs in each SLA.</p>
SLA	<p>Select the SLA (agreement) from the list that the event affects. If the event affects all existing SLAs and any future SLAs, select All SLAs (you must have edit permissions for all SLAs).</p> <p>Default value: All SLAs</p> <p>Note:</p> <ul style="list-style-type: none"> ▶ The SLA list includes only those SLAs that you have permissions to change. ▶ If you select All SLAs, and the SLAs have different time zones, then the downtime event date and time displayed in reports may not be relevant for all the SLAs.

Downtime Events Page

Description	Lists the defined events, and enables you to create, edit, or delete events. To access: Select Admin > Service Level Management > Downtime Events
Included in Tasks	“Define a Service Agreement - Workflow” on page 53
Useful Links	“Downtime Events” on page 161

The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A–Z)	Description
	Click to open the Downtime Event Schedule dialog box for the event, in edit mode.
	Click to delete the selected event or events. Any reports generated from this time reflect the deletion. Service Level Management also updates the Audit Log. For details, see “The Audit Log” on page 20. Note: If you delete a retroactive event for which you previously ran a recalculation of agreement data, then you must recalculate again after deleting the event, if you want to remove the impact of the event on the agreement data. For details, see “Recalculation for Agreements” on page 50.
End Date	The date and time when the event terminates. If there is no end date, the event is considered unbound .
Impact	Displays the agreements and CIs that are affected by the event.
Name	The name defined for the event.
New BPM Event	Click to open the Downtime Event Schedule dialog box, where you can define a new event affecting Business Process Monitor data.

GUI Element (A-Z)	Description
New SLA Event	Click to open the Downtime Event Schedule dialog box, where you can define a new event affecting agreements.
Scheduling	The frequency of the event: <ul style="list-style-type: none"> ▶ Single. This is an event scheduled to occur one-time. ▶ Recurring. This is an event scheduled for repeated occurrence (daily, weekly, monthly, or yearly).
Start Date	The date and time when the event begins.
Type	The type of event, either BPM or SLA .

6

KPI Assignment and Propagation in Service Level Management

This chapter describes how to manage KPI Assignments and KPI Propagations.

This chapter includes:

Concepts

- ▶ KPI Assignment Management Overview on page 178
- ▶ Assignments on page 179
- ▶ Propagations on page 183
- ▶ Validation on page 198

Tasks

- ▶ Manage KPI Assignment Groups on page 200
- ▶ Manage KPI Assignment Groups – Scenario on page 203
- ▶ Work with the SiteScope Assignment Group – Workflow on page 205

Reference

- ▶ Factory KPI Assignment Groups on page 206
- ▶ KPI Assignments User Interface on page 206

KPI Assignment Management Overview

When you create a new SLA (service-based or CI-based), you assign CIs to the SLA. KPI Assignment groups assign KPIs to CIs using the assignment and propagation mechanisms.

Assignments are mechanisms that are activated under certain conditions. They assign KPIs to the monitor CIs. Then the propagation mechanism starts running, propagating by default the KPIs assigned at the monitor level to the higher levels in the hierarchy of the SLA tree or attaching other KPIs to the CIs in the higher levels of the hierarchy. The propagation is performed for each KPI separately.

An assignment assigns KPIs according to the `cmdb_class` attribute of the CI type. A propagation assigns KPIs according to the triplet defined by the parent CI Type (using the `parentCIClassName` attribute), child CI Type (using the `childCIClassName` attribute), and KPI.

KPIs and business rules are assigned to CIs using the assignment mechanism at the monitor CI level. For details about the assignment mechanism, see “Assignments” on page 179.

KPIs and business rules are assigned to CIs using the propagation mechanism at non-monitor CI level. For details about the propagation mechanism, see “Propagations” on page 183.

Note: If you are using HP Operations Manager *i* with Business Availability Center, then the KPI Assignment tab contains OMi-related assignment groups. For more information, see *Using HP Operations Manager i*.

Assignments

Assignments are mechanisms that are activated under certain conditions to incorporate specific data into Service Level Management, at the monitoring level.

An assignment includes a condition and a task. The condition describes a CI or sets conditions on the attributes of a CI. The task describes the KPIs, and business rules that are automatically assigned to the CI when the condition occurs and the new CI is added to an SLA. An assignment is a rule that is saved using the Service Level Management Repositories mechanism. You can view the assignments only in the KPI Assignment user interface. For details, see “Assignment Groups Page” on page 208.

Factory assignment groups are pre-defined sets of assignments. They work together to cover all the sets of conditions for monitoring level CIs needed to incorporate data from the corresponding monitored system into Service Level Management. For details about groups, see “Groups” on page 181.

This section includes the following topics:

- “Assignment Mechanism” on page 180
- “Groups” on page 181

Assignment Mechanism

Service Level Management includes default KPIs and business rules that are automatically attached to the CIs that you add to an agreement.

The functionality for attaching the KPIs depends on whether the agreement is built using the service-based process or the CI-based process. (For information on the different processes, see “Building Agreements with the Agreements Wizard” on page 27.)

Assignment for CIs Within the Context of a Service-based Agreement

An assignment is determined by the condition on the `cmdb_class` attribute of the CI Type, provided that each assignment is valid for the CI type. The valid mapping of KPIs and business rules to CI types is defined in a KPI Assignment group. For details on how to define an assignment, see “Define Assignment Configuration Dialog Box” on page 209. For details about service offering levels attached to the services, see “Service Offerings” on page 135.

Service-based SLAs disregard assignments for KPIs that are not part of the service offering levels attached to the Business Service CIs.

Objective thresholds defined in the assignments for KPIs assigned to CIs within the context of a service-based agreement are disregarded. The assignment uses the thresholds defined in the service offering levels attached to the Business Service CIs. For details, see “Service Offerings” on page 135.

Assignment for CIs in the Context of CI-based Agreements

The mapping of KPIs and business rules to CIs, for various monitor and group CIs, is defined in the KPI Assignment groups. For details about assignments, see “Define Assignment Configuration Dialog Box” on page 209.

The KPIs are only attached to the CIs in the agreement if **Automatically define default KPIs for new CIs** is selected in the Select CIs page of the Agreement Wizard. For details, see “Select CIs Page” on page 88.

The thresholds used in the assignments for CIs in the context of CI-based agreements are defined in the assignment task.

When an assignment defined using the CI-based process does not include threshold definitions, the thresholds are taken from the default threshold definitions in the **KPI default thresholds** infrastructure settings. For details about the infrastructure setting, see “Configure the Default Thresholds for CIs in the Context of CI-Based Agreements” on page 201.

For details on how to define an assignment, see “Define Assignment Configuration Dialog Box” on page 209.

For general information on KPI functionality, see “KPI Configuration Overview” in *Using Dashboard*. For details on Service Level Management KPIs, see “List of Service Level Management KPIs” in *Using Service Level Management*.

Groups

A group is a logical feature that enables you to group KPI assignments (assignments and propagations).

Some assignments are grouped together to cover all the conditions that can be applied to a specific CI. The conditions are set on the sample field's values.

For example, a group can assign different KPIs to a CI when the value of a CI attribute equals or is different from a certain value:

- ▶ An assignment that deals with the KPIs and business rules to be applied if the sample's field, corresponding to the CI, has a specific value:

```
<condition cmdb-class="ems_monitor">  
  <property-condition name="data_source" operator="EQ" value="ticketing"/>  
</condition>
```

- ▶ An assignment that deals with the KPIs and business rules to be applied if the sample's field does not have that specific value:

```
<condition cmdb-class="ems_monitor">  
  <property-condition name="data_source" operator="NOT_EQ" value="ticketing"/>  
</condition>  
<condition cmdb-class="sitescope_monitor">  
  <property-condition name="data_updated_by" operator="LIKE"  
value="%SiteScope_%" />  
</condition>
```

Some groups also include assignments that are applied to different CIs.

For details about the assignments user interface, see “Assignment Groups Page” on page 208.

 **Propagations**

Propagations are mechanisms that are activated under certain conditions to incorporate specific data into Service Level Management, at all CI levels except for the monitoring level.

A propagation is defined per triplet (parent CI type, child CI type, and KPI attached to the child CI type) and specifies the business rules, and KPIs used in the propagation. The propagation also specifies objective thresholds for KPIs attached to CIs in the context of CI-based agreements.

A propagation includes a condition and a task. The condition describes the KPIs to be propagated, the child CIs, the parent CIs, and the type of propagation (**explicit** or **sameKPI**). The task describes the KPIs and business rules that are automatically propagated to the parent CI. The task may include thresholds to be used to set the status of the KPI. For details, see “Thresholds” on page 185.

A propagation definition is a rule that is saved using the Service Level Management Repositories mechanism. You can view propagation information only in the Propagation user interface. For details, see “Define Propagation Configuration Dialog Box” on page 218.

The KPIs are attached to the CIs in the context of CI-based agreements only if **Automatically define default KPIs for new CIs** is selected in the Select CIs page of the Agreement Wizard. For details about the Select CIs page, see “Select CIs Page” on page 88.

If a parent CI is already assigned a specific KPI, and the propagation is defined as propagating an identical KPI from the child CI, the KPI is not propagated from the child CI.

Some limitations apply when the same KPIs are propagated to the parent CI from multiple child CIs. For details, see “Propagation Limitations” on page 197.

The parent CI must be a group CI and the business rules that are propagated must be non-leaf rules.

Factory propagations are pre-defined sets of propagations. They work together to cover all the possible configurations of child CIs and parent CIs needed to propagate data from the relevant monitoring level CIs to the non-monitoring level CIs. For details about groups, see “Groups” on page 181.

This section includes the following topics:

- “Default Propagation” on page 184
- “When is the Propagation Mechanism Activated” on page 185
- “Thresholds” on page 185
- “Types of Propagation” on page 189
- “Recommended Procedure” on page 192
- “Selecting the Appropriate Propagation” on page 193
- “De-propagation” on page 196
- “Propagation Limitations” on page 197

Default Propagation

The default propagation means that:

- Each KPI assigned to any child CI of any parent CI is automatically propagated to the parent CI.
- The KPI is assigned the KPI’s default group business rule as defined in the KPI definition in the KPI repository. For details, see Default Group Rule in “KPI Details Dialog Box” on page 390.
- The thresholds are defined in the service offering levels attached to Business Service CIs within a service-based agreement.
- The thresholds are defined in the **KPI default thresholds** infrastructure settings in case of CIs in the context of CI-based agreements. For details, see “Configure the Default Thresholds for CIs in the Context of CI-Based Agreements” on page 201.

The default propagation is not visible in the user interface. You cannot modify it.

The default propagation is automatically performed by the propagation mechanism:

- ▶ For CIs within the context of a service-based agreement.
- ▶ For CIs in the context of CI-based agreements only if the **Automatically define default KPIs for new CIs** option is selected in the Select CIs page of the Agreement Wizard. For details about where you set up the option, see “Select CIs Page” on page 88.

The default propagation rule is used for a triplet only if no other factory or custom propagation rule matches the triplet.

You can only edit the task section of factory propagations.

The default propagation is used only if there is no other matching propagation in the factory KPI assignment groups or in the custom KPI assignment groups.

When is the Propagation Mechanism Activated

The propagation mechanism is triggered when:

- ▶ For CIs in the context of CI-based agreements, the **Automatically define default KPIs for new CIs** option is selected in the Select CIs page. For details about where you set up the **Automatically define default KPIs for new CIs** option, see “Select CIs Page” on page 88.
- ▶ For CIs within the context of a service-based agreement, after you complete the wizard flow. “Agreement Wizard” on page 80.
- ▶ You edit an SLA, and you delete a KPI, or add a new KPI. For details, see “Define KPIs Page” on page 79.

Thresholds

Each child CI can have a different propagation definition that includes the KPIs and the business rules to attach to the parent CI as well as the thresholds that determine the KPI status. For details about the KPI propagation, see “Define Propagation Configuration Dialog Box” on page 218.

This section describes how you can specify the propagated business rule thresholds.

This section includes the following topics:

- “Default Thresholds” on page 186
- “Non-Default Thresholds” on page 186
- “Thresholds For CIs Within the Context of a Service-Based Agreement” on page 187
- “Thresholds For CIs in the Context of CI-Based Agreements” on page 188

Default Thresholds

Default thresholds are defined in the service offering levels of the KPIs assigned to the Business Service CIs within a service-based agreement. Default thresholds are defined in the **KPI default thresholds** infrastructure settings for KPIs that are attached to CIs in the context of CI-based agreements.

To use the default thresholds do not enter an <objective> section in the task.

For CIs in the context of CI-based agreements, if you do not enter an <objective> section in the task, the thresholds defined in the **KPI default thresholds** infrastructure settings are used. If thresholds are not specified for the KPI in the infrastructure settings, then empty thresholds are assigned to the KPI.

Non-Default Thresholds

To use non-default thresholds for the business rule, you can specify the thresholds in the task (after specifying the KPI and the business rule), as in the following example:

```
<objective>
  <operator type="GREATER_THAN"/>
  <threshold type="EXCEEDED" value="98"/>
  <threshold type="MET" value="95"/>
  <threshold type="MINOR_BREACHED" value="90"/>
  <threshold type="BREACHED" value="85"/>
</objective>
```

Service Level Management includes default KPIs and business rules that are automatically attached to the non-monitor CIs that you add to an agreement. The functionality for attaching the KPIs depends on whether the agreement is built using the service-based process or the CI-based process. (For information on the different processes, see “Building Agreements with the Agreements Wizard” on page 27.)

Thresholds For CIs Within the Context of a Service-Based Agreement

The thresholds used by the KPIs attached to CIs within the context of a service-based agreement are not defined in the propagation task, they are defined in the service offering levels attached to the Business Service CIs. For details, see “Service Offerings” on page 135.

Thresholds specified in propagation tasks for the KPIs assigned to these CIs are disregarded.

Thresholds For CIs in the Context of CI-Based Agreements

The default thresholds for CIs in the context of CI-based agreements are specified in the **KPI default thresholds** infrastructure settings. The default thresholds can be overridden by the thresholds specified in the propagation tasks. The thresholds are empty if they are not specified in the propagation task and if they are not defined in the **KPI default thresholds** infrastructure settings. Thresholds specified in assignments override the **KPI default thresholds** infrastructure setting thresholds. For details, see “Configure the Default Thresholds for CIs in the Context of CI-Based Agreements” on page 201.

The thresholds of the KPI propagation for the CIs in the context of CI-based agreements are defined in the KPI propagation (as shown in the example below). For details, see “Define Propagation Configuration Dialog Box” on page 218.

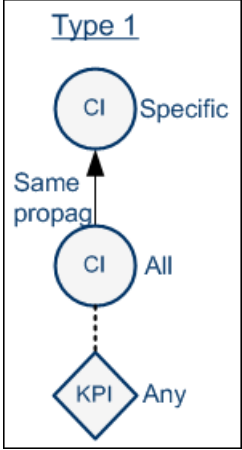
```
<task-config>
  <kpis-config>
    <kpi-config type="101">
      <rule type="290"/>
      <objective>
        <operator type="GREATER_THAN"/>
        <threshold type="EXCEEDED" value="98"/>
        <threshold type="MET" value="95"/>
        <threshold type="MINOR_BREACHED" value="90"/>
        <threshold type="BREACHED" value="85"/>
      </objective>
    </kpi-config>
  </kpis-config>
</task-config>
```

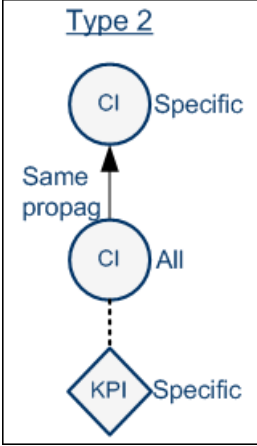
For general information on KPI functionality, see “KPI Configuration Overview” in *Using Dashboard*. For details on Service Level Management KPIs, see “List of Service Level Management KPIs” in *Using Dashboard*.

Types of Propagation

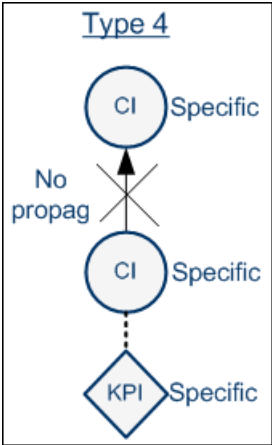
The propagation mechanism supports different types of propagation.

The table lists the different type of propagation and provides typical examples of conditions and tasks for each type of propagation:

Type of propagation	Examples of condition/tasks
<p>Type 1: Any KPI of any child CI of the specific parent CI is propagated to the parent CI.</p>  <p>The diagram, titled 'Type 1', illustrates the propagation flow. At the bottom is a diamond labeled 'KPI Any'. A dashed vertical line connects it to a circle labeled 'CI All'. A solid vertical arrow labeled 'Same propag' points from the 'CI All' circle to a higher circle labeled 'CI Specific'.</p>	<p>Condition:</p> <pre><condition childCIClassName="it_world" kpiType="all" parentCIClassName="customer" propagate="sameKpi"/></pre> <p>When any KPI is attached to any child CI of a Customer parent CI, the KPI and rule specified in the task are assigned to the Customer parent CI.</p> <p>Task:</p> <pre><task-config> <kpis-config globalRule="default"/> </task-config></pre> <p>The task assigns any KPI assigned to any child CI of the Customer parent CI and the default rule to the Customer parent CI. For additional details, see “Define Propagation Configuration Dialog Box” on page 218.</p>

Type of propagation	Examples of condition/tasks
<p>Type 2: A specific KPI of any child CI of the specific parent CI is propagated to the parent CI.</p> 	<p>Condition:</p> <pre><condition childCIClassName="it_world" kpiType="101" parentCIClassName="bpi_step" propagate="explicit"/></pre> <p>When KPI 101 is attached to any child CI of a BPI Step parent CI, the KPI and rule specified in the task are assigned to the BPI Step parent CI.</p> <p>Task:</p> <pre><task-config> <kpis-config> <kpi-config type="101"> <rule type="290"/> <objective> <operator type="GREATER_THAN"/> <threshold type="EXCEEDED" value="ignore"/> <threshold type="MET" value="ignore"/> <threshold type="MINOR_BREACHED" value="ignore"/> <threshold type="BREACHED" value="ignore"/> </objective> </kpi-config> </kpis-config> </task-config></pre> <p>The task assigns KPI 101 and rule 290 to the parent CI. Empty thresholds are used (value="ignore"). For additional details, see “Define Propagation Configuration Dialog Box” on page 218.</p>

Type of propagation	Examples of condition/tasks
<p>Type 3: A specific KPI attached to a specific child CI of the specific parent CI is propagated to the parent CI.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p style="text-align: center;"><u>Type 3</u></p> <pre> graph TD subgraph Type3 [Type 3] direction BT KPI{KPI Specific} -.-> Child((CI Specific)) Child -- "Same propag" --> Parent((CI Specific)) end </pre> <p>The diagram illustrates the propagation of a KPI from a child CI to its parent CI. At the bottom is a diamond-shaped node labeled 'KPI Specific'. A dashed line connects it to a circular node labeled 'CI Specific'. From this 'CI Specific' node, a solid arrow labeled 'Same propag' points to another circular node labeled 'CI Specific' above it. The entire diagram is enclosed in a box with the title 'Type 3'.</p> </div>	<p>Condition:</p> <pre><condition childCIClassName="bpm_tx_from_location" kpiType="101" parentCIClassName="bp_step" propagate="explicit"/></pre> <p>When KPI 101 is attached to the BPM Transaction From Location child CI of a BP Step parent CI, the KPI and rule specified in the task are assigned to the BP Step parent CI.</p> <p>Task:</p> <pre><task-config> <kpis-config> <kpi-config type="101"> <rule type="290"/> <objective> <operator type="GREATER_THAN"/> <threshold type="EXCEEDED" value="98"/> <threshold type="MET" value="95"/> <threshold type="MINOR_BREACHED" value="90"/> <threshold type="BREACHED" value="85"/> </objective> </kpi-config> </kpis-config> </task-config></pre> <p>The task assigns KPI 101 and rule 290 to the BP Step parent CI. The thresholds are specified in the code. The business rule must be a non-leaf rule. For additional details, see “Define Propagation Configuration Dialog Box” on page 218.</p>

Type of propagation	Examples of condition/tasks
<p>Type 4: A specific KPI attached to a specific child CI of a specific parent is not propagated to the parent CI.</p> 	<p>Condition:</p> <pre><condition childCIClassName="bpm_tx_from_location" kpiType="103" parentCIClassName="bp_step" propagate="explicit"/></pre> <p>When KPI 103 is attached to BPM Transaction from Location child CI of a BP Step parent CI, the KPI and rule specified in the task are assigned to the BP Group parent CI.</p> <p>Task:</p> <pre><task-config> <kpis-config/> </task-config></pre> <p>The task does not specify a default rule, a rule, or a KPI. This indicates that the KPI is not propagated to the parent CI. For additional details, see “Define Propagation Configuration Dialog Box” on page 218.</p> <p>Note: All the types of propagations listed in the table can be defined as non-propagations using the features provided in Type 4.</p>

Recommended Procedure

You create a set of propagations for a topology, meaning that for each level of parent CI in the hierarchy, you must create a set of propagations. A lot of the propagations are repetitive so the correct procedure is to:

- 1 Create a set of general propagations of **Type 1** for a specific parent CI.
- 2 Create a set of more specific propagations of **Type 2** for a specific KPI and a specific parent CI.
- 3 Create a set of more specific propagations of **Type 3** for a specific KPI, a specific child CI, and a specific parent CI.
- 4 Create a set of non-propagations of **Type 4** for a specific KPI, a specific child CI, and a specific parent CI.

The propagations are then sorted and applied to each parent CI. For details, see “Selecting the Appropriate Propagation” on page 193.

Selecting the Appropriate Propagation

The matcher of the propagation mechanism considers all the propagation definitions and sorts them before applying them to the different triplets.

All the customized propagations that you define are added to a list of existing propagations that is already sorted.

The matcher sorts the complete list of propagations according to the algorithm described below.

1 Parent sorting:

- A comparison triplet parent CI that is equal to the propagation parent CI (the number of hierarchy levels is 0 in the model hierarchy) is better than a comparison triplet parent CI that is derived – with a larger number of hierarchy levels – from the propagation parent CI.
- A comparison triplet parent CI that is derived, in the class model, from the propagation parent CI with a smaller number of hierarchy levels is better than a comparison triplet parent CI that is derived from the propagation parent CI, with a larger number of hierarchy levels.

2 Child sorting:

The mechanism performs the same type of sorting as the parent CI sorting on the child CI.

3 KPI sorting:

The sorting is performed on the KPI where the KPI corresponding to the triplet KPI is better than **kpiType=all**.

For each KPI that is propagated from a child CI type to a parent CI type (comparison triplet), the matcher scans the list of sorted propagations to find the propagation that most closely matches the triplet. A propagation is considered a match when:

- ▶ The parent CI type and the child CI type in the propagation correspond exactly to the comparison triplet parent CI or child CI, **OR** the child CI class in the comparison triplet is derived (in the class model hierarchy) from the child CI type in the propagation and the same for the parent CI type.

AND

- ▶ The propagation KPI has the same ID number as the comparison triplet KPI **OR** the propagation condition specifies kpiType=all.

The first propagation in the sorted list is used.

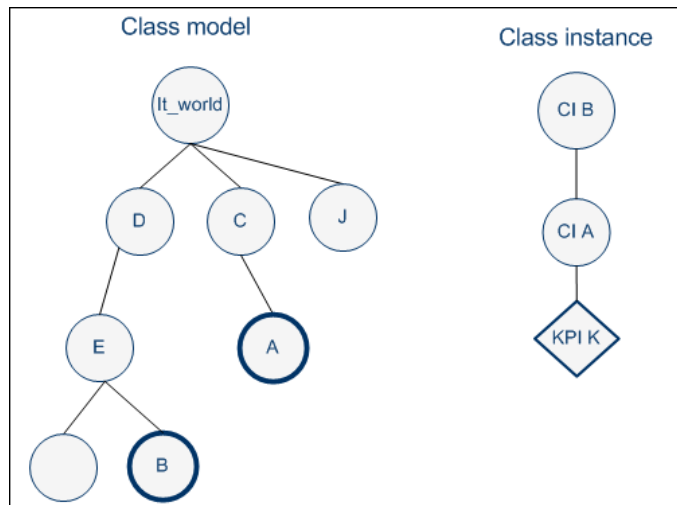
Example

The factory and customized propagations defined are as follows:

No	Propagation Condition			How does the propagation match the triplet (parent CI=B, child CI=A, and KPI=K)?
	Parent CI	Child CI	KPI	
1	it_world	it_world	All	The propagation includes the triplet.
2	J	it_world	All	The propagation does not include the triplet. It is filtered out.
3	D	C	All	CI B is derived from CI E, CI D and CI A is derived from CI C in the class model, and the propagation is for all KPIs, so the propagation includes the triplet.
4	E	it_world	K	CI B is derived from CI E and CI A is included in it_world in the class model, and the propagation is for the K KPI, so the propagation includes the triplet.

No	Propagation Condition			How does the propagation match the triplet (parent CI=B, child CI=A, and KPI=K)?
	Parent CI	Child CI	KPI	
5	E	C	All	CI B is derived from CI E and CI A is derived from CI C in the class model, and the propagation is for all KPIs, so the propagation includes the triplet.
6	E	C	K	CI B is derived from CI E and CI A is derived from CI C in the class model, and the propagation is for the K KPI, so the propagation includes the triplet.

The class model is provided in the picture below.



The result of the sorting procedure is as follows:

- 1** Propagation 6 is at the top of the list as its parent CI type is E (most specific), child CI type C (most specific) and KPI type is K (explicit type).
- 2** Propagation 5 comes after propagation 6 as its only difference with 6 is its generic KPI type.
- 3** Propagation 4 comes after as its child CI type (it_world) is more generic than propagation 5's child CI type (C).

- 4 Propagations 3, 2, and 1 are listed afterwards (in this order), as their parent type is less specific (higher in the hierarchy) than type E.
- 5 Propagation 1 goes to the bottom of the list as it is the most generic propagation.

When the propagation mechanism tries to find the closest matching propagation definition to the triplet (parent=CI B, child=CI A and KPI=KPI K) propagation 6 is at the top of the list and is therefore selected.

De-propagation

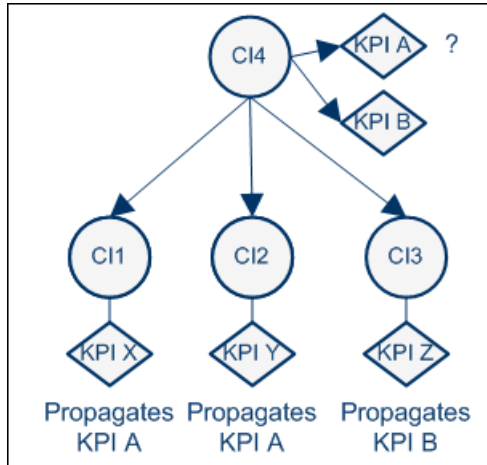
When you delete a KPI attached to a child CI in the Define KPIs page of the Agreements wizard, the de-propagation mechanism is activated for this KPI.

The de-propagation mechanism performs the following steps:

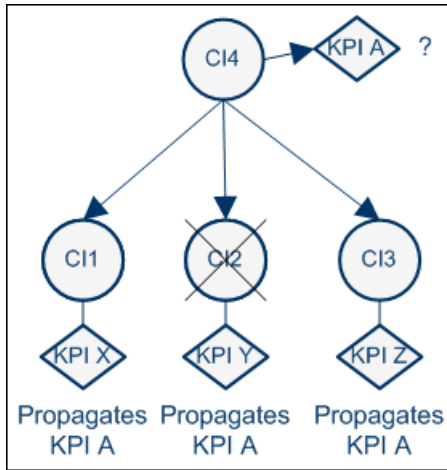
- 1 Searches all the available propagations, for the single propagation that corresponds to the deleted KPI, the child CI it is attached to and the parent CI in the view, using the matcher of the propagation mechanism (for details, see “Selecting the Appropriate Propagation” on page 193). The selected propagation rule includes the set of potential KPIs that are propagated by the deleted KPI to from the child CI to the parent CI.
- 2 Retains from the potential KPIs only the KPIs that are currently attached to the parent CI.
- 3 For each KPI (other than the deleted KPI) attached to the child CI or any child CI of the parent CI (siblings) the de-propagation mechanism searches for the propagations that propagate the potential KPIs (from step 2) from the child CIs to the parent CI. KPIs that are propagated by those propagations and correspond to the potential KPIs are removed from the list of potential KPIs.
- 4 The remaining KPIs are deleted from the parent CI.
- 5 The de-propagation mechanism is then applied to the next level of the view topology for each remaining potential KPI.

Propagation Limitations

- If you propagate the same KPI A from different child CIs (CI1 and CI2) with a different propagation, the propagation that affects the parent CI (CI4) regarding KPI A can be either one of the propagations (from CI1 or CI2). Because of this uncertainty, it is recommended to avoid specifying different propagations that propagate the same KPI with different rules and/or thresholds.



- ▶ According to the previous limitation, if you propagate the same KPI A from different child CIs (CI1, CI2, or CI3), the propagation that affects the parent CI (CI4) regarding KPI A can be either one of the propagations. If you delete one of the CIs (CI2) or one of its KPIs, the configuration of KPI A (rule and thresholds) is not updated even if it was propagated from CI2.



Validation

The validation mechanism for assignments and propagations checks that for:

- ▶ **KPI assignments:**
 - ▶ The task of an SLM KPI assignment does not specify a context menu.
 - ▶ The task of an SLM KPI assignment does not specify selector elements.
 - ▶ The CMDB class used in the condition of an SLM KPI assignment is of monitor type.
 - ▶ The task of an SLM KPI assignment must contain at least one KPI configuration.

► **KPI propagations:**

- The task of an SLM KPI propagation does not specify a context menu.
- The business rule assigned to a KPI is applicable to the KPI and is a non-leaf rule. For details, see “List of Service Level Management KPIs” on page 370.
- The task of an SLM KPI propagation does not specify selector elements.
- When you use the **same-kpi** propagation in an SLM KPI propagation, you must specify a rule that is applicable to the KPI and is a group rule (it can be the default group rule); and you should not specify KPI configuration elements.

Manage KPI Assignment Groups

Note: You can partially edit factory groups:

- ▶ You can modify only the task of factory group's KPI assignments.
 - ▶ You cannot add new KPI assignments to a factory group.
 - ▶ You cannot delete existing KPI assignments within a factory group.
-

You can add, edit, or delete custom groups.

To manage KPI assignment groups, use the steps listed in this task.

This task includes the following steps:

- ▶ “Manage the Groups” on page 200
- ▶ “View or Configure KPI Assignment Conditions and Tasks” on page 201
- ▶ “Configure the Default Thresholds for CIs in the Context of CI-Based Agreements” on page 201
- ▶ “View or Configure KPI Propagation Definition Conditions and Tasks” on page 202

1 Manage the Groups

You can create custom KPI Assignment groups, or edit factory or custom KPI Assignment groups. For details, see “Assignment Groups Page” on page 208.

After you create a new KPI Assignment group, you add individual assignments and propagations to the group. For details, see “Edit Group Page” on page 223.

2 View or Configure KPI Assignment Conditions and Tasks

You can view the factory KPI assignments or you can create or edit a KPI assignment for each CI type.

An assignment definition includes a condition and a task. The condition describes specific characteristics of a CI. The task describes the KPIs and business rules that are to be assigned automatically to the CI when the condition occurs. For details, see “Assignments” on page 179.

To create or edit a KPI assignment, you specify the condition, the task, the thresholds, and the operator. For details, see “Define Assignment Configuration Dialog Box” on page 209.

3 Configure the Default Thresholds for CIs in the Context of CI-Based Agreements

To configure the default threshold for CIs in the context of CI-based agreements, select **Admin > Platform > Setup and Maintenance > Infrastructure Settings**, choose **Applications**, select **Service Level Management**, and locate the **KPI default thresholds** entry in the Service Level Management - SLM Admin table. Add new KPIs and their thresholds, or modify, for each relevant KPI, the default thresholds using the following format:

```
<default-kpi-thresholds-settings>
  <default-thresholds>
    <kpi id="<kpi_id">/>
    <objective>
      <operator type="GREATER_THAN|LESS_THAN|
        GREATER_THAN_EQUAL|LESS_THAN_EQUAL."/>
      <threshold type="EXCEEDED" value="<value">/>
      <threshold type="MET" value="<value">/>
      <threshold type="MINOR_BREACHED" value="<value">/>
      <threshold type="BREACHED" value="<value">/>
    </objective>
  </default-thresholds>
  ....
</default-kpi-thresholds-settings>
```

The change is applicable immediately.

4 View or Configure KPI Propagation Definition Conditions and Tasks

You can view the factory KPI propagations or create or edit a KPI propagation definition for each non-monitor CI type.

A propagation definition includes a condition and a task. The condition describes specific characteristics of a triplet (parent CI type, child CI type, and KPI). The task describes the KPIs and business rules that are to be assigned automatically to the non-monitor CI when the condition occurs. For details, see “Propagations” on page 183.

The parent CI must be a group CI and the business rules that are propagated must be non-leaf rules.

To create or edit a KPI propagation definition, you specify the condition, the task, the thresholds, and the operator. For details, see “Define Propagation Configuration Dialog Box” on page 218.

Manage KPI Assignment Groups – Scenario

In the SiteScope KPI assignment group, you want to modify the SiteScope Measurements CI assignment so that the System Availability KPIs (100) is assigned the SiteScope New Rule (2001) rule that you have created instead of the SiteScope Average Availability (210) rule.

By default, all the KPIs of the SiteScope Monitor CI (child CI) are propagated with their default rules to the SiteScope Group CI (parent CI). You want to prevent the propagation of the Availability Six Sigma (104) KPI from the SiteScope Monitor CI to the SiteScope Group CI.

The scenario includes the following steps:

- “Modify the SiteScope KPI Assignment Group” on page 203
- “Add the Availability Six Sigma KPI Assignment Group” on page 204

1 Modify the SiteScope KPI Assignment Group

Open the SiteScope KPI Assignment group and then open the SiteScope Measurement CI assignment and modify it.



- a** Click **Admin > Service Level Management > KPI Assignments**, select the SiteScope KPI assignment group and click the **Edit** button.



- b** In the Edit Group dialog box, select the SiteScope Measurement CIs assignment and click the **Edit** button.

- c In the Define Assignment Configuration dialog box, replace **210** with **2001**, and modify the threshold definitions if needed:

```
<task-config>
  <kpis-config>
    <kpi-config type="100">
      <rule type="2001"/>
      <objective>
        <operator type="GREATER_THAN"/>
        <threshold type="EXCEEDED" value="98"/>
        <threshold type="MET" value="95"/>
        <threshold type="MINOR_BREACHED" value="90"/>
        <threshold type="BREACHED" value="85"/>
      </objective>
    </kpi-config>
  </kpi-config>
```

- d Click **OK**.

For details, see “Assignment Groups Page” on page 208.

2 Add the Availability Six Sigma KPI Assignment Group

As you cannot add a propagation to an existing factory KPI assignment group, you must create a new KPI assignment group and specify the non-propagation configuration in the new KPI assignment group.

You want to prevent the propagation of the Availability Six Sigma (104) KPI from SiteScope Monitor CI to the SiteScope Group CI.

*

- a Click **Admin > Service Level Management > KPI Assignments**, click the **New** button, and create the Availability Six Sigma KPI assignment group.

*

- b In the Edit Group dialog box, click the **New** button in the Propagations area.
- c In the Define Propagation Configuration dialog box, specify the name of the propagation and enter a description.
- d Enter the following text in the **Condition** box. This condition specifies the KPI, the child CI and the parent CI and states that the task is explicit. It details the KPIs and rules.

```
<condition childCIClassName="sitescope_monitor" kpiType="104"
  parentCIClassName="sitescope_group" propagate="explicit"/>
```

- e Enter the following text in the **Task** box. The task specifies that the KPI should not be propagated.

```
<task-config>  
  <kpis-config/>  
</task-config>
```

- f Click **OK**.

Work with the SiteScope Assignment Group – Workflow

This task describes how to work with the SiteScope assignment group.

This task includes the following steps:

- “Set the SiteScope Monitors to Report to Service Level Management” on page 205
- “Results” on page 205

1 Set the SiteScope Monitors to Report to Service Level Management

To display data from SiteScope monitors in Service Level Management you must set the appropriate SiteScope monitors logging options. For details on these options, see “HP BAC Integration Settings” in *Using System Availability Management*.

For additional information about the integration of SiteScope and HP Business Availability Center, see “Integrating SiteScope Data with HP Business Availability Center’s Configuration Items” in *Using System Availability Management*.

2 Results

To view the topology created by SiteScope KPI Assignments, see “Hierarchies” in *Using Dashboard*.

Factory KPI Assignment Groups

The following factory KPI assignment groups are available:

Factory KPI Assignment Group	Description
General	Includes propagations that propagate to the it_world parent CI Type.
Enterprise Management System	Includes assignments and propagations for Enterprise Management-related CIs.
HP Business Process Insight	Includes assignments and propagations for Business Process Insight-related CIs.
HP Business Process Monitor	Includes assignments and propagations for Business Process Monitor-related CIs.
HP Diagnostics	Includes assignments and propagations for HP Diagnostics-related CIs.
HP Real User Monitor.	Includes assignments and propagations for HP Real User Monitor-related CIs.
HP TransactionVision	Includes assignments and propagations for TransactionVision-related CIs.
Service Level Agreement	Includes assignments and propagations for Service Level Agreement-related CIs.
SiteScope	Includes assignments and propagations for SiteScope-related CIs.
SOA	Includes assignments and propagations for SOA-related CIs.


KPI Assignments User Interface

This section describes:

- ▶ Add Group Dialog Box on page 207
- ▶ Assignment Groups Page on page 208

- Define Assignment Configuration Dialog Box on page 209
- Define Propagation Configuration Dialog Box on page 218
- Edit Group Page on page 223

Add Group Dialog Box

Description	Enables you to add a group. To access: Click  in the KPI Assignments tab.
Included in Tasks	“Manage KPI Assignment Groups” on page 200




The following elements are included (unlabeled GUI elements are shown in angle brackets>):


GUI Element (A-Z)	Description
Name	The name of the group. This field is mandatory.
Description	The description of the group. This is the description displayed in the Assignment Groups page.

Assignment Groups Page


Description	Displays the Factory and Custom assignment groups. To access: Select Admin > Service Level Management > KPI Assignments
Important Information	You can create, edit, and delete custom groups. You can partially edit factory groups, that is: <ul style="list-style-type: none"> ➤ You can modify a factory group’s assignments. ➤ You cannot add new assignments to a factory group. ➤ You cannot delete existing assignments within a factory group. Note: The BP Step assignment in the HP Business Process Monitor assignment group is used only when you select the Include Locations option in the definition of the SLA to which the CI is assigned. When Include Locations option is selected, the BP Step CI is used as the monitoring level of the SLA. For details about the Include Locations options, see “Define Agreement Properties Page” on page 81.
Included in Tasks	“Manage KPI Assignment Groups” on page 200

The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A–Z)	Description
	Click the New button to open the Add Group dialog box.
	Select a group and click the Edit button to open the Edit Group page where you can edit the group. For details, see “Edit Group Page” on page 223.
	Select a group and click the button to delete the group. Note: If you select a Factory group and click the button, the following message is displayed: Deleting a factory group is prohibited.

GUI Element (A–Z)	Description
	Click the Reset Column Width button to enable you to modify the width of the table columns or restore the table columns to their original width.
Description	The description of the assignment group.
Name	The name of the assignment group. Factory assignment groups are available. For details, see “Factory KPI Assignment Groups” on page 206.
Type	The type of the assignment group: Custom or Factory .

Define Assignment Configuration Dialog Box

Description	Enables you to configure a KPI assignment. To Access: Click the  button in the Assignment Group page. Note: The button is not available for factory assignment groups.
Important Information	After you have created a KPI assignment you cannot modify the condition. A workaround is to delete the assignment and to recreate it with a new condition.
Included in Tasks	“Manage KPI Assignment Groups” on page 200

The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A-Z)	Description
Condition	The condition is written in XML. It uses parameters to specify the criteria used to trigger the Task . For details, see “KPI Assignment – Condition” on page 210. Note: when you edit a KPI assignment, the condition is not editable.
Description	The description of the KPI assignment.

GUI Element (A-Z)	Description
Name	The name of the KPI assignment. This field is mandatory.
Task	The task is written in XML. It uses parameters to define the tasks used to assign the KPIs and business rules to the selected CI. The task is performed after the KPI assignment is triggered. For details, see “KPI Assignment – Task” on page 213.
Validate	Click the Validate button to validate the XML code in both the Condition and Task areas and to perform the indentation of the code lines. For details, see “Validation” on page 198.

KPI Assignment – Condition

Use the following format:

```
<condition cmdb_class="class_name">
  <property-condition name="name" operator="operator" value="value"/>
</condition>
```

The parameters used to define assignment conditions are as follows:

Element	Description
condition	<p>A collection used to define the condition.</p> <p>The element’s attribute is cmdb-class, which represents the name of the CMDB class (not the display name) that corresponds to the CI for which you are creating the KPI assignment. For details about the CMDB classes, select Admin > Modeling > CI Type Manager, select the CI type, and click the Details tab.</p> <p>Note: This element is mandatory. It can contain one or more property-condition elements.</p> <p>Note: The name you specify in cmdb_class must be the name of a monitor CI. If not, the validation issues an error message.</p>

Element	Description
property-condition	<p>An element that creates a restriction on the condition. You can use more than one property-condition. The element's attributes are:</p> <ul style="list-style-type: none"> ▶ name. This attribute is mandatory. The name of one of the attributes of the CMDB class. For details about the CMDB classes, select Admin > Modeling > CI Type Manager, select the CI type, and click the Details tab. ▶ operator. This attribute is mandatory. The operator. For details about the possible operators, see “Property_Condition Operator” on page 211. ▶ value. This attribute is mandatory. A string that is compared to the value of the attribute of the CMDB class specified in class_attribute_name. Not mandatory when using IS_NULL and NOT_NULL.

Property_Condition Operator

Use one of the following values:

Value	Description
EQ	Returns true when the value of the CMDB class attribute equals the value specified in the value attribute of the property-condition . See the example below.
IN	Returns true when the value of the CMDB class attribute equals one of the elements that is listed in the value attribute of the property-condition . The elements in the list should be separated with a comma.
IN_LIST	Returns true when the value attribute of the property-condition equals one of the elements listed in the value of the CMDB class attribute, when the CMDB attribute type is string_list .
IS_NULL	Checks where the CI attribute was not assigned a value. Returns true when the CMDB class attribute is empty.

Value	Description
LIKE	Returns true when the value of the CMDB class attribute matches the string in the value attribute of the property-condition . The string of the value attribute can contain % as a wildcard. % may represent 0 or more characters.
NOT_EQ	Returns true when the value of the CMDB class attribute does not equal the value specified in the value attribute of the property-condition . See the example below.
NOT_LIKE	Returns true when the value of the CMDB class attribute does not match the string in the value attribute of the property-condition . The string of the value attribute can contain % as a wildcard. % may represent 0 or more characters.
NOT_NULL	Checks where the CI attribute was assigned a value. Returns true when the CMDB class attribute is not empty.

 **KPI Assignment – Task**

Use the following format:

```

<task-config>
  <kpis-config>
    <kpi-config type="type">
      <rule type="rule_number"/>
        <rule-parameter key="key" value="value" type="Type"/>
      </rule/>
    <objective>
      <operator type="operator"/>
      <threshold type="EXCEEDED" value="value"/>
      <threshold type="MET" value="value"/>
      <threshold type="MINOR_BREACHED" value="value"/>
      <threshold type="BREACHED" value="value"/>
    </objective>
  </kpi-config>
  <kpi-config isActive="false" type="104">
    <rule type="216"/>
  </kpi-config>
  <kpi-config isOutage="true" type="200">
    <rule type="312"/>
    <objective>
      <operator type="LESS_THAN"/>
      <threshold type="EXCEEDED" value="ignore"/>
      <threshold type="MET" value="ignore"/>
      <threshold type="MINOR_BREACHED" value="ignore"/>
      <threshold type="BREACHED" value="ignore"/>
    </objective>
  </kpi-config>
</kpis-config>
</task-config>

```

The parameters used to define assignment tasks are as follows:


Element	Description
task-config	An element used to define the task.
kpis-config	<p>A collection of kpi-config elements.</p> <p>Note: If you have used the propagate=sameKPI attribute in the condition, you must use the globalRule attribute in this element as follows:</p> <ul style="list-style-type: none"> ▶ <kpis-config globalRule="default"/> to assign the default rule to the KPI. ▶ <kpis-config globalRule="<rule_id>/> to assign the specified rule to the KPI. <p>Note: The globalRule specification is overridden by the rules specified using the rule element.</p>

Element	Description
kpi-config	<p>An element used to define the KPI.</p> <p>The element's attributes are:</p> <ul style="list-style-type: none"> ➤ type which represents the ID number of the KPI. For details about the KPI number, see "KPI Repository Page" on page 388. ➤ isActive <ul style="list-style-type: none"> ➤ "false" means that the KPI assignment is applicable but is not assigned as default KPI for the specific CI. ➤ "true" (default value for the attribute) means that the KPI assignment is assigned as default for CIs in the context of CI-based agreements. For CIs within the context of a service-based agreement, this attribute is disregarded. For details, see "Assignment for CIs Within the Context of a Service-based Agreement" on page 180. ➤ isOutage <ul style="list-style-type: none"> ➤ "false" (default value for the attribute) means that the KPI is not an outage KPI (isOutage="false" does not usually appear in the XML file). ➤ "true" means that the specific KPI is an outage KPI. In Service Level Management, the only outage KPI has type 200 (isOutage="true" is part of the code only for KPI type 200).
rule	<p>An element that specifies the number of the business rule you want to attach to the KPI. For details about the business rule numbers, see "Parameter Details Dialog Box (KPIs)" on page 400.</p> <p>Note: It can also be a collection of parameters when you want to override existing business rule parameters or when you want to add new parameters to the business rule.</p>

Element	Description
<p>rule-parameter</p>	<p>Optional. An element that defines the business rule parameter. The element's attributes are:</p> <ul style="list-style-type: none"> ▶ key. The display name of the business rule parameter. ▶ value. The value of the parameter. Corresponds to the Default Value in the Business Rule Repository. ▶ type. The type of parameter. Corresponds to the Type of the parameter. <p>For details, see "Parameter Details Dialog Box (Rules)" on page 507.</p>
<p>objective</p>	<p>Optional. A collection of threshold definitions.</p> <p>Note:</p> <ul style="list-style-type: none"> ▶ When the user creates or edits an SLA, the KPI assignment mechanism adds the KPI threshold configuration to the new CI, according to the assignment configuration. ▶ The KPI Objective configuration must include the following thresholds: EXCEEDED, MET, MINOR_BREACHED, and BREACHED <p>Use the following format:</p> <pre><objective> <operator type="operator"/> <threshold type="EXCEEDED" value="value"/> <threshold type="MET" value="value"/> <threshold type="MINOR_BREACHED" value="value"/> <threshold type="BREACHED" value="value"/> </objective></pre> <p>For more information about thresholds and how to define them for CIs within the context of a service-based agreement or CIs in the context of CI-based agreements, see "Thresholds" on page 185.</p>

Element	Description
operator	<p>Optional. An element used to define the objective operator. The element's attributes is type. The type can be:</p> <ul style="list-style-type: none"> ▶ default. To indicate to take the default operator value from the business rule repository, according to the specified business rule type (can be empty). The result is the same if the operator is empty. ▶ GREATER_THAN. The resulting operator is > ▶ LESS_THAN. The resulting operator is < ▶ GREATER_THAN_EQUAL. The resulting operator is >= ▶ LESS_THAN_EQUAL. The resulting operator is <=
threshold	<p>This element is mandatory. An element used to define the thresholds.</p> <p>The element's attribute is type. The type can be:</p> <ul style="list-style-type: none"> ▶ ignore. To skip the threshold checking. The KPI is assigned empty thresholds. This is used for status-based KPIs for example. ▶ <value>. Specify numeric values. The thresholds you specify are used to calculate the KPI's status. For example: <ul style="list-style-type: none"> ▶ EXCEEDED corresponds to 98. ▶ MET corresponds to 95. ▶ MINOR_BREACHED corresponds to 90. ▶ BREACHED corresponds to 85.

Define Propagation Configuration Dialog Box

Description	Enables you to configure a KPI propagation definition. To Access: Click the  button in the Edit Group page in the Propagation Rules area. Note: The button is not available for factory assignment groups.
Important Information	After you have created a propagation definition you cannot modify the condition. A workaround is to delete the propagation definition and to recreate it with a new condition. The parent CI must be a logical group CI and the business rules that are propagated must be group rules.
Included in Tasks	“View or Configure KPI Propagation Definition Conditions and Tasks” on page 202

The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A-Z)	Description
Condition	The condition is written in XML. It uses parameters to specify the criteria used to trigger the Task . For details on the parameters, see “Propagation Definition – Condition” on page 219. Note: when you edit a KPI propagation, the condition is not editable.
Description	The description of the propagation.
Name	The name of the propagation. This field is mandatory.
Task	The task is written in XML. It specifies the KPIs and business rules to be propagated to the specified parent CI and the thresholds to be used to calculate the status/value of the KPI. The task is performed after the propagation is triggered. For details, see “Propagation Definition – Task” on page 221.

GUI Element (A-Z)	Description
Validate	Click the Validate button to validate the XML code in both the Condition and Task areas and to perform the indentation of the code. For details, see “Validation” on page 198.

Propagation Definition – Condition

Use the following format:

```
<condition childCIClassName="it_world" kpiType="612"  
parentCIClassName="bpi_step" propagate="explicit"/>
```

The parameters used to define propagation conditions are as follows:

Element	Description
<p>condition</p>	<p>A collection used to define the condition.</p> <p>The element's attributes are:</p> <ul style="list-style-type: none"> ➤ childCIClassName. This is the name of the CMDB class (not the display name) that corresponds to the child CI of the parent CI specified in parentCIClassName. For details on the CMDB classes, select Admin > Modeling > CI Type Manager, select the CI type, and click the Details tab. Use it_world to represent the highest level of the Class model. ➤ kpiType. It can be: <ul style="list-style-type: none"> ➤ The number of the KPI attached to the child CI specified in childCIClassName. ➤ all which represents any KPI attached to the child CI specified in childCIClassName. This KPI and the rule specified in the task are propagated to the parent CI. ➤ parentCIClassName. It specifies the name of the CMDB class that corresponds to the parent CI of the child CI specified in childCIClassName. This CI is the target of the propagation. Use it_world to represent the highest level of the Class model. ➤ propagate can be: <ul style="list-style-type: none"> ➤ explicit which tells the propagation mechanism that the KPI and the rule to be propagated are listed in the task ➤ sameKPI which tells the propagation mechanism that it should propagate the specified KPI (as defined in the Repository) attached to the specified CI to the parent CI. If you use sameKPI you must specify the globalRule attribute in the kpis_config element in the task. <p>Note: This element is mandatory. It can contain one or more property-condition elements.</p>

 **Propagation Definition – Task**

Use the following format:


```
<task-config>
  <kpis-config>
    <kpi-config type="type">
      <rule type="rule_number">
        <objective>
          <operator type="GREATER_THAN"/>
          <threshold type="EXCEEDED" value="value"/>
          <threshold type="MET" value="value"/>
          <threshold type="MINOR_BREACHED" value="value"/>
          <threshold type="BREACHED" value="value"/>
        </objective>
      </kpi-config>
    </kpis-config>
  </task-config>
```

The parameters used to define propagation tasks are as follows:

Element	Description
task-config	An element used to define the task.
kpis-config	<p>A collection of kpi-config elements.</p> <p>Note: If you have used the propagate=sameKPI attribute in the condition, you must use the globalRule attribute in this element as follows:</p> <ul style="list-style-type: none"> ▶ <kpis-config globalRule="default"/> to assign the default rule to the KPI. ▶ <kpis-config globalRule="<rule_id"/> to assign the specified rule to the KPI. <p>Note: The globalRule specification is overridden by the rules specified using the rule element.</p>
kpi-config	<p>An element used to define the KPI that is to be propagated to the specified parent CI.</p> <p>The element's attribute is type, which represents the ID number of the KPI.</p> <p>For details on the KPI number, see "KPI Repository page" on page 535.</p>
rule	<p>An element used to define the business rule that is to be propagated to the specified parent CI.</p> <p>The element's attribute is type, which represents the ID number of the rule. To access the rule number, select Admin > Service Level Management > Repositories > Business Rules, the ID number for each rule is displayed in the ID column.</p> <p>Note: The globalRule specification is overridden by the rules specified using the rule element.</p>

Element	Description
<p>objective</p>	<p>Optional. A collection of threshold definitions.</p> <p>Note:</p> <ul style="list-style-type: none"> ▶ When the KPI propagation mechanism is activated, it adds the KPI threshold configuration to the parent CI, in the CMDB for CIs in the context of CI-based agreements. This attribute is disregarded for CIs within the context of a service-based agreement. ▶ If the objective element is not defined in the propagation, the default thresholds are used. For details, see “Default Thresholds” on page 186. ▶ If you use it, the objective element must include the following thresholds: EXCEEDED, MET, MINOR_BREACHED, BREACHED <p>Use the following format:</p> <pre><objective> <operator type="operator"/> <threshold type="EXCEEDED" value="value"/> <threshold type="MET" value="value"/> <threshold type="MINOR_BREACHED" value="value"/> <threshold type="BREACHED" value="value"/> </objective></pre>

Edit Group Page

<p>Description</p>	<p>Enables you to edit an existing group.</p> <p>To access: In the Assignment Groups page, select a group and click .</p>
<p>Important Information</p>	<p>Depending on the KPI Assignment group you have selected, the Assignments area lists different assignments.</p> <p>Each factory KPI Assignment group has its own group of KPI assignments.</p>

Included in Tasks	“View or Configure KPI Assignment Conditions and Tasks” on page 201
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General Area


The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A-Z)	Description
Description	The description of the group. The description is displayed in the Assignment Groups dialog box.
Name	The name of the group. This field is mandatory.
Type	The type can be: <ul style="list-style-type: none"> ▶ Factory for factory KPI Assignment groups. ▶ Custom for custom KPI Assignment groups.

Assignments Area

The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A-Z)	Description
	Click to create a KPI assignment in the Define Assignment Configuration dialog box. Note: This button is not displayed for Factory assignment groups.
	Select a KPI assignment and click to edit it in the Define Assignment Configuration dialog box.
	Select KPI assignment and click to delete. Note: This button is not displayed for Factory assignment rules.

GUI Element (A-Z)	Description
	<p>Click to enable you to adjust the width of the table's columns by dragging the borders of the column to the right or the left, or to reset the table columns' width to its default setting.</p>
<p>Description</p>	<p>The description of the KPI assignment.</p>
<p>Name</p>	<p>The name of the KPI assignment.</p>

7

Calendars

This chapter explains how to define calendars for agreements.

This chapter includes:

Concepts

- ▶ Calendars - Overview on page 228

Tasks

- ▶ Customize Calendar Default Settings on page 230
- ▶ Calendar Examples on page 231

Reference

- ▶ Calendars User Interface on page 233

Calendars - Overview

Note: Calendars were referred to as Time Intervals in some earlier Business Availability Center versions.

Calendars define the periods for which Service Level Management performs data calculations.

In your organization, you probably have different service levels requirements for different periods of the day or night, or for certain days of the week or year. For example, performance and availability are more crucial to a Web retailer during a busy shopping period before a holiday. Likewise, resource allocators in an ERP system must have 99% availability every working morning, whereas at other times 97% might be acceptable.

To monitor your business processes at these crucial times, you define calendars that span the period you want to monitor. This is the time range that Service Level Management checks for compliance to the agreement. Service Level Management includes two default calendars: **24x7** and **Business Hours**.

You define calendars for your organization in the Calendar Wizard. For details, see “Calendar Wizard” on page 234. The defined calendars are then available for using when defining service offerings and agreements. You can define as many calendars as required, but only can select up to three per agreement.

Service Level Management reports organize results according to calendars. You can add calendar descriptions to Service Level Management reports. For details, see “Advanced Options Dialog Box” on page 307.

Note:

- ▶ If you add new calendars to Service Level Management, you must add definitions for the calendars to the appropriate service offerings, including the preconfigured service offerings. For details, see “Creating and Editing Service Offerings” on page 141.
 - ▶ If you add or remove calendars from service offerings, you must edit the agreements containing the service offerings. For details, see “Modifying Details for Assigned Service Offerings” on page 143.
 - ▶ If you delete a calendar, it is automatically removed from all service offerings and agreements.
 - ▶ If you update one of the calendars included in a compound calendar, the compound calendar itself is also updated.
-

Customize Calendar Default Settings

By default, Business Availability Center uses the following calendar settings:

- **First day of the week:** Monday
- **First day of the month:** 1st
- **First month of first quarter:** January

You can modify these default settings in the **Infrastructure Settings** page. Note the following impact in Service Level Management before making changes:

- Changing the first day of the week affects agreement calculation, so if you change the default for this, you need to recalculate all agreements (from the **Admin > Service Level Management > Agreements Manager** page) that use the Week tracking period.

If you do not perform recalculation for the relevant agreements, the reports, and the Status Snapshot report for previous periods, may show no data for the Week tracking period.

- Changing the first day of the month and the first month of first quarter does not affect agreement calculation or reports.

To modify the calendar settings, select **Admin > Platform > Setup and Maintenance > Infrastructure Settings**, choose **Foundations**, select **Calendar**, and locate the required calendar setting in the **Calendar Options** table. Modify the value as required.

Calendar Examples

The following sections give examples for creating custom calendars:

- “Weekly Calendar Example” on page 231
- “Compound Calendar Example” on page 232

Weekly Calendar Example

To quickly create a calendar that spans the whole week, apart from work days: In the Weekly Calendar Definition page of the Calendar Wizard (“Calendar Pattern: Weekly Calendar Definition Page” on page 236) select a start time of 12 AM and an end time of 12 AM. Select all the days of the week. Click **Add**. Select a start time of 9 AM and an end time of 5 PM. Select Monday to Friday. Click **Clear**.

Weekly Calendar Definition

To add a time or date to the Calendar, click a cell. To remove the time or date, click the cell again. To enter a range, select table and click **Add**. To remove part of a calendar, select the range in the lower table and click **Clear**. To remove all active times, click **Clear**. To continue, click **Finish**.

Calendar **Active hours** **Free hours**

hour	12:00	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	01:00	02:00	03:00	04:00	05:00	06:00
\day	AM	AM	AM	AM	AM	AM	AM	AM	AM	AM	AM	AM	PM	PM	PM	PM	PM	PM	PM
Sun																			
Mon																			
Tue																			
Wed																			
Thu																			
Fri																			
Sat																			

Add Range:

Start time: End time: Day(s) of Week:

Compound Calendar Example

To define a calendar that monitors business hours but does not include the first day of the month. You define a yearly calendar (called **1st day of month**) that includes only the first day of each month:

Yearly Calendar Definition																					
To add a time or date to the Calendar, click a cell. To remove the time or date, click the times or dates in the lower table and click Add . To remove part of a calendar, s Clear . To remove all active times from the grid, click Clear All . To continue, click Fin																					
Calendar	<input checked="" type="checkbox"/> Active days	<input type="checkbox"/> Free days																			
day \ month	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
January	<input checked="" type="checkbox"/>																				
February	<input checked="" type="checkbox"/>																				
March	<input checked="" type="checkbox"/>																				
April	<input checked="" type="checkbox"/>																				
May	<input checked="" type="checkbox"/>																				
June	<input checked="" type="checkbox"/>																				
July	<input checked="" type="checkbox"/>																				
August	<input checked="" type="checkbox"/>																				
September	<input checked="" type="checkbox"/>																				
October	<input checked="" type="checkbox"/>																				
November	<input checked="" type="checkbox"/>																				
December	<input checked="" type="checkbox"/>																				

Add Range:

Start day: End day: Month(s) of the Year:

Next, you define a **Compound** type calendar where you include the Business Hours calendar and exclude the **1st day of month** calendar.

Compound Calendar Definition				
To include a calendar in the compound calendar, select its In Use check box. Then select Include for the calendar to be in the calculation, and Exclude for the calendar to be removed from the calculation. For example, to define a calendar that only includes business hours but does not include the first day of the month, define a yearly calendar that includes the first day of the month. Select this calendar and the Business Hours calendar, then select the Exclude button for this calendar and the Include button for the Business Hours calendar.				
Calendar				
In Use	Name	Period Type	Include	Exclude
<input checked="" type="checkbox"/>	Business Hours	Weekly	<input checked="" type="radio"/>	<input type="radio"/>
<input checked="" type="checkbox"/>	1st day of month	Yearly	<input type="radio"/>	<input checked="" type="radio"/>
<input type="checkbox"/>	24x7	Weekly	<input checked="" type="radio"/>	<input checked="" type="radio"/>

In this example, **24x7** is irrelevant to the compound calendar being defined and is not selected.

Calendars User Interface

This section describes:

- Calendar Wizard on page 234
- Calendars Page on page 239

Calendar Wizard

Description	<p>You use the Calendar Wizard to define calendar schedules to use with your agreements.</p> <p>To access: On the Admin > Service Level Management > Repositories > Calendars page, click the New Calendar button, or the Edit button for an existing calendar.</p>
Wizard Map	<p>The Calendar Wizard contains:</p> <p>Calendar Properties Page > Calendar Pattern: Weekly Calendar Definition Page / Calendar Pattern: Yearly Calendar Definition Page / Calendar Pattern: Compound Calendar Definition Page > Calendar Summary Page</p>
Useful Links	<p>“Calendars” on page 227</p>

Calendar Properties Page

Description	<p>Enables you to define calendar properties and select the period type for the calendar.</p> <p>To access: On the Admin > Service Level Management > Calendars page, click the New Calendar button, or the Edit button for an existing calendar.</p>
Important Information	<p>When you open the Calendar Wizard in edit mode, the Properties page lists any agreements that are using the calendar.</p>
Wizard Map	<p>The Calendar Wizard contains:</p> <p>Calendar Properties Page > Calendar Pattern: Weekly Calendar Definition Page / Calendar Pattern: Yearly Calendar Definition Page / Calendar Pattern: Compound Calendar Definition Page > Calendar Summary Page</p>
Useful Links	<p>“Calendars” on page 227</p>

The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A–Z)	Description
Choose period type	<p>Select the radio button for the period type on which you want to base the calendar:</p> <ul style="list-style-type: none"> ▶ Weekly. The calendar is based on a weekly cycle, for example, every Sunday from 1:00 AM to 3:00 AM. ▶ Yearly. The calendar is based on a yearly cycle, for example, the month of December or annual vacations. ▶ Compound. The calendar combines existing calendars. For example, if you have a yearly calendar monitoring January to October, and a weekly calendar monitoring business hours, you can combine the two calendars into a compound calendar that monitors business hours from January to October.
Description	Enter a description. The description should not be longer than 500 characters and can consist of any characters and spaces.
Name	Enter a name for the calendar. The name should not be longer than 50 characters and can consist of alphanumeric characters and spaces.

 **Calendar Pattern: Weekly Calendar Definition Page**

Description	Enables you to define a weekly pattern of active times for the calendar.
Important Information	You see this page in the Calendar Wizard if you selected Weekly on the Calendar Properties Page.
Wizard Map	The Calendar Wizard contains: Calendar Properties Page > Calendar Pattern: Weekly Calendar Definition Page / Calendar Pattern: Yearly Calendar Definition Page / Calendar Pattern: Compound Calendar Definition Page > Calendar Summary Page
Useful Links	"Calendar Examples" on page 231

The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A-Z)	Description
<Calendar grid>	A time grid containing a cell for each day of the week/ 30 minute period. Click a cell to make that day/time "active" in the calendar. Click the cell again to remove it from the calendar. Active times are shown in blue, free times (times not included in calendar) in gray.
Add	Click to add the selected time range to the calendar grid.
Add Range	Set a time range as "active" by selecting the start time and end time for the range, then selecting the day(s) of the week for which the time range is to apply. Click Add to add the period to the calendar grid. Select a range and click Clear to remove that range from the calendar grid. Tip: Use the CTRL and SHIFT keys to select multiple days.

GUI Element (A–Z)	Description
Clear	Click to remove the selected time range from the calendar grid.
Clear All	Click to remove all active times from the grid.

Calendar Pattern: Yearly Calendar Definition Page

Description	Enables you to define a yearly pattern of active times for the calendar.
Important Information	You see this page in the Calendar Wizard if you selected Yearly on the Calendar Properties Page.
Wizard Map	The Calendar Wizard contains: Calendar Properties Page > Calendar Pattern: Weekly Calendar Definition Page / Calendar Pattern: Yearly Calendar Definition Page / Calendar Pattern: Compound Calendar Definition Page > Calendar Summary Page
Useful Links	“Calendar Examples” on page 231

The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A–Z)	Description
< Calendar grid >	A time grid containing a cell for each month/day. Click a cell to make that date "active" in the calendar. Click the cell again to remove it from the calendar. Active times are shown in blue, free times (times not included in calendar) in gray.
Add	Click to add the selected time range to the calendar grid.

GUI Element (A–Z)	Description
Add Range	<p>Set a time range as "active" by selecting the start day and end day for the range, then selecting the months of the year for which the date range is to apply. Click Add to add the period to the calendar grid.</p> <p>Select a range and click Clear to remove that range from the calendar grid.</p> <p>Tip: Use the CTRL and SHIFT keys to select multiple days.</p>
Clear	Click to remove the selected time range from the calendar grid.
Clear All	Click to remove all active times from the grid.

 **Calendar Pattern: Compound Calendar Definition Page**

Description	Enables you to select the calendars to include in the new compound calendar.
Important Information	<ul style="list-style-type: none"> ▶ You see this page in the Calendar Wizard if you selected Compound on the Calendar Properties Page. ▶ If you update one of the calendars included in a compound calendar, the compound calendar itself is also updated.
Wizard Map	<p>The Calendar Wizard contains:</p> <p>Calendar Properties Page > Calendar Pattern: Weekly Calendar Definition Page / Calendar Pattern: Yearly Calendar Definition Page / Calendar Pattern: Compound Calendar Definition Page > Calendar Summary Page</p>
Useful Links	"Calendar Examples" on page 231




The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A–Z)	Description
<Calendar table>	Lists all existing calendars.
In Use	Select the check box for each calendar that impacts on the new calendar.
Include/Exclude	<p>Enabled after selecting the In Use check box for a calendar. Select either the Include or Exclude radio button for each calendar, as follows:</p> <ul style="list-style-type: none"> ▶ Include. This option includes the active times for the selected calendar in the calculations for the new calendar. ▶ Exclude. This option excludes the active times for the selected calendar in the calculations for the new calendar.

Calendars Page

Description	<p>Lists the calendars defined for Service Level Management (including the preconfigured calendars) and enables you to create, edit and delete calendars.</p> <p>To access: Select Admin > Service Level Management > Repositories > Calendars</p>
Important Information	Calendars were called Time Intervals in previous versions.
Useful Links	“Calendars” on page 227

The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A-Z)	Description
	Opens the Calendar Wizard, where you can edit properties of the calendar.
	Creates a clone of the calendar named Copy of <calendar name>. You can use the copy to define a new calendar with a similar schedule.
	Deletes the calendar. You cannot delete a calendar if it is associated with an agreement.
Description	Displays a description of the calendar.
Name	The calendar name.
New Calendar	Click to open the Calendar Wizard, where you define a new calendar.
Period Type	Displays whether the calendars is based on weekly, yearly, or compound periods.

8

Business Process and Business Transaction Data in Service Level Management

This chapter describes how to work with Business Process Insight and TransactionVision data in Service Level Management.

This chapter includes:

Concepts

- Agreements for Business Process and Business Transaction CIs - Overview on page 242
- KPIs and Rules for Business Process Insight on page 243
- KPIs and Rules for TransactionVision on page 245
- Objective Thresholds for KPIs on page 246
- KPIs Based On Monetary Value on page 247
- Status-Based Group Rules on page 250

Tasks

- Define New KPIs for Monetary Values - Scenario on page 252

Agreements for Business Process and Business Transaction CIs - Overview

Business Process Insight monitors business process steps and flows for your business processes (for details, see "Introduction to Business Process Insight" in *Reference Information for Business Process Insight*). TransactionVision provides data on the path taken by your business transactions across your enterprise (for details, see "TransactionVision Overview" in *Using TransactionVision*).

You can use either or both of these data sources to measure application performance over time against your business goals, by creating service agreements containing Business Process Insight CIs or TransactionVision CIs. The preferred method for building agreements for data from these sources is to use the CI-based process. For details, see "Building Agreements—CI-Based Process" on page 30.

The values used for the CIs are taken from the samples arriving from each data source. By default, samples are sent every 15 minutes from Business Process Insight, and every 5 minutes from TransactionVision. The samples contain data on the numerical count and the monetary value of business process instances or business transaction instances, as relevant, broken down by whether the instances are completed or backlogged, and by various state categories. (For details on the data in the samples, see "Data Samples" in *Reference Information*.)

Within agreements, the Business Process Insight and TransactionVision CIs each work with KPIs and business rules preconfigured for these data sources. Some of the rules calculate the KPI value based on count values, and some based on monetary values (for details, see "KPIs Based On Monetary Value" on page 247). Most of the preconfigured KPIs and rules are automatically assigned to each CI when you select the **Automatically define default KPIs for new CIs** option in the Agreement Wizard. Other KPIs and rules must be manually assigned.

The automatic assignment of monitoring KPIs and business rules is defined in the KPI assignment groups for each data source (**Admin > Service Level Management > KPI Assignments**). However, the KPI assignment groups for Business Process Insight and TransactionVision generally do not include objective thresholds for the rules. These are defined per individual CI (for details, see “Objective Thresholds for KPIs” on page 246).

For more information on KPIs, see “KPIs and Rules for Business Process Insight” on page 243, and “KPIs and Rules for TransactionVision” on page 245.

Note: Business Process Insight and TransactionVision monitor CIs do not work with Outage rules.

KPIs and Rules for Business Process Insight

The following table lists the KPIs and rules that are preconfigured to work with the five Business Process Insight monitor CIs, when added to agreements in Service Level Management.

All KPIs are attached to the relevant CI automatically when you select the **Automatically define default KPIs for new CIs** option in the Agreement Wizard, unless otherwise specified.

You can find descriptions of the KPIs and Rules in “Service Level Management Repositories” on page 365.

CI	KPI	Rules
All Business Process Insight monitor CIs	Backlog	Default rule: BPI Average Backlog (Count-based)
		BPI Average Backlog (Value-based)
	Throughput	Default rule: BPI Hourly Throughput (Count-based)
		BPI Hourly Throughput (Value-based)
BPI Business Process Monitor	Business Health	Default rule: BPI Health Average Status (Count-based)
		BPI Health Average Status (Value-based)
BPI Duration Monitor	Duration	Default rule: BPI Average Duration
		BPI Minimum Duration
		BPI Maximum Duration
		BPI Weighted Average Duration
	Duration Status Percentage This KPI must be manually defined for the CI.	BPI Duration Status

CI	KPI	Rules
BPI Value Monitor/ BPI Custom Value Monitor	Value	Default rule: BPI Average Value
		BPI Minimum Value
		BPI Maximum Value
		BPI Weighted Average Value This rule is applicable for BPI Custom Value Monitor CI only.
	Value Status Percentage This KPI must be manually defined for the CI.	BPI Value Status

KPIs and Rules for TransactionVision

There are seven KPIs that are used for TransactionVision data in Service Level Management:

- Backlog
- Delays
- Duration
- Exceptions
- Failures
- Throughput
- Value

Descriptions of the KPIs, and lists of which rules are relevant for each KPI, can be found in “List of Service Level Management KPIs” on page 370.

When you add TransactionVision CIs to an agreement (in the Agreement Wizard) and select the **Automatically define default KPIs for new CIs** option, the Backlog, Duration, and Throughput KPIs are automatically attached to all TV Monitor CIs, and to all parent CIs for those CIs. The other TransactionVision data KPIs (Delays, Exceptions, Failures, and Value) must be manually attached to the CIs, as required, in the Define KPIs Page of the Agreement Wizard.

Objective Thresholds for KPIs

Service Level Management uses the objective thresholds defined for a KPI to translate the calculated value for the KPI into one of the objective statuses used in an agreement (Exceeded, Failed, and so forth).

Each business process monitored by Business Process Insight, and each business transaction monitored by TransactionVision, represents an individual and intricate business event, with individual business objectives and risks. This means that, in order to display a meaningful objective status, objective thresholds generally need to be set individually for each business process and business transaction.

In view of this, the KPI assignment groups for Business Process Insight and TransactionVision CIs in Service Level Management do not generally include predefined objective thresholds. After adding Business Process Insight or TransactionVision CIs to an agreement, you define the thresholds for each KPI rule attached to each CI, in the KPI Definition Dialog Box (described on page 100).

Note: The exception to this is the BPI Health Average Status (Count-based) rule, the default rule for Business Health. This rule provides predefined percentage objective thresholds (unless you manually assign the KPI and rule to a CI, in which case you need to define the thresholds for it).

Until you define the objective thresholds for a rule (without defaults), the Service Level Management reports display only a value for the KPI, without a status color. In the tooltip for the KPI, the **Status** field displays **No objectives defined**.

KPIs Based On Monetary Value

The Business Process Insight and TransactionVision samples contain data on the count of instances in each measurement category. Where relevant, the samples also contain data on the monetary value of the instances (though monetary values are not always included).

Service Level Management provides KPIs and rules that calculate status and business metrics based on the financial information included in the samples. The following sections describe how to work with these KPIs and rules:

- “Count-Based and Value-Based KPIs” on page 247
- “Units Used for Value-Based KPIs” on page 249

Count-Based and Value-Based KPIs

The Value KPI provides value-based metrics, calculated from the monetary values for the completed instances, as received in the samples.

In addition, some of the other KPIs for Business Process Insight and TransactionVision can provide either count-based or value-based metrics, according to the rule defined for the KPI. When the rule is count-based (the default for each KPI), the count values received in the samples are used for the calculations; when the rule is value-based, the monetary values received in the samples are used for the calculations.

The following KPIs can be either value-based or count-based:

For Business Process Insight data:

- Backlog
- Business Health
- Throughput

- ▶ Value (This KPI is value-based only)

Note: The Value Status Percentage KPI also provides metrics based on monetary values; however, this KPI calculates a percentage based on a count of instances with monetary values at each threshold level, as sent by Business Process Insight.

For TransactionVision data:

- ▶ Backlog
- ▶ Delays
- ▶ Exceptions
- ▶ Failures
- ▶ Value (This KPI is value-based only)

Note: Explanations of these KPIs can be found in “List of Service Level Management KPIs” on page 370.

To change a KPI attached to a CI from count-based to value-based, in the KPI Definition Dialog Box select a suitable value-based rule and define the required objective thresholds.

If you want to see both count-based and value-based versions of the KPI attached to the CI, then you need to clone the KPI template in the repositories to create a second version of the KPI. You can then attach both of the KPI versions to the CI, and use different rules for each. See “Define New KPIs for Monetary Values - Scenario” on page 252.

If you want a KPI to use a value-based rule by default, you must change the defined settings for the CI in the relevant assignment group. For details, see “Manage KPI Assignment Groups – Scenario” on page 203.

Units Used for Value-Based KPIs

The Value KPI displays a monetary value result in the reports, and has a default currency unit of \$ (USD).

The Backlog KPI (for Business Process Insight and TransactionVision data) and the Throughput KPI (only for Business Process Insight data), when using a value-based rule, also display monetary value results in the reports. However there is no default currency unit defined for these KPIs.

Defining or changing the currency unit for these KPIs is done in the KPI Repository, by editing existing KPI templates or defining new ones, depending on your specific requirements (for details on editing and defining KPIs, see “Customize a KPI” on page 368).

To work with monetary values with these KPIs, you must consider the requirements for your Business Process Insight and/or TransactionVision data:

- ▶ If you require both count-based and value-based versions of the Backlog or Throughput KPIs, then you need to create two different versions of the KPI in the KPI Repository. You can then define a currency unit for the value-based version.
For example, you create a clone of Throughput and also override the original. One is renamed Throughput-Values and has a defined \$ currency unit; the other is renamed Throughput-Count.
- ▶ If you have business processes or transactions using different currency units, then you need to define multiple versions of the KPIs, each with a different defined currency unit.
For example, you have business transactions in three different currencies. You create two clones of Value KPI and rename them Value-Euro and Value-Sterling, and define appropriate currency units for them. You then override the Value KPI and rename it Value-USD (leaving the \$ currency unit defined).

- ▶ If you are working with both Business Process Insight and TransactionVision data in Service Level Management, you need to consider if changes to a KPI are relevant for both data types, or if you need to create separate KPI versions for each data type.

For example, you create a clone of the Backlog KPI and also override the original. One is renamed **Backlog-BPI Values** and has a defined currency unit; the other is renamed **Backlog-TV Count**, and has no unit defined.

For a scenario on defining additional KPI templates for value-based KPIs, see “Define New KPIs for Monetary Values - Scenario” on page 252.

Note: If you decide to use that a single KPI for multiple currencies, then you should use one of the status-based group rules for a parent CI with more than one currency amongst the child CIs. For details, see “Status-Based Group Rules” on page 250.

Status-Based Group Rules

In some cases, performing logical arithmetical operations (such as average, minimum, maximum) on the KPI values in a group gives meaningless results. This is the case in the following examples:

- ▶ For a group containing business transaction monitor CIs, when the Value KPI for each child CI gives a monetary value in a different currency.
- ▶ For a group containing business process monitor CIs, when the Backlog KPI for each child CI gives a backlog count value. A count of 500 may represent a large number for one business process (causing Failed status), but a small number for a different business process (causing Exceeded status).

In these situations, you can use one of the status-based group rules for the parent CI. The status-based group rules calculate a status for the CI based on the statuses of the children, and do not display a value.

There are two status-based group rules available:

- Group Average Status. For details, see “Group Average Status” on page 446.
- Group Worst Status. For details, see “Group Worst Status” on page 447.

When a status-based rule is in use, the SLA reports are affected as follows:

- No value is displayed in the cell for a KPI using the status-based rule. In the tooltip, there is no value displayed beside the KPI name, instead it says **N/A (Status Based)**.
- There are no objectives for status-based rules, so none are displayed in the relevant reports or tooltips for the KPI using the status-based rule.
- No trend is displayed in the Time Range Comparison report for KPIs using a status-based rule.
- The graphs for the CIs Over Time and the CI Over Time vs Target reports do not display KPIs using a status-based rule.

Note: KPIs using status-based rules are excluded from status forecast calculations.

Define New KPIs for Monetary Values - Scenario

This scenario describes the creation and assignment of new Service Level Management KPIs to work with both count-based and value-based rules.

Note: The scenario describes defining new KPIs for TransactionVision CIs, but the same principles apply when defining new KPIs for Business Process Insight CIs.

This scenario includes the following steps:

- “Background” on page 252
- “Create KPI Templates” on page 253
- “Attach KPIs to CIs” on page 255
- “Recalculate the SLA” on page 258
- “Results in Reports” on page 259

1 Background

Acme company use TransactionVision in Business Availability Center, but not Business Process Insight.

The SLA TV for Acme was previously created for the TransactionVision data, and shows count-based information in the Service Level Management reports. The IT Manager has requested to see also monetary information for the backlogged business transactions. The business transactions have monetary values in one of two currencies, either dollars or euro.

2 Create KPI Templates

Sam, the Service Level Management administrator, accesses the Service Level Management KPI Repository and creates two clones of the Backlog KPI, then overrides the Backlog KPI.

Agreements Manager	Services Manager	Downtime Events	KPI Assignments	Repository
Factory KPIs				
<input type="checkbox"/>	101	Availability	SLM General	13 10
<input type="checkbox"/>	104	Availability Six Sigma	SLM General	13 10
<input type="checkbox"/>	212	Average Outage Duration	SLM General	13 10
<input type="checkbox"/>	612 (Overridden)	Backlog	SLM General	13 10
<input type="checkbox"/>	604	Business Health	SLM General	13 10
<input type="checkbox"/>	611	Delays	SLM General	13 10
<input type="checkbox"/>	605	Duration	SLM General	13 10
<input type="checkbox"/>	607	Duration Status Percentage	SLM General	13 10
<input type="button" value="Clone"/> <input type="button" value="Override"/>				
Custom KPIs				
ID	Display Label▲	Applicable Sections	Display Order	Acknowledgement Level
<input type="checkbox"/>	2003	Backlog	SLM General	13 10
<input type="checkbox"/>	612	Backlog	SLM General	13 10
<input type="checkbox"/>	2002	Backlog	SLM General	13 10

He opens the overridden version for editing and renames it Backlog-Count (this remains the default KPI attached to the CIs). He also opens each of the two new copies of the KPI for editing; the first he renames Backlog-Value Euro and defines the unit as **euro**, and the second he renames Backlog-Value Dollars and defines the unit as **\$**.

KPI Details	
Display Label:	Backlog-Value Dollars
Display Order:	13
Calculation Order:	4
Acknowledgement Level:	10
Applicable for User Mode:	Both
Default Group Rule:	Group Average Value
Type:	TEXT
Status:	Status
Available Formatting Methods:	
Formatting Method:	
Value:	NODE.DIM.RESULT.Value
Value Prefix:	
Value Postfix:	
Units:	\$
The KPI is critical if:	Values are bigger
Applicable Rules:	Applicable Sections:
Applicable Rules:	SLM General

The names are displayed in the Custom KPIs area:

Custom KPIs				
ID	Display Label▲	Applicable Sections	Display Order	Acknowledgement Level
<input type="checkbox"/> 612	Backlog-Count	SLM General	13	10
<input type="checkbox"/> 2002	Backlog-Value Dollars	SLM General	13	10
<input type="checkbox"/> 2003	Backlog-Value Euro	SLM General	13	10

3 Attach KPIs to CIs

Sam accesses the Agreements Manager tab and opens the TV for Acme SLA for editing. In the Define KPIs page, he sees that Service Level Management has automatically updated the default Backlog KPI to **Backlog-Count**.

Define KPIs

Select the CIs in the SLA for which you want to set KPIs. You can define KPIs and outages for multiple CIs in a single definition. To add a KPI, click **Add KPI**. To edit a KPI, click its **Edit** button. To add or edit an outage definition, click **Add Outage** or click its **Edit** button. To define KPIs and outages for multiple CIs in a single definition, click one CI, hold down **Ctrl**, and click each additional CI to display the Multiple CIs Actions pane. To continue, click **Next**.

Refresh
Search
Browse [Search](#)

SLA:

- [-] TV for Acme
 - [+] Bond
 - [-] Fund Transfer
 - Fund Transfer monitor**

Item: Fund Transfer monitor

KPIs		
KPI ▲	Business Rule	Actions
<input type="checkbox"/> Backlog-Count	TransactionVision Average Backlog Count.	
<input type="checkbox"/> Duration	TransactionVision Average Duration	
<input type="checkbox"/> Throughput	TransactionVision Throughput	

Add KPI

Sam attaches the new value-based KPIs to the CIs. For each TV Monitor CI, he clicks **Add KPI** to open the KPI Definition dialog box, and selects either the **Backlog-Value Dollars** KPI or the **Backlog-Value Euro** KPI, according to the currency used by that business transaction.

He also defines the value-based rule for the Backlog KPI (**TransactionVision Average Backlog Value**) and assigns threshold values in dollars for the objectives.

KPI Definition

KPI: Backlog-Value Dollars

Business rule: TransactionVision Average Backlog Value.

Parameters:

Objectives

To add an objective, click a cell, enter the objective values, then click the cell again (or cell). To add an objective to all periods of a calendar, click a calendar, enter the object calendar again (or click a cell).

Calendar	Day	Week	Month
24x7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Exceeded

>

5000.0

\$

Failed

Otherwise

The same KPI is attached to the parent Business Transaction CI for each TV Monitor CI.

For higher-level group CIs, with child CIs using both currencies, Sam attaches both the **Backlog-Value Dollars** KPI and the **Backlog-Value Euro** KPI.

Define KPIs

Select the CIs in the SLA for which you want to set KPIs. You can define KPIs and outages for multiple CIs in a single definition. To add a KPI, click **Add KPI**. To edit a KPI, click its **Edit** button. To add or edit an outage definition, click **Add Outage** or click its **Edit** button. To define KPIs and outages for multiple CIs in a single definition, click one CI, hold down **Ctrl**, and click each additional CI to display the Multiple CIs Actions pane. To continue, click **Next**.

SLA: TV for Acme
Browse [Search](#)

- TV for Acme
- Bond
- Fund Transfer

Item: TV for Acme

KPIs				
KPI ▲	Business Rule	Actions		
<input type="checkbox"/> Backlog-Count	Group Average Value			
<input type="checkbox"/> Backlog-Value Dollars	Group Average Value			
<input type="checkbox"/> Backlog-Value Euro	Group Average Value			
<input type="checkbox"/> Duration	Group Average Value			
<input type="checkbox"/> Throughput	Group Sum Value			

Add KPI

Outage: Outage Based on Availability

4 Recalculate the SLA

The TV for Acme SLA must be recalculated for the changes to be implemented in the reports. In the Agreements Manager tab, Sam sees that the recalculation task has not been automatically scheduled, so he clicks **Schedule recalculation task** and defines the recalculation time.

Recalculation Task

Recalculate from: [4/15/08 2:00 AM](#)

Schedule the task to start: [5/5/08 2:21 AM](#)

Caution: If you recalculate an SLA for a period when the raw data has already been purged, you will lose the SLM data for that period. To verify the purging policy, select Admin > Platform > Setup and Maintenance > Data Purging.

5 Results in Reports

The **Backlog-Count** KPI continues to show count results for the CIs, while the **Backlog-Value Dollars** KPI and the **Backlog-Value Euro** KPI show monetary values.

CI Summary 4/1/08 12:00 AM - 5/6/08 12:00 AM Asia/Jerusalem

View: Quarter to date ◀ ▶

CI: TV for Acme (SLA: TV for Acme)

Primary grouping: KPI KPI: All (Clear All)

Secondary grouping: Calendar Calendar: All (Clear All)

☰ ☷

	Backlog-Count	Backlog-Value Dollars (\$)	Backlog-Value Euro (Euro)	Duration (HH:MM:SS)	Throughput
CI ▲	24x7	24x7	24x7	24x7	24x7
TV for Acme	3,170.645	89,533.813	43,808,799.702	00:00:08	16.00
┆ Bond	5,246.291	-	43,808,799.702	00:00:02	8.00
┆ Bond monitor	5,246.291	-	43,808,799.702	00:00:02	8.00
┆ Fund Transfer	1,095.000	89,533.813	-	00:00:14	8.00
┆ Fund Transfer monitor	1,095.000	89,533.813	-	00:00:14	8.00

9

Integration with HP Service Manager

This chapter explains how system incidents from HP ServiceCenter or HP Service Manager are handled in Service Level Management.

Note: HP Business Availability Center integrates with both HP Service Manager and HP ServiceCenter. All information given in this chapter for HP Service Manager can also be applied for integration with HP ServiceCenter.

This chapter includes:

Concepts

- ▶ Integration with HP Service Manager - Overview on page 262
- ▶ Service Level Management KPIs for System Incidents on page 262
- ▶ Use Case Example: System Incident KPIs During a Single Period on page 267
- ▶ Use Case Example: System Incident KPIs Across Periods on page 270

Integration with HP Service Manager - Overview

HP Business Availability Center integrates with HP Service Manager to collect information on open incidents for business services, and present the information within Business Availability Center applications.

The data for incidents is retrieved from HP Service Manager using the EMS Integration tool, which sets up a SiteScope Service Manager monitor to import the topology for the services and their incidents. The result of this process is to create new Business Service CIs with child EMS Monitor CIs (or to create EMS Monitor CIs attached to existing Business Service CIs). The topology can be seen in the Service Measurements view. For details on working with the EMS Integration tool, see “View HP Service Manager Data in Dashboard and Service Level Management” in *Solutions and Integrations*.

The data for each EMS Monitor CI is updated by the incoming event samples from HP Service Manager, providing an ongoing record of the lifecycle for each incident. This information is used by the system incident KPIs in Service Level Management.

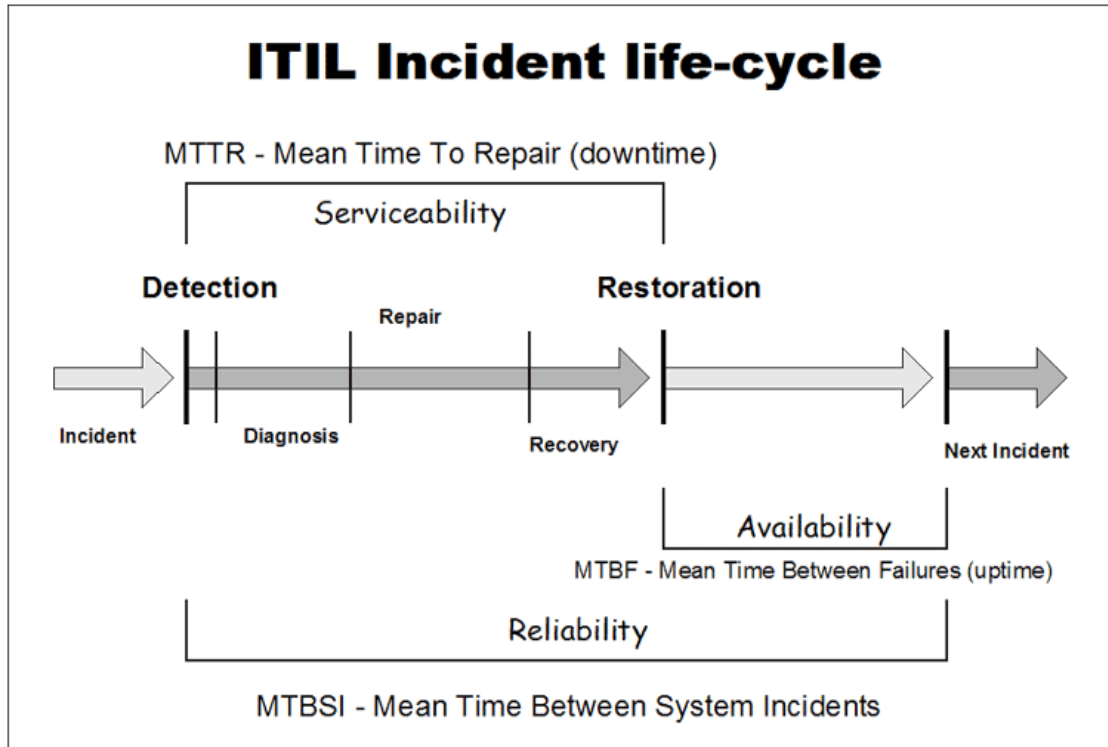
Service Level Management KPIs for System Incidents

You include system incidents in service agreements by adding the relevant Business Service CI, or the child EMS Monitor CI, to the agreement in the **Admin > Service Level Management > Agreements Manager** page.

When a system incident is added to an agreement, specific KPIs for handling HP Service Manager data are automatically attached to the EMS Monitor CI:

- ▶ **MTTR.** The Mean Time to Repair KPI provides information on the percentage of incidents during a time period whose repair time was within a specified threshold. The monitor rule for the KPI is the MTTR rule, described in “MTTR (Mean Time to Recover)” on page 450.
- ▶ **MTBF.** The Mean Time Between Failures KPI provides information on the average time span when there were no open incidents for a business service, during a time period. The monitor rule for the KPI is the MTBF rule, described in “MTBF (Mean Time Between Failures)” on page 450.

- **MTBSI.** The Mean Time Between System Incidents KPI provides information on the average time span between the opening of one incident to the opening of the next incident, during a time period. The monitor rule for the KPI is the MTBSI rule, described in “MTBSI (Mean Time Between System Incidents)” on page 450.



Note: The Business Service CI uses the Incidents Group Rule as the default group rule for the MTTR, MTBF, and MTBSI KPIs. The logic for this group rule assumes that there is a single child CI; however, if the Business Service CI has than one child using these KPIs (for example, in a hierarchy of Business Service CIs), you must manually change the group rule for these KPIs to the **Worst Child (Min)** rule.

Change the rule in the Define KPIs page of the appropriate agreement wizard: See “Agreement Wizard” on page 80 or the “Advanced Agreement Options Wizard” on page 78.

Incident State and Severity Values

The calculations for the MTTR, MTBF, and MTBSI KPIs use the status (state) and severity values received for the incidents in the samples from HP Service Manager:

- ▶ The status of the incident received in a sample, for example, **Open** or **Pending**, indicates the current point in the lifecycle of the incident. A new sample is sent for every change in the incident status.

Service Level Management uses the incident status to define the **Initial State** parameter (marking the start of repair time) and **Final State** parameter (marking the end of repair time) for the system incident KPIs. By default, the incident statuses used for these parameters are **Open** and **Closed**.

- ▶ The severity for the incident received in the sample, for example, **High** or **Average**, enables filtering of the incidents to be included in calculations.

By default, Service Level Management sets the **Severity** parameter for the system incident KPIs to **3** (equivalent to **Average** severity in HP Service Manager). This means that incidents of severity 3 or higher (higher severities are 1 and 2) are included in the calculations for the KPI.

The default parameter values for the system incident KPIs are defined in the corresponding rules for the KPIs. You can change the default values from the **Admin > Service Level Management > Repositories > Business Rules** page. For details, see “Rule Details Dialog Box” on page 508.

You can also modify the default parameter values for the KPIs attached to individual CIs within a service agreement. You do this by editing the KPI within the Agreement Wizard from the **Admin > Service Level Management > Agreements Manager** page. For details, see “KPI Definition Dialog Box” on page 100.

KPI Definition

KPI: MTTR
 Business rule: MTTR

Parameters:

Initial State: Assign
 Final State: Resolved
 Severity: 2
 Percentile condition: * < 14400 seconds

Objectives

To add an objective, click a cell, enter the objective values, then click the cell again (or click another cell). To add an objective to all periods of a calendar, click a calendar, enter the objective, then click the calendar again (or click a cell).

Calendar	Day	Week	Month
24x7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Business Hours	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Exceeded > 98.0 %
 Failed Otherwise

OK Cancel Help

If required, you can assign multiple instances of the system incident KPIs to a CI, and define different parameter values for each one, to compare different parts of the incident lifecycle. To do this you must clone the system incident KPIs in the KPI Repository, and edit the parameters for the new KPIs as required (for example, you might create MTTR2, MTTR3, and so forth). You can then attach the new KPIs to CIs on the Define KPIs page of the Agreement Wizard.

For details on creating new KPIs, see “Customize a KPI” on page 368.

KPI Calculation Principles

The following principles apply when calculating the KPI values:

- All calculations take into consideration the calendars for the agreement, and exclude downtime.
- An incident is considered in the calculations for a calendar if its **Initial State** timestamp is within the calendar. Only the repair time within that calendar is counted for calculation purposes.
- If an incident starts in one tracking period and ends in a different tracking period, it is not included within the calculation for each period, but is included for a longer period that includes the two shorter periods. For example, if an incident starts on Monday and ends on Wednesday, the data for the incident is not included for Monday or for Wednesday—but is shown in the data for the entire week that includes these days.

Use Case Example: System Incident KPIs During a Single Period

The following use case gives examples of calculations for incidents that were opened for a Business Service CI during a single day. Each new incident creates an EMS Monitor CI as a child of the Business Service CI, and the calculations are done for the system incident KPIs attached to the EMS Monitor CIs—MTTR, MTBF, and MTBSI KPIs.

Use Case Details

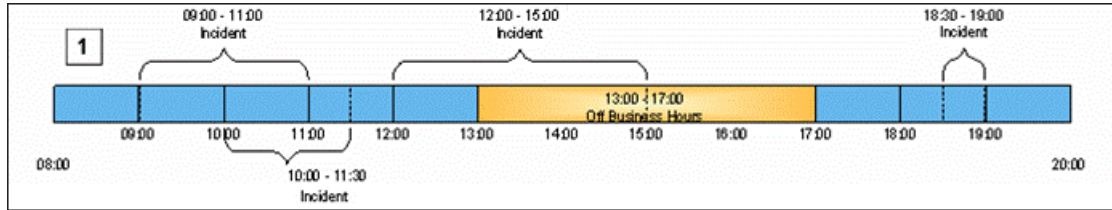
The details for the use case are as follows:

- Calculations are made for a day tracking period.
- The monitored period during a day is 08:00 to 20:00.
- There are two calendars monitored by the SLA:
 - Business hours from **08:00-13:00** and **17:00-20:00** (shown in blue in results)
 - Off business hours from **13:00-17:00** (shown in gold in results)
- The SLA targets are **Exceeded** and **Failed**.
- The objective set for the MTTR KPI is: **70%** of the incidents must be resolved in:
 - **<= 01:30** in business hours
 - **<= 04:00** in off business hours

Note: In the MTTR results for each example, **m** means that the objective was met, **b** means that the objective was breached.

- The objective set for the MTBF KPI is: Average time between failures must be **>= 01:30**
- The objective set for the MTBSI KPI is: Average time between incidents occurring must be **>= 03:00**

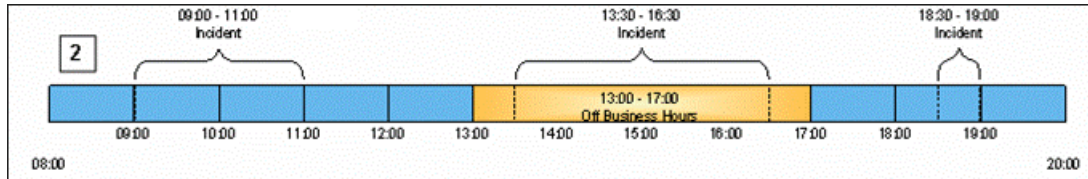
Case 1 Results



1. **Case 1 – Business Hours:**
 - a. Incident 1: **start** 09:00; **end** 11:00 (duration 02:00).
 - b. Incident 2: **start** 10:00; **end** 11:30 (duration 01:30).
 - c. Incident 3: **start** 12:00; **end** 13:00 (duration 01:00).
 - d. Incident 4: **start** 18:30; **end** 19:00 (duration 00:30).
2. **Case 1 – Off Business Hours**
 - a. **No incidents**

Case 1	MTTR	MTBF	MTBSI
Business Hours	b,m,m,m = 75%	$(1+0.5+1.5+1)/4=$ 01:00	$(1+2+2.5)/3=$ 02:45
Off Business Hours	No data	02:00	No data

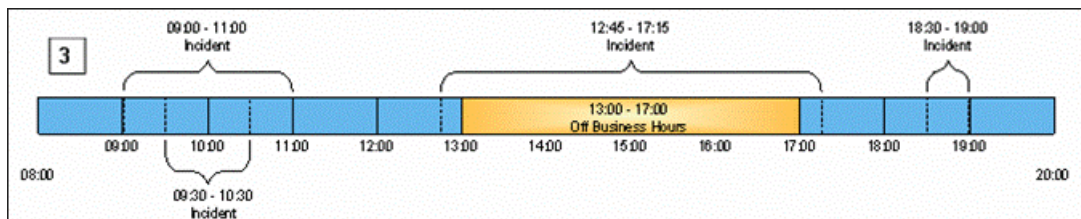
Case 2 Results



1. **Case 2 – Business Hours:**
 - a. Incident 1: **start** 09:00; **end** 11:00 (duration 02:00).
 - b. Incident 2: **start** 18:30; **end** 19:00 (duration 00:30).
2. **Case 2 – Off Business Hours:**
 - a. Incident 1: **start** 13:30, **end** 16:30

Case 2	MTTR	MTBF	MTBSI
Business Hours	b,m = 50%	$(1+3.5+1)/3=$ 01:53	$(5.5)/1=$ 05:30
Off Business Hours	m = 100%	$(0.5+0.5)/2=$ 00:30	No data

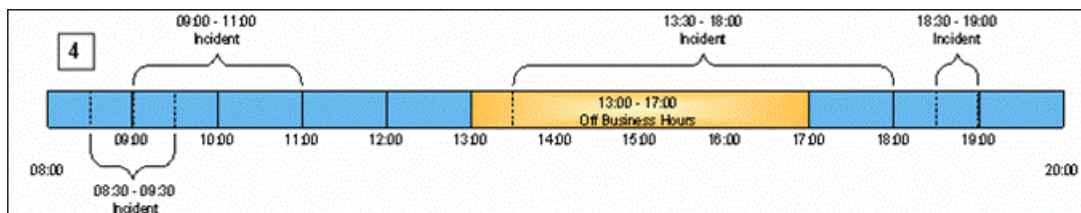
Case 3 Results



1. **Case 3 – Business Hours:**
 - a. Incident 1: **start** 09:00; **end** 11:00 (duration 02:00).
 - b. Incident 2: **start** 09:30; **end** 10:30 (duration 01:00).
 - c. Incident 3: **start** 12:45; **end** 17:15 (duration 00:30).
 - d. Incident 4: **start** 18:30; **end** 19:00 (duration 00:30).
2. **Case 3 – Off Business Hours:**
 - a. **No Incidents.**

Case 3	MTTR	MTBF	MTBSI
Business Hours	b+m+m+m = 75%	$(1+1.75+1.25+1)/4=$ 01:15	$(0.5+3.25+2)/3=$ 01:40
Off Business Hours	No data	No data	No data

Case 4 Results



1. **Case 4 – Business Hours:**
 - a. Incident 1: **start** 08:30; **end** 09:30 (duration 01:00).
 - b. Incident 2: **start** 09:00; **end** 11:00 (duration 02:00).
 - c. Incident 3: **start** 18:30; **end** 19:00 (duration 00:30).
2. **Case 4 – Off Business Hours:**
 - a. Incident 1: **start** 13:30; **end** 17:00 (duration 03:30).

Case 4	MTTR	MTBF	MTBSI
Business Hours	m, b, m = 66%	$(0.5+3.5+1)/3=$ 01:40	$(0.5+5.5)/2=$ 03:00
Off Business Hours	m = 100%	$(0.5)/1=$ 00:30	No data

Use Case Example: System Incident KPIs Across Periods

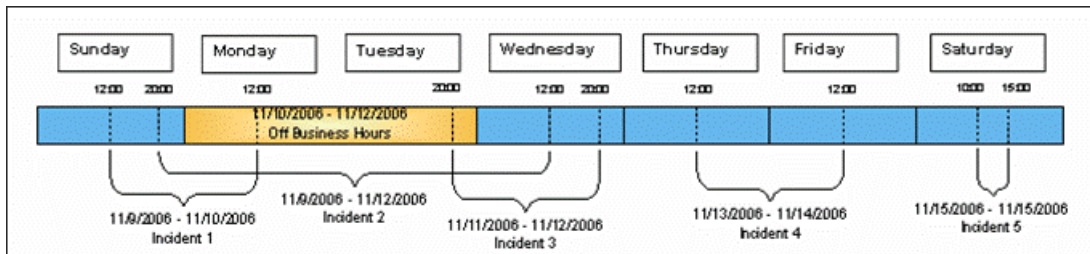
The following use case gives examples of calculations for incidents that were opened for a Business Service CI over the course of a week. Each new incident creates an EMS Monitor CI as a child of the Business Service CI, and the calculations are done for the system incident KPIs attached to the EMS Monitor CIs—MTTR, MTBF, and MTBSI KPIs.

Use Case Details

The details for the use case are as follows:

- Calculations are made for day and week tracking periods.
- There are two calendars monitored by the SLA:
 - Business hours: Sunday, Wednesday, Thursday, Friday, Saturday (shown in blue in results)
 - Off business hours: Monday, Tuesday (shown in gold in results)
- The SLA targets are **Exceeded** and **Failed**.
- The objective set for the MTTR KPI is: **70%** of incidents must be resolved within 30 hours.

Use Case Results



Business Hours (blue):

- **Sunday:** No closed incidents
- **Monday:** Not relevant - off-business hours

- **Tuesday:** Not relevant - off-business hours
- **Wednesday:** 1 incident (opened on Sunday) with duration of 16 hours (amount of open time during business hours)
- **Thursday:** No closed incidents
- **Friday:** 1 incident (opened on Thursday) with duration of 24 hours
- **Saturday:** 1 incident with duration of 5 hours

Note: Incidents that are opened on one day and are closed on a different day are ignored in the calculations for each day, but included in the week calculations.

KPI	Daily Results						
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
MTTR	No data	No data	No data	No data	no data	No data	100%
MTBF	No data	No data	No data	No data	no data	No data	09:30
MTBSI	No data	No data	No data	No data	No data	No data	No data

KPI	Week results
MTTR	100%
MTBF	14:45 $((12+16+22+9)/4)$
MTBSI	31:20 $((8+40+46)/3)$

Off Business Hours (gold):

KPI	Daily Results						
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
MTTR	No data	no data	No data	No data	No data	No data	No data
MTBF	No data	No data	No data	No data	No data	No data	No data
MTBSI	No data	No data	No data	No data	No data	No data	No data

KPI	Week results
MTTR	No data
MTBF	No data
MTBSI	No data

Part II

Service Level Management Reports

10

Working with the Service Level Management Application

This chapter describes main concepts and elements specific to the application component of Service Level Management.

This chapter includes:

Concepts

- Service Level Management Reports - Overview on page 276
- Producing Reports on page 279
- Status in Reports on page 280
- Outage Reports on page 283
- About SLA Management on page 284
- Aggregated Data on page 285
- Status Forecast for Agreements on page 285
- Time Zones on page 290
- Tracking Range and Granularity in Service Level Management on page 291
- Primary Grouping/Secondary Grouping on page 293
- Additional Values in Reports on page 295
- Tooltip for KPIs in Reports on page 301

Tasks

- View SLA and Outage Reports on page 302
- Work with Service Level Management Reports - Scenarios on page 303

Reference

- ▶ Service Level Management Application User Interface on page 306
- ▶ Troubleshooting and Limitations on page 363

Service Level Management Reports - Overview

Service Level Management reports show you how well actual service levels compare with your goals. The reports provide you and your users with a bird's eye view of the whole system, and enable you to get an early warning of potential problems, before agreement violations occur.

You can view reports from a Six Sigma perspective, and you can store report data and share reports. You can also use the SLA Status Alerts report to view a log of alerts sent during a specified time period—for details, see “SLA Alerts” in *Alerts*.

Tip: You can also use the Service Report framework to create a custom report with elements from Service Level Management and Dashboard. The Service Report employs a multidimensional data model. For details, see “Service Report” in *Reports*.

Report Summaries

The following table summarizes the Service Level Management reports:

Report Name	Description	Use This Report To...
Status Snapshot	Displays up-to-date information about the best-performing or worst-performing agreements in the current tracking periods, and in previous, closed periods. For details, see “Status Snapshot Report” on page 353.	track best-performing and worst-performing agreements, and get a quick snapshot of agreement status
SLA Status	Displays current and forecast status for agreements over a selected tracking period. For details, see “SLA Status Report” on page 343.	determine if current service levels may lead to a future breach of the agreement
SLAs Summary	Displays a list of agreements and their status, organized by KPI/calendar/time period. For details, see “SLAs Summary Report” on page 349.	view a summary of data for all (or specific) agreements
CI Summary	Drill-down from the SLA Summary report. The report displays status for CIs in the branch for a selected CI (up to four levels), organized by KPI/calendar/time period. For details, see “CI Summary Report” on page 319.	find CIs that did not reach their objectives
CI Impact	Displays a CI’s impact across several agreements. The report displays status organized by KPI/calendar/time period. For details, see “CI Impact Report” on page 310.	compare the availability and performance of a CI across several agreements

Report Name	Description	Use This Report To...
CI Status	<p>Displays status for CIs in the branch for a selected CI (up to four levels), for a selected time range, calendar, and KPI.</p> <p>For details, see “CI Status Report” on page 316.</p>	<p>view configuration information, such as objectives, for each CI</p>
Time Range Comparison	<p>Enables you to compare status for up to eight time ranges for CIs in an agreement.</p> <p>Displays status for CIs in the branch of a selected CI (up to four levels), for a selected calendar and KPI.</p> <p>The added value in this report is that it displays a trend between two time ranges.</p> <p>For details, see “Time Range Comparison Report” on page 359.</p>	<p>compare time ranges to determine whether availability and performance have improved</p>
CIs Over Time	<p>Displays a graphic display of status over time for selected CIs, for a specific KPI and calendar.</p> <p>For details, see “CIs Over Time Report” on page 325.</p>	<p>follow the results of a particular CI over a time period and compare with other CIs</p>
CI Over Time vs. Target	<p>Displays a graphic display of status over time for a selected CI, for a specific KPI and calendar, and compares results to the target objectives for the CI.</p> <p>For details, see “CI Over Time vs. Target Report” on page 313.</p>	<p>see how well a CI has performed compared to its objectives</p>
Outage Summary	<p>Displays a list of outages for selected CIs.</p> <p>For details, see “Outage Summary Report” on page 337.</p>	<p>view outage information for a specific agreement</p>

Report Name	Description	Use This Report To...
Outage Breakdown	Displays a graphic display for breakdown of outage categories by CI outages, or a breakdown of CI outages by outage categories. You view data according to outage duration or number of outages, for a specific calendar. For details, see “Outage Breakdown Report” on page 328.	view a breakdown of all outages for certain CIs, to see to which category a CI belongs (Database, Network, Webserver, Undefined, or user-defined)
Outage Distribution	Displays a graphic display of outage distribution by CI or by outage category. You view data according to outage duration or number of outages, for a specific calendar. For details, see “Outage Distribution Report” on page 332.	view the outage distribution for selected CIs, to see which CI or category has the most outages, or has outages with the longest duration

Producing Reports

For a general explanation of how to work with all HP Business Availability Center reports, see “Working in Reports” in *Reports*.

You can generate reports automatically or manually and you can specify a header and a footer for a report. For details, see “Customizing Reports” in *Reports*.

If you have defined downtime or other events, Service Level Management reports exclude the data according to the downtime definitions. For details, see “Downtime Events” on page 161.

Service Level Management:

- displays a report with the last agreement selected.
- displays a report with the same filters (for example, KPI, configuration item, time period) as those chosen in a previous report, for the duration of the Web session.

- displays reports with a minimum time granularity of one hour.
- generates a report at the same level (for example, agreement, CI, CI's children) as that chosen in a previous report.
- generates a report according to the aggregated data stored in the database.
- updates the "to date" views once daily.
- enables users to add any report to a custom report.
- enables users to sort a report by any column.
- can display up to 60 data points in each table. For example, for a month time period, you can choose to view the data organized by weeks (four or five data points) or days (30 or 31 data points). However, you cannot choose to view by hours (~744 data points).



Status in Reports

Each KPI assigned to a CI generally displays a value for the KPI (calculated by the KPI business rule) and an objective status (determined by comparing the calculated value against the objective thresholds defined in the rule).

For monitor (leaf) CIs, the KPI rule calculates the value based on data received in the samples for the CI. For group (parent) CIs, the KPI rule calculates the value based on the results for the child CIs in the group.

Statuses are represented by the following colors and icons:

Status	Color name	Color	Icon
Exceeded	Green		
Met	Teal		
Minor Breached	Yellow		
Breached	Orange		
Failed	Red		

Status	Color name	Color	Icon
No Data/No Objectives Defined	Blue		n/a
Downtime	White		n/a

Agreement Status

The Status Snapshot report and SLA Status report both display the current status for entire agreements, during specific tracking periods.

Status for each agreement is calculated using the SLM Status KPI. Every hour, the Service Level Management engine calculates the status-to-date for each KPI attached to the Service Level Agreement CI (the CI at the highest level of the agreement), for every tracking period defined for the agreement. The status-to-date calculations are based on results up to the end of the previous hour, using a running average of the KPI values.

You can view the KPIs defined for the Service Level Agreement CI in the Define KPIs page of the Agreement Wizard or the Advanced Agreements Options Wizard:





Define KPIs


Select the CIs in the SLA for which you want to set KPIs. You can define KPIs and outages for multiple CIs in a single definition. To add a KPI, click **Add KPI**. To edit a KPI, click its **Edit** button. To add or edit an outage definition, click **Add Outage** or click its **Edit** button. To define KPIs and outages for multiple CIs in a single definition, click one CI, hold down **Ctrl** and click each additional CI to display the Multiple CIs Actions pane. To continue, click **Next**.



SLA:

- My SLA
 - bpm
 - tx_1
 - CI Type: Service Level Agreement
 - y-net_tx
 - Cust_1_BPM_1
 - tx_10
 - tx_15
 - tx_1_failed
 - tx_2_failed
 - tx_5

Item: My SLA

	KPI	Business Rule	Actions
<input type="checkbox"/>	Availability	Group Average Value	 
<input type="checkbox"/>	Performance	Group Average Value	 

 Add KPI

Outage: Outage Based on Availability  

The SLM Status KPI takes the hourly status-to-date calculations, and determines what is the worst status held by any of the KPIs attached to the Service Level Agreement CI, in each tracking period. The resulting worst status for each tracking period is saved in the database. When you access the Status Snapshot report or the SLA Status report, the report displays status according to the last saved results (up to the previous hour).

Note: KPIs for the Service Level Agreement CI that do not have a status (because no objectives are defined for the KPI) are ignored in the SLM Status KPI calculations.

For example:

In the **Banking SLA**, the Service Level Agreement CI has two attached KPIs, **Availability** and **Performance**. The SLA works with **Week** and **Month** tracking periods.

On Tuesday August 12th at 9:00 AM, Service Level Management calculates the status-to-date for the **Banking SLA**, using the results available for up to 8:00 AM. For the current week (calculated from midnight on Sunday), the **Availability** KPI has the worst status-to-date (Failed); for the current month (since midnight July 31st), both KPIs have the same status (Minor Breached).

When a user accesses the Status Snapshot report at 9:25 AM, the **Banking SLA** displays Failed status for the **Week** tracking period and **Minor Breached** for the **Month** tracking period.

Also see: “Aggregated Data” on page 285 and “Tracking Range and Granularity in Service Level Management” on page 291.

Outage Reports

Outage reports enable you and your users to manage and control outages (periods of time during which measurements fail), thus improving service levels. There are three outage reports available in Service Level Management:

- ▶ Outage Breakdown Report, described on page 328
- ▶ Outage Distribution Report, described on page 332
- ▶ Outage Summary Report, described on page 337

When you generate a report, Service Level Management calculates (on the fly) whether there have been any outages in the time period you chose, by running the outage business rule associated with the CI. The Minimum duration set in the outage rule determines the length of time considered an outage.

You define outages during agreement creation. For details, see “Outages in Agreements” on page 40.

About SLA Management

SLA Management enables you to view services provided by your department. You use the three default views shown in the View Explorer in the left pane to view services or business units, and their CIs. You can view data and agreement information about configuration items (CIs) that represent the business process, hardware, or software services, and about business units associated with agreements.

For information about defining business units, see “Business Units for Services and Agreements” on page 32.

To view data in reports, choose between the following views:

- ▶ **Business Services.** Enables you to view the related agreements for each business service, and link to the CI Impact report for the selected service.
- ▶ **Business Units.** Enables you to view the related agreements for each business unit (provider or customer), and link to the SLAs Summary report for the selected unit.
- ▶ **Service Providers.** Enables you to view the related agreements for business units (providers) and their services, and open the SLAs Summary report or CI Impact report for the selected unit or service.

Aggregated Data

All reports are calculated according to aggregated data stored in the database.

When calculating results for previously-aggregated data, Service Level Management rounds out the tracking period. The **From** time is rounded down to the nearest hour, and the **To** time is rounded up to the nearest hour.

Data aggregation for the status-to-date information (for example, week-to-date) displayed in the Status Snapshot report differs from the calculations done in other reports. The Status Snapshot report displays data that is correct up to one or two hours ago, while other Service Level Management reports display data calculated to the last closed day. This means that you may see different data displayed in the Status Snapshot report as compared with other reports, or that the Status Snapshot report already contains data while other reports do not yet have data.

For more information on data aggregation in HP Business Availability Center, see “Data Aggregation” in *Reference Information*.

Status Forecast for Agreements

Service Level Management provides a forecast of agreement status at the end of a period, based on behavior in the past. The status forecast shows you whether continuing to maintain your services at the current levels may lead to a breach of the agreement in the future.

Status forecast is described in the following sections:

- ▶ “Status Forecast Calculations” on page 286
- ▶ “Status Forecast in Applications” on page 287

Status Forecast Calculations

The forecast is calculated by looking at the behavior of each KPI in the agreement during a previous period, and assuming the same behavior pattern will continue during the forecast period. The extrapolated KPI data is used to calculate a forecast result for each KPI, and the status forecast for the agreement is based on the worst of all KPI statuses.

Two values are defined for the status forecast:

- ▶ **Base Forecasting On.** This is the period that the forecast calculations are based on, and the options are determined by the tracking periods defined for the agreement. Depending on the context, the analysis can be based on the "Last <aaa>," or "<aaa> to date," where <aaa> is a tracking period used for the agreement, for example, **Last Month** or **Month to date**. If it is currently halfway through May, selecting **Last Month** gives a forecast based on April's results, and selecting **Month to date** gives a forecast based on the results for May so far.

Note: Forecasting cannot be based on a single hour or on the current day.

- ▶ **Give Forecasting For.** This is the period that the forecast is given for, and the options are also based on the tracking periods defined for the agreement, excluding hour and day. The forecast is given for the end of a period that includes the current date, for example **End of week** or **End of Quarter**. If it is currently halfway through May, selecting **End of Quarter** gives a forecast for the current quarter from April 1st to June 30th.

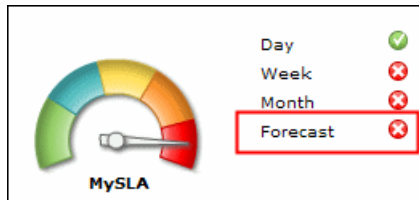
Note:

- The forecast calculations are based on averages, so if an agreement contains a KPI that is based on an accumulative result (as is the case for the Outage Duration, Number of Outages, MTBF, MTBSI, and MTTR KPIs), the calculations yield inaccurate forecast results. Do not rely on forecast results for agreements that contain any of these KPIs.
 - KPIs that are using a status-based rule are excluded from forecast calculations. Status-based rules are sometimes used for groups that include Business Process Insight or TransactionVision CIs. For more information, see “Status-Based Group Rules” on page 250.
 - An agreement must have a tracking period of at least a week or more to generate a forecast for it.
 - If the agreement was inactive at any point during the analysis period, then that period cannot be used for forecasting.
 - The forecast does not take account of any downtime defined for the future period.
-

Status Forecast in Applications

Status forecast is calculated in the following Service Level Management contexts:

- **Status Snapshot report.** A status forecast is calculated for the agreements displayed in the **Current Periods** pane of the **Applications > Service Level Management > Status Snapshot** report.



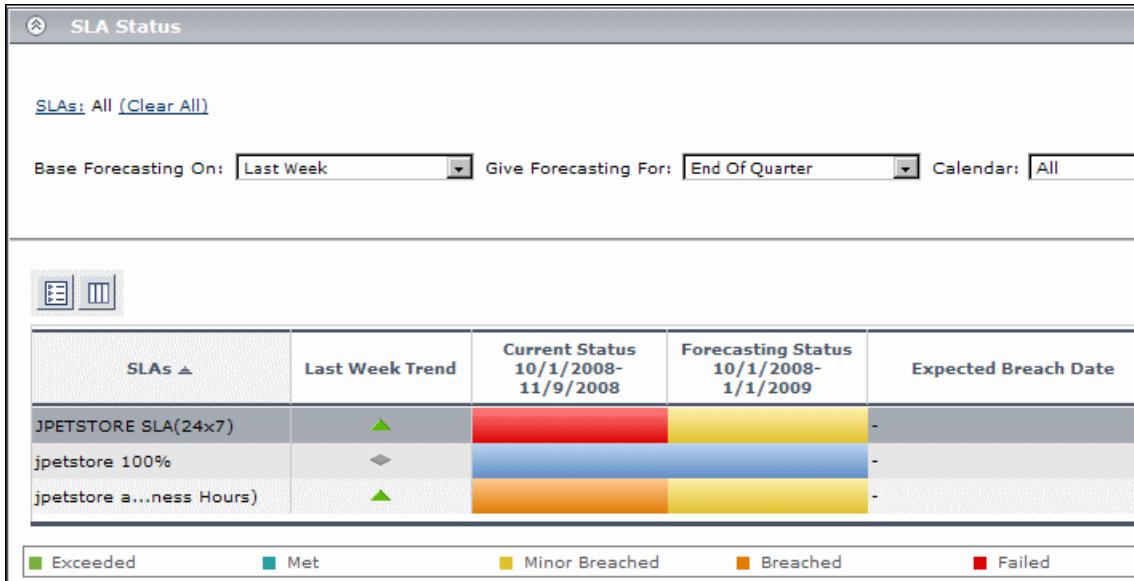
The forecast is calculated based on all calendars for the agreement, and using default tracking periods. To set different default periods, select **Admin > Platform > Setup and Maintenance > Infrastructure Settings**, choose **Applications**, select **Service Level Management**, and locate the required parameter. Modify the value as required.

The default tracking periods for the Status Snapshot report are as follows:

- ▶ **Week (base calculation period)**. This is the default tracking period that the status forecast calculation is based on, meaning that calculations are based on the agreement results for the last (prior) week. To set a different default tracking period, modify the value for the **Status forecast: Base calculation period** parameter.
- ▶ **Month (calculated period)**. This is the default tracking period that the status forecast is calculated for, meaning that the status forecast is given for the end of the current month. To set a different default tracking period, modify the value for the **Status forecast: Calculated period** parameter.

Note: Status forecast is only displayed for an agreement if the agreement is set to use both the default tracking periods (defaults defined in the Infrastructure Settings page), and if data is found that can be used to calculate the forecast result.

- **SLA Status report.** You can generate a status forecast for selected agreements in the **Applications > Service Level Management > SLA Reports > SLA Status** report. The forecast is calculated for the tracking periods and calendar that you select. The report also shows the status trend for the base forecasting period, and calculates the expected breach date for the agreement, where appropriate.



- **SLA alert schemes.** You can define SLA alert schemes in the **Admin > Alerts > SLA Alerts** page, to monitor the status forecast for an agreement and trigger an alert if the status forecast changes. You define the forecast tracking periods as part of the alert scheme, and the status forecast is recalculated every hour, for all calendars.

The triggered alerts are viewed in the **Applications > Alerts > SLA Alerts Report**.

Status	Time	Alert Name	SLA	Tracking Period	Alert A
Exceeded	2/20/08 10:00 AM	slaalert	sla1	Day	Send E-mail to
Exceeded	2/20/08 10:00 AM	slaalert	sla1	Month	Send E-mail to
Exceeded	2/20/08 10:00 AM	slaalert	sla1	Week	Send E-mail to

Time Zones

Service Level Management calculates reports according to an agreement's time zone, so that data is linked to the appropriate calendar. However, Service Level Management displays dates and times according to the time zone settings of the machine on which it is installed (the user's time zone).

Reports can contain data from different time zones: when reports include data for more than one agreement, and the agreements are defined for different time zones, each agreement's data is reported according to the agreement's time zone.

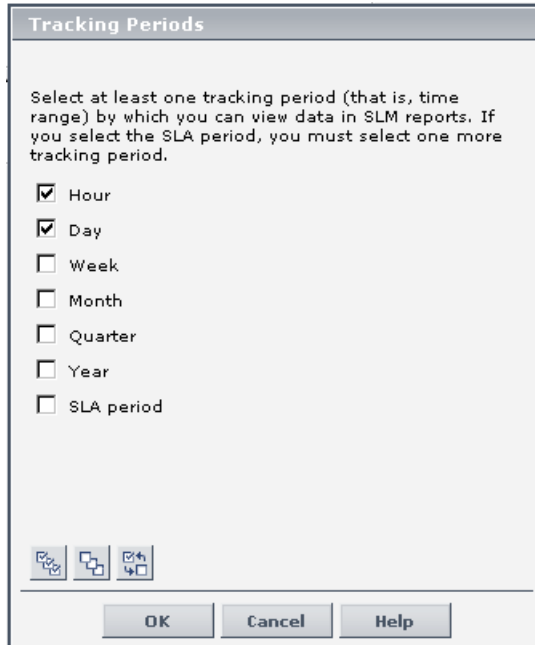
For reports calculated for the **last** time period, data is displayed according to the user's time zone.

Tracking Range and Granularity in Service Level Management

Tracking periods in Service Level Management define the time periods for aggregating data, and are used for tracking the agreement. You select tracking periods in Service Level Management reports to define the granularity for calculations.

The tracking periods for an agreement are defined in the Agreement Wizard. (See “Define Agreement Properties Page” on page 81.) You select at least one tracking period from **Hour**, **Day**, **Week**, **Month**, **Quarter**, **Year**. In addition, you can select **SLA period**, which tracks status for the agreement from the start of the agreement till the present.

The tracking periods that you select in the agreement determine which granularities are available in reports. For example, say you select the **Hour** and **Day** tracking periods for an agreement:



Tracking Periods

Select at least one tracking period (that is, time range) by which you can view data in SLM reports. If you select the SLA period, you must select one more tracking period.

Hour

Day




Week

Month

Quarter

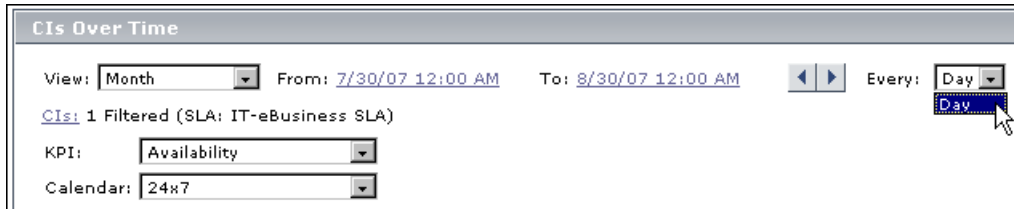
Year

SLA period

OK **Cancel** **Help**

In the CIs Over Time report, a user chooses to view a month's report. Because the **Week** tracking period was not defined for the agreement, the **Week** granularity is not available for the report (it does not appear in the **Every** list):



General information on working with the tracking range and granularity in reports can be found in “Time Range and Granularity Bar” in *Reports*.

The following additional information applies when using the tracking range and granularity settings in Service Level Management reports:

- ▶ For certain reports, the tracking periods that appear in the **View** list depend on the tracking periods defined for the agreement. That is, if the agreement includes only Day and Week, you cannot generate a report to show results by quarter.
- ▶ The **SLA to date** option may be included in the **View** list for reports that display data about a single agreement. When selected, the report time range begins at the start date of the agreement and continues till the current time.
- ▶ The **Last** option in the **View** list enables you to display data for the last part of a tracking period. For example, you could generate a report for the last week. When you use this option, the data is displayed according to the user time zone (whereas in all other views, the data is displayed according to the agreement time zone).
- ▶ Service Level Management can display up to 60 data points in one report. This means, for example, that if you select a month time period, you cannot view the report with an hourly granularity, because there are more than 60 hours in a month.
- ▶ For reports that are based on a weekly tracking period, calculations depend on which day is selected as the first day of the week. You define the first day of the week in the Infrastructure Settings Manager. For details, see “Customize Calendar Default Settings” on page 230.

- ▶ Data for Service Level Management reports is calculated at midnight. When the tracking range for a report is set "to date," then the data is shown for up to the previous midnight. For example, if you select the tracking range **Month to date** on Wednesday May 14th, the report shows data for the month up to midnight (end of day) on Tuesday May 13th.

This means that for a report generated for **Month to date** on the first day of a new month, for example, May 1st, there is no available calculated data for that month, and the report instead shows the data up to the previous midnight, meaning the data for April. The same principle applies for reports for **Week to date**, **Quarter to date**, and **Year to date**. The actual time range of the data presented in the report is shown in the report header.

This logic is not applied for status forecast calculations—when a forecast is calculated on the first day of a new week/month/year based on status-to-date, it uses the to-date data for the new period, resulting in a no-data status.

- ▶ If a report is generated for a tracking period that has no defined objective targets, the value for the period is displayed without a status. For example, an Outage KPI is defined with objectives for a month tracking period, but no objectives are defined for a week tracking period. If a report is then generated on a weekly basis, it gives only the number of outages for each week without a status.

Primary Grouping/Secondary Grouping

In the SLAs Summary, CI Summary, and CI Impact reports, you can organize the results under two levels of headings, a primary grouping and a secondary grouping. The data is then organized according to the secondary grouping.

The grouping options are time period, KPI, and calendar. Once you select an option as the primary grouping, it is not available as an option for the secondary grouping.

If you only want one heading level, select **None** for the secondary grouping—the data is then organized only by the primary grouping.

In the following example, the time periods are shown as the primary heading, and the calendars are shown as secondary headings under each time period.

CI Summary 11/3/08 12:00 AM-11/9/08 12:00 AM America/Los_Angeles

View: Every:

CI: MySLA (SLA: MySLA)

Primary grouping: KPI: Availability

Secondary grouping: Calendar: All (Clear All)

CI ▲	11/3		11/4	
	24x7	Business Hours	24x7	Business Hours
MySLA	60.000	60.000	60.000	60.000
Cust 1 BPM 1	60.000	60.000	60.000	60.000
bx 10	100.000	100.000	100.000	100.000
BPM Transac...om Location	-	-	-	-
bx 10 from ...m1amrnd	100.000	100.000	100.000	100.000
bx 10 from ...m1amrnd	100.000	100.000	100.000	100.000
bx 10 from virtual host 3	100.000	100.000	100.000	100.000
bx 15	100.000	100.000	100.000	100.000

Additional Values in Reports

Service Level Management is able to perform statistical calculations on certain KPIs, so that additional information is provided along with the main value. For example, for an Availability KPI, you can view the total number of samples, the number of failed samples, deviation from target, and so forth.

The following sections describe the additional values and how to view them in the Service Level Management reports:

- ▶ “Additional Values List” on page 295
- ▶ “Displaying Additional Values” on page 296

Additional Values List

The additional values available in Service Level Management reports are as follows (listed alphabetically):

Additional Value	Description
Deviation from Target (numerical value or %)	The deviation of the KPI value from the Exceeded target for the KPI. There are two versions of this additional value, numeric or percentage. For example: If the average response time over a day is 5.5 seconds, and the Exceeded target for that day is 4 seconds, the Deviation from target value is (numerical) 1.5 seconds or (percentage) 37.5%.
DPMO	Defects per million opportunities. Used with the Six Sigma Availability and Performance KPIs.
Failures	The number of unsuccessful samples during the sampling period.
Met Threshold	The number of samples that met the Exceeded target threshold for the KPI during the sampling period.
Number of Periods	Used with MTBF and MTBSI KPIs. The number of periods between incidents that the KPI calculation is based on.

Additional Value	Description
Number of Incidents	Used with the MTTR KPI. The number of incidents that the KPI calculation is based on.
Samples	The number of samples included in the KPI value calculation. Note: For Business Process Insight and TransactionVision KPIs, in some cases the Samples value shows the number of business process instances or business transaction instances that are included in the calculation, rather than the number of samples.
Standard Deviation	The standard deviation from the Exceeded target for the KPI.
Successes	The number of successful samples during the sampling period. Each KPI has its own "success" condition. For example, for the Availability KPI, a successful sample contains an "available" result, and for the Performance KPI, success is based on the sample meeting the threshold defined for the KPI parameter Percentile Condition .
Trimmed Samples	The number of samples that were excluded from the KPI value calculation, because of a filtering threshold set for the KPI (for example: Ignore any response time sample that exceeds 60 seconds).

Displaying Additional Values

In order for an additional value to be displayed in a Service Level Management report, the additional value must be configured for use with the KPI, and the **Show Additional Values** setting must be selected in the report.

When the KPI uses a time-based calculation method, only the Samples additional value is displayed; the calculation method must be changed to sample-based in order to view other additional values.

The following sections describe how to configure these settings:

- ▶ “Configuring Additional Values to Use with KPIs” on page 297
- ▶ “Configuring Sample-Based Calculation for KPIs” on page 299
- ▶ “Configuring Reports to Display Additional Values” on page 300

Configuring Additional Values to Use with KPIs

The KPI/additional value settings are defined in the **Additional Values XML**. This XML file lists the additional values that are valid for each KPI, and shows whether the additional value is configured for use in the reports (**calculate="true"**).

The **Samples**, **Number of Periods**, and **Number of Incidents** options are by default configured for use in the reports with all relevant KPIs. All other options are set to not be used (**calculate="false"**). For example, the following shows the default settings for the **User Performance** KPI:

```
</KPI>
<KPI id="111" name="User Performance">
  <Additional-Value calculate="true" id="1" name="numOfSamples"/>
  <Additional-Value calculate="false" id="5" name="Deviation From Targets"/>
  <Additional-Value calculate="false" id="6" name="Deviation From Targets
  (%)"/>
</KPI>
```

To modify which additional values are configured for use with each KPI, select **Admin > Platform > Setup and Maintenance > Infrastructure Settings**, choose **Applications**, select **Service Level Management**, and locate the **Additional Values** entry on the page. Click the **Edit** button to view the file contents. It is recommended that you copy the file contents to an XML editor to make changes.

Note: Configuring more additional values for calculation may cause slower report generation.

If an additional value is not listed for a specific KPI in the Additional Values XML, then it is not valid for that KPI. The following table shows the additional values that are valid for each KPI:

Note: The table does not include the following additional values:

- **Samples.** Valid for every KPI apart from outage KPIs and the MTBF, MTBSI, and MTTR KPIs.
 - **Number of Periods.** Valid for the MTBF and MTBSI KPIs.
 - **Number of Incidents.** Valid for the MTTR KPI.
-

KPI/ Additional Value	Trimmed Samples	Successes	Failures	Deviation from Target	Standard Deviation	DPMO	Met Threshold
Availability System Availability User Availability	No	Yes	Yes	Yes	No	No	No
Performance	Yes	No	Yes	Yes	No	No	Yes
System Performance	Yes	No	No	Yes	Yes	No	No
User Performance	No	No	No	Yes	No	No	No
Response Time	Yes	No	No	Yes	Yes	No	No
Six Sigma Availability	No	Yes	Yes	Yes	No	Yes	No

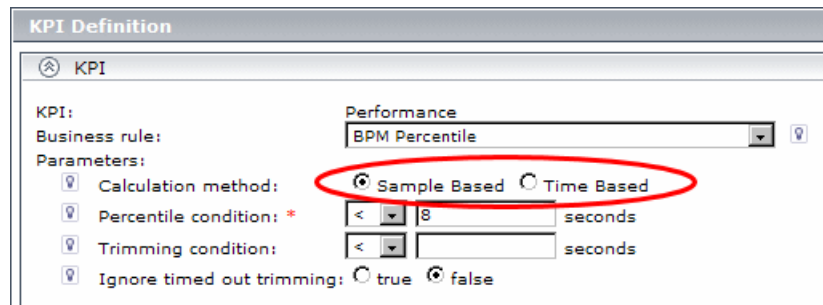
KPI/ Additional Value	Trimmed Samples	Successes	Failures	Deviation from Target	Standard Deviation	DPMO	Met Threshold
Six Sigma Performance	Yes	No	Yes	Yes	No	Yes	Yes
Application Network Security System	No	No	No	No	No	No	No

Configuring Sample-Based Calculation for KPIs

When the calculation method used for a KPI is time-based, the only additional value that is displayed in the reports is **Samples**. In order to see other additional values, you must change the calculation method to sample-based.

The calculation method is defined in the monitor rule for the KPI (at leaf CI level) in the **Calculation Method** parameter. This parameter is only applicable for certain monitor rules, and by default is set to time-based. (To see which rules use the Calculation Method parameter, see “List of Service Level Management Business Rules” on page 416.)

You change the calculation method to sample-based in the KPI Definition dialog box, described in “KPI Definition Dialog Box” on page 100. You must make the change individually for each KPI of a leaf CI, if you want to see all additional values for that CI.



If you make the change after the agreement has been calculated, you need to run recalculation (see “Recalculation for Agreements” on page 50).

Note: When looking at additional values for a KPI attached to a group CI, where the various child CIs are using a combination of sample-based rules and time-based rules for the KPI, then the values shown for the **Successes** and **Failures** parameters at the group level are incorrect (because the time-based rules do not calculate success).

Configuring Reports to Display Additional Values

Additional values can be viewed in all reports in the **Applications > Service Level Management > SLA Reports** and **Outage Reports** tabs, with the exception of the SLA Status report.

In order to view additional values in a report, the **Additional Values** option must be selected in the Advanced Options dialog box. This option is selected by default for all applicable reports. For details, see “Advanced Options Dialog Box” on page 307.

The additional values are displayed in the tooltip for a cell in the report (and also in additional columns in the CI Status report).

The screenshot shows a table titled "CI Status" with columns: CI, Availability (%), Objectives, and Samples. A tooltip is displayed over the "Samples" cell for the "tx_10" CI, showing detailed metrics: Availability: 100.000 %, Status: Exceeded, Business Rule: Group Average Value, Exceeded: >98.000 %, and Samples: 4,881. The "Samples" value in the tooltip is highlighted with a red box.

CI	Availability (%)	Objectives	Samples
tx_10	100.000	Exceeded: > 98.0 %	4,881
... BPM Transac...om Location			0
... tx_10 from ...m1amrnd44 1			1,627
... tx_10 from ...m1amrnd44 2			1,627
... tx_10 from virtual_host 3			1,627

Tooltip for KPIs in Reports

Hold the pointer over a result to view information about the KPI:

Time Period ▲	tx_10	tx_15	
11/3	100.000	100.000	
11/4			
11/5			
11/6			
11/7			
11/8			

CI:	tx_10
Date:	11/3
Availability:	100.000 %
Status:	Exceeded
Business Rule:	Group Average Value
Exceeded:	>98.000 %

The tooltip displays information about the KPI, based on what is defined in the agreement (for details, see “Agreement Wizard” on page 80). The tooltip content varies, depending on the report and the selections made in the Advanced Options dialog box.

The following parameters may be included:

- **CI.** The name of the CI.
- **Date.** The date that the result is for.
- **<KPI>.** The actual calculated result for the KPI.
- **Status.** The status given to the KPI by comparing the result against the target objectives.
- **Business Rule.** The rule used for the KPI calculations.
- **Exceeded/Met/Minor Breached/Breached.** The value defined for each target objective for the KPI.

View SLA and Outage Reports

The following steps explain how to work with Service Level Management to view reports in the SLA Reports and Outage Reports tabs.

This task includes the following steps:

- “Define Agreements” on page 302
- “Select Required Report” on page 302
- “Set Report Filters” on page 302
- “Add Descriptions and Additional Values to Reports” on page 303
- “Add a Header and Footer to a Report” on page 303
- “Generate Report and Use to Evaluate Agreement Goals” on page 303
- “View the Report According to a Six Sigma Calculation” on page 303
- “Share the Report or Save Report Data” on page 303

1 Define Agreements

Define agreements using the Agreement Wizard.

For task details, see “Define a Service Agreement - Workflow” on page 53.

2 Select Required Report

Select the report you want to view from the **Applications > Service Level Management > SLA Reports** or **Outage Reports** tab. For a brief description of each report and when you would use it, see “Service Level Management Reports - Overview” on page 276.

3 Set Report Filters

Select the required values for filters such as the View granularity bar, CI, KPIs, Calendars, and so forth. For details, see the documentation for that report.

4 Add Descriptions and Additional Values to Reports

Use the Advanced Options link to add descriptions to the report. For details on the user interface, see “Advanced Options Dialog Box” on page 307.

5 Add a Header and Footer to a Report

A header or footer defined for a report in the Custom Manager takes precedence over a header or footer defined in the Infrastructure Settings Manager Reporting section. That is, the former overwrites the latter. For details on defining headers and footers, see “Configuring a Report Header and Footer” in *Reports*.

6 Generate Report and Use to Evaluate Agreement Goals

Click the **Generate** button to generate a report for the data you have chosen, and drill down in the report as required.

7 View the Report According to a Six Sigma Calculation

You can view results from a Six Sigma perspective. This is on condition that the agreement has been defined with a Six Sigma KPI. For details on this topic, see “Six Sigma for Agreements” on page 46.

8 Share the Report or Save Report Data

You can print, format, and export reports. For details, see “Common Report Elements” in *Reports*.

Work with Service Level Management Reports - Scenarios

The following scenarios suggest ways that you can use Service Level Management summary reports.

- “Preventing Breaches of Contract with the CI Summary Report” on page 304
- “Comparing Services in the CI Impact Report” on page 305

Preventing Breaches of Contract with the CI Summary Report

Every morning the Director of Applications generates reports for the previous day. In the case of any problems, he analyzes them, and acts accordingly.

- ▶ This morning he accesses Service Level Management and generates an SLAs Summary report from the previous day (**Applications > Service Level Management > SLA Reports > SLAs Summary**). He sees that yesterday afternoon the sales SLA was about to be breached (the Performance KPI has a yellow status).
- ▶ He clicks a configuration item (CI) to navigate to the CI Summary report. He notices that performance of the Sales home page was poor during business hours for a specific transaction.
- ▶ He continues to navigate through the CI hierarchy following the trail of the minor breached measurement. He reaches the leaf node CI, which is a Business Process Monitor transaction script that monitors a database server.
- ▶ He sends the report by email to the DBAs with a request for them to investigate and let him know what action they have taken. Shortly after, he receives a phone call to say the database server had slowed down while new software was being installed on it.
- ▶ He fills out a Business Process Monitor events form (**Admin > Service Level Management > Downtime Events**), and adds a description about the server slow down.
- ▶ He returns to the Summary Reports tab and selects the CI Summary report.
- ▶ He clicks the **Advanced Options** link and selects the **Downtime Event Description** check box. He generates the report again and verifies that the report includes the reason for the downtime.

Comparing Services in the CI Impact Report

A lawyer for a well-known ISP writes the service level agreements. During negotiations over a new network contract with an important Gold customer, she requests a report from IT to show whether the ISP is meeting its obligations for network speeds for all Gold customers. This report will help her calculate prices and conditions for the new contract.

IT gives the task to the HP Business Availability Center admin who rolls up his sleeves and gets to work.

- He verifies the names of the CIs that measure network performance for each Gold customer (he had previously created a view, to which he had added a network CI, for each customer).
- He creates an SLA and adds the network CIs for all Gold customers to it.
- He generates the CI Impact report (with a Year to Date and Quarter view), and chooses the SLA.
- He drills down to the CI Summary report to view performance data for the network CIs for the past year.
- He creates a custom report, and sends it by e-mail to the lawyer, explaining to her how she can get more information by accessing the CI Impact and CI Summary reports.

Service Level Management Application User Interface

This section describes:

- Advanced Options Dialog Box on page 307
- CI Impact Report on page 310
- CI Over Time vs. Target Report on page 313
- CI Status Report on page 316
- CI Summary Report on page 319
- CIs Dialog Box on page 322
- CIs Over Time Report on page 325
- Outage Breakdown Report on page 328
- Outage Distribution Report on page 332
- Outage Summary Report on page 337
- SLA Management Page on page 340
- SLA Status Report on page 343
- SLAs Dialog Box on page 347
- SLAs Summary Report on page 349
- Status Snapshot Report on page 353
- Time Range Comparison Report on page 359

 **Advanced Options Dialog Box**

Description	<p>Enables you to add descriptions and additional values to the report, or customize display aspects of the report.</p> <p>To access: Click Advanced Options in a Service Level Management report.</p>
Important Information	<ul style="list-style-type: none"> ▶ Not all options are available for all reports. ▶ Each option of type <xxx> Description displays the relevant information in a separate area below the report data. ▶ After selecting an option in the Advanced Options dialog box and generating a report, that option remains selected for all Service Level Management reports where it applies, until you clear the selection in a report and regenerate.
Included in Tasks	“View SLA and Outage Reports” on page 302

The following elements are included (unlabeled GUI elements are shown in angle brackets>):

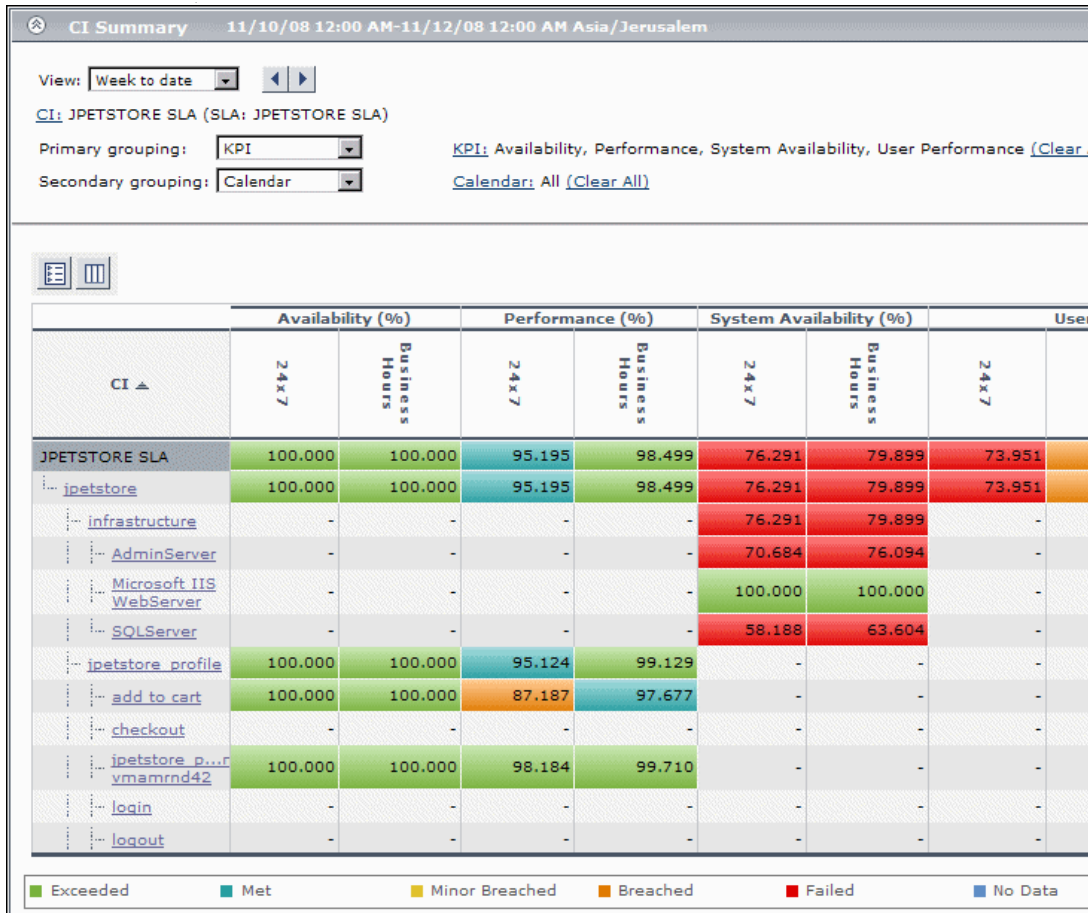
GUI Element (A–Z)	Description
Calendar Description	Displays a description and details for the calendars selected for the report, as defined during calendar creation.
CI Description	Includes the name and description of all CIs that are included in the report.

GUI Element (A–Z)	Description
<p>Downtime Event Description</p>	<p>Displays details of all events that meet the following criteria:</p> <ul style="list-style-type: none"> ▶ the event falls within the report’s time period ▶ the event action affects a CI that is included in the report <p>The Impact column displays the name of the CI that is affected by the downtime event.</p> <p>The Excluded from Reports column takes its information from the Exclude data reported during event check box in the Downtime/Event Schedule window. For details, see “Downtime Event Schedule Dialog Box” on page 171.</p>
<p>Hierarchy Depth</p>	<p>Select a value between 0 and 3 to define the number of CI levels that are displayed in the report under the selected CI.</p> <p>Default value: 3</p>
<p>Number of digits after decimal point</p>	<p>Select a value between 0 and 3 to define the number of digits after the decimal point that is displayed for numerical values in the report.</p> <p>Default value: 3</p> <p>Note: If you change the default displayed in the report, Service Level Management continues to calculate objectives using the default value.</p>
<p>Show Additional Values</p>	<p>Includes additional values in the report, as relevant for the KPIs. For details, see “Additional Values in Reports” on page 295.</p> <p>The additional values are displayed in the tooltip for a cell. In addition, in the CI Status report, the data is displayed in columns in the report. You can select the column format:</p> <p>Expanded columns. (Default value) Displays each additional value in a separate column.</p> <p>Grouped column. Displays the additional values grouped in a single column.</p>

GUI Element (A–Z)	Description
Show objective details as columns	(Only for Time Range Comparison report) Adds a column displaying objectives for the selected KPI per CI to a Time Range Comparison report.
Show SLA details as columns	(Only for SLAs Summary report) Adds columns displaying agreement type, customer, and provider for each agreement to the SLAs Summary report (instead of displaying this information in a tooltip for the agreement name).
SLA Description	Displays various information on the agreement, according to the properties defined on the Define Agreement Properties Page during agreement creation. The SLA Description is displayed for all agreements included in the report.

📌 CI Impact Report

The following is an example of the CI Impact report.



Description	Displays KPI results for a selected CI across all the agreements in which it is included. To access: Select Applications > Service Level Management > SLA Reports > CI Impact
Important Information	You can use this report to compare the KPI results for a CI across several agreements.

Included in Tasks	“View SLA and Outage Reports” on page 302
Useful Links	For an example of working with a CI Impact report, see “Comparing Services in the CI Impact Report” on page 305.

Report Settings

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see “Common Report Elements” in <i>Reports</i> . See also “Tracking Range and Granularity in Service Level Management” on page 291.
Advanced Options	Enables you to include descriptions and additional values in the report, and customize some display aspects. For details, see “Advanced Options Dialog Box” on page 307.
Calendar	Displays the names of the calendars selected for inclusion in the report. To change the selection, click the Calendar link to open the Calendar dialog box. The dialog box lists all calendars attached to the selected CI (in all agreements). Note: You can include all relevant calendars by clicking the Clear All link. This clears the displayed selection and replaces it with All .
CI	Displays the name of the CI selected for inclusion in the report. To change the selection, click the CI link. For details, see “CIs Dialog Box” on page 322.

GUI Element (A–Z)	Description
KPI	<p>Displays the names of the KPIs selected for inclusion in the report. To change the selection, click the KPI link to open the KPI dialog box. The dialog box lists all KPIs that are attached to the selected CI in all agreements.</p> <p>Note: You can include all relevant KPIs by clicking the Clear All link. This clears the displayed selection and replaces it with All.</p>
Primary Grouping/ Secondary Grouping	<p>Select the first and second level column headers to be used for presenting data in the report. For details on this topic, see “Primary Grouping/Secondary Grouping” on page 293.</p>

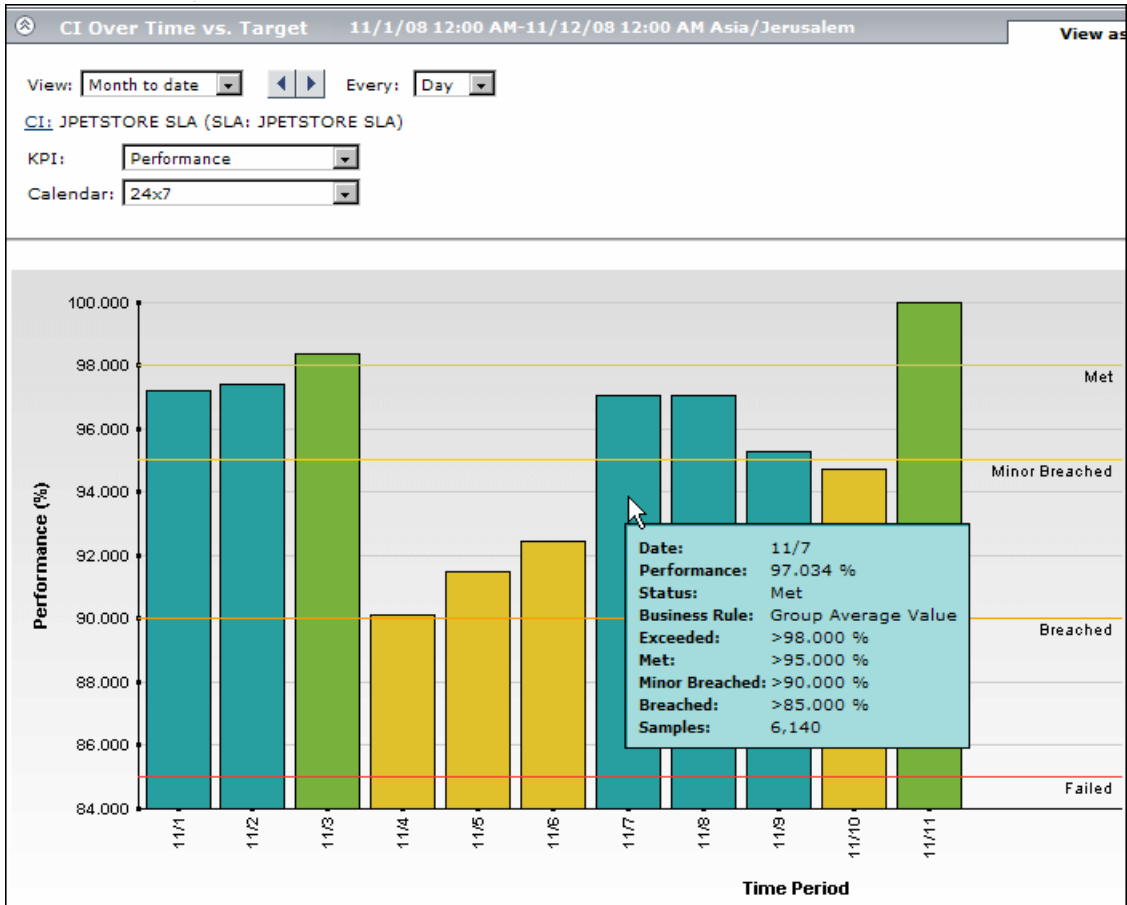
Report Content

The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A–Z)	Description
<Table cell>	<p>Displays the numerical result for the KPI. The background color shows the status for the KPI (based on the target objectives).</p> <p>Tooltip: Hold the pointer over a cell to view information about the KPI. For details on this topic, see “Tooltip for KPIs in Reports” on page 301.</p>
CI	<p>Lists each instance of the CI in all agreements. The name of the agreement appears in brackets after the name of the CI.</p> <p>Click a CI name to drill down to the CI Summary report, which displays the branch for the CI. Use the breadcrumbs at the top of the page to return to the CI Impact report.</p> <p>Tooltip: Hold the pointer over the name of a CI to view the full name in a tooltip.</p>

📌 CI Over Time vs. Target Report

The following is an example of the CI Over Time vs. Target report.



Description	Displays KPI results over a time period for a selected CI, against the target objective for each time period. To access: Select Applications > Service Level Management > SLA Reports > CI Over Time vs Target
Important Information	<ul style="list-style-type: none"> ▶ You can use this report to see how well a CI has performed compared to its objectives. ▶ Results can be displayed in graph or table format.
Included in Tasks	“View SLA and Outage Reports” on page 302

Report Settings

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see “Common Report Elements” in <i>Reports</i> . See also “Tracking Range and Granularity in Service Level Management” on page 291.
Advanced Options	Enables you to include descriptions and additional values in the report, and customize some display aspects. For details, see “Advanced Options Dialog Box” on page 307.
Calendar	Select a calendar. The lists includes the calendars relevant for the selected CI.
CI	Displays the name of the CI selected for inclusion in the report. To change the selection, click the CI link. For details, see “CIs Dialog Box” on page 322.
KPI	Select a KPI. The lists includes the KPIs relevant for the selected CI.

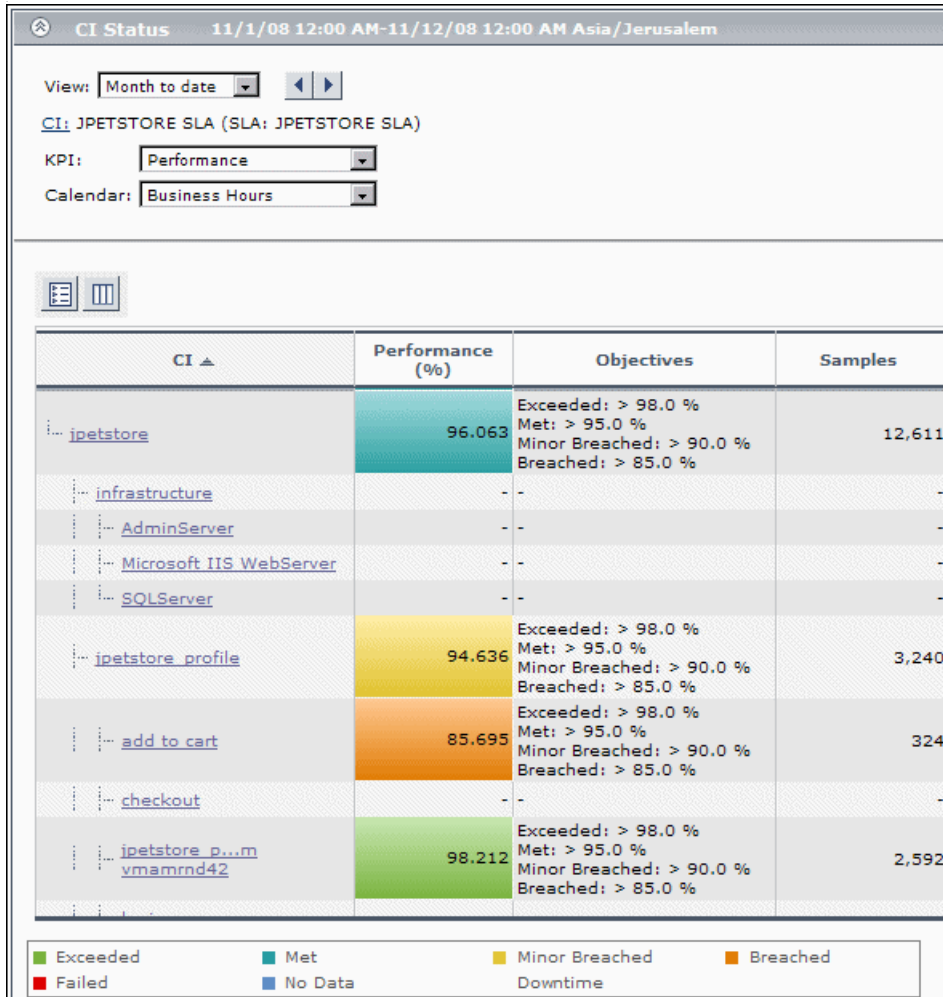
Report Content

The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A–Z)	Description
<Table cell/graph bar>	<p>Displays the numerical result and status for the KPI during that time period (based on the target objectives).</p> <p>Tooltip: Hold the pointer over a cell or bar to view information about the KPI. For details on this topic, see “Tooltip for KPIs in Reports” on page 301.</p>
Objectives	<p>The objective targets for the KPI in each time period are displayed in a column in the table, and superimposed on the graph.</p>
Time Period	<p>Lists the time periods included in the report, according to the selected granularity.</p> <p>Tooltip: In table format, hold the pointer over a time period to view the exact time and date that the time period started.</p>

📌 CI Status Report

The following is an example of the CI Status report.



Description	Displays KPI results, objectives, and sample information, for a CI and its descendants. To access: Select Applications > Service Level Management > SLA Reports > CI Status
Important Information	You can use this report to view configuration information, such as objectives, for each CI.
Included in Tasks	“View SLA and Outage Reports” on page 302

Report Settings

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see “Common Report Elements” in <i>Reports</i> . See also “Tracking Range and Granularity in Service Level Management” on page 291.
Advanced Options	Enables you to include descriptions and additional values in the report, and customize some display aspects. You can include additional values in columns in the report. For details, see “Advanced Options Dialog Box” on page 307.
Calendar	Select a calendar. The lists includes the calendars relevant for the selected CI.
CI	Displays the name of the CI selected for the report, and the name of the agreement that contains the CI. The report includes all CIs in the branch under the selected CI. You can also select the CI representing the whole agreement, to include all CIs in the agreement in the report. To change the selection, click the CI link. For details, see “CIs Dialog Box” on page 322.
KPI	Select a KPI. The lists includes the KPIs relevant for the selected CI.

Report Content

The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A-Z)	Description
<Additional values columns>	<p>If the report is set to show additional values (set in the Advanced Options dialog box), the values are displayed either in a single grouped column or in multiple columns, according to your selection.</p> <p>For details on this topic, see “Additional Values in Reports” on page 295.</p>
<KPI cell>	<p>Displays the numerical result for the KPI. The background color shows the status for the KPI (based on the target objectives).</p> <p>Tooltip: Hold the pointer over a cell to view information about the KPI. For details on this topic, see “Tooltip for KPIs in Reports” on page 301.</p>
CI	<p>Displays the CIs included in the selected branch of the agreement (up to four levels). Click a CI name to drill down to the branch under that CI. (You can return to the previous level using the breadcrumbs at the top of the page.)</p> <p>Tooltip: Hold the pointer over a CI name to view the full name in a tooltip.</p>
Objectives	<p>Displays the objectives defined for the KPI, for the selected calendar.</p>

CI Summary Report

The following is an example of the CI Summary report.

CI Summary 11/1/08 12:00 AM-11/12/08 12:00 AM Asia/Jerusalem

View: Month to date ◀ ▶

CI: JPETSTORE SLA (SLA: JPETSTORE SLA)

Primary grouping: KPI [KPI: Availability, Performance, System Availability \(Clear All\)](#)

Secondary grouping: Calendar [Calendar: All \(Clear All\)](#)

☰ ☷

CI ▲	Availability (%)		Performance (%)		System Availability (%)	
	24x7	Business Hours	24x7	Business Hours	24x7	Business Hours
JPETSTORE SLA	99.987	99.993	95.149	96.063	94.343	93.921
ipetstore	99.987	99.993	95.149	96.063	94.343	93.921
infrastructure	-	-	-	-	94.343	93.921
AdminServe	-	-	-	-	93.615	92.916
Microsoft IIS WebServer	-	-	-	-	99.696	99.530
SQLServer	-	-	-	-	89.719	89.317
ipetstore_profil	99.982	99.992	93.083	94.636	-	-
add to cart	100.000	100.000	81.753	85.695	-	-
checkout	-	-	-	-	-	-
ipetstore p. vmamrnd42	99.945	99.977	97.496	98.212	-	-
login	-	-	-	-	-	-
logout	-	-	-	-	-	-
search fish	-	-	-	-	-	-

Exceeded Downtime
 Met
 Minor Breached
 Breached
 Failed

Description	Displays KPI results for configuration items (CIs) in a specific agreement. To access: Select Applications > Service Level Management > SLA Reports > CI Summary
Important Information	You can use this report to find the CIs that failed to reach their objectives.
Included in Tasks	“View SLA and Outage Reports” on page 302
Useful Links	For a use-case example of the CI Summary report, see “Preventing Breaches of Contract with the CI Summary Report” on page 304.

Report Settings

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see “Common Report Elements” in <i>Reports</i> . See also “Tracking Range and Granularity in Service Level Management” on page 291.
Advanced Options	Enables you to include descriptions and additional values in the report, and customize some display aspects. For details, see “Advanced Options Dialog Box” on page 307.
Calendar	Displays the names of the calendars selected for inclusion in the report. To change the selection, click the Calendar link to open the Calendar dialog box. The dialog box lists the calendars attached to the selected agreement. Note: You can include all relevant calendars by clicking the Clear All link. This clears the displayed selection and replaces it with All .

GUI Element (A–Z)	Description
CI	<p>Displays the name of the CI selected for the report, and the name of the agreement that contains the CI. The report includes all CIs in the branch under the selected CI.</p> <p>You can also select the CI representing the whole agreement, to include all CIs in the agreement in the report.</p> <p>To change the selection, click the CI link. For details, see “CIs Dialog Box” on page 322.</p>
KPI	<p>Displays the names of the KPIs selected for inclusion in the report. To change the selection, click the KPI link to open the KPI dialog box. The dialog box lists the KPIs that are relevant for the CIs in the selected branch.</p> <p>Note: You can include all relevant KPIs by clicking the Clear All link. This clears the displayed selection and replaces it with All.</p>
Primary Grouping/ Secondary Grouping	<p>Select the first and second level column headers to be used for presenting data in the report. For details on this topic, see “Primary Grouping/Secondary Grouping” on page 293.</p>

Report Content


The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A–Z)	Description
<Table cell>	<p>Displays the numerical result for the KPI. The background color shows the status for the KPI (based on the target objectives).</p> <p>Tooltip: Hold the pointer over a cell to view information about the KPI. For details on this topic, see “Tooltip for KPIs in Reports” on page 301.</p>
CI	<p>Displays the CIs included in the selected branch of the agreement (up to four levels). Click a CI name to drill down to the branch under that CI. (You can return to the previous level using the breadcrumbs at the top of the page.)</p> <p>Tooltip: Hold the pointer over a CI name to view the full name in a tooltip.</p>

CIs Dialog Box

Description	<p>Enables you to select the CI or CIs to be included in a Service Level Management report, for the duration of a Web session. The report provides information based on the selected CIs.</p> <p>To access: In a Service Level Management report, click CI or CIs in the reports settings area.</p>
Important Information	<ul style="list-style-type: none"> ▶ The elements included in the dialog box vary, depending on the current report. ▶ For some reports (for example, CI Impact), you can select from the Business Services CIs in the Business Services view.
Useful Links	<p>“View Explorer” in <i>Model Management</i></p>

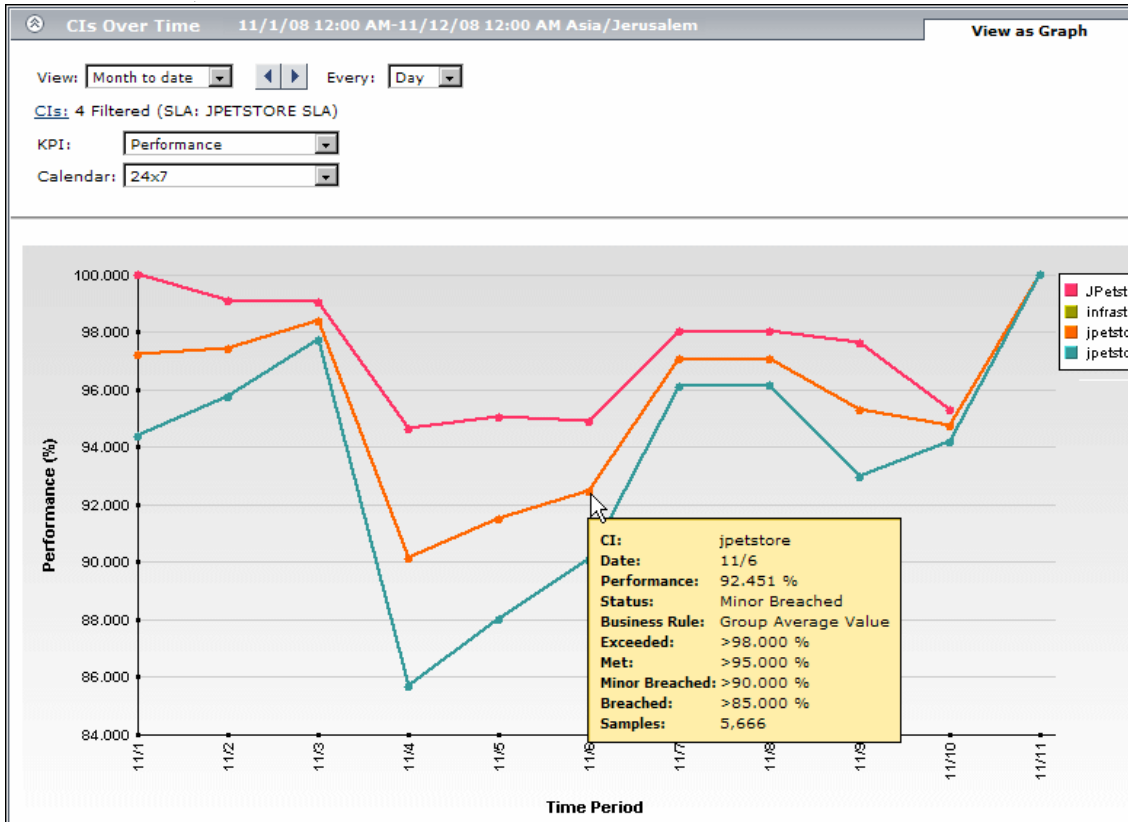
The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A–Z)	Description
	<p>Click to display context menu options for the currently selected CI.</p>
<p><CI topology tree></p>	<p>Displays the CIs in the selected agreement (or the Business Service CIs in the Business Services view, if you selected SLA Management for the Select From option, as described below).</p> <p>Select the required CI, or, for reports that have multiple CI selection, select the check boxes for the required CIs.</p> <p>Context menu: One or more of the following menu options may be displayed for a CI:</p> <ul style="list-style-type: none"> ▶ Properties. Opens a dialog box displaying properties for the selected CI. ▶ Show Related CIs. Moves to Search mode and displays a list of the CIs that have a relationship to the selected CI. <p>Note: For some reports, when you select a CI, the entire branch under the CI is displayed in the report.</p>
<p>Browse</p>	<p>The default mode for the CIs dialog box, enabling you to select an agreement and CIs.</p>
<p>Search</p>	<p>Click Search to move to Search mode, where you can search for CIs in all agreements. (Search in Current SLA is enabled only after you have changed the agreement selection.) For details on using the Search functionality, see “Search for CIs in Search Mode” in <i>Model Management</i>.</p>

GUI Element (A–Z)	Description
Select From	<p>(Displayed for CI Impact report) Enables you to choose how you locate the required CI:</p> <ul style="list-style-type: none"> ➤ SLAs. Select this option to select a CI from an agreement. ➤ SLA Management. Select this option to select a Business Service CI from the Business Services view (only relevant for Business Service CIs that are included in an agreement).
SLA	<p>Select the agreement containing the required CIs from the dropdown list (start typing in the agreement name to filter the list), or click the ellipsis button to open the Select SLA dialog box, where you can select an agreement from the full list of agreements.</p> <p>Note: If you select another agreement before clicking OK, all previous CI selections are discarded. Only the CIs selected in the currently displayed agreement are saved for the report filter when you click OK.</p>

📌 CIs Over Time Report

The following is an example of the CIs Over Time report.



Description	Displays KPI results over a time period for selected CIs. To access: Select Applications > Service Level Management > SLA Reports > CIs Over Time
Important Information	<ul style="list-style-type: none"> ▶ You can use this report to compare the behavior of CIs over time ▶ Results can be displayed in graph or table format.
Included in Tasks	“View SLA and Outage Reports” on page 302

Report Settings

GUI Element (A–Z)	Description
<Common report elements>	<p>For details on the user interface, see “Common Report Elements” in <i>Reports</i>.</p> <p>See also “Tracking Range and Granularity in Service Level Management” on page 291.</p>
Advanced Options	<p>Enables you to include descriptions and additional values in the report, and customize some display aspects. For details, see “Advanced Options Dialog Box” on page 307.</p>
Calendar	<p>Select a calendar. The lists includes the calendars relevant for the selected CIs.</p>
CIs	<p>Displays the number of CIs selected for the report, and the name of the agreement that contains the CIs.</p> <p>Tooltip: Hold the cursor over the CIs link to view the names of the selected CIs.</p> <p>To change the selection, click the CIs link. For details, see “CIs Dialog Box” on page 322.</p>
KPI	<p>Select a KPI. The lists includes the KPIs relevant for the selected CIs.</p>

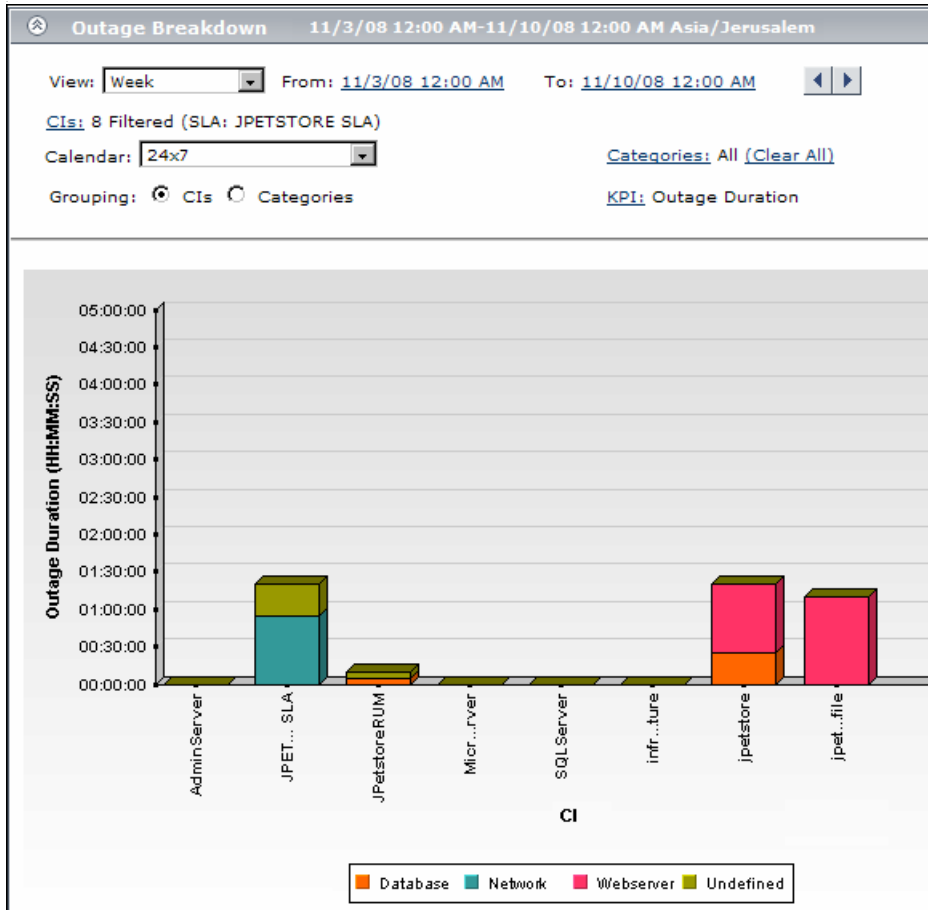
Report Content

The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A–Z)	Description
<Table cell/graph node>	<p>Displays the numerical result and status for the KPI during that time period (based on the target objectives).</p> <p>Tooltip: Hold the pointer over a cell or node to view information about the KPI. For details on this topic, see “Tooltip for KPIs in Reports” on page 301.</p>
Time Period	<p>Lists the time periods included in the report, according to the selected granularity.</p> <p>Tooltip: In table format, hold the pointer over a time period to view the exact time and date that the time period started.</p>

Outage Breakdown Report

The following is an example of the Outage Breakdown report.



Description	Displays a breakdown of outage categories by selected CIs, or a breakdown of CI outages by outage categories. You view data according to outage duration or number of outages, during a specific calendar. To access: Select Applications > Service Level Management > Outage Reports > Outage Breakdown
Important Information	Results can be displayed in graph or table format.
Included in Tasks	“View SLA and Outage Reports” on page 302
Useful Links	“Outages in Agreements” on page 40

Report Settings

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see “Common Report Elements” in <i>Reports</i> . See also “Tracking Range and Granularity in Service Level Management” on page 291.
Advanced Options	Enables you to include descriptions and additional values in the report, and customize some display aspects. For details, see “Advanced Options Dialog Box” on page 307.
Calendar	Select a calendar. The list includes only those calendars that have been assigned to the agreement.
Categories	Displays the names of the outage categories selected for inclusion in the report. To change the selection, click the Categories link to open the Categories dialog box. The dialog box lists the available predefined outage categories— Database , Network , Webserver , and Undefined —and any user-defined categories. Default value: All Note: You can include all relevant outage categories by clicking the Clear All link. This clears the displayed selection and replaces it with All .

GUI Element (A–Z)	Description
CIs	<p>Displays the number of CIs selected for the report, and the name of the agreement that contains the CIs.</p> <p>Tooltip: Hold the cursor over the CIs link to view the names of the selected CIs.</p> <p>To change the selection, click the CIs link. For details, see “CIs Dialog Box” on page 322.</p>
Grouping	<p>Select a radio button according to how you want the data organized in the report:</p> <ul style="list-style-type: none"> ▶ CIs. Displays outage data and outage categories per included CI. ▶ Categories. Displays outage data for CIs per included outage category.
KPI	<p>Displays the name of the outage KPI used for outage calculations in the report, either Number of Outages or Outage Duration. To change the selection, click the KPI link to open the KPI dialog box.</p>

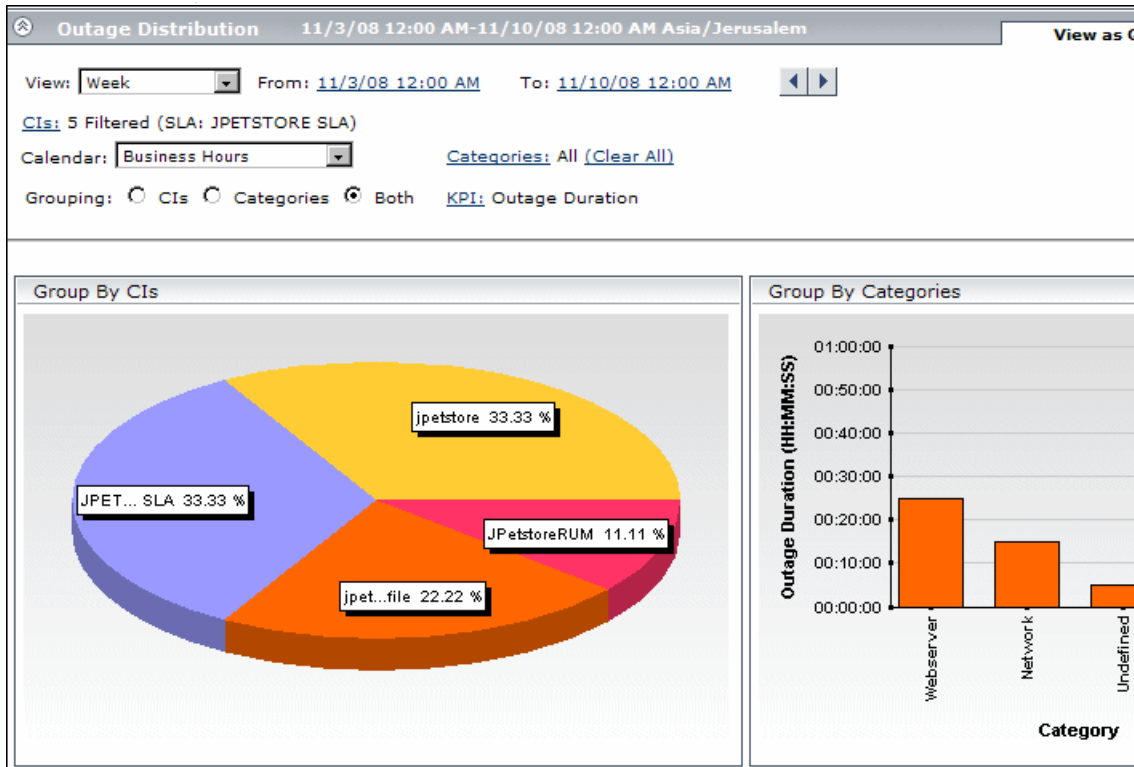
Report Content

The following element is included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A–Z)	Description
<Table cell/Graph bar>	<p>Displays the number of outages or duration of outages for each CI or outage category during the selected time period.</p> <p>The bars on the graph tab are color-coded by either CI or category, according to your Grouping selection.</p> <p>Click a bar section or table cell to drill down to the Outage Summary Report, which displays information on the outage for the relevant CI and category, during the same time period. Use the breadcrumbs at the top of the page to return to the Outage Breakdown report.</p> <p>Tooltip: Hold the pointer over a cell or bar to view the CI and category name, and KPI results.</p>

Outage Distribution Report

The following is an example of the Outage Distribution report.



Description	Displays outage distribution by CIs or outage categories. To access: Select Applications > Service Level Management > Outage Reports > Outage Distribution
Important Information	<ul style="list-style-type: none"> ▶ Use the Outage Distribution report to see which CI or category has the most outages, or has outages with the longest duration. ▶ Results can be displayed in graph or table format.

Included in Tasks	“View SLA and Outage Reports” on page 302
Useful Links	“Outages in Agreements” on page 40

Report Settings

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see “Common Report Elements” in <i>Reports</i> . See also “Tracking Range and Granularity in Service Level Management” on page 291.
Advanced Options	Enables you to include descriptions and additional values in the report, and customize some display aspects. For details, see “Advanced Options Dialog Box” on page 307.
Calendar	Select a calendar. The list includes only those calendars that have been assigned to the agreement.
Categories	Displays the names of the outage categories selected for inclusion in the report. To change the selection, click the Categories link to open the Categories dialog box. The dialog box lists the available predefined outage categories— Database , Network , Webserver , and Undefined —and any user-defined categories. Default value: All Note: You can include all relevant outage categories by clicking the Clear All link. This clears the displayed selection and replaces it with All .
CIs	Displays the number of CIs selected for the report, and the name of the agreement that contains the CIs. Tooltip: Hold the cursor over the CIs link to view the names of the selected CIs. To change the selection, click the CIs link. For details, see “CIs Dialog Box” on page 322.

GUI Element (A–Z)	Description
<p>Grouping</p>	<p>Select a radio button according to how you want the data organized in the report:</p> <ul style="list-style-type: none"> ▶ CIs. Displays outage distribution across the included CIs. In the graph tab, this information is shown in pie chart format. ▶ Categories. Displays outage distribution per included outage category. In the graph tab, this information is shown in pie chart format. ▶ Both. Displays both the CIs and the categories groupings on the page. In the graph tab, Group by CIs is in pie chart format, and Group by Categories is in bar chart format.
<p>KPI</p>	<p>Displays the name of the outage KPI used for outage calculations in the report, either Number of Outages or Outage Duration. To change the selection, click the KPI link to open the KPI dialog box.</p>

Report Content

The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A–Z)	Description
<Bar chart>	<p>(Displayed on the View as Graph tab, when Both is selected as the Grouping option.)</p> <p>For each outage category, displays the total number of outages or total outage duration during the selected time period.</p> <p>Click a bar to drill down to the Outage Summary Report, which displays outage information for all outages in the relevant outage category, during the same time period. Use the breadcrumbs at the top of the page to return to the Outage Breakdown report.</p> <p>Tooltip: Hold the pointer over a bar to view the KPI results.</p>
<Pie chart>	<p>(Displayed on the View as Graph tab)</p> <p>Displays outage distribution (in percentage) for the included CIs (if you selected CIs or Both as the Grouping option) or for the included outage categories (if you selected Categories as the Grouping option).</p> <p>The percentages are based on the results for the selected KPI, so that each pie slice shows either the percentage of the total outages, or the percentage of the overall outage time (within the filters selected for the report).</p> <p>Click a pie slice to drill down to the Outage Summary Report, which displays outage information from all outages for the relevant CI, or for all outages in the relevant outage category, during the same time period. Use the breadcrumbs at the top of the page to return to the Outage Breakdown report.</p> <p>Tooltip: Hold the pointer over a pie slice to view the actual KPI results.</p>

GUI Element (A–Z)	Description
<p>Group by CIs/Group by Categories table</p>	<p>(Displayed on the View as Table tab.)</p> <p>Displays either the total number of outages or total outage duration, by CI or by outage category, for the selected time period.</p> <p>Click in a cell to drill down to the Outage Summary Report, which displays outage information from all outages for the relevant CI, or for all outages in the relevant outage category, during the same time period. Use the breadcrumbs at the top of the page to return to the Outage Breakdown report.</p> <p>Tooltip: Hold the pointer over a cell to view the KPI results.</p>

Outage Summary Report

The following is an example of the Outage Summary report.

CI	Start Date	End Date	Duration (HH:MM:SS)	Description	Category
JPETSTORE SLA	11/4/08 4:00 PM	11/4/08 4:05 PM	00:05:00	-	Network
JPETSTORE SLA	11/5/08 4:50 PM	11/5/08 5:40 PM	00:50:00	-	Network
JPETSTORE SLA	11/5/08 5:45 PM	11/5/08 6:10 PM	00:25:00	-	Undefined
JPetstoreRUM	11/4/08 4:00 PM	11/4/08 4:05 PM	00:05:00	-	Database
JPetstoreRUM	11/5/08 5:45 PM	11/5/08 5:50 PM	00:05:00	-	Undefined
jpetstore	11/4/08 4:00 PM	11/4/08 4:05 PM	00:05:00	-	Webserver
jpetstore	11/5/08 4:50 PM	11/5/08 5:40 PM	00:50:00	-	Webserver
jpetstore	11/5/08 5:45 PM	11/5/08 6:10 PM	00:25:00	-	Database
jpetstore_profile	11/5/08 4:50 PM	11/5/08 5:40 PM	00:50:00	-	Webserver
jpetstore_profile	11/5/08 5:50 PM	11/5/08 6:10 PM	00:20:00	-	Webserver

Description	Lists the outages for selected CIs. To access: Select Applications > Service Level Management > Outage Reports > Outage Summary
Important Information	Use this report to view outage information for a specific agreement, to see the reason for the breach of contract. After generating a report, you can add a comment to each outage explaining the reason for the outage, and you can categorize the outages, so that you or your users can sort the report by category.


Included in Tasks	“View SLA and Outage Reports” on page 302
Useful Links	“Outages in Agreements” on page 40

Report Settings

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see “Common Report Elements” in <i>Reports</i> . See also “Tracking Range and Granularity in Service Level Management” on page 291.
Advanced Options	Enables you to include descriptions and additional values in the report, and customize some display aspects. For details, see “Advanced Options Dialog Box” on page 307.
Calendar	Select a calendar. The lists includes the calendars relevant for the selected CIs.
Categories	Displays the names of the outage categories selected for inclusion in the report. To change the selection, click the Categories link to open the Categories dialog box listing all available outage categories. Note: You can include all categories by clicking the Clear All link. This clears the displayed selection and replaces it with All .
CIs	Displays the number of CIs selected for the report, and the name of the agreement that contains the CIs. Tooltip: Hold the cursor over the CIs link to view the names of the selected CIs. To change the selection, click the CIs link. For details, see “CIs Dialog Box” on page 322.

Report Content

The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A–Z)	Description
	<p>(Displayed in the toolbar above the report, after a report is generated.)</p> <p>Select a row in the report, then click this button to open the Outage Details dialog box, where you can assign a category to the outage or enter a description for it. If you need additional outage categories, define them in the Outage Categories Page. For more information, see “Outage Categories” on page 41.</p> <p>It is recommended to categorize each outage to make outage reports more meaningful.</p> <p>Note: The change takes effect the next time the report is generated.</p>
Category	The category allocated to the outage. You can categorize the outage in this report.
CI	The name of the CI.
Description	<p>The description of the outage. You can add a description to an outage in this report.</p> <p>Tooltip: To view the description in full, if it is concatenated, hold the pointer over the Description field.</p>
Duration	The duration in hours, minutes, and seconds.
End Date	The end date and time of the outage.
Start Date	The start date and time of the outage.

SLA Management Page

Description	Enables you to select service-related views to view information about the connections between your business services, business units, and agreements. You can link to related reports that assist you in understanding the connection. To access: Select Applications > Service Level Management > SLA Management
Useful Links	“Business Units for Services and Agreements” on page 32 “View Explorer” in <i>Model Management</i>

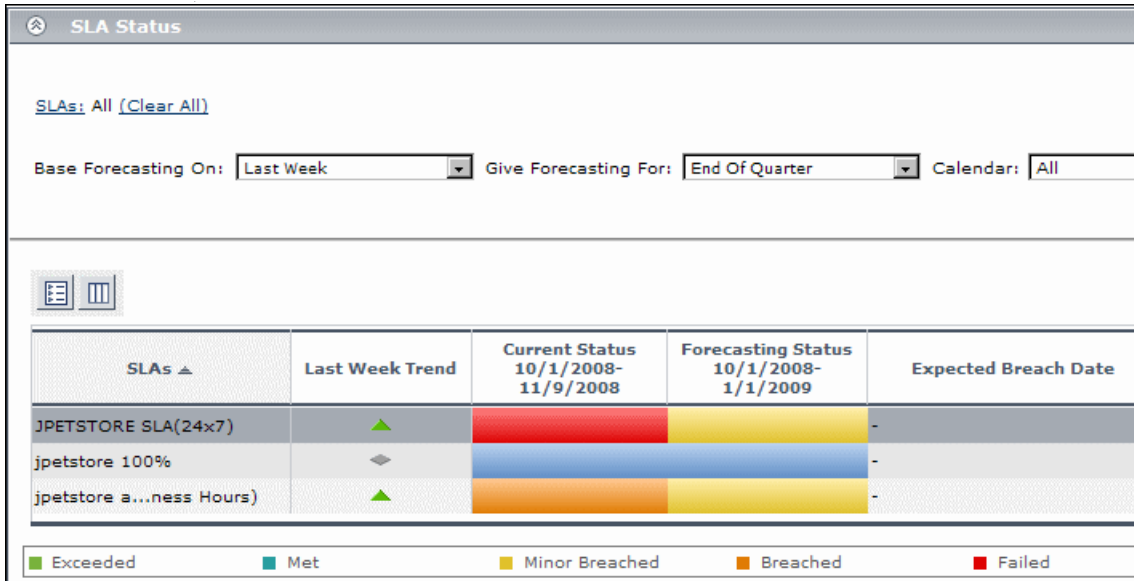
The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A–Z)	Description
Left Pane: View Explorer	<p>In View Explorer for SLA Management, you can display one of the following views:</p> <ul style="list-style-type: none"> ▶ Business Services. Contains all Business Service CIs defined in the CMDB. For details, see “Business Services - Overview” on page 114. ▶ Business Units. Contains all Business Unit CIs, representing service providers and customers, defined in the CMDB. For details, see “Business Units for Services and Agreements” on page 32. ▶ Service Providers. Contains all Business Unit CIs that represent internal and external service providers, and the Business Service CIs associated with the provider. For details, see “Define Business Services for Agreements” on page 115. <p>Context Menu: Right-click a CI to view a menu containing one or more of the following options:</p> <ul style="list-style-type: none"> ▶ CI Impact Report. Opens the CI Impact report for the selected Business Service CI in a new window, using default filter settings or the report filter settings last used during the current Web session. ▶ Related CIs. Displays related CIs in the View Explorer search pane. ▶ Properties. Displays the General Properties window for the CI. ▶ SLAs Summary Report. Select either Customer or Provider from the sub-menu to open the SLAs Summary report for the selected customer (or for all customers) or selected provider (or for all providers) in a new window. All agreements that are associated with the customer/provider are included in the report. The report uses using default filter settings or the report filter settings last used during the current Web session.

GUI Element (A–Z)	Description
<p>Right Pane: SLA Management</p>	<p>The right pane content changes according to the current selection in the view tree displayed in View Explorer:</p> <ul style="list-style-type: none"> ▶ Introductory information about SLA Management is displayed when you first enter the page or select the view name. ▶ When the Business Services view name is selected, the right pane displays a table listing the business services, their associated providers, and their descriptions. ▶ When a Business Service CI is selected (in the Business Services view or the Service Providers view), the right pane displays details about the service (description, provision, and provider). If there are associated agreements for the service, the pane also displays details about the agreements in a table. Click the CI Impact Report button to open the CI Impact report for the selected Business Service CI in a new window, using default filter settings or the report filter settings last used during the current Web session. ▶ When a Business Unit CI representing a provider or customer is selected (in the Business Services view or the Service Providers view), the right pane displays details about the CI (description, contact details). If there are associated agreements for the provider or customer, the pane also displays details about the agreements in a table. Click the SLAs Summary Report button to open the report for all customers or for all providers (as relevant) in a new window. All agreements that are associated with the customers/providers are included in the report. The report uses default filter settings or the report filter settings last used during the current Web session.

SLA Status Report

The following is an example of the SLA Status report.



Description	<p>Displays agreement status for the current period, and provides a forecast of agreement status at the end of a calculation period.</p> <p>To access: Select Applications > Service Level Management > SLA Reports > SLA Status</p>
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<p>Important Information</p>	<ul style="list-style-type: none"> ▶ You can use this report to see if continuing to maintain your services at the current levels may lead to a breach of the agreement on a future date. ▶ Agreements that do not correspond to the filtering criteria (for example, they do not use the defined calendar) are not included in the report. The excluded agreements are listed under the report. ▶ The usual logic used in Service Level Management reports when generating a report for week/month/year to date on the first day of a new period, is to use the results for the last week/month/year; however, in the SLA Status report, the Current Status for <x> to date on the first day of a period is calculated from the beginning of that period (the first hours). As a result, you may see different current status when you compare results for <x> to date in the SLA Status report and in the SLAs Summary report.
<p>Included in Tasks</p>	<p>“View SLA and Outage Reports” on page 302</p>
<p>Useful Links</p>	<ul style="list-style-type: none"> ▶ “Status Forecast for Agreements” on page 285 ▶ “Agreement Status” on page 281

Report Settings

GUI Element (A–Z)	Description
<p><Common report elements></p>	<p>For details on the user interface, see “Common Report Elements” in <i>Reports</i>.</p> <p>See also “Tracking Range and Granularity in Service Level Management” on page 291.</p>
<p>Advanced Options</p>	<p>Enables you to include descriptions and additional values in the report, and customize some display aspects. For details, see “Advanced Options Dialog Box” on page 307.</p>
<p>Base Forecasting On</p>	<p>Select the time period to be used as the base calculation period for the forecast calculation.</p> <p>The available options are determined by the tracking periods defined for the included agreements (excluding hour or the current day).</p>

GUI Element (A–Z)	Description
Calendar	<p>Select the calendar for which the status calculation should be made. The available options are the calendars defined for the selected agreements, or All.</p> <p>When you select All, the forecast is calculated for all calendars, and the worst results for each agreement are shown in the report.</p>
Give Forecasting For	<p>Select the time period that you want the forecast to cover. The current status is calculated for the same tracking period to-date. For example, selecting End of Quarter gives a forecast for the end of the current quarter, and current status for the current quarter-to-date.</p> <p>The available options are determined by the tracking periods defined for the included agreements (excluding hour and day).</p>
SLAs/Customers/Providers/Services	<p>The SLAs field (may be called Providers, Customers, or Services, if you previously filtered by one of these options) displays the names of the agreements, providers, customers, or services selected for the report.</p> <p>To change the selection, click the SLAs/Providers/Customers/Services link. For details on the user interface for changing the selection, see “SLAs Dialog Box” on page 347.</p> <p>Note: You can select all SLAs/Customers/Providers/Services by clicking the Clear All link. This clears the displayed selection and replaces it with All.</p>

Report Content

The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A-Z)	Description
<Base Forecasting On period> Trend	<p>Displays an arrow indicating the trend direction for the agreement. The arrow is green for improving agreement status, grey if the status is constant, and red if status is deteriorating. (Blue indicates no data.)</p> <p>The trend calculation is based on the difference between the current status (shown in the Current Status column) and the status for the base calculation period.</p> <p>Tooltip: Hold the pointer over the trend arrow to see the dates for the trend periods.</p>
Current Status	<p>Displays the status-to-date for the agreement based on the Give Forecasting For tracking period and the selected calendar. For example, the current status could be calculated from the agreement results from the start of the month to the current date, during business hours. For more information, see “Agreement Status” on page 281.</p> <p>Tooltip: Hold the pointer over the status bar to see the status and tracking period.</p>
Expected Breach Date	<p>Displays the date and time that agreement status is expected to fall below status Exceeded. A value is displayed in this column only if:</p> <ul style="list-style-type: none"> ➤ The agreement current status is exceeded (green) ➤ The forecast status is less than exceeded

GUI Element (A–Z)	Description
Forecasting Status	<p>Displays the status forecast for the selected tracking period and calendar. For example, the forecast could be calculated for the end of the current month for business hours, based on the agreement results for the last day.</p> <p>Tooltip: Hold the pointer over the status bar to see the status and forecast tracking period.</p>
SLAs	<p>Lists the agreements included in the report.</p> <p>Tooltip: Hold the pointer over a long agreement name to view it in full.</p>

SLAs Dialog Box

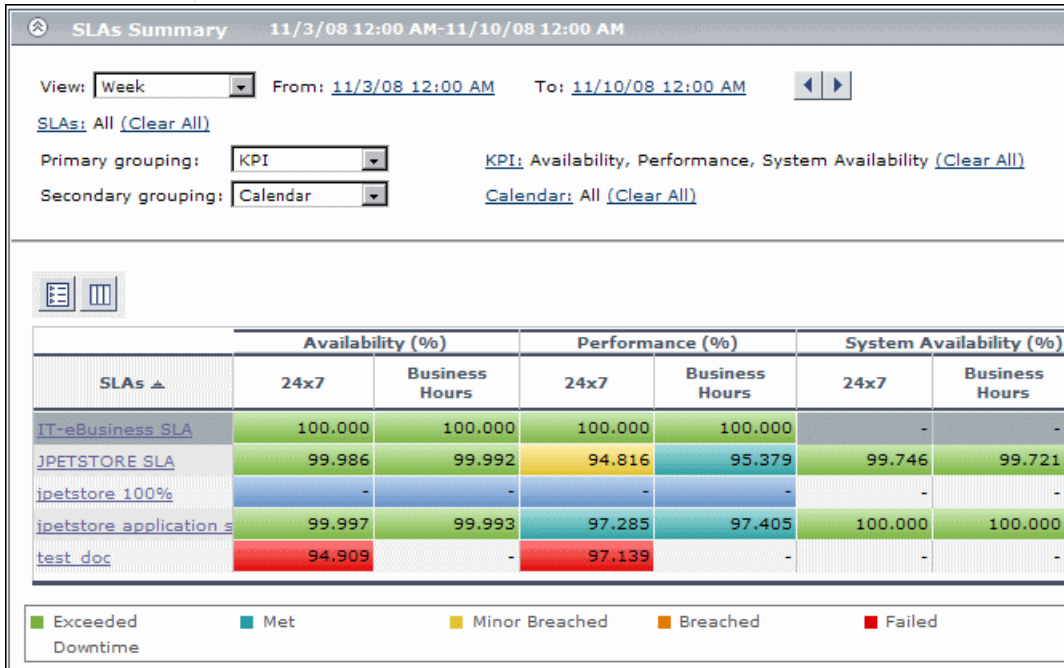
Description	<p>Enables you to filter the agreements to be included in a Service Level Management report.</p> <p>To access: In a Service Level Management report, click SLAs or Providers or Customers or Services in the reports settings area. (The link name depends on the category you previously selected for the filter.)</p>
Important Information	<ul style="list-style-type: none"> ▶ SLAs generally implies all agreement types (SLAs, OLAs, UCs). ▶ Only the agreements for which you have viewing permission are displayed in the SLAs dialog box and in the report. For more information, see “Permissions for Working with Agreements” on page 50.
Useful Links	<p>“Business Units for Services and Agreements” on page 32</p> <p>“SLAs, OLAs, and UCs” on page 33</p> <p>“Business Services - Overview” on page 114</p>

The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A–Z)	Description
<List of SLAs/ Providers/ Customers/ Services>	Select the check box for each option that you want to include in the report filter. Only those agreements that are associated with a selected filter option are included in the report.
Select From	<p>Select the category of filter options you require:</p> <ul style="list-style-type: none"> ▶ SLAs. Enables you to select from the available agreements—SLAs, OLAs, and UCs. ▶ Providers. Enables you to select from all providers that are associated with at least one agreement. ▶ Customers. Enables you to select from all customers that are associated with at least one agreement. ▶ Services. Enables you to select from all business services that are included in at least one agreement.

SLAs Summary Report

The following is an example of the SLAs Summary report.



Description	<p>Displays a list of agreements and their status for selected KPIs and calendars.</p> <p>You can use this report to view a summary of data for all (or specific) agreements.</p> <p>To access: Select Applications > Service Level Management > SLA Reports > SLAs Summary</p>
Important Information	<p>You can drill down from this report to the CI Summary report. This enables you to identify the measurement causing a problem in an agreement.</p>
Included in Tasks	<p>“View SLA and Outage Reports” on page 302</p>

Report Settings

GUI Element (A–Z)	Description
<Common report elements>	<p>For details on the user interface, see “Common Report Elements” in <i>Reports</i>.</p> <p>See also “Tracking Range and Granularity in Service Level Management” on page 291.</p>
Advanced Options	<p>Enables you to include descriptions and additional values in the report, and customize some display aspects. For details, see “Advanced Options Dialog Box” on page 307.</p>
Calendar	<p>Displays the names of the calendars selected for inclusion in the report.</p> <p>To change the selection, click the Calendar link to open the Calendar dialog box. The dialog box lists all calendars attached to the selected agreements.</p> <p>Note: You can include all relevant calendars by clicking the Clear All link. This clears the displayed selection and replaces it with All.</p>
KPI	<p>Displays the names of the KPIs selected for inclusion in the report. To change the selection, click the KPI link to open the KPI dialog box. The dialog box lists all KPIs attached to the selected agreements.</p> <p>Note: You can include all relevant KPIs by clicking the Clear All link. This clears the displayed selection and replaces it with All.</p>

GUI Element (A–Z)	Description
Primary Grouping/ Secondary Grouping	Select the first and second level column headers to be used for presenting data in the report. For details on this topic, see “Primary Grouping/Secondary Grouping” on page 293.
SLAs/Customers/ Providers/Services	<p>The SLAs field (may be called Providers, Customers, or Services, if you previously filtered by one of these options) displays the names of the agreements, providers, customers, or services selected for the report.</p> <p>To change the selection, click the SLAs/Providers/Customers/Services link. For details on the user interface for changing the selection, see “SLAs Dialog Box” on page 347.</p> <p>Note: You can select all SLAs/Customers/Providers/Services by clicking the Clear All link. This clears the displayed selection and replaces it with All.</p>

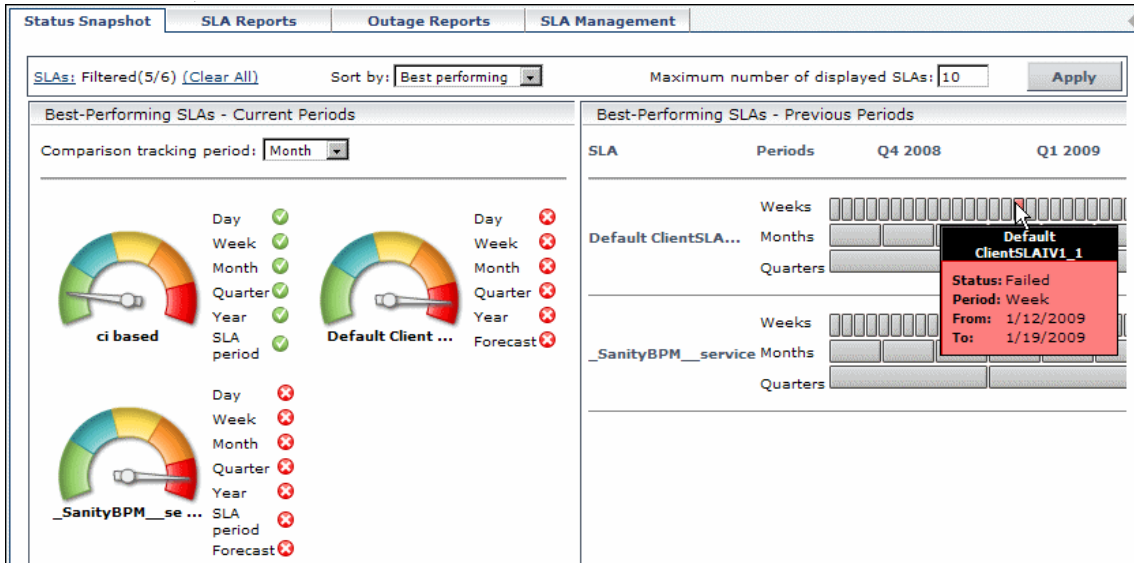
Report Content

The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A-Z)	Description
<Table cell>	<p>Displays the numerical result for the KPI. The background color shows the status for the KPI (based on the target objectives).</p> <p>Tooltip: Hold the pointer over a cell to view information about the KPI. For details on this topic, see “Tooltip for KPIs in Reports” on page 301.</p>
SLAs	<p>Displays the agreements included in the report. Click an agreement name to drill down to the CI Summary report for that agreement. (You can return to the SLAs Summary report using the breadcrumbs at the top of the page.)</p> <p>Tooltip: Hold the pointer over the name of an agreement to view information in a tooltip. To display the information in the table, instead of in the tooltip, click Advanced Options, and select Show SLA details as columns.</p>

Status Snapshot Report

The following is an example of the Status Snapshot report.



<p>Description</p>	<p>Displays up-to-date information for the worst-performing or best-performing agreements in the current tracking periods and in previous tracking periods.</p> <p>To access: Select Applications > Service Level Management > Status Snapshot</p>
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<p>Important Information</p>	<ul style="list-style-type: none"> ▶ An agreement is included in the Status Snapshot page only if it has relevant data. ▶ Different agreements may be displayed in the Current Periods pane and the Previous Periods pane. ▶ Hold the pointer over a long agreement name to view it in full. ▶ The Status Snapshot page is refreshed every five minutes. You can change this value in Admin > Platform > Setup and Maintenance > Infrastructure Settings, choose Applications, select Service Level Management, and locate the SLA Status Snapshot refresh timing entry.
<p>Useful Links</p>	<p>“Status in Reports” on page 280</p>

Report Settings

GUI Element (A–Z)	Description
<p>Apply</p>	<p>Click to update the report with your changes.</p>
<p>Maximum number of displayed SLAs</p>	<p>Enter a value to limit the number of displayed agreements (the same value is applied for the Current Periods pane and Previous Periods pane).</p> <p>Default value: 10</p> <p>Note: Entering large values causes slower display time.</p>

GUI Element (A–Z)	Description
SLAs/Providers/ Customers/Services	<p>The SLAs field (may be called Providers, Customers, or Services if you previously filtered by one of these categories) displays the name of the filter option selected for the report, or displays the number of selected options within that category. For example, SLAs: Filtered 2/5 means that filtering is based on SLAs (agreements), and 2 out of 5 agreements are included in the filter for the report.</p> <p>To change the selection, click the field name link. For details on the user interface for changing the selection, see “SLAs Dialog Box” on page 347.</p> <p>When you filter by providers, customers, or services, the Status Snapshot report displays the worst-performing or best-performing agreements that are associated with the selected options.</p> <p>Note: You can include all options in the current filter category by clicking the Clear All link. This clears the displayed selection and replaces it with All.</p>
Sort by	<p>Select Best performing or Worst performing to filter the agreements included in the Status Snapshot report by best or worst performance.</p> <p>Default value: Worst performing</p>

Current Periods Pane

Description	Displays agreement status information for the current tracking period, and the predicted agreement status at the end of the forecast period. The included agreements are those that meet the filter criteria, and that work with the tracking period defined in the Comparison tracking period field.
Important Information	<p>The status-to-date information displayed in the Status Snapshot report (for example, Week, which gives week-to-date information) shows real-time data that is correct up to one or two hours ago (for details on the status-to-date calculations, see “Agreement Status” on page 281).</p> <p>In other Service Level Management reports, status-to-date information is calculated to the last closed day. This means that you may see different data displayed in the Status Snapshot report as compared with other reports, or that the Status Snapshot report already contains data while other reports do not yet have data.</p>

The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A–Z)	Description
Comparison tracking period	<p>Select the tracking period that is used for the status displayed in each agreement gauge. All tracking periods are available apart from Hour and SLA period.</p> <p>If an agreement meets all other filter requirements, but the selected tracking period is not part of the agreement definition, it is not displayed in the Current Periods pane (it is displayed in the Previous Periods pane).</p> <p>Default value: Month</p>

GUI Element (A–Z)	Description
<Gauge>	<p>The gauge for each agreement provides a pictorial representation of the status for the selected Comparison tracking period (for example, Day or Week).</p> <p>Click in a gauge to open the SLA Status report for that agreement.</p> <p>Tooltip: States the status and tracking period for the status.</p>
<Tracking period>	<p>Displays the status-to-date for each tracking period defined for the agreement (not including Hour). For example, Week gives the week-to-date status, Month gives the month-to-date status.</p> <p>Tooltip: Hold the pointer over a status icon to see details about its status.</p>
Forecast	<p>Displays the status forecast for the end of the forecast period.</p> <p>The status forecast is not displayed if the agreement does not have the default forecast calculation tracking periods (as defined in infrastructure settings), or if no data is found that can be used to calculate the forecast.</p> <p>Tooltip: Hold the pointer over Forecast to see the period the forecast is based on, and the period that the forecast is for.</p> <p>Default values: The default base period is Week, and the default forecasted period is Month. The default values can be changed in the Infrastructure Settings page.</p> <p>For information on how the status forecast is calculated, and on changing the default values, see “Status Forecast for Agreements” on page 285.</p>

Previous Periods Pane

Description	Displays agreement status information from previous, closed tracking periods (periods that have passed their end date), over the past six months. The included agreements are the worst performing/best performing agreements over the past six months, according to all the filter criteria.
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The following element is included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A–Z)	Description
<Bar chart>	<p>The bar chart for each agreement shows the status of week, month, and quarter periods.</p> <p>If a period is blue, either the period has not yet finished, or no data exists for that period.</p> <p>Tooltip: Hold the pointer over a bar to view information on the bar period and status.</p>

Time Range Comparison Report

The following is an example of the Time Range Comparison report.

Time Range Comparison

Time Ranges: Week , Month to date
 CI: infrastructure (SLA: JPETSTORE SLA)
 KPI: System Availability
 Calendar: 24x7

CI ▲	Week	Month to date	Trend
infrastructure	99.746	94.343	▼
AdminServer	99.954	93.615	▼
vmamrnd25	99.960	93.615	▼
16.59.65.86	-	-	
Microsoft IIS WebServer	99.612	99.696	▲
labmiss01.d...ad monitor	-	-	
vmamrnd06.d...ad monitor	-	-	
vmamrnd60.d...ad monitor	-	-	
SQLServer	99.673	89.719	▼
labm1amrnd28	98.445	89.719	▼
16.59.61.23	-	-	

■ Exceeded	■ Met	■ Minor Breached
■ Breached	■ Failed	■ No Data
Downtime		

Description	Displays KPI results for a CI branch across different time ranges. To access: Applications > Service Level Management > SLA Reports > Time Range Comparison.
Important Information	You can use this report to compare KPI results over different time periods.
Included in Tasks	“View SLA and Outage Reports” on page 302

Report Settings

GUI Element (A–Z)	Description
<Common report elements>	For details on the user interface, see “Common Report Elements” in <i>Reports</i> . See also “Tracking Range and Granularity in Service Level Management” on page 291.
Advanced Options	Enables you to include descriptions and additional values in the report, and customize some display aspects. You can add a column to the report displaying objectives for the selected KPI. For details, see “Advanced Options Dialog Box” on page 307.
Calendar	Select a calendar. The lists includes the calendars relevant for the selected CI.
CI	Displays the name of the CI selected for the report. The report displays all CIs in the branch for the selected CI (you can also select the agreement CI). To change the selection, click the CI link. For details, see “CIs Dialog Box” on page 322.

GUI Element (A–Z)	Description
KPI	Select a KPI. The lists includes the KPIs relevant for the selected CI.
Time Ranges	<p>Displays the time ranges selected for the report. Two time ranges are selected by default.</p> <p>To select time ranges, click the Time Ranges link to open the Time Ranges dialog box.</p> <ul style="list-style-type: none"> <li>▶ Select the check box for a row to include that time range in the report. <li>▶ By default, the time range label is the name in the Time Range box. If you want a different label displayed in the report, enter it in the relevant Label box. <li>▶ Select the time range for each row. The available time ranges depend on the tracking periods defined for the agreement containing the selected CI. <li>▶ Set dates as required. <p>Note: The trend column is displayed in the report only when exactly two time ranges are selected.</p>

Report Content

The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A–Z)	Description
<KPI cell>	<p>Displays the numerical result for the KPI during that time range. The background color shows the status for the KPI (based on the target objectives).</p> <p>Tooltip: Hold the pointer over a cell to view information about the KPI. For details on this topic, see “Tooltip for KPIs in Reports” on page 301.</p>
CI	<p>Displays the CIs included in the selected branch of the agreement (up to four levels). Click a CI name to drill down to the branch under that CI. (You can return to the previous level using the breadcrumbs at the top of the page.)</p> <p>Tooltip: Hold the pointer over a CI name to view the full name in a tooltip.</p>
Objectives	<p>Displays, for each CI, the objectives defined for the attached KPI. This column is displayed if you selected Show Objectives in Column in the Advanced Options dialog box.</p> <p>Note: If a KPI has different objectives defined in each time range, then no objectives are displayed for that CI.</p>
Trend	<p>Displays the status trend between the first time range column and the second time range column. This column is displayed only if exactly two time ranges are selected.</p>

Troubleshooting and Limitations

This section provides information to help you troubleshoot Service Level Management reports.

The Reports Log

HP Business Availability Center records errors that occur when generating Service Level Management reports in a reports log. The reports log can also include the following activities: report creation, report generation, report filters modification, report drill down, and so on. For details, see “Reports Log” in *Reports*.

Part III

Service Level Management Repositories

11

KPI Repository

This chapter provides information about the Service Level Management KPI Repository.

This chapter includes:

Concepts

- ▶ KPI Repository Overview on page 367

Tasks

- ▶ Customize a KPI on page 368

Reference

- ▶ List of Service Level Management KPIs on page 370
- ▶ KPI Repository User Interface on page 387

KPI Repository Overview

The KPI Repository page displays the list of factory (predefined) and customized KPIs. Those KPIs are available throughout HP Business Availability Center to determine how source data is imported.

The Service Level Management KPI Repository includes all of the KPIs that can be used in the Service Level Management application. For details, see “List of Service Level Management KPIs” on page 370.

Each KPI is assigned a default business rule (a business rule is built on business logic). For details, see “List of Service Level Management Business Rules” on page 416.

Important: Service Level Management and Dashboard use two separate, independent sets of repositories. These repositories contain different KPIs and rules; changing KPIs or rules in Service Level Management has no effect on Dashboard (and vice versa). For details on the Dashboard repositories, see “KPI Repository” in *Using Dashboard*.

Customize a KPI

You customize a KPI by creating a new KPI, or by editing an existing KPI.

For a detailed scenario that includes creating KPIs, see “Create a KPI, Rule, and Tooltip – Example” in *Using Dashboard* and view the appropriate steps.

This task includes the following steps:

- “Create a Customized KPI” on page 368
- “Edit a KPI” on page 369
- “Specify the KPI Parameter Details” on page 369
- “Set a KPI and its Parameters Back to Default” on page 369

1 Create a Customized KPI

There are three ways to customize repository elements:

- **New Item.** Creates a new repository element that is not based on an existing element. You customize the new element to fit your needs.

To create a new KPI, click **New Item** in the KPI Repository page.

- **Clone.** Creates a new repository element by cloning an existing factory or custom element. The original element is still available, and the new cloned element can be modified.

To clone a KPI, select a factory KPI and click **Clone** in the KPI Repository page.

- **Override.** Overrides an existing factory element. The original element is labeled overridden (disabled) in the Factory area, and an editable copy appears in the Custom area.

To override a KPI, select a factory KPI and click **Override** in the KPI Repository page.

For details, see “KPI Repository Page” on page 388.

2 Edit a KPI



Click the **Edit** button corresponding to the custom KPI, and change its values as required.

For details on the possible values, see “KPI Details Dialog Box” on page 390.

3 Specify the KPI Parameter Details

In the Parameter Details dialog box, modify existing information or enter new information about the predefined KPI parameters.

For details on the possible values, see “Parameter Details Dialog Box (KPIs)” on page 400.

4 Set a KPI and its Parameters Back to Default

If you want to restore KPI and parameter defaults, select **Admin > Service Level Management > Repositories > KPIs**. In the **Custom KPIs** area, delete the copy of the KPI you want to return to default and click **OK**. The KPI and its parameters are returned to their defaults.

List of Service Level Management KPIs

This section provides information about the KPIs available in the Service Level Management KPI repository, and their associated rules.

KPI (KPI #)	Description and Associated Rules
Application (263)	<p>Service Level Management determines if application status results, received in EMS monitor samples for an HP Operations Manager system, are within the SLA objectives.</p> <p>This KPI is automatically assigned to an EMS Monitor CI that you add to an SLA (when Automatically define default KPIs for new CIs is selected).</p> <p>Unit of measurement: percentage</p> <p>“Application Quality” on page 420 “Best Child (Max.)” on page 422 “Cluster Availability” on page 443 “Group Average Value” on page 446 “Worst Child (Min.)” on page 488</p>
Availability (101)	<p>Service Level Management measures the availability percentages of CIs and compares them to the SLA objectives.</p> <p>Unit of measurement: percentage.</p> <p>“Best Child (Max.)” on page 422 “BPM Average Availability” on page 438 “Children Success Ratio” on page 443 “Cluster Availability” on page 443 “External Source Average Availability” on page 444 (for monitor rules only) “Group Average Value” on page 446 “RUM Page Availability” on page 454 “RUM Transaction Availability” on page 456 “SOA Diagnostics Availability” on page 469 “SOA Synthetic Monitor Availability” on page 472 “Volume Average Value” on page 486 “Worst Child (Min.)” on page 488</p>

KPI (KPI #)	Description and Associated Rules
Availability Six Sigma (104)	<p>Service Level Management measures the Six Sigma availability of CIs and compares the Six Sigma values to the SLA objectives.</p> <p>Unit of measurement: Sigma.</p> <p>“Best Child (Max.)” on page 422</p> <p>“BPM Six Sigma Availability” on page 442</p> <p>“Group Average Value” on page 446</p> <p>“RUM Page Six Sigma Availability” on page 455</p> <p>“RUM Transaction Six Sigma Availability” on page 457</p> <p>“SiteScope Monitor Six Sigma” on page 466</p> <p>“SiteScope Six Sigma Availability” on page 469</p> <p>“Six Sigma Group” on page 469</p> <p>“SOA Diagnostics Six Sigma on Availability” on page 471</p> <p>“SOA Six Sigma on Availability” on page 472</p> <p>“Worst Child (Min.)” on page 488</p>
Average Outage Duration (212)	<p>Service Level Management calculates the average outage duration, in seconds; that is, the total duration divided by the number of outages. The minimum value is 0. A negative trend is assigned to this KPI, that is, the lower the average outage duration value, the better.</p> <p>“Average Outage Duration” on page 421</p> <p>“Best Child (Min.)” on page 423</p> <p>“Group Average Value” on page 446</p> <p>“Worst Child (Max.)” on page 487</p>

KPI (KPI #)	Description and Associated Rules
<p>Backlog (612)</p>	<p>Backlog KPI for Business Process Insight Data</p> <p>Displays information on the backlogged instances of the business process, as measured by Business Process Insight.</p> <p>For information on Business Process Insight data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>Note: This KPI does not have a predefined unit. If you are using the KPI with a value-based rule, you need to define a unit for the KPI. For details, see “KPIs Based On Monetary Value” on page 247.</p> <hr/> <p>“BPI Average Backlog (Count-based)” on page 424</p> <p>“BPI Average Backlog (Value-based)” on page 425</p> <p>“Group Average Status” on page 445</p> <p>“Group Average Value” on page 446</p> <p>“Group Worst Status” on page 447</p>
<p>Backlog (continued)</p>	<p>Backlog KPI for TransactionVision Data</p> <p>Displays information on the backlogged instances of the business transaction, as measured by TransactionVision.</p> <p>For details on TransactionVision data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <hr/> <p>“Best Child (Max.)” on page 422</p> <p>“Best Child (Min.)” on page 423</p> <p>“TransactionVision Average Backlog Count” on page 477</p> <p>“TransactionVision Average Backlog Value” on page 478</p> <p>“Worst Child (Max.)” on page 487</p> <p>“Worst Child (Min.)” on page 488</p>

KPI (KPI #)	Description and Associated Rules
Business Health (604)	<p>Displays information on the health of backlogged instances of the business process, as measured by Business Process Insight.</p> <p>For information on Business Process Insight data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>“BPI Health Average Status (Count-based)” on page 428</p> <p>“BPI Health Average Status (Value-based)” on page 430</p> <p>“Group Average Status” on page 445</p> <p>“Group Average Value” on page 446</p> <p>“Group Worst Status” on page 447</p>
Delays (611)	<p>Displays information on the completed, delayed (late) instances of the business transaction, as measured by TransactionVision. A transaction is defined as late when its response time exceeds a defined threshold in TransactionVision.</p> <p>For details on TransactionVision data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>“Best Child (Max.)” on page 422</p> <p>“Best Child (Min.)” on page 423</p> <p>“Group Average Status” on page 445</p> <p>“Group Average Value” on page 446</p> <p>“Group Worst Status” on page 447</p> <p>“TransactionVision Average Delays Rate (%)” on page 479</p> <p>“TransactionVision Average Delays Value (%)” on page 480</p> <p>“Worst Child (Max.)” on page 487</p> <p>“Worst Child (Min.)” on page 488</p>

KPI (KPI #)	Description and Associated Rules
<p>Duration (605)</p>	<p>Duration KPI for Business Process Insight Data</p> <p>Displays information on the response time for completed instances of the business process, as measured by Business Process Insight.</p> <p>For information on Business Process Insight data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p>
	<p>“BPI Average Duration” on page 426</p> <p>“BPI Maximum Duration” on page 434</p> <p>“BPI Minimum Duration” on page 434</p> <p>“BPI Weighted Average Duration” on page 437</p> <p>“Group Average Status” on page 445</p> <p>“Group Average Value” on page 446</p> <p>“Group Worst Status” on page 447</p>
	<p>Duration KPI for TransactionVision Data</p> <p>Displays information on the response time for completed instances of the business transaction, as measured by TransactionVision. The KPI is calculated only for completed transactions.</p> <p>For details on TransactionVision data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241</p>
	<p>“Best Child (Max.)” on page 422</p> <p>“Best Child (Min.)” on page 423</p> <p>“Group Average Status” on page 445</p> <p>“Group Average Value” on page 446</p> <p>“Group Worst Status” on page 447</p> <p>“TransactionVision Average Duration” on page 480</p> <p>“TransactionVision Maximum Duration” on page 483</p> <p>“TransactionVision Minimum Duration” on page 483</p> <p>“Worst Child (Max.)” on page 487</p> <p>“Worst Child (Min.)” on page 488</p>

KPI (KPI #)	Description and Associated Rules
Duration Status Percentage (607)	<p>Displays information on the percentage of completed instances of the business process that had a response time above a certain threshold. The data is measured by Business Process Insight.</p> <p>For information on Business Process Insight data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>“BPI Duration Status” on page 427</p> <p>“Group Average Status” on page 445</p> <p>“Group Average Value” on page 446</p> <p>“Group Worst Status” on page 447</p>
Exceptions (609)	<p>Displays information on completed instances of the business transaction that did not follow the expected flow path on the target machines, and are therefore classified as exceptions by TransactionVision.</p> <p>For details on TransactionVision data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>“Best Child (Max.)” on page 422</p> <p>“Best Child (Min.)” on page 423</p> <p>“Group Average Status” on page 445</p> <p>“Group Average Value” on page 446</p> <p>“Group Worst Status” on page 447</p> <p>“TransactionVision Average Exceptions Rate (%)” on page 481</p> <p>“TransactionVision Average Exceptions Value (%)” on page 481</p> <p>“Worst Child (Max.)” on page 487</p> <p>“Worst Child (Min.)” on page 488</p>

KPI (KPI #)	Description and Associated Rules
<p>Failures (610)</p>	<p>Displays information on the failed, completed instances of the business transaction, as measured by TransactionVision. A transaction is classified as "failed" when it does not match the attribute or pattern defined as failure in TransactionVision.</p> <p>For details on TransactionVision data in Service Level Management, see "Business Process and Business Transaction Data in Service Level Management" on page 241.</p> <hr/> <p>"Best Child (Max.)" on page 422 "Best Child (Min.)" on page 423 "Group Average Status" on page 445 "Group Average Value" on page 446 "Group Worst Status" on page 447 "TransactionVision Average Failures Rate (%)" on page 482 "TransactionVision Average Failures Value (%)" on page 482 "Worst Child (Max.)" on page 487 "Worst Child (Min.)" on page 488</p>
<p>MTBF (Mean Time Between Failures) (3601)</p>	<p>The MTBF KPI indicates the duration of time when there were no open incidents for the Business Service CI. The value is calculated from the average time between incidents, in seconds.</p> <p>Note: When this KPI is included in an agreement, any forecast status calculations for the agreement return inaccurate results.</p> <p>For more information and use case examples, see "Integration with HP Service Manager" on page 261.</p> <hr/> <p>"MTBF (Mean Time Between Failures)" on page 450 "Incidents Group Rule" on page 449 "Worst Child (Min.)" on page 488</p>

KPI (KPI #)	Description and Associated Rules
<p>MTBSI (Mean Time Between System Incidents) (3602)</p>	<p>The MTBSI KPI indicates the average duration of time, in seconds, between incidents—from the open time of one incident to the open time of the next incident.</p> <p>For more information and use case examples, see “Integration with HP Service Manager” on page 261.</p> <hr/> <p>“MTBSI (Mean Time Between System Incidents)” on page 450</p> <p>“Incidents Group Rule” on page 449</p> <p>“Worst Child (Min.)” on page 488</p>
<p>MTTR (Mean Time to Repair) (3600)</p>	<p>The MTTR KPI indicates the percentage of incidents that were repaired within a defined time period, and calculates status based on comparison with a percentage threshold.</p> <p>Repair time is based on the duration of time between two incident statuses (by default, Open and Closed).</p> <p>For more information and use case examples, see “Integration with HP Service Manager” on page 261.</p> <hr/> <p>“MTTR (Mean Time to Recover)” on page 450</p> <p>“Incidents Group Rule” on page 449</p> <p>“Worst Child (Min.)” on page 488</p>
<p>Network (261)</p>	<p>Service Level Management determines if network status results, received in EMS monitor samples for an HP Operations Manager system, are within the SLA objectives.</p> <p>Unit of measurement: percentage</p> <hr/> <p>“Best Child (Max.)” on page 422</p> <p>“Cluster Availability” on page 443</p> <p>“Group Average Value” on page 446</p> <p>“Network Quality” on page 451</p> <p>“Worst Child (Min.)” on page 488</p>

KPI (KPI #)	Description and Associated Rules
<p>Number of Outages (210)</p>	<p>Service Level Management displays the number of outages that occurred during the tracking period. The minimum value is 0. A negative trend is assigned to this KPI, that is, the lower the number of outages, the better.</p> <p>Unit of measurement: number.</p> <p>Note: When this KPI is included in an agreement, any forecast status calculations for the agreement yield inaccurate results.</p> <p>“Best Child (Min.)” on page 423 “Group Average Value” on page 446 “Number of Outages” on page 452 “Worst Child (Max.)” on page 487</p>
<p>Outage Duration (211)</p>	<p>Service Level Management calculates the duration of the outages during the tracking period, in minutes. The minimum value is 0. A negative trend is assigned to this KPI, that is, the shorter the duration of the outage, the better.</p> <p>Unit of measurement: date.</p> <p>Note: When this KPI is included in an agreement, any forecast status calculations for the agreement yield inaccurate results.</p> <p>“Best Child (Min.)” on page 423 “Group Average Value” on page 446 “Outage Duration” on page 453 “Worst Child (Max.)” on page 487</p>
<p>Outages (200)</p>	<p>This KPI is used by Service Level Management to calculate the outages for a CI included in an agreement. You define the business rule and associated parameters for the Outage KPI in the Define KPIs Page of the agreement wizard.</p> <p>For more information, see “Outage Reports” on page 283.</p> <p>“BPM Outage” on page 440 “Outage Based on Availability” on page 452 “Outage Based on System Availability” on page 453 “SiteScope Monitor Outage” on page 464 “SiteScope Outage” on page 467 “WS SiteScope Outage” on page 489</p>

KPI (KPI #)	Description and Associated Rules
Performance (106)	<p>You use the Performance KPI where the measurement result must be in percentages. For example, use this KPI to measure success ratios.</p> <p>Unit of measurement: percentage.</p> <p>“Best Child (Max.)” on page 422</p> <p>“BPM Percentile” on page 441</p> <p>“Children Success Ratio” on page 443</p> <p>“Group Average Value” on page 446</p> <p>“Response Time Success Ratio” on page 454</p> <p>“RUM Page Percentile” on page 455</p> <p>“RUM Transaction Percentile” on page 457</p> <p>“SiteScope Percentile” on page 468</p> <p>“SOA Diagnostics Performance Percentile” on page 471</p> <p>“SOA Synthetic Monitor Performance” on page 473</p> <p>“System Performance Success Ratio” on page 473</p> <p>“Volume Average Value” on page 486</p> <p>“Worst Child (Min.)” on page 488</p>
Performance Six Sigma (105)	<p>Service Level Management calculates the Six Sigma value and compares it with the Six Sigma objective.</p> <p>Unit of measurement: Sigma.</p> <p>“Best Child (Max.)” on page 422</p> <p>“BPM Six Sigma Performance” on page 442</p> <p>“Group Average Value” on page 446</p> <p>“RUM Page Six Sigma Performance” on page 455</p> <p>“RUM Transaction Six Sigma Performance” on page 458</p> <p>“Six Sigma Group” on page 469</p> <p>“SiteScope Monitor Six Sigma Performance” on page 466</p> <p>“SiteScope Six Sigma Performance” on page 469</p> <p>“SOA Diagnostics Six Sigma on Performance” on page 471</p> <p>“SOA Six Sigma on Performance” on page 472</p> <p>“Worst Child (Min.)” on page 488</p>

KPI (KPI #)	Description and Associated Rules
<p>PNR (Point of No Return) (214)</p>	<p>Note: This KPI is for internal HP use only and should not be modified.</p> <p>The PNR (Point of No Return) KPI is used by HP Business Availability Center for internal calculations needed to display Service Level Management data in Dashboard.</p> <p>For details about setting up a PNR KPI, see “Attach a PNR KPI to a CI – Scenario” in <i>Using Dashboard</i>.</p> <hr/> <p>“PNR (Point of No Return)” on page 454</p>
<p>Response Time (103)</p>	<p>Service Level Management measures the response time for Business Process Monitor transactions, Real User Monitor measurements, and SiteScope measurements.</p> <p>Unit of measurement: seconds.</p> <hr/> <p>“BPM Average Response Time” on page 438</p> <p>“BPM Max. Response Time” on page 439</p> <p>“BPM Min. Response Time” on page 439</p> <p>“Best Child (Min.)” on page 423</p> <p>“Group Average Value” on page 446</p> <p>“RUM Page Average Response Time” on page 454</p> <p>“RUM Transaction Average Response Time” on page 456</p> <p>“RUM Transaction Max. Response Time” on page 456</p> <p>“RUM Transaction Min. Response Time” on page 456</p> <p>“SOA Diagnostics Average Response Time” on page 470</p> <p>“SOA Diagnostics Max. Response Time” on page 470</p> <p>“SOA Diagnostics Min. Response Time” on page 470</p> <p>“SOA Synthetic Monitor Average Response Time” on page 473</p> <p>“SOA SiteScope Max. Total Time” on page 471</p> <p>“SOA SiteScope Min. Total Time” on page 472</p> <p>“Volume Average Value” on page 486</p> <p>“Worst Child (Max.)” on page 487</p>

KPI (KPI #)	Description and Associated Rules
Security (262)	<p>Service Level Management determines if security status results, received in EMS monitor samples for an HP Operations Manager system, are within the SLA objectives.</p> <p>Unit of measurement: percentage.</p> <p>“Best Child (Max.)” on page 422</p> <p>“Cluster Availability” on page 443</p> <p>“Group Average Value” on page 446</p> <p>“Security Quality” on page 459</p> <p>“Worst Child (Min.)” on page 488</p>
SLM Month Forecast (231)	<p>Note: This KPI is for internal HP use only and should not be modified.</p> <p>The SLM Month Forecast KPI is used by HP Business Availability Center for the internal calculations needed to display the end-of-month forecast status.</p> <p>“Service Level Management Forecast Rule” on page 460</p>
SLM Quarter Forecast (232)	<p>Note: This KPI is for internal HP use only and should not be modified.</p> <p>The SLM Quarter Forecast KPI is used by HP Business Availability Center for the internal calculations needed to display the end-of-quarter forecast status.</p> <p>“Service Level Management Forecast Rule” on page 460</p>
SLM Status (220)	<p>Note: This KPI is for internal HP use only and should not be modified.</p> <p>The SLM Status KPI is used by HP Business Availability Center for internal calculations needed to display the Status Snapshot. For details, see “Status Snapshot Report” on page 353.</p> <p>“Service Level Management Status” on page 460</p>
SLM Week Forecast (230)	<p>Note: This KPI is for internal HP use only and should not be modified.</p> <p>The SLM Week Forecast KPI is used by HP Business Availability Center for the internal calculations needed to display the end-of-week forecast status.</p> <p>“Service Level Management Forecast Rule” on page 460</p>
SLM Year Forecast (233)	<p>Note: This KPI is for internal HP use only and should not be modified.</p> <p>The SLM Year Forecast KPI is used by HP Business Availability Center for the internal calculations needed to display the end-of-year forecast status.</p> <p>“Service Level Management Forecast Rule” on page 460</p>

KPI (KPI #)	Description and Associated Rules
<p>System (260)</p>	<p>Service Level Management determines if system status results, received in EMS monitor samples for an HP Operations Manager system, are within the SLA objectives.</p> <p>This KPI is automatically assigned to an EMS Monitor CI that you add to an SLA (when Automatically define default KPIs for new CIs is selected).</p> <p>Unit of measurement: percentage</p> <p>“Best Child (Max.)” on page 422 “Cluster Availability” on page 443 “Group Average Value” on page 446 “System Quality” on page 474 “Worst Child (Min.)” on page 488</p>
<p>System Availability (100)</p>	<p>Service Level Management calculates the availability percentages of measurements or monitors and compares them to the SLA objectives. This is the default KPI for SiteScope monitor CIs.</p> <p>Unit of measurement: percentage.</p> <p>“Best Child (Max.)” on page 422 “Cluster Availability” on page 443 “External Source Average Availability” on page 444 “Group Average Value” on page 446 “SiteScope Average Availability” on page 460 “SiteScope Monitor Rule” on page 465 “Volume Average Value” on page 486 “Worst Child (Min.)” on page 488</p>

KPI (KPI #)	Description and Associated Rules
System Performance (102)	<p>This KPI is used as a general performance indicator for SiteScope CIs (for example, CPU, disk space, success sample rate). It is also used for Business Process Monitor CIs.</p> <p>“Best Child (Min.)” on page 423</p> <p>“Children Success Ratio” on page 443</p> <p>“External Source Average Value” on page 444</p> <p>“Group Average Value” on page 446</p> <p>“SiteScope Average Value” on page 461</p> <p>“SiteScope Max. Value” on page 461</p> <p>“SiteScope Min. Value” on page 461</p> <p>“SiteScope Monitor Average Value” on page 462</p> <p>“SiteScope Monitor Max. Value” on page 462</p> <p>“SiteScope Monitor Min. Value” on page 463</p> <p>“SiteScope Monitor Percentile” on page 465</p> <p>“Volume Average Value” on page 486</p> <p>“Worst Child (Max.)” on page 487</p>
Throughput (115)	<p>Throughput KPI for SOA Diagnostics Data</p> <p>The Throughput KPI is used to show the load on a Web service and represents the number of calls per minute. For example, the throughput of the transferMoney service is 5 calls per minute.</p> <p>Throughput is calculated from the total number of Web service calls measured by HP Diagnostics and divided by a time period (defined in minutes).</p> <p>“Group Sum Value” on page 447</p> <p>“SOA Diagnostics Average Throughput” on page 470</p> <p>“SOA Diagnostics Max. Throughput” on page 470</p> <p>“SOA Diagnostics Min. Throughput” on page 470</p>

KPI (KPI #)	Description and Associated Rules
<p>Throughput (continued)</p>	<p>Throughput KPI for Business Process Insight Data</p> <p>Displays information on the average hourly volume of completed instances of the business process, as measured by Business Process Insight.</p> <p>For information on Business Process Insight data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p>
	<p>“BPI Hourly Throughput (Count-based)” on page 432</p> <p>“BPI Hourly Throughput (Value-based)” on page 433</p> <p>“Group Average Status” on page 445</p> <p>“Group Average Value” on page 446</p> <p>“Group Worst Status” on page 447</p>
	<p>Throughput KPI for TransactionVision Data</p> <p>Displays information on the average hourly volume of completed instances of the business transaction, as measured by TransactionVision.</p> <p>For details on TransactionVision data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p>
	<p>“Best Child (Max.)” on page 422</p> <p>“Best Child (Min.)” on page 423</p> <p>“Group Average Status” on page 445</p> <p>“Group Average Value” on page 446</p> <p>“Group Sum Value” on page 447</p> <p>“Group Worst Status” on page 447</p> <p>“TransactionVision Throughput” on page 484</p> <p>“Worst Child (Max.)” on page 487</p> <p>“Worst Child (Min.)” on page 488</p>

KPI (KPI #)	Description and Associated Rules
Time Between Outages (213)	<p>Service Level Management calculates the mean time between outages in seconds. The minimum value is 0. A positive trend is assigned to this KPI, that is, the higher the time between outages, the better.</p> <p>Unit of measurement: date.</p> <p>“Best Child (Max.)” on page 422</p> <p>“Group Average Value” on page 446</p> <p>“Time Between Outages” on page 476</p> <p>“Time Between Outages - Alternate” on page 475</p> <p>“Worst Child (Min.)” on page 488</p>
User Availability (110)	<p>Service Level Management calculates the availability percentages of end user measurements or monitors and compares them to the SLA objectives.</p> <p>“Best Child (Max.)” on page 422</p> <p>“Cluster Availability” on page 443</p> <p>“Group Average Value” on page 446</p> <p>“RUM Session User Availability” on page 456</p> <p>“Volume Average Value” on page 486</p> <p>“Worst Child (Min.)” on page 488</p>
User Performance (111)	<p>This KPI displays information related to end-user performance.</p> <p>“Best Child (Max.)” on page 422</p> <p>“Children Success Ratio” on page 443</p> <p>“Group Average Value” on page 446</p> <p>“RUM Session User Performance” on page 456</p> <p>“Volume Average Value” on page 486</p> <p>“Worst Child (Min.)” on page 488</p>

KPI (KPI #)	Description and Associated Rules
<p>Value (606)</p>	<p>Value KPI for Business Process Insight Data</p> <p>Displays information on the monetary value of the completed business process instances, as measured by Business Process Insight.</p> <p>For information on Business Process Insight data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p>
	<p>“BPI Average Value” on page 426</p> <p>“BPI Maximum Value” on page 434</p> <p>“BPI Minimum Value” on page 435</p> <p>“BPI Weighted Average Value” on page 437</p> <p>“Group Average Status” on page 445</p> <p>“Group Average Value” on page 446</p> <p>“Group Worst Status” on page 447</p>
	<p>Value KPI for TransactionVision Data</p> <p>Displays information on the average monetary value of the completed business transaction instances, as measured by TransactionVision.</p> <p>For details on TransactionVision data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p>
	<p>“Best Child (Max.)” on page 422</p> <p>“Best Child (Min.)” on page 423</p> <p>“Group Average Status” on page 445</p> <p>“Group Average Value” on page 446</p> <p>“Group Worst Status” on page 447</p> <p>“TransactionVision Average Value” on page 483</p> <p>“Worst Child (Max.)” on page 487</p> <p>“Worst Child (Min.)” on page 488</p>

KPI (KPI #)	Description and Associated Rules
Value Status Percentage (608)	<p>Displays information on the percentage of completed instances of the business process that had a value above a certain threshold. The data is measured by Business Process Insight.</p> <p>For information on Business Process Insight data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <hr/> <p>“BPI Value Status” on page 436</p> <p>“Group Average Status” on page 445</p> <p>“Group Average Value” on page 446</p> <p>“Group Worst Status” on page 447</p>

KPI Repository User Interface



This section describes:

- KPI Repository Page on page 388
- KPI Details Dialog Box on page 390
- Parameter Details Dialog Box (KPIs) on page 400

KPI Repository Page

Description	<p>Displays the list of factory (predefined) and customized KPIs. Those KPIs are available throughout HP Business Availability Center to determine how source data is imported.</p> <p>Enables an advanced user to modify existing repository KPIs and create new ones.</p> <p>To Access: Admin > Service Level Management > Repositories > KPIs</p>
Important Information	<p>Cloning or overriding an existing KPI, or creating a new KPI, adds the corresponding KPI entry to the Custom KPIs list. You can then customize the KPI to your organization's specifications.</p> <p>You can define a new KPI. For details, see "KPI Details Dialog Box" on page 390.</p> <p>You can modify existing detailed information or enter new information about the KPI parameters. For details, see "Parameter Details Dialog Box (KPIs)" on page 400.</p> <p>A list of the KPIs, their descriptions, and the rules attached to the KPIs is available in "List of Service Level Management KPIs" on page 370.</p>
Included in Tasks	"Customize a KPI" on page 368

The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A-Z)	Description
	Click to display help on the KPI.
	Select a KPI in the Custom KPIs area, and click the button to open the KPI Details dialog box. For details, see "KPI Details Dialog Box" on page 390.
Acknowledgment Level	The highest KPI status from which you can add an acknowledge note. This is the default acknowledgement level.

GUI Element (A-Z)	Description
Applicable section	The sections of the application where the KPI is in use.
Calculation Order	The position of the KPI in the ordered list used by Service Level Management when it calculates the topology. Service Level Management calculates the higher priority KPIs first, and then the lower priority KPIs. This is the default calculation order.
Clone	<p>In the Factory KPIs or in the Custom KPIs areas, select a KPI, and click the button to create a new KPI by cloning. You clone an existing KPI to use it as a template. The original KPI is still available.</p> <p>Note: Change the name of the KPI you have cloned to make sure you attach the cloned KPI and not the original KPI to a specific configuration item (CI).</p>
Default Group Rule	This specifies the rule that is defined by default for this KPI.
Display Label	The name used for the KPI.
Display Order	The order in which the KPIs are displayed in SLM. This is the default display order.
ID	This specifies the ID number used to identify the KPI in the source adapter templates. This is the default KPI ID.
New Item	Click to create a new KPI. For details, see “Customize a KPI” on page 368.
Override	<p>In the Factory KPIs or in the Custom KPIs areas, select a KPI, and click the button to edit an existing KPI. You override an existing KPI to replace it with a customized KPI. The original KPI is disabled. The overriding KPI and the original KPI have the same KPI ID. The KPI in the Factory KPIs area displays the following indication:</p> <div style="border: 1px solid gray; padding: 2px; width: fit-content;"> <input type="checkbox"/> 53 Component Availability (Overridden) </div> <p>Note: If you delete the custom KPI that overrode the factory KPI, the original factory KPI is automatically restored.</p> <p>For details, see “Customize a KPI” on page 368.</p>

 **KPI Details Dialog Box**

Description	Enables you to define a new KPI. To Access: In the KPI Repository page, click New Item or click the Edit button for the appropriate KPI in the Factory or Custom KPIs area.
Important Information	A list of the KPIs, their descriptions, and the rules attached to the KPIs is available in “List of Service Level Management KPIs” on page 370.
Included in Tasks	“Customize a KPI” on page 368

The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A-Z)	Description
Acknowledgement Level	For future use.
Applicable for User Role	Select the type of user. You can define two versions of a KPI for two different user types (modes): Operations and Business , where each KPI version is geared towards the particular viewing requirements of one of the user types. For details, see “KPIs for User Modes” in <i>Using Dashboard</i> . Select Both if you want to have one version of the KPI. If you select Operations and Business , it is recommended to modify the KPI’s name to reflect the type of user role. For example, rename OT Impact: OT Impact - Operations.



GUI Element (A-Z)	Description
Applicable Rules	<p>Add rules or remove existing rules from the Applicable Rules list. Applicable Rules lists the rules (types of calculations) that can be performed on the KPI. One of the rules in the list of applicable rules is the default rule of the KPI. You can change the default rule of the KPI to one of the other rules selected in the Applicable Rules list. For example, the applicable rules of the OT Impact KPI are: Sum of Values rule and Impact Over Time rule. The default rule is Sum of Values.</p> <p>Note: Ensure that you press the CTRL button when you select the rules. If you do not press the CTRL button, all of the pre-selected rules are disabled when you click the rule you want to add to the applicable rules.</p> <p>For details on the rule applicable for a specific KPI, see “List of Service Level Management Business Rules” on page 416. The rules included here define the options that are available in the View Builder when selecting the rule to assign to a KPI.</p> <p>Note: You must select a rule in the Applicable Rules list to make it available to the KPI.</p>
Applicable Sections	<p>Add sections or remove existing sections from the Applicable Sections list. Applicable Sections lists the sections (applications and sub-applications) in which the KPI can be displayed. For the KPI to be displayed, you must select at least one section.</p> <p>The available applicable sections are:</p> <ul style="list-style-type: none"> ➤ General SLM ➤ Outage SLM ➤ PNR
Available Formatting Methods	<p>Select the formatting method you want to use for this KPI in the Available Formatting Methods list. For details, see “List of Service Level Management KPIs” on page 370.</p>

GUI Element (A-Z)	Description
Calculation Order	Select the KPI position. That number represents the position of the KPI in the ordered list used by Service Level Management when it calculates the topology. Service Level Management calculates the higher priority KPIs first, and then the lower priority KPIs.
Default Group Rule	Select the group rule to be used for the next level up in the hierarchy. This list displays all of the available group rules for the applicable rule you selected in the Applicable Rules list. When a KPI is defined for a CI, it is usually added to a parent CI. The parent item uses the group rule to calculate the KPI status. For a list of the group rules, see “List of Service Level Management Business Rules” on page 416.
Display Label	Enter the displayed name for the KPI.
Display Order	Select the order in which the KPIs are displayed in Service Level Management.
Formatting Method	<p>The formatting method that is invoked on the valueSource is displayed in the Formatting Method box. This field can remain blank if it is not required. A list of the available formatting methods and their description is available in “List of Service Level Management KPIs” on page 370.</p> <p>If you need to create a new method, contact HP Software Support.</p>
Status	<p>Represents the key used to access the appropriate KPI results map. If you create a new rule whose key is not Status, you must enter the new key in the Status box. To create a new rule with a different key, contact HP Software Support.</p> <p>Default Value: Status</p>

GUI Element (A-Z)	Description
The KPI is critical if	<p>Select the trend for the KPI – for details on trend, see “Trend and History” on page 362. Select:</p> <ul style="list-style-type: none"> ▶ values are smaller. When the values are small, the KPI is critical. ▶ no different. When the values are not different, the KPI is critical. ▶ values are bigger. When the values are large, the KPI is critical. <p>Note: All of the fields listed above are connected to the calculation performed by the selected Applicable Rules.</p>
Type	<p>Select how you want the KPI to be presented in the Service Level Management application: ICON, TEXT, PNR_BAR, BAR, GROUPBAR, or GROUPTEXT. For details, see “Type” on page 394.</p>
Units	<p>Enter the type of unit applicable to the rule results displayed in the KPI. This parameter is for future use. For more details about the available units, see “KPI Objectives” in <i>Using Dashboard</i>.</p>
Value	<p>Represents the value of the key used to access the appropriate KPI results map. If you select a specific value in the Type list, you may have to change the value of the Value box. For details, see “KPI Value” on page 397.</p> <p>Default Value: Value</p>
Value Postfix	<p>Enter the row value postfix. This can remain blank if it is not required. For example, to indicate that the value of the KPI is in Euros, enter EUR.</p>
Value Prefix	<p>Enter the row value prefix. This can remain blank if it is not required. For example, to indicate that the value of the KPI is negative, enter a minus sign (-).</p>

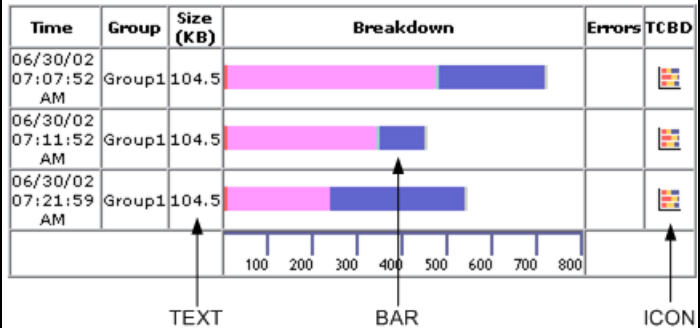
Parameters Area

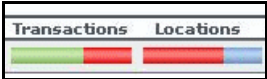
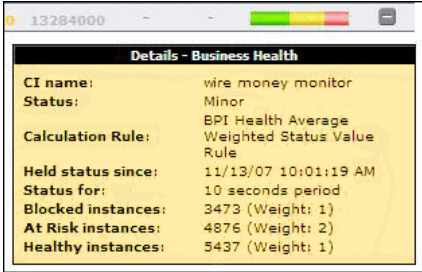
The following elements are included (unlabeled GUI elements are shown in angle brackets>):




GUI Element (A-Z)	Description
	Click to delete the parameter.
	Click to modify the parameter details. For details, see “KPI Details Dialog Box” on page 390.
<Parameter>	The name of the parameter.
New	Click to define a new parameter. For details, see “Parameter Details Dialog Box (KPIs)” on page 400.

Type

The type of representation for the KPI can be:

Type	Description																								
BAR, ICON, TEXT	<p>The results of BAR, ICON, and TEXT formats are:</p>  <table border="1"> <thead> <tr> <th>Time</th> <th>Group</th> <th>Size (KB)</th> <th>Breakdown</th> <th>Errors</th> <th>TCBD</th> </tr> </thead> <tbody> <tr> <td>06/30/02 07:07:52 AM</td> <td>Group1</td> <td>104.5</td> <td></td> <td></td> <td></td> </tr> <tr> <td>06/30/02 07:11:52 AM</td> <td>Group1</td> <td>104.5</td> <td></td> <td></td> <td></td> </tr> <tr> <td>06/30/02 07:21:59 AM</td> <td>Group1</td> <td>104.5</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p style="text-align: center;"> ↑ TEXT ↑ BAR ↑ ICON </p>	Time	Group	Size (KB)	Breakdown	Errors	TCBD	06/30/02 07:07:52 AM	Group1	104.5				06/30/02 07:11:52 AM	Group1	104.5				06/30/02 07:21:59 AM	Group1	104.5			
Time	Group	Size (KB)	Breakdown	Errors	TCBD																				
06/30/02 07:07:52 AM	Group1	104.5																							
06/30/02 07:11:52 AM	Group1	104.5																							
06/30/02 07:21:59 AM	Group1	104.5																							

Type	Description
GROUPBAR	<p>The behavior of the GROUPBAR type depends on the KPI:</p> <ul style="list-style-type: none"> ▶ Transactions KPIs. When one or more of the CI's children have the Business Process Step type, then the Transactions KPI is displayed as a GROUPBAR in the Console tab. ▶ Locations KPIs. When one or more of the CI's children has the Locations type, then the Locations KPI is displayed as a GROUPBAR in the Console tab. For example:  <ul style="list-style-type: none"> ▶ Business Health KPIs. <ul style="list-style-type: none"> ▶ At all CI levels, the groupbar displays the number of instances for each one of the Business Process Insight statuses without consideration of the Weight. At the level above the Business Process CI, an icon represents the status of the worst child KPI. The Weight information is displayed in the tooltip. The tooltip color matches the color of the status (in the example below: Minor). The status is calculated by the rule assigned to the KPI.  <ul style="list-style-type: none"> ▶ Above the Business Process CI level, the KPI displays an icon that shows the worst child status of the child CIs level. <p>Note: The default type for the Business Health KPI is GROUPBAR.</p>

Type	Description
<p>GROUPTEXT</p>	<p>A KPI with the GROUPTEXT type displays:</p> <ul style="list-style-type: none"> ► For any level CI except the top level of the group CI. Displays the number of instances for each one of the available statuses without consideration of the Weight. The Weight information is displayed in the tooltip. The tooltip color matches the color of the status (in the example below: Minor). The status is calculated by the rule assigned to the KPI.  <p>Note: If the numbers are too large, select the compactNumber formatting method in the Formatting Method field. This method automatically trims the number, and displays the first digit of the trimmed number followed by the symbol for the number of digits; for example, 1235000 becomes 1M.</p> <ul style="list-style-type: none"> ► At the top level CI level, the KPI displays the spelled-out worst child status of the child CIs level. 
<p>PNR_BAR</p>	<p>The PNR_BAR representation is as follows:</p>  <p>For more details about the PNR_BAR representation, see “Attach a PNR KPI to a CI – Scenario” in <i>Using Dashboard</i>.</p>

KPI Value

If you select a specific value in the **Type** list, you may have to change the value of the **Value** box.

Type	Value
ICON	Do not change the default of the Value field.
TEXT	Change the value of the Value field to one of the following values: <ul style="list-style-type: none"> ▶ NODE.DIM.RESULTS.Value (for a string) ▶ NODE.DIM.RESULT.Message (for an error message)
PNR_BAR, BAR, or GROUPBAR	Do not change the default of the Value field.

KPI Trend

Service Level Management KPIs are assigned a positive trend (the higher the better or the lower the better).

For example:

- ▶ the Availability KPI is given a positive trend. This means that it becomes critical when its value is small because it means that the page whose availability is being measured is not available most of the time. The Availability KPI performance is best when its value is large.
- ▶ the Outage Duration KPI is given a negative trend. This means that its performance is best when its value is small.

List of (KPI) Formatting Methods

The formatting methods that are available are used to format the result that is displayed in Service Level Management:

Formatting Methods	Description
analyzeSiteScopeMessage	If, in a message, a long word overlaps the end of the line, the word is truncated. The rest of the word and the rest of the message are wrapped.
compactNumber	Select this method, if the numbers displayed with the GROUPTEXT type are too large. This method automatically trims the number; for example, 12000 becomes 12K and 123000000 becomes 123M.
encode	Inserts a back slash (\) before special characters.
formatDecimalNumber	Returns as a formatted decimal number. The number of digits after the decimal point is indicated by numAfterDot.
formatDateTime	Returns formatted as date and time: DDMMMYYYY hh:mm:ss
formatPnrValue	Formats the pnr time left in the PNR format.
getIntValue	Returns an int number as string.
getMilliAsSec	Returns a millisecond value as seconds by dividing the value by 1000.
getMustValue	Returns ! if there is a value, otherwise returns nothing.
getRemedyETTR	Deprecated. Use the EMS integration feature. For details, see “Integration Administration Application Overview” in <i>Solutions and Integrations</i> .
getRemedyResource	Deprecated. Use the EMS integration feature. For details, see “Integration Administration Application Overview” in <i>Solutions and Integrations</i> .
getResourceString	Returns the corresponding resource string to the given string.

Formatting Methods	Description
getStatusString	Returns the corresponding resource string to the given status string.
getWeightValue	Returns the value if there is a value, otherwise returns 1.
ifEndCheck	Changes an empty string into a comment line. Inserts "--->" at the end of the string.
ifStartCheck	Changes an empty string into a comment line. Inserts "<!--" at the end of the string.
numberToTime	Converts a string that can represent a period of time in seconds into a more readable format.
resourceFromKey	Used to get the resource of the ticketing sample field.
returnDateAsString	Returns the given date in milliseconds in the date format as it appears in the .resources file.
returnDateAsStringInSec	Returns the given date in seconds in to the date format as it appears in the .resources file.
returnNumOfDigitAfter Point	Formats the given string and returns a string that shows only 3 digit after the point.
returnNumOfDigitAfter Point(digits)	Formats the given string and returns a decimal number. The number of digits after the decimal point is specified in (digits) .
returnNumOfDigitAfter PointWithDollar	Converts the given string into a decimal number with 3 digits after the decimal point preceded by a dollar sign.
returnNumOfDigitAfter PointWithEuro	Converts the given string into a decimal number with 3 digits after the decimal point preceded by a dollar sign followed by a Euro sign.
returnWithPercentSign	Converts the given string into a decimal number with 3 digits after the decimal point followed by a percentage sign.

Formatting Methods	Description
<code>toLowerCase</code>	Returns the lower case of the given string.
<code>toLowerCase_encode</code>	Works in the same way as <code>toLowerCase</code> but adds add escaping on the return value.

Parameter Details Dialog Box (KPIs)

Description	Enables you to modify existing detailed information or enter new information about the KPI parameters. To Access: In the KPI Details dialog box, in the Parameters area, click the New button to enter new parameters or click the relevant Edit button to modify an existing parameter.
Important Information	For a list of KPI parameters and their default values, see each rule description in “List of Service Level Management Business Rules” on page 416.
Included in Tasks	“Customize a KPI” on page 368

The following elements are included (unlabeled GUI elements are shown in angle brackets):

GUI Element (A-Z)	Description
Color	<p>Enter a color (HTML color code, RGB, or hexadecimal format) using the following syntax and save the changes:</p> <pre><border_color>;<header_color></pre> <p>where:</p> <ul style="list-style-type: none"> ▶ <border_color> is the tooltip border color (in hex triplet format). ▶ <header_color> is the tooltip header color (in hex triplet format). <p>The colors are separated by semi-colons.</p> <p>A hex triplet is a six-digit, three-byte hexadecimal number used to represent colors. The bytes represent the red, green and blue components of the color in respective order. One byte represents a number in the range 00 to FF. The hex triplet is formed by concatenating three bytes in hexadecimal notation. For example, consider the color where the red/green/blue values are hexadecimal numbers: red=24, green=68, blue=A0 (a greyish-blue color). To obtain the hex triplet, write the three hex bytes together without spaces, thus: 2468A0. If a byte is less than 16 (decimal) or 10 (hex) it must be represented with a leading zero to keep the number of digits in the triplet equal to six.</p>
From/To	<p>Enter the appropriate values.</p> <p>When the value of a KPI is in the range indicated by the From and To fields, the tooltip for the KPI is assigned the color specified in the Color field and the KPI is assigned the status icon specified in the Icon field.</p>

GUI Element (A-Z)	Description
Icon	<p>Enter the path to a status icon in the Icon box – for details, see “Change the KPI Status Icons” on page 394.</p> <p>The icon you specify is assigned to the KPI when the KPI value is within the range specified in the From/To fields</p>
Key	<p>Enter the name of the KPI parameter.</p>
Type	<p>Enter the type of parameter. Possible values are: Boolean (can be 0 or 1), Integer, Long, Double (can be a decimal number), or String.</p>

12

Business Rule Repository

This chapter provides information on the Service Level Management Business Rule Repository.

This chapter includes:

Concepts

- ▶ Business Rule Repository Overview on page 404
- ▶ Service Level Management Rules on page 406

Tasks

- ▶ Customize a Business Rule on page 411
- ▶ Use Generic Rules to Customize Rule Calculations on page 412
- ▶ Enable SiteScope Measurement Type Filtering on page 413

Reference

- ▶ List of Service Level Management Business Rules on page 416
- ▶ Examples of Business Rule Usage on page 489
- ▶ List of Service Level Management Business Rule Parameters on page 498
- ▶ Hidden Advanced Rule Parameters on page 504
- ▶ Business Rules User Interface on page 504

Business Rule Repository Overview

The Rule Repository page displays the list of factory (predefined) rules available throughout Service Level Management to determine how source data is handled by Service Level Management Administration.

A business rule is used to calculate the value and status of a Key Performance Indicator (KPI). Every KPI can hold three icons: real time status, trend, and history. The way status is determined for these icons is described in “KPI Status” in *Using Dashboard*.

A rule is the basic object that receives events (either samples or application messages), deals with processing the data, and holds the process results. To receive the events, the rule uses input filtering criteria called selectors. For details, see “Attach KPIs to CIs and Configure the KPIs” in *Using Dashboard*.

For a list of the rules defined for Service Level Management, see “List of Service Level Management Business Rules” on page 416.

For details about editing rules, see “Business Rule Repository Page” on page 505.

The Rules API can be used to create new rules; for details see “Rules API” on page 511.

This section includes the following topics:

- ▶ “Parameters” on page 404
- ▶ “Rules in Source Adapters, KPI Assignments, and KPI Enrichments” on page 405

Parameters

Each rule’s parameters are used to define input for the rule. The values used for the parameters can be fixed values (defined within the parameter definition) or referenced values taken from the samples.

The rule parameters are defined in the Business Rule Repository, as part of each rule definition.

Depending on the type of rule, some rule parameters may be defined in an adapter template for a data source (as part of the KPI definition). The values set for these parameters override the definitions in the Business Rule Repository.

Note that some rules are for use only by Service Level Management and are not available for use in your custom views.

Rules in Source Adapters, KPI Assignments, and KPI Enrichments

In the adapter templates, which are used to map the entities in the data source to the configuration items (CIs) used by HP Universal CMDB, or in the KPI Assignments and KPI Enrichment Tasks, which are used to assign KPIs, rules, context menus, context menu items, and tooltips to a CI, the business rule for each KPI is identified by an ID number. For a list of the rules ID numbers, see “List of Service Level Management Business Rules” on page 416.

To access adapter templates, click **Admin > Universal CMDB > Source Manager**.

To access KPI assignments, click **Admin > Dashboard > KPI Assignments**.

To access KPI enrichment, click **Admin > Integrations > EMS Integrations**.

Important: Service Level Management and Dashboard use two separate, independent sets of repositories. These repositories contain different KPIs and rules; changing KPIs or rules in Service Level Management has no effect on Dashboard (and vice versa). For details on the Dashboard repositories, see “Business Rule Repository” in *Using Dashboard*.

Service Level Management Rules

A KPI must always have an associated business rule that defines the logic to be performed (by the Business Logic Engine) to calculate the measurement for the KPI. The properties and objectives assigned to the KPI depend on the selected rule.

This section includes the following topics:

- ▶ “Overview of Service Level Management Business Rules” on page 406
- ▶ “Real User Monitor Business Rules” on page 407
- ▶ “Outage Business Rules” on page 408
- ▶ “Six Sigma Rules” on page 409
- ▶ “SOA Rules” on page 410

Overview of Service Level Management Business Rules

Service Level Management provides rules for use with the KPIs. The rules are contained in the Business Rule repository. During the creation of an SLA, you can accept the default business rule or you can define custom rules.

For details about creating or editing rules, see “Business Rule Repository Page” on page 505.

Business rules consist of the following types:

- ▶ **Group business rule.** Performs calculations according to results of children or sibling KPIs. For example, the MTTR rule can perform its calculation only after it receives the result of one of the outages rules.
- ▶ **Monitor business rule.** Measures the actual data sources (also called leaf rule).

For further details on these two types of rules, see “Monitor Rules and Group Rules” in *Using Dashboard*.

For detailed information about the Service Level Management rules, see “List of Service Level Management Business Rules” on page 416.

Real User Monitor Business Rules

Service Level Management calculates Real User Monitor rules in five minute chunks. You can view the results of these calculations in Service Level Management reports.

Real User Monitor rules are divided into the following categories:

- ▶ **Pages.** Service Level Management calculates rules for Real User Monitor page on aggregated data. Pages are either delivered to a client machine or not delivered, resulting in either success or failure. Real User Monitor calculates this success or failure by monitoring HTTP errors and application errors. For details on these reports, see “Page Summary Report” in *Using End User Management*.

Service Level Management also calculates outages based on the availability of Real User Monitor pages.

- ▶ **Sessions.** Service Level Management uses two rules to measure user experience: User Session Availability and User Session Performance. A session measures the time from when a user logs in until they close the Web browser. Results are calculated for hourly time periods. There are no outages on sessions.
- ▶ **Transactions.** Service Level Management runs the Real User Monitor rules in the same way as Business Process Monitor rules. Service Level Management also measures Real User Monitor transaction outages (based on availability). Real User Monitor transactions measure two kinds of outages: Real User Monitor transaction outages and outages based on availability.

The Volume Average Value rule measures availability and takes into account the number of samples that are attributed to each of a CI's children.

Outage Business Rules

Service Level Management displays outage business rules in the Add Outage window:

The screenshot shows the 'Add Outage' dialog box. The 'Business rule:' dropdown is set to 'Outage Based on Availability'. The 'Parameters:' section includes: 'Availability threshold: * 100 %', 'Minimum duration: 0 seconds', 'Default category: Undefined' (with a dropdown arrow), and 'Max duration: [empty] hours'. A 'New Outage Category' button is located to the right of the 'Default category' field. At the bottom of the dialog are 'OK', 'Cancel', and 'Help' buttons.

For details on adding an outage to an SLA, see “Add Outage Dialog Box” on page 76.

Service Level Management uses the following rules to calculate outages:

- ▶ “BPM Outage” on page 440
- ▶ “Outage Based on Availability” on page 452
- ▶ “Outage Based on System Availability” on page 453
- ▶ “SiteScope Monitor Outage” on page 464
- ▶ “SiteScope Outage” on page 467
- ▶ “WS SiteScope Outage” on page 489

Six Sigma Rules

Service Level Management uses two KPIs to measure Six Sigma compliance:

- **Availability Six Sigma.** The sigma value against which Service Level Management measures the time that a business application or a service is up and running. For example, if you set a sigma of 4, you are expecting that for every million opportunities (CIs), not more than 6,210 fail. For details, see “Availability Six Sigma” on page 371.
- **Performance Six Sigma.** The objective against which Service Level Management measures the time taken to execute a CI. For example, if you set a sigma of 3, you are expecting that for every million opportunities (CIs), less than 66,800 do not meet the target performance goal. For details, see “Performance Six Sigma” on page 379.

The following business rules measure Six Sigma compliance for HP Business Availability Center entities:

- “BPM Six Sigma Availability” on page 442
- “BPM Six Sigma Performance” on page 442
- “RUM Page Six Sigma Availability” on page 455
- “RUM Page Six Sigma Performance” on page 455
- “RUM Transaction Six Sigma Availability” on page 457
- “RUM Transaction Six Sigma Performance” on page 458
- “Six Sigma Group” on page 469
- “SiteScope Monitor Six Sigma” on page 466
- “SiteScope Six Sigma Availability” on page 469
- “SiteScope Six Sigma Performance” on page 469
- “SOA Diagnostics Six Sigma on Availability” on page 471
- “SOA Diagnostics Six Sigma on Performance” on page 471
- “SOA Six Sigma on Availability” on page 472
- “SOA Six Sigma on Performance” on page 472

SOA Rules

Service Level Management enables you to track how well Web services are performing in your system.

SOA business rules are available for KPIs that you attach to Web service CIs.

The following business rules measure Web services for Diagnostics and SiteScope CIs:

- “SOA Diagnostics Availability” on page 469
- “SOA Diagnostics Average Response Time” on page 470
- “SOA Diagnostics Average Throughput” on page 470
- “SOA Diagnostics Max. Response Time” on page 470
- “SOA Diagnostics Max. Throughput” on page 470
- “SOA Diagnostics Min. Response Time” on page 470
- “SOA Diagnostics Min. Throughput” on page 470
- “SOA Diagnostics Performance Percentile” on page 471
- “SOA Diagnostics Six Sigma on Availability” on page 471
- “SOA Diagnostics Six Sigma on Performance” on page 471
- “SOA Synthetic Monitor Availability” on page 472
- “SOA Synthetic Monitor Average Response Time” on page 473
- “SOA SiteScope Max. Total Time” on page 471
- “SOA SiteScope Min. Total Time” on page 472
- “SOA Synthetic Monitor Performance” on page 473
- “SOA Six Sigma on Availability” on page 472
- “SOA Six Sigma on Performance” on page 472

Customize a Business Rule

You customize a business rule by creating a new business rule, or by editing an existing business rule.

For a detailed scenario that includes creating rules, see “Create a KPI, Rule, and Tooltip – Example” in *Using Dashboard* and view the appropriate steps.

This task includes the following steps:

- “Create a Customized Business Rule” on page 411
- “Edit Rule Details” on page 412
- “Modify Rule Parameters” on page 412
- “Attach the Rule to a KPI” on page 412
- “Set a Rule and its Parameters Back to Default – Optional” on page 412

1 Create a Customized Business Rule

There are three ways to customize repository elements:

- **New Item.** Creates a new repository element that is not based on an existing element. You customize the new element to fit your needs.

To create a new business rule, click **New Item** in the Business Rule Repository page.

- **Clone.** Creates a new repository element by cloning an existing factory or custom element. The original element is still available, and the new cloned element can be modified.

To clone a business rule, select a factory business rule and click **Clone** in the Business Rule Repository page.

- **Override.** Overrides an existing factory element. The original element is labeled overridden (disabled) in the Factory area, and an editable copy appears in the Custom area.

To override a business rule, select a factory business rule and click **Override** in the Business Rule Repository page.

For details, see “Business Rule Repository Page” on page 505.

2 Edit Rule Details



Click the **Edit** button corresponding to the custom business rule, and change its values as required.

For details on the possible values, see “Rule Details Dialog Box” on page 508.

3 Modify Rule Parameters

You can modify existing information or enter new information about the rule parameters and the Objective parameters for a specific rule. For details, see “Parameter Details Dialog Box (Rules)” on page 507.

4 Attach the Rule to a KPI

If you have created a new rule, you must add it to the rules already attached to the relevant KPI. For details, see the Applicable Rules GUI parameter in “KPI Details Dialog Box” on page 390.

5 Set a Rule and its Parameters Back to Default – Optional

If you have modified a rule or its parameters, you might need to return the rule and its parameters to their defaults.

To set a rule and its parameters back to default, select **Admin > Service Level Management > Repositories > Rules**. In the **Custom Rules** area, delete the copy of the rule you want to return to default and click **OK**. The rule and its parameters are returned to their defaults.

Use Generic Rules to Customize Rule Calculations

The Generic Rules can be used to create customized rules, as follows:

- ▶ **Generic Sample.** Compares the value of a selected field from a sample to the objectives and returns the result of the comparison. For a detailed scenario, see “Create a Customized Generic Sample Rule – Scenario” in *Using Dashboard*.
- ▶ **Generic Sum of Value Over Time.** Adds the values of the selected sample field for all of the samples that arrive during the time period specified in the duration parameter. For a detailed scenario, see “Create a Customized Generic Sum of Values Over Time Rule – Scenario” in *Using Dashboard*.

- **Generic Two Arguments Rule.** Perform a specific calculation based on the values of two specific fields. For a detailed scenario, see “Use the Generic Two Arguments Rule – Scenario” in *Using Dashboard*.

Enable SiteScope Measurement Type Filtering

Status for a SiteScope Monitor CI is calculated from various measurements monitored by that CI. For example, the Disk Space on C SiteScope Monitor CI receives data for two measurements: percent full, and MB free.

If you want to see performance status based on a single measurement type, you can use the System Performance KPI (or Performance Six Sigma KPI), and set filtering for the relevant measurement.

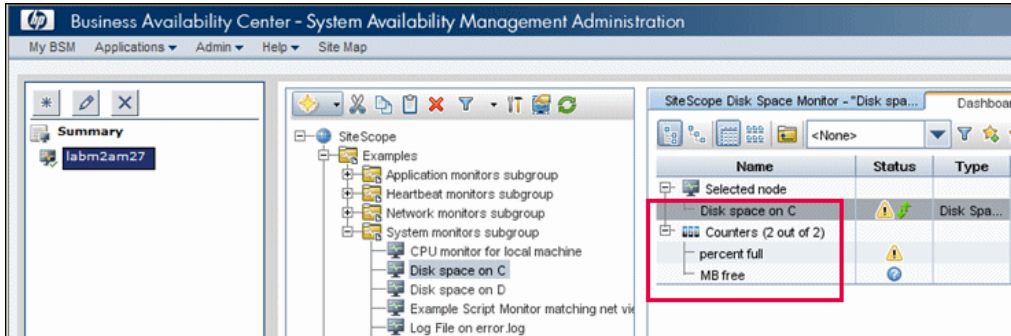
The following rules were added in version 8.0, to calculate KPI values for a SiteScope Monitor CI based on a single measurement type:

- “SiteScope Monitor Average Value” on page 462
- “SiteScope Monitor Max. Value” on page 462
- “SiteScope Monitor Min. Value” on page 463
- “SiteScope Monitor Percentile” on page 465
- “SiteScope Monitor Six Sigma Performance” on page 466 (using the Performance Six Sigma KPI)

There are two other rules which can also use filtering by measurement type: “SiteScope Monitor Rule” on page 465, and “SiteScope Monitor Six Sigma” on page 466. If the measurement type field is left blank, these rules do not use filtering.

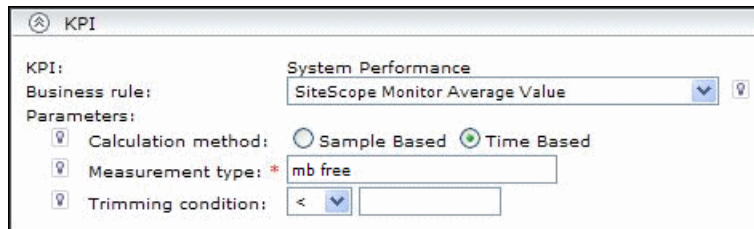
To define measurement type for monitoring:

- 1 Within System Availability Management, select a SiteScope Monitor CI. The names of the measurement types used to calculate the CI appear within the **Name** column. Write down the name of the measurement type you want to filter.



- 2 Within the **Admin > Service Level Management > Agreements Manager** page, open the **Agreement Wizard** or the **Advanced Agreements Options Wizard**. Add the System Performance KPI (or the Performance Six Sigma KPI) to the CI, and assign a SiteScope Monitor rule which filters by measurement type.
- 3 In the **Measurement type** rule parameter field, enter *in lowercase* the name that appears within System Availability Management (for example, to monitor the MB free measurement, type **mb free**).

Important: You must enter the measurement type in lowercase.



4 Define objectives for the KPI as required.

Validation is performed automatically to verify that the specified measurement type is available for the CI.

List of Service Level Management Business Rules

The available rules are as follows:

Rule (Rule #)	Description	Parameters
API Duration-Based Sample Rule (505)	<p>Use this to create a customized rule using the Rules API, to calculate KPIs based on data taken from sample fields, using the sample's value and duration within the rule calculation.</p> <p>For details on how the rule works, see "API Duration-Based Sample Rule" on page 524.</p>	<p>"Sample Fields" on page 502</p> <p>"KPI Calculation Script" on page 500</p> <p>"Aggregated Calculation Script" on page 498</p> <p>"Sample Filter Script" on page 502</p> <p>"Sample and Duration Filter Script" on page 502</p> <p>"No data timeout" on page 501</p> <p>"Rule Template Setting Key" on page 502</p> <p>"isGroovyRule Type" on page 500</p>

Rule (Rule #)	Description	Parameters
API Group and Sibling Rule (503)	<p>Use this to create a customized rule using the Rules API, to calculate KPIs based on the values of sibling KPIs or those of child CIs.</p> <p>For details on how the rule works, see “API Group and Sibling Rule” on page 514.</p>	<p>“KPI Calculation Script” on page 500</p> <p>“Rule Template Setting Key” on page 502</p> <p>“isGroovyRule Type” on page 500</p>

Rule (Rule #)	Description	Parameters
<p>API Outage by Samples Rule (506)</p>	<p>Use this to create an Outage rule using the Rules API, based on sample fields.</p> <p>For details on how the rule works, see “API Outage by Samples Rule” on page 530.</p>	<p>“Minimum duration” on page 500</p> <p>“Default category” on page 499</p> <p>“Max duration” on page 500</p> <p>“Minimum number of failures” on page 501</p> <p>“Sample Fields” on page 502</p> <p>“Outage Calculation Script” on page 501</p> <p>“Sample Filter Script” on page 502</p> <p>“Rule Template Setting Key” on page 502</p> <p>“isGroovyRule Type” on page 500</p>

Rule (Rule #)	Description	Parameters
API Sample Rule (504)	Use this to create a customized rule using the Rules API, to calculate KPIs based on data received from samples. For details on how the rule works, see “API Sample Rule” on page 522.	“Sample Fields” on page 502 “KPI Calculation Script” on page 500 “Aggregated Calculation Script” on page 498 “Sample Filter Script” on page 502 “Rule Template Setting Key” on page 502 “isGroovyRule Type” on page 500

Rule (Rule #)	Description	Parameters
<p>Application Quality (443)</p>	<p>Calculates status for an Application KPI attached to an EMS Monitor CI (monitoring an HP Operations Manager system).</p> <p>SiteScope monitors for the HP Operations Manager system (corresponding to EMS Monitor CIs) send status change event data to Service Level Management. The samples include a severity value for Application status in the monitored Operations Manager application. If this value is less than the value defined in the rule's Severity failure value parameter, then Application severity is considered acceptable.</p> <p>The rule calculates the percentage of samples with acceptable severity level during each calculation period, and compares the percentage with agreement objective targets to determine status for the Application KPI.</p> <p>This is a monitor rule. For details, see "Monitor Rules and Group Rules" in <i>Using Dashboard</i>.</p> <p>Example:</p> <p>Service Level Management checks the severity levels for the Application field, contained in the incoming samples for an EMS Monitor CI, Server1. The values received are 1, 3, 2, 3, 2.</p> <p>The values are compared with the value defined in the Severity failure value, which is set as 3. Application severity is therefore considered to be acceptable in 60% of the samples.</p> <p>Server1 is attached to SLA_factory, where the objective threshold for the Application KPI is set as Exceeded > 90%, else Failed. Application severity for Server1 is below this percentage, so status for the KPI is defined as Failed (red).</p>	<p>Note: The parameters for this rule can be modified only in the Service Level Management Business Rule repository; they cannot be modified for an individual KPI defined within an agreement.</p> <p>"Dimension name" on page 499</p> <p>"Severity failure value" on page 503</p> <p>Note: These parameters are hidden. For details, see "Hidden Advanced Rule Parameters" on page 504.</p>

Rule (Rule #)	Description	Parameters
<p>Average Outage Duration (332)</p>	<p>Service Level Management calculates the average outage duration during a specified calendar, by calculating the total outage duration divided by the number of outages.</p> <p>This rule performs calculations by taking the results (for the relevant calendar) of the Outage KPI and rule defined for the CI in the Agreement Wizard. This KPI determines the number of outages for the CI. See “Add Outage Dialog Box” on page 76.</p> <p>Service Level Management calculates the average outage duration on a daily basis (24 hours), and takes into account only the outages that occur in the specific calendar. For example, if the calendar is Business Hours (that is, 9:00 AM to 5:00 PM), then outages that occur at 3:00 AM are not considered.</p> <p>The outages used in the calculation are only those outages that end during the tracking period.</p> <p>This is a group rule that uses results of sibling KPIs. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>For a detailed example of the Average Outage Duration rule, see “Example of an Average Outage Duration Rule” on page 490.</p>	<p>No parameters</p>

Rule (Rule #)	Description	Parameters												
<p>Best Child (Max.) (291)</p>	<p>The Best Child (max.) rule returns the highest value held by any of the child CIs. For example, when calculating the best child result for the Availability KPI, the child with the highest availability is best (where 100% is the best availability and 0% is the worst).</p> <p>This is a group rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>Example:</p> <p>During agreement creation, you set objectives for an Availability KPI:</p> <div style="border: 1px solid gray; padding: 5px;"> <p>Objectives</p> <p>To add an objective, click a cell, enter the objective values, then click the cell again (or click another cell). To add an objective to all periods of a calendar, click a calendar, enter the objective, then click the calendar again (or click a cell).</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Calendar</th> <th>Day</th> <th>Week</th> <th>Month</th> <th>Quarter</th> <th>Year</th> </tr> </thead> <tbody> <tr> <td>Business Hours</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </tbody> </table> <p> <input checked="" type="checkbox"/> Exceeded > <input type="text" value="98.0"/> % <input checked="" type="checkbox"/> Met > <input type="text" value="97.5"/> % <input checked="" type="checkbox"/> Minor Breached > <input type="text" value="90.0"/> % <input checked="" type="checkbox"/> Breached > <input type="text" value="85.0"/> % <input checked="" type="checkbox"/> Failed Otherwise </p> </div> <p>A Group CI with attached Availability KPI has three children, CI1, CI2, and CI3, whose Availability KPIs have following values: 95%, 97.6%, 96.3%. At report generation time, the rule returns the highest value (97.6%), and gives the agreement a Met status (the status color is olive).</p>	Calendar	Day	Week	Month	Quarter	Year	Business Hours	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p>No parameters</p>
Calendar	Day	Week	Month	Quarter	Year									
Business Hours	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>									

Rule (Rule #)	Description	Parameters												
<p>Best Child (Min.) (292)</p>	<p>The Best Child (min.) rule returns the lowest value held by any of the child CIs. For example, when calculating the best child result for the Response Time KPI, the child with the shortest response time is best.</p> <p>This is a group rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>Example:</p> <p>During agreement creation, you set objectives for a Response Time KPI:</p> <div style="border: 1px solid gray; padding: 5px;"> <p>Objectives</p> <p>To add an objective, click a cell, enter the objective values, then click the cell again (or click another cell). To add an objective to all periods of a calendar, click a calendar, enter the objective, then click the calendar again (or click a cell).</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Calendar</th> <th>Day</th> <th>Week</th> <th>Month</th> <th>Quarter</th> <th>Year</th> </tr> </thead> <tbody> <tr> <td>Business Hours</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </tbody> </table> <p> <input checked="" type="checkbox"/> Exceeded < <input type="text" value="7.0"/> seconds <input checked="" type="checkbox"/> Met < <input type="text" value="8.0"/> seconds <input checked="" type="checkbox"/> Minor Breached < <input type="text" value="9.0"/> seconds <input checked="" type="checkbox"/> Breached < <input type="text" value="10.0"/> seconds <input checked="" type="checkbox"/> Failed Otherwise </p> </div> <p>The Group CI with attached Response Time KPI has three children, CI1, CI2, and CI3, whose Response Time KPIs have the following values: 10 seconds, 12 seconds, 8.5 seconds. At report generation time, the rule returns the lowest value (8.5 seconds), and gives the agreement a Minor Breached status (the color is yellow).</p>	Calendar	Day	Week	Month	Quarter	Year	Business Hours	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p>No parameters</p>
Calendar	Day	Week	Month	Quarter	Year									
Business Hours	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>									

Rule (Rule #)	Description	Parameters
<p>BPI Average Backlog (Count-based) (3706)</p>	<p>Calculates the average number (over time) of backlogged instances for a business process, based on samples received from Business Process Insight. The calculation is time-based (for details, see “Sample-Based and Time-Based Sampling” in <i>Using Dashboard</i>).</p> <p>This is the default rule for the Backlog KPI, when the KPI is assigned to Business Process Insight monitor CIs. For information on Business Process Insight data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>Example 1</p> <p>Between 10:00 and 10:59:59, the following samples were received for a business process:</p> <p>Sample 1 at 10:00 - 100 backlogged instances Sample 2 at 10:15 - 50 backlogged instances Sample 3 at 10:40 - 100 backlogged instances Sample 4 at 10:50 - 0 backlogged instances</p> <p>Calculation</p> <p>The result received in a sample is considered the value for the time period until the next sample arrives:</p> $(100*15 + 50*25 + 100*10 + 0*10) / (15+25+10+10) = 62.5$ <p>Example 2</p> <p>Between 10:00 and 10:59:59, the following samples were received for a business process:</p> <p>(10:00–10:15 - no data) Sample 1 at 10:15 - 100 backlogged instances Sample 2 at 10:30 - 50 backlogged instances Sample 3 at 10:45 - 100 backlogged instances</p> <p>Calculation</p> <p>The no data period is excluded from the calculation:</p> $(100*15 + 50*15 + 100*15) / (15+15+15) = 83.333333$	<p>“No data timeout” on page 501</p>

Rule (Rule #)	Description	Parameters
<p>BPI Average Backlog (Value-based) (3707)</p>	<p>Calculates the average monetary value (over time) for backlogged instances of a business process, based on values received in the samples from Business Process Insight. The calculation is time-based (for details, see “Sample-Based and Time-Based Sampling” in <i>Using Dashboard</i>).</p> <p>Note: By default, the Backlog KPI uses a count-based rule when the KPI is assigned to Business Process Insight monitor CIs. If you want results for the KPI to be value-based, you must define a unit for the KPI and change the rule used. For more information, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>Example 1</p> <p>Between 10:00 and 10:59:59, the following samples were received for a business process:</p> <p>Sample 1 at 10:00 - Value of backlogged instances = \$100 Sample 2 at 10:15 - Value of backlogged instances = \$50 Sample 3 at 10:40 - Value of backlogged instances = \$100 Sample 4 at 10:50 - Value of backlogged instances = \$0</p> <p>Calculation</p> <p>The result received in a sample is considered the value for the time period until the next sample arrives:</p> $(100*15 + 50*25 + 100*10 + 0*10) / (15+25+10+10) = \62.5 <p>Example 2</p> <p>Between 10:00 and 10:59:59, the following samples were received for a business process:</p> <p>(10:00–10:15 - no data) Sample 1 at 10:15 - Value of backlogged instances = \$100 Sample 2 at 10:30 - Value of backlogged instances = \$50 Sample 3 at 10:45: Value of backlogged instances = \$100</p> <p>Calculation</p> <p>The no data period is excluded from the calculation:</p> $(100*15 + 50*15 + 100*15) / (15+15+15) = \83.333333	<p>“No data timeout” on page 501</p>

Rule (Rule #)	Description	Parameters
<p>BPI Average Duration (3708)</p>	<p>Calculates the average time taken by completed instances of a business process to pass through the steps monitored by Business Process Insight. Results are given in seconds.</p> <p>This is the default rule for the Duration KPI, when the KPI is assigned to BPI Duration Monitor CIs. For information on Business Process Insight data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>“No data timeout” on page 501</p>
<p>BPI Average Value (3712)</p>	<p>Calculates the average monetary value for completed instances of a business process, based on values received in the samples from Business Process Insight.</p> <p>This is the default rule for the Value KPI, when the KPI is assigned to BPI Value Monitor and BPI Custom Value Monitor CIs. For information on Business Process Insight data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>“No data timeout” on page 501</p>

Rule (Rule #)	Description	Parameters
<p>BPI Duration Status (3703)</p>	<p>Calculates the percentage of completed instances for a business process that have duration status equal to, or higher than, the Passed status parameter.</p> <p>The value for the passed status parameter is one of the duration thresholds used in Business Process Insight. The default value for the parameter is OK.</p> <p>The calculation takes the relevant fields from the Business Process Insight samples to make the following calculation:</p> <p>count of instances with duration status equal or above passed status/count of completed instances</p> <p>Note: The number of OK instances is calculated from the relevant sample fields using the following logic: (completed_count) – (critical_violations + major_violations + minor_violations + warning_violations)</p> <p>For information on Business Process Insight data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>Example</p> <p>Passed status parameter = OK (highest duration status)</p> <p>Major threshold violated instances: 1000</p> <p>Minor threshold violated instances:1000</p> <p>Warning threshold violated instances: 1000</p> <p>Critical threshold violated instances: 1000</p> <p>Completed instances: 5000</p> <p>Calculation</p> <p>Number of OK instances = 5000 – (1000+1000+1000+1000) = 1000</p> <p>1000/5000 = 20%</p> <p>20% of the completed instances had a response time that met OK duration threshold status.</p>	<p>“No data timeout” on page 501</p> <p>“Passed status” on page 501</p>

Rule (Rule #)	Description	Parameters
<p>BPI Health Average Status (Count-based) (3700)</p>	<p>Calculates the average percentage (over time) of backlogged business process instances that have a status equal to, or higher than, the Passed status parameter. The calculation is based on the counts received in the samples from Business Process Insight, and uses weighting to take into account the actual number of non-healthy instances.</p> <p>The Passed status parameter defines one of the health statuses used in Business Process Insight. There are two possible values for the parameter:</p> <ul style="list-style-type: none"> ▶ Healthy (default value). This value means that all healthy backlogged instances (instances that have passed the blockage and can run to completion) are included in the calculation. ▶ At Risk. This value means that all healthy backlogged instances and all at-risk backlogged instances (instances that are not blocked, but may hit the blockage) are included in the calculation. <p>The calculation is time and amount-based (for details, see “Sample-Based and Time-Based Sampling” in <i>Using Dashboard</i>).</p> <p>This is the default rule for the Business Health KPI, when the KPI is assigned to Business Process Insight monitor CIs. For information on Business Process Insight data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>“No data timeout” on page 501</p> <p>“Passed status” on page 502</p>

Rule (Rule #)	Description	Parameters																				
<p>BPI Health Average Status (Count-based)</p> <p>Continued</p>	<p>Example</p> <p>Passed status parameter: Healthy</p> <table border="1"> <thead> <tr> <th>Sample Time</th> <th>Backlog Count</th> <th>Healthy Count</th> <th>Healthy Percentage</th> </tr> </thead> <tbody> <tr> <td>10:00</td> <td>100</td> <td>50</td> <td>50%</td> </tr> <tr> <td>10:15</td> <td>80</td> <td>20</td> <td>25%</td> </tr> <tr> <td>10:30</td> <td>200</td> <td>20</td> <td>10%</td> </tr> <tr> <td>10:45</td> <td>100</td> <td>0</td> <td>0%</td> </tr> </tbody> </table> <p>Calculation</p> <p>The rule calculates the average weighted percentage using: $\frac{(\text{time in mins} * \text{backlog count} * \text{healthy percentage})}{(\text{time in mins} * \text{backlog count})}$</p> <p>Calculation for the hour: $\frac{(15*100*50) + (15*80*25) + (15*200*10) + (15*100*0)}{(15*100) + (15*80) + (15*200) + (15*100)}$ $= 135000/7200 = 18.75\%$</p> <p>If the objectives for the KPI are: Exceeded: >90 (%) Minor Breached: >40 (%) Failed: Otherwise then status for the KPI is Failed (18.75% < 40%)</p>	Sample Time	Backlog Count	Healthy Count	Healthy Percentage	10:00	100	50	50%	10:15	80	20	25%	10:30	200	20	10%	10:45	100	0	0%	
Sample Time	Backlog Count	Healthy Count	Healthy Percentage																			
10:00	100	50	50%																			
10:15	80	20	25%																			
10:30	200	20	10%																			
10:45	100	0	0%																			

Rule (Rule #)	Description	Parameters
<p>BPI Health Average Status (Value-based) (3701)</p>	<p>Calculates the average percentage (over time) of backlogged business process instances that have a status equal to, or higher than, the Passed status parameter.</p> <p>The calculation is based on the monetary values received in the samples from Business Process Insight, and uses weighting to take into account the actual monetary value of the non-healthy instances.</p> <p>The Passed status parameter defines one of the health statuses used in Business Process Insight. There are two possible values for the parameter:</p> <ul style="list-style-type: none"> ▶ Healthy (default value). This value means that all healthy backlogged instances (instances that have passed the blockage and can run to completion) are included in the calculation. ▶ At Risk. This value means that all healthy backlogged instances and all at-risk backlogged instances (instances that are not blocked, but may hit the blockage) are included in the calculation. <p>The calculation is time and amount-based (for details, see “Sample-Based and Time-Based Sampling” in <i>Using Dashboard</i>).</p> <p>Note: By default, the Business Health KPI uses a count-based rule for Business Process Insight monitor CIs. If you want results for the KPI to be value-based, you must define a unit for the KPI and change the rule used. For more information, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>“No data timeout” on page 501</p> <p>“Passed status” on page 502</p>

Rule (Rule #)	Description	Parameters																				
<p>BPI Health Average Status (Value-based)</p> <p>Continued</p>	<p>Example</p> <p>Passed status parameter: Healthy</p> <table border="1"> <thead> <tr> <th>Sample Time</th> <th>Backlog Value</th> <th>Healthy Value</th> <th>Healthy Percentage</th> </tr> </thead> <tbody> <tr> <td>10:00</td> <td>\$100</td> <td>\$50</td> <td>50%</td> </tr> <tr> <td>10:15</td> <td>\$80</td> <td>\$20</td> <td>25%</td> </tr> <tr> <td>10:30</td> <td>\$200</td> <td>\$20</td> <td>10%</td> </tr> <tr> <td>10:45</td> <td>\$100</td> <td>\$0</td> <td>0%</td> </tr> </tbody> </table> <p>Calculation</p> <p>The rule calculates the average weighted percentage using: $\frac{(\text{time in mins} * \text{backlog value} * \text{healthy percentage})}{(\text{time in mins} * \text{backlog value})}$</p> <p>Calculation for the hour: $\frac{(15*100*50) + (15*80*25) + (15*200*10) + (15*100*0)}{(15*100) + (15*80) + (15*200) + (15*100)}$ $= 135000/7200 = 18.75\%$</p> <p>If the objectives for the KPI are: Exceeded: >90 (%) Minor Breached: >40 (%) Failed: Otherwise then status for the KPI is Failed (18.75% < 40%)</p>	Sample Time	Backlog Value	Healthy Value	Healthy Percentage	10:00	\$100	\$50	50%	10:15	\$80	\$20	25%	10:30	\$200	\$20	10%	10:45	\$100	\$0	0%	
Sample Time	Backlog Value	Healthy Value	Healthy Percentage																			
10:00	\$100	\$50	50%																			
10:15	\$80	\$20	25%																			
10:30	\$200	\$20	10%																			
10:45	\$100	\$0	0%																			

Rule (Rule #)	Description	Parameters
BPI Hourly Throughput (Count-based) (3704)	<p>Calculates the average hourly volume for completed instances of a business process, based on the completed count received in the samples from Business Process Insight. The rule calculates the total count for each hour, then calculates the average hourly throughput over the required time period.</p> <p>This is the default rule for the Throughput KPI, when the KPI is assigned to Business Process Insight monitor CIs. For information on Business Process Insight data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>Example</p> <p>For a three hour period:</p> <ul style="list-style-type: none"> ➤ Between 09:00:00 and 09:59:59, four samples were received from Business Process Insight, with the following values: <ul style="list-style-type: none"> 09:00 completed_count = 1000 09:15 completed_count = 100 09:30 completed_count = 700 09:45 completed_count = 200 <p>Total completed count is 2000, calculation time is 1 hour.</p> ➤ Between 10:00:00 and 10:59:59, no samples were received. Result for the hour is NO DATA, calculation time is 1 hour. ➤ Between 11:00:00 and 11:59:59, four samples were received: <ul style="list-style-type: none"> 11:00 completed_count = 0 11:15 completed_count = 0 11:30 completed_count = 0 11:45 completed_count = 100 <p>Total completed count is 100, calculation time is 1 hour.</p> <p>Average throughput over period=2100/3 hours=700</p>	<p>“No data timeout” on page 501</p>

Rule (Rule #)	Description	Parameters
<p>BPI Hourly Throughput (Value-based) (3705)</p>	<p>Calculates the average hourly monetary value for completed instances of a business process, based on the total value received in the samples from Business Process Insight. The rule calculates the total value for each hour, then calculates the average hourly value over the required time period.</p> <p>Note: By default, the Throughput KPI uses a count-based rule for Business Process Insight monitor CIs. If you want results for the KPI to be value-based, you must define a unit for the KPI and change the rule used. For more information, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>Example</p> <p>For a three hour period:</p> <ul style="list-style-type: none"> ▶ Between 09:00:00 and 09:59:59, four samples were received from Business Process Insight, with the following values: <ul style="list-style-type: none"> 09:00 completed_value = \$1000 09:15 completed_value = no value 09:30 completed_value = \$700 09:45 completed_value = \$300 <p>Total completed value is \$2000, calculation time is 1 hour.</p> ▶ Between 10:00:00 and 10:59:59, no samples were received. Result for the hour is NO DATA, calculation time is 1 hour. ▶ Between 11:00:00 and 11:59:59, four samples were received: <ul style="list-style-type: none"> 11:00 completed_value = no value 11:15 completed_value = \$0 11:30 completed_value = \$0 11:45 completed_value = \$100 <p>Total completed value is \$100, calculation time is 1 hour.</p> <p>Average over period = 2100/3 hours = \$700</p>	<p>“No data timeout” on page 501</p>

Rule (Rule #)	Description	Parameters
<p>BPI Maximum Duration (3711)</p>	<p>Assigns status based on the maximum time taken by a completed instance of a business process to pass through the steps monitored by Business Process Insight. Results are given in seconds.</p> <p>For information on Business Process Insight data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>“No data timeout” on page 501</p>
<p>BPI Maximum Value (3715)</p>	<p>Assigns status based on the highest monetary value for a completed instance of a business process. The values are received in the samples from Business Process Insight.</p> <p>For information on Business Process Insight data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>“No data timeout” on page 501</p>
<p>BPI Minimum Duration (3710)</p>	<p>Assigns status based on the minimum time taken by a completed instance of a business process to pass through the steps monitored by Business Process Insight. Results are given in seconds.</p> <p>For information on Business Process Insight data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>“No data timeout” on page 501</p>

Rule (Rule #)	Description	Parameters
BPI Minimum Value (3714)	<p>Assigns status based on the lowest monetary value for a completed instance of a business process. The values are received in the samples from Business Process Insight.</p> <p>For information on Business Process Insight data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	“No data timeout” on page 501

Rule (Rule #)	Description	Parameters
<p>BPI Value Status (3702)</p>	<p>Calculates the percentage of completed instances for a business process that have value status equal to, or higher than, the Passed status parameter.</p> <p>The value for the passed status parameter is one of the value thresholds used in Business Process Insight. The default value for the parameter is OK.</p> <p>The calculation takes the relevant fields from the Business Process Insight samples to make the following calculation:</p> <p>count of instances with value status equal or above passed status/count of completed instances</p> <p>Note: The number of OK instances is calculated from the relevant sample fields using the following logic: (completed_count) – (critical_violations + major_violations + minor_violations + warning_violations)</p> <p>For information on Business Process Insight data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>Example</p> <p>Passed status parameter = OK (highest value status)</p> <p>Major threshold violated instances: 1000</p> <p>Minor threshold violated instances:1000</p> <p>Warning threshold violated instances: 1000</p> <p>Critical threshold violated instances: 1000</p> <p>Completed instances: 5000</p> <p>Calculation</p> <p>Number of OK instances = 5000 – (1000+1000+1000+1000) = 1000</p> <p>1000/5000 = 20%</p> <p>20% of the completed instances had a value that met OK value threshold status.</p>	<p>“No data timeout” on page 501</p> <p>“Passed status” on page 501</p>

Rule (Rule #)	Description	Parameters
<p>BPI Weighted Average Duration (3709)</p>	<p>Calculates the average time taken by completed instances of a business process to pass through the steps monitored by Business Process Insight, taking into account the weighting given to each instance. The calculation is based on two fields in the samples received from Business Process Insight, as follows:</p> <p>total weighted duration/total value</p> <p>Results are given in seconds.</p> <p>For information on Business Process Insight data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>“No data timeout” on page 501</p>
<p>BPI Weighted Average Value (3713)</p>	<p>Calculates the average monetary value for completed instances of a business process, taking into account the weighting given to each instance. The calculation is based on two fields in the samples received from Business Process Insight, as follows:</p> <p>total weighted monitor value/total value</p> <p>This rule can be used with the Value KPI, when the KPI is assigned to BPI Custom Value Monitor CIs.</p> <p>For information on Business Process Insight data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>“No data timeout” on page 501</p>

Rule (Rule #)	Description	Parameters
<p>BPM Average Availability (200)</p>	<p>The BPM Average Availability rule calculates the average availability of Business Process Monitor CIs that belong to the BPM Transaction from Location configuration item type (CIT).</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>Example:</p> <p>Note: This example uses a sample-based calculation method. By default, the calculation method is time-based.</p> <p>The Availability KPI for a Business Process Monitor monitors 10 transactions. 8 transactions are available and 2 transactions are not available. At report generation time, the rule calculates an availability of 80% (8 out of 10 transactions available = 80%).</p>	<p>“Calculation method” on page 499</p> <p>“No data timeout” on page 501</p> <p>“Ignore timed out trimming” on page 500</p>
<p>BPM Average Response Time (201)</p>	<p>The BPM Average Response Time rule calculates the average response time of Business Process Monitor CIs that belong to the BPM Transaction from Location configuration item type (CIT).</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>Example:</p> <p>Note: This example uses a sample-based calculation method. By default, the calculation method is time-based.</p> <p>The Response Time KPI for a Business Process Monitor monitors 4 transactions with the response times 2, 4, 6, and 8 seconds. At report generation time, the rule calculates an average response time of 5 seconds: $(2+4+6+8)/4 = 5$ seconds.</p>	<p>“Calculation method” on page 499</p> <p>“No data timeout” on page 501</p> <p>“Ignore timed out trimming” on page 500</p> <p>“Trimming condition” on page 503</p>

Rule (Rule #)	Description	Parameters
BPM Max. Response Time (202)	<p>The BPM Max. Response Time rule calculates the maximum response time of Business Process Monitor CIs that belong to the BPM Transaction from Location configuration item type (CIT).</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>Example: The Response Time KPI for a Business Process Monitor monitors 4 transactions with the response times 2, 4, 6, and 8 seconds. At report generation time, the rule calculates the maximum response time as 8 seconds.</p>	<p>“Calculation method” on page 499</p> <p>“No data timeout” on page 501</p> <p>“Ignore timed out trimming” on page 500</p> <p>“Trimming condition” on page 503</p>
BPM Min. Response Time (203)	<p>The BPM Min. Response Time rule calculates the minimum response time of Business Process Monitor CIs that belong to the BPM Transaction from Location configuration item type (CIT).</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>Example: The Response Time KPI for a Business Process Monitor monitors 4 transactions with the response times 2, 4, 6, and 8 seconds. At report generation time, the rule calculates the minimum response time as 2 seconds.</p>	<p>“Calculation method” on page 499</p> <p>“No data timeout” on page 501</p> <p>“Ignore timed out trimming” on page 500</p> <p>“Trimming condition” on page 503</p>

Rule (Rule #)	Description	Parameters
<p>BPM Outage (311)</p>	<p>The BPM Outage rule calculates an outage for Business Process Monitor CIs that belong to the BPM Transaction from Location configuration item type (CIT). An outage occurs if there are more than the minimum number of successive failures for more than the minimum duration.</p> <p>This is an outage rule.</p>	<p>“Minimum duration” on page 500 “Default category” on page 499 “Max duration” on page 500 “Minimum number of failures” on page 501 “Ignore timed out trimming” on page 500</p>

Rule (Rule #)	Description	Parameters
<p>BPM Percentile (204)</p>	<p>The BPM Percentile rule calculates in which percentile the Business Process Monitor CI performance times fall, as defined by the Percentile Condition parameter, for Business Process Monitor CIs that belong to the BPM Transaction from Location configuration item type (CIT).</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>Example: During agreement creation, you set objectives for a Performance KPI with a Percentile Condition of < 8 seconds:</p> <div> </div> <div> </div> <p>The Performance KPI has four samples, S1, S2, S3, and S4 with the following values: 7.5, 7.6, 7.7 and 8.1 seconds. At report generation time, the rule calculates that 3 out of the 4 samples fulfill the percentile condition, returns a percentile of 75, and gives the agreement a Met status (the status color is olive).</p>	<p>“Calculation method” on page 499</p> <p>“No data timeout” on page 501</p> <p>“Ignore timed out trimming” on page 500</p> <p>“Trimming condition” on page 503</p> <p>“Percentile condition” on page 502</p>

Rule (Rule #)	Description	Parameters
<p>BPM Six Sigma Availability (206)</p>	<p>The BPM Six Sigma Availability rule calculates the Six Sigma availability value for Business Process Monitor CIs, by comparing the number of samples (number of opportunities) with the number of unavailable samples (defects).</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>Example: For a Six Sigma result of 4, you expect that for every million CIs (opportunities), not more than 6,210 fails.</p>	<p>“No data timeout” on page 501 “Ignore timed out trimming” on page 500</p>
<p>BPM Six Sigma Performance (207)</p>	<p>The BPM Six Sigma Performance rule calculates the Six Sigma performance value for Business Process Monitor CIs, by comparing the number of measurements (number of opportunities) with the number of failed measurements (DPMO), that is, the number of measurements that did not meet the condition per million measurements.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>Example: For a Six Sigma result of 3, you are expecting that for every million CIs (opportunities), less than 66,800 do not meet the target performance objective.</p>	<p>“Six Sigma condition” on page 503 “Trimming condition” on page 503 “No data timeout” on page 501 “Ignore timed out trimming” on page 500</p>

Rule (Rule #)	Description	Parameters
<p>Children Success Ratio (297)</p>	<p>The rule enables you to compare, in the same report, CIs that measure different types of activity, for example, with different targets or calculation results. For example, an agreement that monitors an application server can include a CI to measure the server CPU (in MBs) and another CI to monitor the server memory (in percentages).</p> <p>Service Level Management calculates the status of each child CI (as a percentage). A child CI is considered successful if its status is greater than, or equal to, the Success Status parameter defined in the Children Success Ratio rule.</p> <p>This is a group rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>For a detailed example, see “Example of a Children Success Ratio Rule” on page 491.</p>	<p>“Success status” on page 503</p> <p>“Use weighting” on page 504</p>
<p>Cluster Availability (296)</p>	<p>The Cluster Availability rule calculates the availability of a cluster. A cluster is available when a defined, minimum number of child CIs reaches an availability threshold. This rule has a calculation cycle that is set by default to five minutes.</p> <p>Note: You can use this rule only when child CIs use the time-based calculation method (that is, their calculation method cannot be sample-based).</p> <p>This is a group rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>For a detailed example, see “Example of a Cluster Availability Rule” on page 492.</p>	<p>“Minimum number of children” on page 501</p> <p>“Availability threshold” on page 498</p>

Rule (Rule #)	Description	Parameters
<p>External Source Average Availability (230)</p>	<p>The External Source Average Availability rule calculates the average availability for external source CIs that belong to the UDX Measurement Filter configuration item type (CIT).</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>Example:</p> <p>Note: This example uses a sample-based calculation method. By default, the calculation method is time-based.</p> <p>Two external source samples out of 10 are unavailable. Therefore, the average availability is 80%.</p>	<p>“Availability field” on page 498</p> <p>“Available value” on page 498</p> <p>“Time stamp field” on page 503</p> <p>“Calculation method” on page 499</p> <p>“No data timeout” on page 501</p>
<p>External Source Average Value (231)</p>	<p>The External Source Average Value rule calculates the average performance for external source CIs that belong to the UDX Measurement Filter configuration item type (CIT).</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>Example:</p> <p>Note: This example uses a sample-based calculation method. By default, the calculation method is time-based.</p> <p>The average value of 4 external source samples with response times of 2, 4, 8, and 10 seconds is 6 seconds: $(2+4+8+10)/4 = 6$.</p>	<p>“Availability field” on page 498</p> <p>“Available value” on page 498</p> <p>“Calculation method” on page 499</p> <p>“Performance field” on page 502</p> <p>“Time stamp field” on page 503</p> <p>“Trimming condition” on page 503</p> <p>“No data timeout” on page 501</p>

Rule (Rule #)	Description	Parameters												
<p>Group Average Status (303)</p>	<p>The Group Average Status rule displays the average, weighted status of the child CIs. No value is shown for the KPI.</p> <p>This rule is used for Business Process Insight and TransactionVision CIs, when performing an arithmetical operation on the KPI values for the child CIs yields a meaningless result.</p> <p>In order to calculate the average status, each KPI status used in Service Level Management is given a value, as follows:</p> <table border="1"> <thead> <tr> <th>KPI Status</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>Exceeded</td> <td>20</td> </tr> <tr> <td>Met</td> <td>15</td> </tr> <tr> <td>Minor Breached</td> <td>10</td> </tr> <tr> <td>Breached</td> <td>5</td> </tr> <tr> <td>Failed</td> <td>0</td> </tr> </tbody> </table> <p>The rule multiplies these values by the weight assigned to each status (default weight for each status is 1). You can define status weights to be used globally by the Group Average Status rule, by editing the rule parameters in the Business Rule Repository (for details on editing rule parameters, see “Customize a Business Rule” on page 411); Or you can define weights per CI, by editing the KPI rule parameters in the Define KPIs page of the Agreement Wizard (for details, see “KPI Definition Dialog Box” on page 100).</p> <p>This is a group rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>For more information, see “Status-Based Group Rules” on page 250.</p>	KPI Status	Value	Exceeded	20	Met	15	Minor Breached	10	Breached	5	Failed	0	<p>“Breached weight” on page 498</p> <p>“Exceeded weight” on page 499</p> <p>“Failed weight” on page 499</p> <p>“Hide objective panel” on page 500</p> <p>“Met weight” on page 500</p> <p>“Minor breached weight” on page 501</p>
KPI Status	Value													
Exceeded	20													
Met	15													
Minor Breached	10													
Breached	5													
Failed	0													

Rule (Rule #)	Description	Parameters
<p>Group Average Status Continued</p>	<p>Example</p> <p>A Business Process CI included in an agreement has four child CIs. The following lists the status held by each child CI for the Backlog KPI, and the weight assigned to that status:</p> <ul style="list-style-type: none"> ➤ BPI Business Process Step CI1: Status = Failed, weight for Failed = 3 ➤ BPI Business Process Step CI2: Status = Exceeded, weight for Exceeded = 1 ➤ BPI Duration Monitor CI: Status = Met, weight for Met = 1 ➤ BPI Business Process Monitor CI: Status = Minor Breached, weight for Minor Breached = 2 <p>Calculation</p> <p>The rule calculates the status using:</p> $\frac{(\text{status value1} * \text{weight1} + \text{status value 2} * \text{weight2})}{(\text{weight1} + \text{weight2})}$ $(0*3 + 20*1 + 15*1 + 10*2) / (3+1+1+2) = 7.86$ <p>The result value is compared with the KPI status values to determine the status for the KPI. $5 < 7.86 < 10$, so status for the parent Backlog KPI is Breached.</p>	
<p>Group Average Value (290)</p>	<p>The Group Average Value calculates the average value of the child CIs. The calculation takes child CI weights into consideration.</p> <p>This is a group rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>Example:</p> <p>An agreement has 3 child CIs with values 2 (weight: 1), 3 (weight: 2), and 1 (weight: 1). Service Level Management calculates the average value as $((2*1)+(3*2)+(1*1))/4 = (2+6+1)/4 = 9/4 = 2.25$.</p>	<p>No parameters</p>

Rule (Rule #)	Description	Parameters
<p>Group Sum Value (301)</p>	<p>The Group Sum Value calculates the sum of the weighted values of CIs, for various CI types. The calculation takes child CI weights into consideration.</p> <p>This is the default group rule for SOA operations and SOA Web service entities.</p>	<p>No parameters</p>
<p>Group Worst Status (304)</p>	<p>The Group Worst Status rule displays the worst status of the child CIs. No value is shown for the KPI.</p> <p>This rule is used for Business Process Insight and TransactionVision CIs, when performing an arithmetical operation on the KPI values for the child CIs yields a meaningless result.</p> <p>This is a group rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>For more information, see “Status-Based Group Rules” on page 250.</p>	<p>“Hide objective panel” on page 500</p>

Rule (Rule #)	Description	Parameters
<p>Group Weighted Average Value (305)</p>	<p>Calculates an average value, based on the dynamic weights and values of the child CIs.</p> <p>If the child CIs are monitor CIs, then the dynamic weight for each child CI is calculated based on a sample field, according to the monitor rule for the child. If a child CI does not have a dynamic weight, then it is given a default weight of 1.</p> <p>For each group CI using this rule, the weight for that CI is the sum of the weights of its child CIs. Once this rule is assigned to a KPI for a group CI, all other CIs in the hierarchy (parent, child, and sibling CIs) must also be assigned this rule, or assigned a monitor rule working with dynamic weights.</p> <p>Note: Business Availability Center does not validate the usage of this rule.</p> <p>The link weight (defined within a Service Level Management agreement) is also taken into consideration for the calculation, as in the Group Average Value rule.</p> <p>This is a group rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>Example:</p> <p>A group weighted average value is required for the Availability KPI for a Web service CI. The Web service CI contains two child CIs for Web service operations, and each operation contains two monitor CIs.</p> <p>The monitor CIs are using the SOA Synthetic Monitor Availability rule, and for each calculation the rule applies a weight to each CI based on the number of samples received during the calculation interval (15 minutes).</p>	<p>No parameters</p>

Rule (Rule #)	Description	Parameters
<p>Group Weighted Average Value</p> <p>Continued</p>	<p>Monitor CI 1: Value 60, weight 15 Monitor CI 2: Value 90, weight 20</p> <p>Parent operation CI A: Value = $(60 \cdot 15 + 90 \cdot 20) / (15 + 20) = 77$ Weight = $15 + 20 = 35$</p> <p>-----</p> <p>Monitor CI 3: Value 40, weight 10 Monitor CI 4: Value 50, weight 25</p> <p>Parent operation CI B: Value = $(40 \cdot 10 + 50 \cdot 25) / (10 + 25) = 47$ Weight = $10 + 25 = 35$</p> <p>-----</p> <p>Web service CI: Value = $(77 \cdot 35 + 47 \cdot 35) / (35 + 35) = 62$ Weight = 70</p>	
<p>Incidents Group Rule</p> <p>(3603)</p>	<p>The Incidents Group Rule assigns status at the group level for KPIs that handle HP Service Manager incidents (the MTTR, MTBF, and MTBSI KPIs). The rule copies KPI status for the child CI to the parent CI.</p> <p>Note:</p> <ul style="list-style-type: none"> ▶ If there is more than one child CI, the rule randomly assigns the status of one of the children to the parent. If you want the KPI to show meaningful results you must manually change the group rule for these KPIs to the Worst Child (Min.) rule. ▶ Change the rule in the Define KPIs page of the appropriate agreement wizard: See “Agreement Wizard” on page 80 or the “Advanced Agreement Options Wizard” on page 78. <p>This is a group rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>No parameters</p>

Rule (Rule #)	Description	Parameters
<p>MTBF (Mean Time Between Failures) (3601)</p>	<p>Calculates the average time period between incidents for a Business Service (period when there are no open incidents), and assigns status by comparing the result with the objective targets.</p> <p>For example, if there are no incidents through the whole tracking period of a day, then the entire day is between failures, and the MTBF on the day is 24 hours.</p> <p>For more information and use case examples, see “Integration with HP Service Manager” on page 261.</p>	<p>“Initial state” on page 500</p> <p>“Final state” on page 499</p> <p>“Severity” on page 503</p>
<p>MTBSI (Mean Time Between System Incidents) (3602)</p>	<p>Calculates the average time period between the opening timestamp of each incident for a Business Service, and assigns status by comparing the result with the objective targets.</p> <p>There must be at least two incidents during a tracking period in order to have any results for that period.</p> <p>For more information and use case examples, see “Integration with HP Service Manager” on page 261.</p>	<p>“Initial state” on page 500</p> <p>“Severity” on page 503</p>
<p>MTTR (Mean Time to Recover) (3600)</p>	<p>For a business service, calculates the percentage of incidents (during the time period, for example, one day) that are within the time limit defined by the Percentile Condition parameter, and assigns status by comparing the result (the calculated percentage) with the objective targets.</p> <p>For more information and use case examples, see “Integration with HP Service Manager” on page 261.</p>	<p>“Initial state” on page 500</p> <p>“Final state” on page 499</p> <p>“Percentile condition” on page 502</p> <p>“Severity” on page 503</p>

Rule (Rule #)	Description	Parameters
<p>Network Quality (441)</p>	<p>The Network Quality rule calculates status for a Network KPI attached to an EMS Monitor CI (monitoring an HP Operations Manager system).</p> <p>SiteScope monitors for the HP Operations Manager system (corresponding to EMS Monitor CIs) send status change event data to Service Level Management. The samples include a severity value for Network status in the monitored Operations Manager application. If this value is less than the value defined in the rule's Severity failure value parameter, then Network severity is considered acceptable.</p> <p>The Network Quality rule calculates the percentage of samples with acceptable severity level during each calculation period, and compares the percentage with agreement objective targets to determine status for the Network KPI.</p> <p>This is a monitor rule. For details, see "Monitor Rules and Group Rules" in <i>Using Dashboard</i>.</p> <p>Example: Service Level Management checks the severity levels for the Network field, contained in the incoming samples for an EMS Monitor CI, Server1. The values received are 1, 3, 2, 3, 2.</p> <p>The values are compared with the value defined in the Severity failure value, which is set as 3. Network severity is therefore considered to be acceptable in 60% of the samples.</p> <p>Server1 is attached to SLA_factory, where the objective threshold for the Network KPI is set as Exceeded > 90%, else Failed. Network severity for Server1 is below this percentage, so status for the KPI is defined as Failed (red).</p>	<p>Note: The parameters for this rule can be modified only in the Service Level Management Business Rule repository; they cannot be modified for an individual KPI defined within an agreement.</p> <p>"Dimension name" on page 499</p> <p>"Severity failure value" on page 503</p>

Rule (Rule #)	Description	Parameters
<p>Number of Outages (330)</p>	<p>Service Level Management calculates how many outages occurred during the tracking period for a specific calendar.</p> <p>This rule uses the results (for the relevant calendar) of the outages rule, which determines the number of outages for the CI. The appropriate outages rule is assigned to each CI as part of the agreement definition, as described in “Add Outage Dialog Box” on page 76.</p> <p>Service Level Management calculates the number of outages on a daily basis (24 hours), and takes into account only the outages that occur in the specific calendar. For example, if the calendar is Business Hours (that is, 9:00 AM to 5:00 PM), outages that occur at 3:00 AM are not considered.</p> <p>Note: Outages that start before but end within the tracking period and outages that start within the tracking period but end after the tracking period are also included in the calculation.</p> <p>This is a group rule that uses results of sibling KPIs. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>No parameters</p>
<p>Outage Based on Availability (310)</p>	<p>Service Level Management uses this rule when calculating outages for Business Process Monitor and Real User Monitor CIs.</p> <p>If a CI’s availability is less than the availability objective for more than the minimum duration, Service Level Management records the downtime as an outage.</p> <p>This is an outages rule.</p>	<p>“Availability threshold” on page 498</p> <p>“Minimum duration” on page 500</p> <p>“Default category” on page 499</p> <p>“Max duration” on page 500</p>

Rule (Rule #)	Description	Parameters
<p>Outage Based on System Availability (313)</p>	<p>Service Level Management uses this rule when calculating outages for SiteScope CIs.</p> <p>Service Level Management creates an outage if a CI's system availability is less than the objective for more than the minimum duration.</p> <p>This is an outages rule.</p>	<p>"Availability threshold" on page 498</p> <p>"Minimum duration" on page 500</p> <p>"Default category" on page 499</p> <p>"Max duration" on page 500</p>
<p>Outage Duration (331)</p>	<p>Service Level Management calculates the length of the outages that occurred during the tracking period (day, week, month, year, and so on).</p> <p>This rule performs calculations by taking the results (for the relevant calendar) of the outages rule, which determines the number of outages for the CI. The appropriate outages rule is defined for the Outage KPI during agreement definition, as described in "Add Outage Dialog Box" on page 76.</p> <p>Note: Outages that start before but end within the tracking period and outages that start within the tracking period but end after the tracking period are also included in the calculation.</p> <p>This is a group rule that uses results of sibling KPIs. For details, see "Monitor Rules and Group Rules" in <i>Using Dashboard</i>.</p> <p>Example: During a selected calendar, Service Level Management records one outage of 1:30 hours and one outage of 0:30 hours. Therefore the outage duration = 1:30 + 0:30 = 2 hours.</p>	<p>No parameters</p>

Rule (Rule #)	Description	Parameters
<p>PNR (Point of No Return) (350)</p>	<p>Note: This rule is for internal HP use only and should not be modified.</p> <p>The Point Of No Return (PNR) rule displays what percentage of the unavailability time has passed, and how much more time may elapse for a CI before the agreement is in breach of contract.</p> <p>This is a group rule that uses results of sibling KPIs. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>No parameters</p>
<p>Response Time Success Ratio (298)</p>	<p>This rule enables you to compare, in the same report, CIs that measure different types of activity. Service Level Management calculates the status of each CI (as a percentage) and compares this status to a value defined during KPI creation.</p> <p>The Response Time Success Ratio rule calculates the status of each child CI, and provides a value for the success of the status.</p> <p>This is a group rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>For a detailed example of the rule, see “Example of a Response Time Success Ratio Rule” on page 493</p>	<p>“Success status” on page 503 “Use weighting” on page 504</p>
<p>RUM Page Availability (380)</p>	<p>Calculates the availability of Real User Monitor CIs that belong to the RUM Page Monitor configuration item type (CIT), by comparison with agreement objectives.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>No parameters</p>
<p>RUM Page Average Response Time (381)</p>	<p>Calculates the average response time of Real User Monitor CIs that belong to the RUM Page Monitor configuration item type (CIT).</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>“Calculation field” on page 498</p>

Rule (Rule #)	Description	Parameters
RUM Page Percentile (382)	<p>This rule calculates status for a Performance KPI attached to a RUM Page Monitor CI, based on the percentage of acceptable performance results. Performance can be based on either Total time (= page time in End User Management Administration) or Server time, according to the value defined for the Calculation field parameter.</p> <p>Acceptable performance means that the page time or server time measurement for the RUM page did not exceed the threshold set in End User Management Administration. The comparison with the threshold is performed by the Real User Monitor engine, which sends out the aggregated result (exceeded threshold/did not exceed threshold). Service Level Management receives the results as part of the input for each sample.</p> <p>The RUM Page Percentile rule calculates the percentage of samples with acceptable performance results during each calculation period, and compares the percentage with agreement objective targets to determine status for the Performance KPI.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	“Calculation field” on page 498
RUM Page Six Sigma Availability (383)	<p>Calculates the Six Sigma availability of CIs for a Real User Monitor page and compares the Six Sigma values to the agreement objectives.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	No parameters
RUM Page Six Sigma Performance (384)	<p>Calculates the Six Sigma performance value for Real User Monitor CIs that belong to the RUM Page Monitor configuration item type (CIT). Service Level Management takes the percentile calculation from Real User Monitor.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	“Calculation field” on page 498

Rule (Rule #)	Description	Parameters
RUM Session User Availability (390)	<p>Calculates the availability of Real User Monitor sessions. Service Level Management takes the success condition (that is, the session is available or is not available) from Real User Monitor.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	No parameters
RUM Session User Performance (391)	<p>Calculates in which percentile the user session performed successfully as defined in Real User Monitor. Service Level Management takes the success condition calculation from Real User Monitor.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	No parameters
RUM Transaction Availability (370)	<p>Calculates the availability percentages of CIs for a Real User Monitor transaction, by comparison with agreement objectives.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	No parameters
RUM Transaction Average Response Time (371)	<p>Calculates the average response time of Real User Monitor CIs that belong to the RUM Transactions Monitor configuration item type (CIT).</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	“Calculation field” on page 498
RUM Transaction Max. Response Time (372)	<p>Calculates the maximum response time of Real User Monitor CIs that belong to the RUM Transactions Monitor configuration item type (CIT).</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	“Calculation field” on page 498
RUM Transaction Min. Response Time (373)	<p>Calculates the minimum response time of Real User Monitor CIs that belong to the RUM Transactions Monitor configuration item type (CIT).</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	“Calculation field” on page 498

Rule (Rule #)	Description	Parameters
<p>RUM Transaction Percentile (374)</p>	<p>Calculates the percentage of successful performance results for a RUM Transactions Monitor CI during each calculation period.</p> <p>The success value is taken from the sample field defined by the Calculation field parameter for the rule. The value given in that sample field is calculated by the Real User Monitor engine, by comparing the average result for the transaction (from the aggregated data) with the relevant threshold value set in the RUM transaction Threshold Settings in End User Management. If the threshold is not exceeded, the sample field contains a success result.</p> <p>For example, if average net time for the transaction is 38 seconds, and the threshold set for Net time in the transaction threshold settings is 40 seconds, then the transaction time did not exceed the threshold and the Net time field in the sample contains a success result.</p> <p>The rule compares the calculated percentage with the KPI objectives, to determine status for the KPI.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>“Calculation field” on page 498</p>
<p>RUM Transaction Six Sigma Availability (375)</p>	<p>Calculates the Six Sigma availability of CIs for a Real User Monitor transaction and compares the Six Sigma values to the agreement objectives.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>No parameters</p>

Rule (Rule #)	Description	Parameters
<p>RUM Transaction Six Sigma Performance (376)</p>	<p>Calculates the six sigma performance value for a RUM Transactions Monitor CI, based on the number of failed measurements out of the total number of measurements, during each calculation period.</p> <p>The failure value is taken from the sample field defined by the Calculation field parameter for the rule. The value given in that sample field is calculated by the Real User Monitor engine, by comparing the average result for the transaction (from the aggregated data) with the relevant threshold value set in the RUM transaction Threshold Settings in End User Management. If the threshold is exceeded, the sample field contains a failure result.</p> <p>For example, if average net time for the transaction is 42 seconds, and the threshold set for Net time in the transaction threshold settings is 40 seconds, then the transaction time exceeded the threshold and the Net time field in the sample contains a failure result.</p> <p>The rule compares the calculated six sigma value with the KPI objectives, to determine status for the KPI.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>“Calculation field” on page 498</p>

Rule (Rule #)	Description	Parameters
<p>Security Quality (442)</p>	<p>The Security Quality rule calculates status for a Security KPI attached to an EMS Monitor CI (monitoring an HP Operations Manager system).</p> <p>SiteScope monitors for the HP Operations Manager system (corresponding to EMS Monitor CIs) send status change event data to Service Level Management. The samples include a severity value for Security status in the monitored Operations Manager application. If this value is less than the value defined in the rule's Severity failure value parameter, then Security severity is considered acceptable.</p> <p>The Security Quality rule calculates the percentage of samples with acceptable severity level during each calculation period, and compares the percentage with agreement objective targets to determine status for the Security KPI.</p> <p>This is a monitor rule. For details, see "Monitor Rules and Group Rules" in <i>Using Dashboard</i>.</p> <p>Example: Service Level Management checks the severity levels for the Security field, contained in the incoming samples for an EMS Monitor CI, Server1. The values received are 1, 3, 2, 3, 2.</p> <p>The values are compared with the value defined in the Severity failure value, which is set as 3. Security severity is therefore considered to be acceptable in 60% of the samples.</p> <p>Server1 is attached to SLA_factory, where the objective threshold for the Security KPI is set as Exceeded > 90%, else Failed. Security severity for Server1 is below this percentage, so status for the KPI is defined as Failed (red).</p>	<p>Note: The parameters for this rule can be modified only in the Service Level Management Business Rule repository; they cannot be modified for an individual KPI defined within an agreement.</p> <p>"Dimension name" on page 499</p> <p>"Severity failure value" on page 503</p>

Rule (Rule #)	Description	Parameters
<p>Service Level Management Forecast Rule (365)</p>	<p>Note: This rule is for internal HP use only and should not be modified.</p> <p>This rule calculates the status forecast for an agreement.</p> <p>This is a group rule that uses results of sibling KPIs. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>No parameters</p>
<p>Service Level Management Status (360)</p>	<p>Note: This rule is for internal HP use only and should not be modified.</p> <p>This rule calculates the status of an agreement for the Status Snapshot report.</p> <p>This is a group rule that uses results of sibling KPIs. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>No parameters</p>
<p>SiteScope Average Availability (210)</p>	<p>Service Level Management calculates the average availability of SiteScope CIs that belong to the SiteScope Measurement configuration item type (CIT).</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>Example:</p> <p>Note: This example uses a sample-based calculation method. By default, the calculation method is time-based.</p> <p>The System Availability KPI for a SiteScope monitors 10 transactions. 8 transactions are available and 2 transactions are not available. At report generation time, the rule calculates an availability of 80% (8 out of 10 transactions available = 80%).</p>	<p>“Calculation method” on page 499</p> <p>“No data timeout” on page 501</p>

Rule (Rule #)	Description	Parameters
SiteScope Average Value (211)	<p>Service Level Management calculates the average value of SiteScope CIs that belong to the SiteScope Measurement configuration item type (CIT).</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>“Calculation method” on page 499</p> <p>“No data timeout” on page 501</p> <p>“Trimming condition” on page 503</p>
SiteScope Max. Value (212)	<p>Service Level Management calculates the maximum value of SiteScope CIs that belong to the SiteScope Measurement CIT.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>“Calculation method” on page 499</p> <p>“No data timeout” on page 501</p> <p>“Trimming condition” on page 503</p>
SiteScope Min. Value (213)	<p>Service Level Management calculates the minimum value of SiteScope CIs that belong to the SiteScope Measurement CIT.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>“Calculation method” on page 499</p> <p>“No data timeout” on page 501</p> <p>“Trimming condition” on page 503</p>

Rule (Rule #)	Description	Parameters
SiteScope Monitor Average Value (220)	<p>Service Level Management calculates the average value of SiteScope CIs that belong to the SiteScope Monitor configuration item type (CIT).</p> <p>This rule is not enabled by default. For details on using this rule, see “Enable SiteScope Measurement Type Filtering” on page 413.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>“Calculation method” on page 499</p> <p>“Measurement type” on page 500</p> <p>“No data timeout” on page 501</p> <p>“Trimming condition” on page 503</p>
SiteScope Monitor Max. Value (221)	<p>Service Level Management calculates the maximum value of SiteScope CIs that belong to the SiteScope Monitor CIT.</p> <p>This rule is not enabled by default. For details on using this rule, see “Enable SiteScope Measurement Type Filtering” on page 413.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>“Calculation method” on page 499</p> <p>“Measurement type” on page 500</p> <p>“No data timeout” on page 501</p> <p>“Trimming condition” on page 503</p>

Rule (Rule #)	Description	Parameters
<p>SiteScope Monitor Min. Value (222)</p>	<p>Service Level Management calculates the minimum value of SiteScope CIs that belong to the SiteScope Monitor CIT.</p> <p>This rule is not enabled by default. For details on using this rule, see “Enable SiteScope Measurement Type Filtering” on page 413.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>“Calculation method” on page 499</p> <p>“Measurement type” on page 500</p> <p>“No data timeout” on page 501</p> <p>“Trimming condition” on page 503</p>

Rule (Rule #)	Description	Parameters
<p>SiteScope Monitor Outage (314)</p>	<p>Service Level Management determines that an outage has occurred if there are more than the minimum number of failures for more than the minimum duration, for SiteScope Monitor CIs.</p> <p>Example: Service Level Management checks the severity level to determine if an outage has occurred, by comparing the value to that set during outage creation:</p> <div style="border: 1px solid gray; padding: 5px; margin: 10px 0;"> <p>Add Outage</p> <p>Business rule: <input type="text" value="SiteScope Monitor Outage"/> ?</p> <p>Parameters:</p> <p>Severity failure value: <input type="text" value="4"/></p> <p>Minimum number of failures: * <input type="text" value="2"/></p> <p>Minimum duration: <input type="text" value="0"/> seconds</p> <p>Default category: <input type="text" value="Undefined"/></p> <p>No data timeout: <input type="text" value="3600"/> seconds</p> <p>Max duration: <input type="text"/> hours</p> <p style="text-align: right;"> <input type="button" value="OK"/> <input type="button" value="Cancel"/> <input type="button" value="Help"/> </p> </div> <p>Severity failure value defines which severity value is considered a failure (that is, the sample is unavailable). For example, if the value is 4, samples with a severity value of 1, 2, or 3 are considered available, and samples with a severity value of 4 or 5 are considered unavailable.</p> <p>This is an outages rule.</p>	<p>“Minimum number of failures” on page 501</p> <p>“Minimum duration” on page 500</p> <p>“Default category” on page 499</p> <p>“Max duration” on page 500</p> <p>“Severity failure value (for SiteScope Monitor Outage rule)” on page 503</p>

Rule (Rule #)	Description	Parameters
<p>SiteScope Monitor Percentile (223)</p>	<p>Service Level Management calculates in which percentile the SiteScope CI performance times fall, as defined by the Percentile condition operator and threshold, for SiteScope CIs that belong to the SiteScope Monitor configuration item type (CIT).</p> <p>This rule is not enabled by default. For details on using this rule, see “Enable SiteScope Measurement Type Filtering” on page 413.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>Example: During agreement creation, you set objectives for a Performance KPI with a Percentile condition of < 8 seconds:</p> <p>The System Performance KPI has four samples, S1, S2, S3, and S4 with the following values: 7.2, 7.3, 7.1 and 7.1 seconds. At report generation time, the rule calculates that 4 out of the 4 samples fulfill the percentile condition (that is, the result falls in the 100th percentile), and gives the agreement an Exceeded status (the status color is green).</p>	<p>“Calculation method” on page 499</p> <p>“Measurement type” on page 500</p> <p>“Percentile condition” on page 502</p> <p>“Trimming condition” on page 503</p>
<p>SiteScope Monitor Rule (218)</p>	<p>Service Level Management uses this rule to calculate SiteScope monitor availability.</p> <p>The Measurement Type rule parameter is not enabled by default. For details on using this rule parameter, see “Enable SiteScope Measurement Type Filtering” on page 413.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>“Measurement type” on page 500</p> <p>“No data timeout” on page 501</p> <p>“Severity failure value (for SiteScope Monitor Outage rule)” on page 503</p>

Rule (Rule #)	Description	Parameters
SiteScope Monitor Six Sigma (219)	<p>Service Level Management calculates the Six Sigma availability value for SiteScope monitors, by comparing the number of samples (number of opportunities) with the number of unavailable samples (defects).</p> <p>The Measurement Type rule parameter is not enabled by default. For details on using this rule parameter, see “Enable SiteScope Measurement Type Filtering” on page 413.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>“Measurement type” on page 500</p> <p>“No data timeout” on page 501</p> <p>“Severity failure value (for SiteScope Monitor Outage rule)” on page 503</p>
SiteScope Monitor Six Sigma Performance (224)	<p>Service Level Management calculates the Six Sigma performance value of SiteScope Monitor CIs, by comparing the number of opportunities (number of samples) with the number of defects (unavailable samples).</p> <p>This rule is not enabled by default. For details on using this rule, see “Enable SiteScope Measurement Type Filtering” on page 413.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>Example: If you set a sigma of 3, you are expecting that for every million opportunities (CIs), less than 66,800 do not meet the target performance goal.</p>	<p>“Measurement type” on page 500</p> <p>“Six Sigma condition” on page 503</p> <p>“Trimming condition” on page 503</p>

Rule (Rule #)	Description	Parameters
SiteScope Outage (312)	<p>Calculates an outage for SiteScope CIs that belong to the SiteScope Measurement CIT, if there is more than the minimum number of failures for more than the minimum duration.</p> <p>This is an outages rule.</p>	<p>“Minimum number of failures” on page 501</p> <p>“Minimum duration” on page 500</p> <p>“No data timeout” on page 501</p> <p>“Default category” on page 499</p> <p>“Max duration” on page 500</p>

Rule (Rule #)	Description	Parameters																
<p>SiteScope Percentile (214)</p>	<p>Service Level Management calculates in which percentile the SiteScope CI performance times fall, as defined by the Percentile condition operator and threshold, for SiteScope CIs that belong to the SiteScope Measurement configuration item type (CIT).</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>Example: During agreement creation, you set objectives for a Performance KPI with a Percentile condition of < 8 seconds:</p> <div style="border: 1px solid gray; padding: 5px;"> <p>KPI</p> <p>KPI: Performance</p> <p>Business rule: SiteScope Percentile</p> <p>Parameters:</p> <p>Calculation method: <input type="radio"/> Sample Based <input checked="" type="radio"/> Time Based</p> <p>Percentile condition: < 8</p> <p>Trimming condition: <</p> <hr/> <p>Objectives</p> <p>To add an objective, click a cell, enter the objective values, then click the cell again (or click another cell). To add an objective to all periods of a time interval, click a time interval, enter the objective, then click the time interval again (or click a cell).</p> <table border="1"> <thead> <tr> <th>Calendar</th> <th>Hour</th> <th>Day</th> <th>Week</th> <th>Month</th> <th>Quarter</th> <th>Year</th> <th>SLA period</th> </tr> </thead> <tbody> <tr> <td>24x7</td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> </tbody> </table> <p> <input checked="" type="checkbox"/> Exceeded > 95 % <input checked="" type="checkbox"/> Met > 90 % <input checked="" type="checkbox"/> Minor Breached > 85 % <input checked="" type="checkbox"/> Breached > 80 % <input checked="" type="checkbox"/> Failed Otherwise </p> </div> <p>The Performance KPI has four samples, S1, S2, S3, and S4 with the following values: 7.2, 7.3, 7.1 and 7.1 seconds. At report generation time, the rule calculates that 4 out of the 4 samples fulfill the percentile condition (that is, the result falls in the 100th percentile), and gives the agreement an Exceeded status (the status color is green).</p>	Calendar	Hour	Day	Week	Month	Quarter	Year	SLA period	24x7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p>“Calculation method” on page 499</p> <p>“Percentile condition” on page 502</p> <p>“Trimming condition” on page 503</p>
Calendar	Hour	Day	Week	Month	Quarter	Year	SLA period											
24x7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>											

Rule (Rule #)	Description	Parameters
SiteScope Six Sigma Availability (216)	<p>Service Level Management calculates the Six Sigma availability value of SiteScope CIs by comparing the number of opportunities (number of samples) with the number of defects (unavailable samples).</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>Example: If you set a sigma of 4, you are expecting that for every million opportunities (CIs), not more than 6,210 fail.</p>	“No data timeout” on page 501
SiteScope Six Sigma Performance (217)	<p>Service Level Management calculates the Six Sigma performance value of SiteScope CIs by comparing the number of opportunities (number of samples) with the number of defects (unavailable samples).</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>Example: If you set a sigma of 3, you are expecting that for every million opportunities (CIs), less than 66,800 do not meet the target performance goal.</p>	“Six Sigma condition” on page 503 “Trimming condition” on page 503
Six Sigma Group (295)	<p>Service Level Management calculates the number of failures per child CI (total number of defects and opportunities) that occurred on average in all child CIs.</p> <p>Note: For Service Level Management to calculate the number of failures, all child CIs must include a Six Sigma rule.</p> <p>This is a group rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	“Use weighting” on page 504
SOA Diagnostics Availability (400)	<p>Calculates the availability of Diagnostics CIs that belong to the Diagnostics Web Service configuration item type (CIT), by comparison with agreement objectives.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	“Consumer” on page 499

Rule (Rule #)	Description	Parameters
SOA Diagnostics Average Response Time (402)	Calculates the average response time of Diagnostics Web service CIs that belong to the Diagnostics Web Service Monitor configuration item type (CIT). This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i> .	“Consumer” on page 499
SOA Diagnostics Average Throughput (405)	Calculates the average throughput of Diagnostics Web service CIs that belong to the Diagnostics Web Service Monitor configuration item type (CIT). This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i> .	“Consumer” on page 499
SOA Diagnostics Max. Response Time (403)	Calculates the maximum response time of Diagnostics Web service CIs that belong to the Diagnostics Web Service Monitor configuration item type (CIT). This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i> .	“Consumer” on page 499
SOA Diagnostics Max. Throughput (406)	Calculates the maximum throughput of Diagnostics Web service CIs that belong to the Diagnostics Web Service Monitor configuration item type (CIT). This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i> .	“Consumer” on page 499
SOA Diagnostics Min. Response Time (404)	Calculates the minimum response time of Diagnostics Web service CIs that belong to the Diagnostics Web Service Monitor configuration item type (CIT). This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i> .	“Consumer” on page 499
SOA Diagnostics Min. Throughput (407)	Calculates the minimum throughput of Diagnostics Web service CIs that belong to the Diagnostics Web Service Monitor configuration item type (CIT). This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i> .	“Consumer” on page 499

Rule (Rule #)	Description	Parameters
SOA Diagnostics Performance Percentile (401)	<p>Calculates in which percentile the CI performance times fall, as defined by the Percentile condition parameter, for Diagnostics Web service CIs that belong to the Diagnostics Web Service Monitor configuration item type (CIT). Service Level Management takes the percentile value from Diagnostics.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	“Consumer” on page 499
SOA Diagnostics Six Sigma on Availability (408)	<p>Calculates the Six Sigma availability value on Diagnostics Web service CIs that belong to the Diagnostics Web Service Monitor configuration item type (CIT).</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	“Consumer” on page 499
SOA Diagnostics Six Sigma on Performance (409)	<p>Calculates the Six Sigma performance value on Diagnostics Web service CIs that belong to the Diagnostics Web Service Monitor configuration item type (CIT).</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	“Consumer” on page 499
SOA SiteScope Max. Total Time (423)	<p>Calculates the Six Sigma performance value on Diagnostics Web service CIs that belong to the Diagnostics Web Service Monitor configuration item type (CIT).</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	“Trimming condition” on page 503 “Calculation method” on page 499 “No data timeout” on page 501 “Consumer” on page 499

Rule (Rule #)	Description	Parameters
SOA SiteScope Min. Total Time (424)	<p>Calculates the Six Sigma performance value on Diagnostics Web service CIs that belong to the Diagnostics Web Service Monitor configuration item type (CIT).</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>“Trimming condition” on page 503</p> <p>“Calculation method” on page 499</p> <p>“No data timeout” on page 501</p> <p>“Consumer” on page 499</p>
SOA Six Sigma on Availability (425)	<p>Calculates the Six Sigma performance value on Diagnostics Web service CIs that belong to the Diagnostics Web Service Monitor configuration item type (CIT).</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>“Consumer” on page 499</p>
SOA Six Sigma on Performance (426)	<p>Calculates the Six Sigma performance value on Diagnostics Web service CIs that belong to the Diagnostics Web Service Monitor configuration item type (CIT).</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>“Consumer” on page 499</p>
SOA Synthetic Monitor Availability (420)	<p>Calculates the average availability for BPM Web Service Monitor CIs and SiteScope Web Service Monitor CIs.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>“Calculation method” on page 499</p> <p>“No data timeout” on page 501</p> <p>“Consumer” on page 499</p>

Rule (Rule #)	Description	Parameters
SOA Synthetic Monitor Average Response Time (422)	<p>Calculates the average performance for BPM Web Service Monitor CIs and SiteScope Web Service Monitor CIs.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>“Trimming condition” on page 503</p> <p>“Calculation method” on page 499</p> <p>“No data timeout” on page 501</p> <p>“Consumer” on page 499</p>
SOA Synthetic Monitor Performance (421)	<p>Calculates the average response time for BPM Web Service Monitor CIs and SiteScope Web Service Monitor CIs.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>“Calculation method” on page 499</p> <p>“No data timeout” on page 501</p> <p>“Consumer” on page 499</p>
System Performance Success Ratio (299)	<p>Service Level Management calculates the system performance of each child CI (as a percentage). A child CI is considered successful if its status is greater than, or equal to, the Success Status parameter defined in this rule.</p> <p>The System Performance Success Ration rule enables you to compare, in the same report, CIs that measure different types of activity. For example, an agreement that monitors an application server can include a CI to measure the server CPU (in MBs) and another CI to monitor the server memory (in percentages).</p> <p>This is a group rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>For a detailed example of the rule, see “Example of System Performance Success Ratio Rule” on page 494.</p>	<p>“Success status” on page 503</p> <p>“Use weighting” on page 504</p>

Rule (Rule #)	Description	Parameters
<p>System Quality (440)</p>	<p>The System Quality rule calculates status for a System KPI attached to an EMS Monitor CI (monitoring an HP Operations Manager system).</p> <p>SiteScope monitors for the HP Operations Manager system (corresponding to EMS Monitor CIs) send status change event data to Service Level Management. The samples include a severity value for System status in the monitored Operations Manager application. If this value is less than the value defined in the rule's Severity failure value parameter, then System severity is considered acceptable.</p> <p>The System Quality rule calculates the percentage of samples with acceptable severity level during each calculation period, and compares the percentage with agreement objective targets to determine status for the System KPI.</p> <p>This is a monitor rule. For details, see "Monitor Rules and Group Rules" in <i>Using Dashboard</i>.</p> <p>Example: Service Level Management checks the severity levels for the System field, contained in the incoming samples for an EMS Monitor CI, Server1. The values received are 1, 3, 2, 3, 2.</p> <p>The values are compared with the value defined in the Severity failure value, which is set as 3. System severity is therefore considered to be acceptable in 60% of the samples.</p> <p>Server1 is attached to SLA_factory, where the objective threshold for the System KPI is set as Exceeded > 90%, else Failed. System severity for Server1 is below this percentage, so status for the KPI is defined as Failed (red).</p>	<p>Note: The parameters for this rule can be modified only in the Service Level Management Business Rule repository; they cannot be modified for an individual KPI defined within an agreement.</p> <p>"Dimension name" on page 499</p> <p>"Severity failure value" on page 503</p>

Rule (Rule #)	Description	Parameters
<p>Time Between Outages - Alternate (334)</p>	<p>Note: This rule was named MTBF - Alternate prior to version 7.0.</p> <p>The Time Between Outages Alternate rule provides a second method for calculating the mean time between outages (the other method is described in “Time Between Outages” on page 476).</p> <p>The rule calculates the total uptime divided by the number of outages. The total uptime is the tracking period minus the total outage duration.</p> <p>This rule performs calculations by taking the results (for the relevant calendar) of an outages rule, which determines the number of outages for the CI. The appropriate outages rule is defined for the Outage KPI that is assigned to each CI as part of the agreement definition, as described in “Add Outage Dialog Box” on page 76.</p> <p>Service Level Management calculates the time between outages on a daily basis (24 hours), and takes into account only the outages that occur in the specific calendar. For example, if the calendar is Business Hours (that is, 9:00 AM to 5:00 PM), then outages that occur at 3:00 AM are not considered.</p> <p>This is a group rule that uses results of sibling KPIs. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>For a detailed example of the rule, see “Example of a Time Between Outages - Alternate Rule” on page 496.</p>	<p>No parameters</p>

Rule (Rule #)	Description	Parameters
<p>Time Between Outages (333)</p>	<p>Note: This rule was named MTBF prior to version 7.0.</p> <p>Service Level Management calculates the mean time between outages, that is, the tracking period divided by the number of outages.</p> <p>This rule performs calculations by taking the results (for the relevant calendar) of an outages rule, which determines the number of outages for the CI. The appropriate outages rule is defined for the Outage KPI that is assigned to each CI as part of the agreement definition, as described in “Add Outage Dialog Box” on page 76.</p> <p>Service Level Management calculates the time between outages on a daily basis (24 hours), and takes into account only the outages that occur in the specific calendar. For example, if the calendar is Business Hours (that is, 9:00 AM to 5:00 PM), then outages that occur at 3:00 AM are not considered.</p> <p>This is a group rule that uses results of sibling KPIs. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>Note: There is an alternative Time Between Outages rule, described in “Time Between Outages - Alternate” on page 475.</p> <p>For a detailed example of the rule, see “Example of Time Between Outages Rule” on page 495.</p>	<p>No parameters</p>

Rule (Rule #)	Description	Parameters
<p>TransactionVision Average Backlog Count (453)</p>	<p>Calculates the Backlog KPI status for a TV Monitor CI. The rule calculates the average number (over time) of backlogged instances for a business transaction, based on samples received from TransactionVision. The calculation is time-based (for details, see “Sample-Based and Time-Based Sampling” in <i>Using Dashboard</i>).</p> <p>This is the default rule for the Backlog KPI, when the KPI is assigned to a TV Monitor CI. For information on business transaction data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>Example 1</p> <p>Between 10:00 and 10:59:59, the following samples were received for a business transaction:</p> <p>Sample 1 at 10:00 - 100 backlogged instances Sample 2 at 10:15 - 50 backlogged instances Sample 3 at 10:40 - 100 backlogged instances Sample 4 at 10:50 - 0 backlogged instances</p> <p>Calculation</p> <p>The result received in a sample is considered the value for the time period until the next sample arrives:</p> $(100*15 + 50*25 + 100*10 + 0*10) / (15+25+10+10) = 62.5$ <p>Example 2</p> <p>Between 10:00 and 10:59:59, the following samples were received for a business process:</p> <p>(10:00–10:15 - no data) Sample 1 at 10:15 - 100 backlogged instances Sample 2 at 10:30 - 50 backlogged instances Sample 3 at 10:45 - 100 backlogged instances</p> <p>Calculation</p> <p>The no data period is excluded from the calculation:</p> $(100*15 + 50*15 + 100*15) / (15+15+15) = 83.333333$	<p>“No data timeout” on page 501</p>

Rule (Rule #)	Description	Parameters
<p>TransactionVision Average Backlog Value (454)</p>	<p>Calculates the Backlog KPI status for a TV Monitor CI. The rule calculates the average monetary value (over time) for backlogged instances of a business transaction, based on values received in the samples from TransactionVision. The calculation is time-based (for details, see “Sample-Based and Time-Based Sampling” in <i>Using Dashboard</i>).</p> <p>Note: By default, the Backlog KPI uses a count-based rule when the KPI is assigned to a TV Monitor CI. If you want results for the KPI to be value-based, you must define a unit for the KPI and change the rule used. For more information, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>Example 1</p> <p>Between 10:00 and 10:59:59, the following samples were received for a business transaction:</p> <p>Sample 1 at 10:00 - Value of backlogged instances = \$100 Sample 2 at 10:15 - Value of backlogged instances = \$50 Sample 3 at 10:40 - Value of backlogged instances = \$100 Sample 4 at 10:50 - Value of backlogged instances = \$0</p> <p>Calculation</p> <p>The result received in a sample is considered the value for the time period until the next sample arrives:</p> $(100*15 + 50*25 + 100*10 + 0*10) / (15+25+10+10) = \62.5	<p>“No data timeout” on page 501</p>

Rule (Rule #)	Description	Parameters
<p>TransactionVision Average Backlog Value</p> <p>Continued</p>	<p>Example 2</p> <p>Between 10:00 and 10:59:59, the following samples were received for a business transaction:</p> <p>(10:00–10:15 - no data) Sample 1 at 10:15 - Value of backlogged instances = \$100 Sample 2 at 10:30 - Value of backlogged instances = \$50 Sample 3 at 10:45: Value of backlogged instances = \$100</p> <p>Calculation</p> <p>The no data period is excluded from the calculation: $(100*15 + 50*15 + 100*15) / (15+15+15) = \\83.333333</p>	No parameters
<p>TransactionVision Average Delays Rate (%)</p> <p>(455)</p>	<p>Calculates the Delays KPI status for a TV Monitor CI, based on the average percentage of late completed transactions out of the total completed transactions. The values are taken from the samples received from TransactionVision.</p> <p>Transactions are defined as "late" in TransactionVision when their response time exceeded the defined threshold in TransactionVision.</p> <p>This is the default rule for the Delays KPI, when the KPI is assigned to a TV Monitor CI. For information on TransactionVision data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	No parameters

Rule (Rule #)	Description	Parameters
<p>TransactionVision Average Delays Value (%) (456)</p>	<p>Calculates the Delays KPI status for a TV Monitor CI, based on the average monetary value percentage of late completed transactions out of the total completed transactions value. The values are taken from the samples received from TransactionVision.</p> <p>Transactions are defined as "late" in TransactionVision when their response time exceeded the defined threshold in TransactionVision.</p> <p>For information on TransactionVision data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>No parameters</p>
<p>TransactionVision Average Duration (450)</p>	<p>Calculates the Duration KPI status for a TV Monitor CI, based on the average response time (in seconds) for successful, completed instances of the business transaction. The values are taken from the samples received from TransactionVision.</p> <p>This is the default rule for the Duration KPI, when the KPI is assigned to a TV Monitor CI. For information on TransactionVision data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	<p>No parameters</p>

Rule (Rule #)	Description	Parameters
<p>TransactionVision Average Exceptions Rate (%) (457)</p>	<p>Calculates the Exceptions KPI status for a TV Monitor CI, based on the average percentage of completed transactions marked as exceptions, out of the total completed transactions. The values are taken from the samples received from TransactionVision.</p> <p>Transactions are defined as "exceptions" by TransactionVision when they did not follow the expected flow path on the target machine.</p> <p>This is the default rule for the Exceptions KPI, when the KPI is assigned to a TV Monitor CI. For information on TransactionVision data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	No parameters
<p>TransactionVision Average Exceptions Value (%) (458)</p>	<p>Calculates the Exceptions KPI status for a TV Monitor CI, based on the average monetary value percentage for the completed transactions marked as exceptions, out of the total completed transactions value. The values are taken from the samples received from TransactionVision.</p> <p>Transactions are defined as "exceptions" by TransactionVision when they did not follow the expected flow path on the target machine.</p> <p>For information on TransactionVision data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	No parameters

Rule (Rule #)	Description	Parameters
<p>TransactionVision Average Failures Rate (%) (459)</p>	<p>Calculates the Failures KPI status for a TV Monitor CI, based on the average percentage of failed, completed transactions out of the total completed transactions. The values are taken from the samples received from TransactionVision.</p> <p>Transactions are classified as "failed" when they match the attribute or pattern defined as failure in TransactionVision.</p> <p>This is the default rule for the Failures KPI, when the KPI is assigned to a TV Monitor CI. For information on TransactionVision data in Service Level Management, see "Business Process and Business Transaction Data in Service Level Management" on page 241.</p> <p>This is a monitor rule. For details, see "Monitor Rules and Group Rules" in <i>Using Dashboard</i>.</p>	<p>No parameters</p>
<p>TransactionVision Average Failures Value (%) (460)</p>	<p>Calculates the Failures KPI status for a TV Monitor CI, based on the average monetary value percentage for the failed, completed transactions out of the total completed transactions value. The values are taken from the samples received from TransactionVision.</p> <p>Transactions are classified as "failed" when they match the attribute or pattern defined as failure in TransactionVision.</p> <p>For information on TransactionVision data in Service Level Management, see "Business Process and Business Transaction Data in Service Level Management" on page 241.</p> <p>This is a monitor rule. For details, see "Monitor Rules and Group Rules" in <i>Using Dashboard</i>.</p>	<p>No parameters</p>

Rule (Rule #)	Description	Parameters
<p>TransactionVision Average Value (461)</p>	<p>Calculates the Value KPI status for a TV Monitor CI, based on the average monetary value for completed instances of the business transaction.</p> <p>The calculation uses the following values received in the samples from TransactionVision:</p> <p>total transaction value/total transaction count</p> <p>This is the default rule for the Value KPI when the KPI is assigned to a TV Monitor CI. For information on TransactionVision data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	No parameters
<p>TransactionVision Maximum Duration (451)</p>	<p>Assigns Duration KPI status to a TV Monitor CI based on the highest response time for the completed instances of a business transaction. The values are received in the samples from TransactionVision. Results are given in seconds.</p> <p>For information on TransactionVision data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	No parameters
<p>TransactionVision Minimum Duration (452)</p>	<p>Assigns Duration KPI status to a TV Monitor CI based on the lowest response time for the completed instances of a business transaction. The values are received in the samples from TransactionVision. Results are given in seconds.</p> <p>For information on TransactionVision data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p>	No parameters

Rule (Rule #)	Description	Parameters
TransactionVision Throughput (462)	<p>Calculates the Throughput KPI status for a TV Monitor CI. The rule calculates the average hourly volume for completed instances of the business transaction, based on the completed count received in the samples from TransactionVision. The total count for each hour over the time frame is divided by the time to give an average hourly throughput.</p> <p>This is the default rule for the Throughput KPI when the KPI is assigned to a TV Monitor CI. For information on TransactionVision data in Service Level Management, see “Business Process and Business Transaction Data in Service Level Management” on page 241.</p> <p>This is a monitor rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>. Example</p> <p>For a three hour period:</p> <ul style="list-style-type: none"> ▶ Between 09:00:00 and 09:59:59, four samples were received from TransactionVision, with the following values: <ul style="list-style-type: none"> 09:00 completed_count = 1000 09:15 completed_count = 100 09:30 completed_count = 700 09:45 completed_count = 200 <p>Total completed count is 2000, calculation time is 1 hour.</p> ▶ Between 10:00:00 and 10:59:59, no samples were received. Result for the hour is NO DATA, calculation time is 1 hour. ▶ Between 11:00:00 and 11:59:59, four samples were received: <ul style="list-style-type: none"> 11:00 completed_count = 0 11:15 completed_count = 0 11:30 completed_count = 0 11:45 completed_count = 100 <p>Total completed count is 100, calculation time is 1 hour.</p> <p>Average throughput over period=2100/3 hours=700</p>	No parameters

Rule (Rule #)	Description	Parameters
<p>Value Chain (302)</p>	<p>The Value Chain rule takes the value for the weakest child in each calculation cycle, and then calculates the average of these values over the report period. The calculation cycle is set by default to five minutes.</p> <p>This rule is useful when the failure of any of the child elements in a value chain implies the failure of the parent element. By taking the worst KPI result from the child values in each calculation cycle, the final average produced by this rule takes into account any failure that occurred during the report period (as opposed to a value that represents the failures of a single child, as is the case when using the Worst Child rule).</p> <p>Where the parent element can continue to function even when one or more elements are unavailable, you can allow for this by defining the number of children to be ignored in each calculation cycle. The rule then ignores the worst KPI results in each calculation cycle up to the number defined, and takes the next-worst result as the calculation cycle value.</p> <p>Note: This rule can be used only when all child (leaf) CIs use the time-based calculation method for the KPI (this is the default calculation method for monitor rules).</p> <p>This is a group rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>For a detailed example of the rule, see “Example of the Value Chain Rule” on page 497.</p>	<p>“Number of ignored children” on page 501</p>

Rule (Rule #)	Description	Parameters
<p>Volume Average Value (300)</p>	<p>This rule measures the number of hits on a Real User Monitor page and calculates a page's availability. Volume Average Value takes into account the number of samples that are attributed to each of a CI's children. The more samples attributed to a child, the more the child influences the results. By comparison, RUM Page Availability calculates average availability for a CI, without taking into account the number of samples per child.</p> <p>Note: Although this rule can be used for any sample type, it is usually assigned to Real User Monitor. This is because the number of samples attributed to each child in Business Process Monitor and SiteScope is equal (unless configured otherwise).</p> <p>This is a group rule. For details, see "Monitor Rules and Group Rules" in <i>Using Dashboard</i>.</p>	<p>No parameters</p>

Rule (Rule #)	Description	Parameters												
<p>Worst Child (Max.) (294)</p>	<p>Service Level Management returns the highest value held by any of the child CIs. For example, when calculating the worst child result for the Response Time KPI, the child with the longest response time is worst.</p> <p>This is a group rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>Example: During agreement creation, you set objectives for a Response Time KPI:</p> <div style="border: 1px solid black; padding: 5px;"> <p>Objectives</p> <p>To add an objective, click a cell, enter the objective values, then click the cell again (or click another cell). To add an objective to all periods of a calendar, click a calendar, enter the objective, then click the calendar again (or click a cell).</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Calendar</th> <th>Day</th> <th>Week</th> <th>Month</th> <th>Quarter</th> <th>Year</th> </tr> </thead> <tbody> <tr> <td>Business Hours</td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td style="text-align: center;"><input checked="" type="checkbox"/></td> </tr> </tbody> </table> <p> <input checked="" type="checkbox"/> Exceeded < 7.0 seconds <input checked="" type="checkbox"/> Met < 8.0 seconds <input checked="" type="checkbox"/> Minor Breached < 9.0 seconds <input checked="" type="checkbox"/> Breached < 10.0 seconds <input checked="" type="checkbox"/> Failed Otherwise </p> </div> <p>A Group CI with attached Response Time KPI has 3 children, CI1, CI2, and CI3, with the following values: 8.5 seconds, 10 seconds, and 12 seconds. At report generation time, the rule returns the highest value (12 seconds), and gives the agreement a Failed status (the color is red).</p>	Calendar	Day	Week	Month	Quarter	Year	Business Hours	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<p>No parameters</p>
Calendar	Day	Week	Month	Quarter	Year									
Business Hours	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>									

Rule (Rule #)	Description	Parameters																								
<p>Worst Child (Min.) (293)</p>	<p>Service Level Management returns the lowest value held by any of the child CIs. For example, when calculating the worst child result for the System Availability KPI, the child with the lowest percentage availability is the worst.</p> <p>This is a group rule. For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i>.</p> <p>Example: During agreement creation, you set objectives for a System Availability KPI:</p> <div style="border: 1px solid gray; padding: 5px;"> <p>Objectives</p> <p>To add an objective, click a cell, enter the objective values, then click the cell again (or click another cell). To add an objective to all periods of a time interval, click a time interval, enter the objective, then click the time interval again (or click a cell).</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Calendar</th> <th>Hour</th> <th>Day</th> <th>Week</th> <th>Month</th> <th>Quarter</th> <th>Year</th> <th>SLA period</th> </tr> </thead> <tbody> <tr> <td>24x7</td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>Business Hours</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> </tbody> </table> <p> <input checked="" type="checkbox"/> Exceeded > <input type="text" value="99.0"/> % <input checked="" type="checkbox"/> Met > <input type="text" value="98.5"/> % <input checked="" type="checkbox"/> Minor Breached > <input type="text" value="90.0"/> % <input checked="" type="checkbox"/> Breached > <input type="text" value="75.0"/> % <input checked="" type="checkbox"/> Failed Otherwise </p> </div> <p>A Group CI with attached System Availability KPI has 3 children, CI1, CI2, and CI3, with the following values: 99%, 98.6%, 92%. At report generation time, the rule returns the lowest value (92%), and gives the agreement a Minor Breached status (the color is yellow).</p>	Calendar	Hour	Day	Week	Month	Quarter	Year	SLA period	24x7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Business Hours	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<p>No parameters</p>
Calendar	Hour	Day	Week	Month	Quarter	Year	SLA period																			
24x7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>																			
Business Hours	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																			

Rule (Rule #)	Description	Parameters
WS SiteScope Outage (316)	Calculates an outage for SiteScope Web service monitor CIs that belong to the Web Service Monitor configuration item type (CIT). This is an outage rule.	“Minimum number of failures” on page 501 “Minimum duration” on page 500 “Default category” on page 499 “Max duration” on page 500

Examples of Business Rule Usage

This section provides examples of some of the more complex Service Level Management business rules. The following examples are described:

- “Example of an Average Outage Duration Rule” on page 490
- “Example of a Children Success Ratio Rule” on page 491
- “Example of a Cluster Availability Rule” on page 492
- “Example of a Response Time Success Ratio Rule” on page 493
- “Example of System Performance Success Ratio Rule” on page 494
- “Example of Time Between Outages Rule” on page 495
- “Example of a Time Between Outages - Alternate Rule” on page 496
- “Example of the Value Chain Rule” on page 497

Example of an Average Outage Duration Rule

During agreement creation, you set objectives for an Average Outage Duration KPI as follows:

KPI Definition

KPI:

Business rule:

Parameters:

Objectives

To add an objective, click a cell, enter the objective values, then click the cell again (or click another cell). To add an objective to all periods of a calendar, click a calendar, enter the objective, then click the calendar again (or click a cell).

Calendar	Day	Week	Month	Quarter	Year
Business Hours	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

<input checked="" type="checkbox"/> Exceeded	<	<input type="text" value="1800.0"/>	seconds
<input checked="" type="checkbox"/> Met	<	<input type="text" value="1440.0"/>	seconds
<input checked="" type="checkbox"/> Minor Breached	<	<input type="text" value="3600.0"/>	seconds
<input checked="" type="checkbox"/> Breached	<	<input type="text" value="7200.0"/>	seconds
<input checked="" type="checkbox"/> Failed	Otherwise		

The Outage Summary report shows the following outages that occurred during the Business Hours calendar:

CI	Start Date	End Date	Duration (HH:MM:SS)	Description	Category
SLA 02	2/13/06 11:50 AM	2/13/06 12:20 PM	00:30:00	-	Network
SLA 02	2/13/06 12:35 PM	2/13/06 3:35 PM	03:00:00	-	Network
SLA 02	2/13/06 3:50 PM	2/13/06 4:20 PM	00:30:00	-	Undefined

Outage durations are 30, 180, and 30 minutes. The number of outages is 3.

Average Outage Duration = $(30+180+30)/3 = 240/3 = 80$ minutes = 4800 seconds.

The Average Outage Duration KPI for the CI receives a status of Breached (the status color is orange).


Example of a Children Success Ratio Rule

For details about the rule, see “Children Success Ratio” on page 443.

During agreement creation, you set objectives for a System Performance KPI as follows:

KPI

KPI: System Performance

Business rule: Children Success Ratio 

Parameters:

Success status: * Met

Use weighting: * true false

Objectives

To add an objective, click a cell, enter the objective values, then click the cell again (or click another cell). To add an objective to all periods of a time interval, click a time interval, enter the objective, then click the time interval again (or click a cell).

Calendar	Day	Week	Month
24x7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

<input checked="" type="checkbox"/>	Exceeded	>=	80
<input type="checkbox"/>	Met	>=	75
<input type="checkbox"/>	Minor Breached	>=	70
<input type="checkbox"/>	Breached	>=	65
<input checked="" type="checkbox"/>	Failed	Otherwise	

The Success status parameter is defined as **Met**. That is, any child CI is considered successful if its status is greater than, or equal to, **Met** (in the above case, 75%).

The Group CI with attached System Performance KPI has three children: CI1 (measures CPU), CI2 (measures memory), and CI3 (measures ping time). At report generation time, CI1 receives a status of **Exceeded** (considered successful), CI2 receives a status of **Minor Breached** (considered failed), and CI3 receives a status of **Met** (considered successful). Two child CIs out of 3 are successful.

The KPI result, therefore, is 66.67%. This gives the agreement a **Breached** status (the status color is orange).

Example of a Cluster Availability Rule

For details about the rule, see “Cluster Availability” on page 443.

You want to build an agreement that reports downtime for tasks in a value chain service (needed to perform a Use Case). That is, Service Level Management should report downtime if the chain is broken. If an application is down, the chain is broken. However, if two applications are down simultaneously, downtime is not doubled. There are five applications in the chain.

You create an agreement and set objectives for an Availability KPI as follows (the **Minimum number of children** should equal the total number of tasks):

KPI Definition

KPI: Availability

Business rule: Cluster Availability

Parameters:

Minimum number of children:

* Availability threshold: * %

Objectives

To add an objective, click a cell, enter the objective values, then click the cell again (or click another cell). To add an objective to all periods of a time interval, click a time interval, enter the objective, then click the time interval again (or click a cell).

Calendar	Hour	Day	Week	Month	Quarter	Year	SLA period
24x7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Business Hours	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

<input checked="" type="checkbox"/> Exceeded	> <input type="button" value="v"/>	<input style="width: 80px;" type="text" value="98.0"/> %
<input checked="" type="checkbox"/> Met	>	<input style="width: 80px;" type="text" value="95.0"/> %
<input checked="" type="checkbox"/> Minor Breached	>	<input style="width: 80px;" type="text" value="90.0"/> %
<input checked="" type="checkbox"/> Breached	>	<input style="width: 80px;" type="text" value="85.0"/> %
<input checked="" type="checkbox"/> Failed	Otherwise	

For each calculation cycle (five minutes), if one of the children fails (that is, its result is less than the value in the Availability threshold field), the group CI is considered unavailable during this cycle.

For details on defining downtime, see “Downtime Events” in *Using System Availability Management*.


Example of a Response Time Success Ratio Rule

For details about the rule, see “Response Time Success Ratio” on page 454.

During agreement creation, you set objectives for a Performance KPI as follows:

KPI

KPI: Performance

Business rule: Response Time Success Ratio 

Parameters:






Success status: * Met

Use weighting: * true false

Objectives

To add an objective, click a cell, enter the objective values, then click the cell again (or click another cell). To add an objective to all periods of a time interval, click a time interval, enter the objective, then click the time interval again (or click a cell).

Calendar	Hour	Day	Week	Month	Quarter	Year	SLA period
24x7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Business Hours	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

 Exceeded	>	<input type="text" value="98.0"/> %
 Met	>	<input type="text" value="95.0"/> %
 Minor Breached	>	<input type="text" value="90.0"/> %
 Breached	>	<input type="text" value="85.0"/> %
 Failed	Otherwise	

The Success status parameter is defined as Met. That is, any child CI is considered successful if its status is greater than, or equal to, Met (in the above case, 95%).

A Group CI with attached Performance KPI has three children, CI1, CI2, and CI3: CI1, CI2, and CI3. At report generation time, CI1 receives a status of Exceeded (considered successful), CI2 receives a status of Breached (considered to have failed), and CI3 receives a status of Met (considered successful). Two child CIs out of 3 are successful.

The KPI result, therefore, is 66.67%. This gives the CI a Failed status (the status color is red).

Example of System Performance Success Ratio Rule

For details about the rule, see “System Performance Success Ratio” on page 473.

During agreement creation, you set objectives for a Performance KPI as follows:

KPI

KPI:

Business rule: ?

Parameters:

Success status:

Use weighting: true false

Objectives

To add an objective, click a cell, enter the objective values, then click the cell again (or click another cell). To add an objective to all periods of a time interval, click a time interval, enter the objective, then click the time interval again (or click a cell).

Calendar	Hour	Day	Week	Month	Quarter	Year	SLA period
24x7	☑	☑	☑	☑	☑	☑	☑

✔	Exceeded	>	<input type="text" value="95"/>	%
⚠	Met	>	<input type="text" value="90"/>	%
⚠	Minor Breached	>	<input type="text" value="85"/>	%
⚠	Breached	>	<input type="text" value="80"/>	%
✖	Failed	Otherwise		

The Success status parameter is defined as **Met**. That is, any child CI is considered successful if its status is greater than, or equal to, **Met** (in the above case, 90%).

A Group CI with attached System Performance KPI has three children: CI1 (measures CPU), CI2 (measures memory), and CI3 (measures ping time). At report generation time, CI1 receives a status of **Exceeded** (considered successful), CI2 receives a status of **Met** (considered successful), and CI3 receives a status of **Met** (considered successful). Three child CIs out of 3 are successful.

The KPI result, therefore, is 100%. This gives the agreement an **Exceeded** status (the status color is green).

Example of Time Between Outages Rule

For details about the rule, see “Time Between Outages” on page 476.

During agreement creation, you set objectives for a Time Between Outages KPI as follows:

KPI Definition

KPI:

Business rule:

Parameters:

Objectives

To add an objective, click a cell, enter the objective values, then click the cell again (or click another cell). To add an objective to all periods of a calendar, click a calendar, enter the objective, then click the calendar again (or click a cell).

Calendar	Day	Week	Month	Quarter	Year
<u>Business Hours</u>	✓	✓	✓	✓	✓

✓ Exceeded seconds
▲ Met seconds
▲ Minor Breached seconds
▼ Breached seconds
✗ Failed Otherwise

The Outage Summary report shows the following outages that occurred during the Business Hours calendar:

CI ▲	Start Date	End Date	Duration (HH:MM:SS)	Description	Category	
SLA 02	2/12/06 11:50 PM	2/13/06 12:25 AM	00:35:00	-	Network	
SLA 02	2/13/06 12:35 AM	2/13/06 12:55 AM	00:20:00	-	Network	
SLA 02	2/13/06 3:50 AM	2/13/06 4:10 AM	00:20:00	-	Undefined	

At report generation time, Service Level Management calculates the time between outages as the tracking period divided by the number of outages, that is,

$$24/3 = 8 \text{ hours} = 28800 \text{ seconds.}$$

The CI receives a status of Exceeded (the status color is green).

Example of a Time Between Outages - Alternate Rule

For details about the rule, see “Time Between Outages - Alternate” on page 475.

During agreement creation, you set objectives for a Time Between Outages KPI as follows:

KPI Definition

KPI:

Business rule:

Parameters:




Objectives

To add an objective, click a cell, enter the objective values, then click the cell again (or click another cell). To add an objective to all periods of a calendar, click a calendar, enter the objective, then click the calendar again (or click a cell).

Calendar	Day	Week	Month	Quarter	Year
<u>Business Hours</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

✔ Exceeded > seconds
▲ Met > seconds
⚠ Minor Breached > seconds
▼ Breached > seconds
✖ Failed Otherwise

The Outage Summary report shows the following outages that occurred during the Business Hours calendar:

CI ▲	Start Date	End Date	Duration (HH:MM:SS)	Description	Category	
SLA 02	2/13/06 11:50 AM	2/13/06 12:20 PM	00:30:00	-	Network	
SLA 02	2/13/06 12:35 PM	2/13/06 3:35 PM	03:00:00	-	Network	
SLA 02	2/13/06 3:50 PM	2/13/06 4:20 PM	00:30:00	-	Undefined	

At report generation time, Service Level Management makes the following calculation:

$$\begin{aligned} \text{Total uptime} &= \text{tracking period} - \text{total outage duration} \\ &= 9 - (30 + 180 + 30 \text{ minutes}) = 9 - 4 = 5 \text{ hours.} \end{aligned}$$

Time Between Outages Alternate = total uptime / number of outages
 = $5/3 = 1.666$ hours = 6000 seconds.

The CI receives a status of Minor Breached (the status color is yellow).



Example of the Value Chain Rule

For details about the rule, see “Value Chain” on page 485.

You have a value chain service where a database is running on four servers. The database continues to run at full availability even when one of the three servers is down; however, at least three of the servers must be up for the database to be available.

In the agreement, you want the CI representing the database to use the Value Chain rule for the Availability KPI. (The Availability KPI rule used by the child CIs for the database, representing the servers, is irrelevant.) To achieve this, you do the following:

- ▶ You ensure that the leaf CIs in the hierarchy for the value chain service are all using the time-based calculation method for the Availability KPI.
- ▶ You edit the Availability KPI definition for the database CI, so that **Value Chain** is selected as the business rule, and the **Number of ignored children** is set as **1**.

For each calculation cycle, the worst availability value from the four child CIs is ignored, and the worst result from the remaining three CIs is taken as the value for the calculation cycle. This means that if one server fails in a calculation cycle, it does not affect the overall availability value for the database.

If more than one server fails during a calculation cycle, this does affect the overall availability. For example, in the sixth calculation cycle for the period, one child CI has a value of 80% availability, and a second has a value of 85% availability. The other two CIs have 100% availability. The value used for that calculation cycle is 85%.

List of Service Level Management Business Rule Parameters

The rule parameters are as follows (in alphabetical order):

Parameter	Description
Aggregated Calculation Script	For API rules, defines the calculateAggregatedKPI method implementation. Default/Mandatory: (no default)/Yes
Availability field	The name of the availability field in the external source sample. Default/Mandatory: (no default)/Yes
Availability threshold	The availability threshold in percentages, above which a cluster is considered available if the minimum number of children specified in the Minimum number of children parameter. Default/Mandatory: 90/Yes
Available value	The availability value as it appears in the external source sample. If the availability value matches this value, the sample is considered available. For any other value, the sample is considered unavailable. Examples of values: yes/no, true/false, 0/1. Default/Mandatory: (no default)/Yes
Breached weight	The weight assigned to Breached status. Any positive number can be assigned (negative numbers and are 0 calculated as 1). Default/Mandatory: 1/Yes
Calculation field	Select one of the following values: Total time which corresponds to the total page download time. Server time which corresponds to the total time the page remains on the server. Default/Mandatory: Total time/Yes

Parameter	Description
Calculation method	Select one of the following values: sample-based when you want the rule to calculate results per sample time-based when you want the rule to calculate results by sample duration. Default/Mandatory: Time Based/Yes
Consumer	Defines the consumer data that is relevant for the KPI, for SOA Web service data monitored by HP Diagnostics. Default/Mandatory: Undefined/No
Default category	The default probable outage cause for use in Outage Summary reports. Default/Mandatory: Undefined/No
Dimension name	Internal. Do not modify. The name of the required field in the HP Operations Manager sample. Default/Mandatory: <according to context>/Yes
Exceeded weight	The weight assigned to Exceeded status. Any positive number can be assigned (negative numbers and are 0 calculated as 1). Default/Mandatory: 1/Yes
Failed weight	The weight assigned to Failed status. Any positive number can be assigned (negative numbers and are 0 calculated as 1). Default/Mandatory: 1/Yes
Final state	The state at which the lifecycle of the incident ends. Default/Mandatory: Close/Yes

Parameter	Description
Hide objective panel	Internal. Hides the Objectives panel in the KPI Definition dialog box, when objectives are not relevant for the KPI. Default/Mandatory: True/Yes
Ignore timed out trimming	Exclude samples that are timed out. Default/Mandatory: false/Yes
Initial state	The state at which the lifecycle of the incident starts. Default/Mandatory: Open/Yes
isGroovyRuleType	Internal for API rules; do not modify.
KPI Calculation Script	For API rules, defines the calculateKPI method implementation. Default/Mandatory: (no default)/Yes
Max duration	(For advanced users only.) The maximum duration in hours that can be considered a single outage. If exceeded, a new outage begins. Default/Mandatory: (no default)/No
Measurement type	Type of measurement to be monitored by the rule. For details, see “Enable SiteScope Measurement Type Filtering” on page 413. Default/Mandatory: (no default)/Yes
Met weight	The weight assigned to Met status. Any positive number can be assigned (negative numbers and are 0 calculated as 1). Default/Mandatory: 1/Yes
Minimum duration	The minimum duration in seconds that can be considered an outage. Default/Mandatory: 0/Yes

Parameter	Description
Minimum number of children	The minimum number of child CIs that must be available for the cluster to be considered available (see also Availability Threshold definition). Default/Mandatory: Exceeded/Yes
Minimum number of failures	The minimum number of failures that must consecutively occur to be considered an outage. Default/Mandatory: 2/Yes
Minor breached weight	The weight assigned to Minor Breached status. Any positive number can be assigned (negative numbers and are 0 calculated as 1). Default/Mandatory: 1/Yes
No data timeout	(For advanced users only). The number of seconds from the time of the latest sample until the status changes to NO DATA. Relevant only when Time Based is chosen for the Calculation method parameter. Default/Mandatory: 3600/Yes
Number of ignored children	The number of child CIs with the worst KPI results that are ignored in each calculation cycle. Default/Mandatory: 0/Yes
Outage Calculation Script	For API Outage rules, calculateOutage method implementation. Default/Mandatory: (no default)/Yes
Passed status	Defines the minimum status level for results received in a sample, based on a duration threshold used in Business Process Insight. Only results with that status or higher are included in the rule calculations. Default/Mandatory: ok_status/Yes

Parameter	Description
Passed status	<p>Defines the minimum status level for results received in a sample, based on a health status used in Business Process Insight. Only results with that status or higher are included in the rule calculations.</p> <p>Default/Mandatory: healthy_status/Yes</p>
Percentile condition	<p>Defines a successful result by setting the value that should be compared to the objective and which operator should be used.</p> <p>Default/Mandatory: <8/No</p>
Performance field	<p>The name of the performance field in the external source sample.</p> <p>Default/Mandatory: (no default)/Yes</p>
Rule Template Setting Key	<p>Internal for API rules; do not modify.</p>
Sample and Duration Filter Script	<p>For API rules, defines the isSampleAndDurationValid method implementation.</p> <p>Default/Mandatory: (no default)/No</p>
Sample Fields	<p>For API rules, defines the list of sample fields whose values can be included in the calculation.</p> <p>Default/Mandatory: (no default)/No</p>
Sample Filter Script	<p>For API rules, defines the isSampleValid method implementation.</p> <p>Default/Mandatory: (no default)/No</p>

Parameter	Description
Severity	The lowest severity value for calculations. Only incidents of this severity value and higher in severity are calculated. The value is an integer, as defined in the conversion method in the SiteScope ticket.config file. For details, see “HP Service Manager Monitor User Interface” in <i>Using System Availability Management</i> . Default/Mandatory: 3/Yes
Severity failure value (for SiteScope Monitor Outage rule)	The severity value, for status changes, at which an agreement is considered unavailable. Default/Mandatory: 5/Yes
Severity failure value	At this value, or any higher severity value, the severity level is considered as a failure. Default/Mandatory: 3/Yes
Six Sigma condition	Defines whether to calculate the Six Sigma performance larger than or smaller than the objective value, and which operator should be used. Default/Mandatory: <8/Yes
Success status	The status to which all child CIs are compared: if the child CI's status is greater than, or equal to, this value, the child CI is considered successful. Default/Mandatory: Exceeded/Yes
Time stamp field	The name of the time stamp field in the external source sample. Default/Mandatory: time_stamp/Yes
Trimming condition	Default condition that specifies when the sample is trimmed. Default/Mandatory: (no default)/No

Parameter	Description
Use weighting	Select one of the following values: true: include weighting values false: do not include weighting values Default/Mandatory: false/Yes

Hidden Advanced Rule Parameters

Some Service Level Management Business Rule parameters are intended for users with an advanced knowledge of Service Level Management and, by default, are hidden from view.

If you want these advanced parameters to be displayed, change the default setting. Select **Admin > Platform > Setup and Maintenance > Infrastructure Settings**, choose **Applications**, select **Service Level Management**, and locate the **Display advanced business logic parameters** entry. Change the value to **True**.

Business Rules User Interface



This section describes:

- Business Rule Repository Page on page 505
- Parameter Details Dialog Box (Rules) on page 507
- Rule Details Dialog Box on page 508

Business Rule Repository Page

Description	<p>Displays the list of factory (predefined) and customized rules. Those rules are available throughout HP Business Availability Center to determine how source data is imported.</p> <p>Enables an advanced user to modify existing repository rules and create new ones.</p> <p>To Access: Admin > Service Level Management > Repositories > Business Rules</p>
Important Information	<p>Cloning or overriding an existing rule, or creating a new rule, adds the corresponding rule entry to the Custom rule list. You can then customize the rule to your organization's specifications. For details, see For a list of rules and their details, see "List of Service Level Management Business Rules" on page 416.</p>
Included in Tasks	"Customize a Business Rule" on page 411

The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A-Z)	Description
	Click to display help on the rule.
	Select a rule in the Custom Rules area, and click the button to open the Rules Details dialog box. For details, see "Rule Details Dialog Box".
Class Name	The name of the class the rule belongs to. It includes the Java class that implements the rule, with the full path to the root.

GUI Element (A-Z)	Description
<p>Clone</p>	<p>In the Factory Rules or in the Custom Rules areas, select a rule, and click the button to create a new rule by cloning. You clone an existing rule to use it as a template. The original rule is still available.</p> <p>Note: Change the name of the rule you have cloned to make sure you attach the cloned rule and not the original rule to a specific KPI.</p>
<p>Description</p>	<p>The description of the rule.</p>
<p>ID</p>	<p>This specifies the ID number used to identify the rule in the source adapter templates. This is the default rule ID.</p>
<p>New Item</p>	<p>Click to create a new rule. For details, see “Customize a Business Rule” on page 411.</p>
<p>Override</p>	<p>In the Factory Rules or in the Custom Rules areas, select a rule, and click the button to edit an existing rule. You override an existing rule to replace it with a customized rule. The original rule is disabled. The overriding rule and the original rule have the same rule ID. The overriding rule and the original rule have the same rule ID. The rule in the Factory Business Rules area displays the following indication:</p> <div style="border: 1px solid gray; padding: 2px;"> <input type="checkbox"/> 3 com.mercury.topaz.bam.application (Overridden) .rules.SSMeasurement </div> <p>Note:</p> <ul style="list-style-type: none"> ▶ If you delete a custom rule that overrides a factory rule, the original factory rule is automatically restored. ▶ If you have created a new rule, you must attach it to a KPI. <p>For details, see “Customize a Business Rule” on page 411.</p>

Parameter Details Dialog Box (Rules)


Description	<p>Enables you to modify existing information or to enter new information about the rule's parameters.</p> <p>To Access: In the Rule Details dialog box, in the Rule parameters area, click the New button to enter new parameters or click the relevant Edit button to modify an existing parameter.</p>
Important Information	<p>For a list of rule parameters and their default values, see each rule description in “List of Service Level Management Business Rules” on page 416.</p> <p>If the CalculationGranularity parameter is not changed when there is a heavy calculation load, this does not cause wrong results, but note that calculations are done on a longer time scale (for example, calculation may be done on a history size of three hours instead of one hour).</p>
Included in Tasks	“Customize a Business Rule” on page 411

The following elements are included (unlabeled GUI elements are shown in angle brackets>):


GUI Element (A-Z)	Description
Default value	Enter the value to be listed as the default value of the parameter in Dashboard or Service Level Management. Note that for some of the rules, the default values can be: sampleBased or timeBased and indicates if the calculation performed by the rule is based on the sample values or is calculated.
Description	Enter or modify the parameter description.
Name	Enter or modify the name of the parameter. The parameter name is used as a key.

GUI Element (A-Z)	Description
Presentation class	Enter the name of the presentation class. For future use.
Type	Enter the type of parameter. Possible values are: Boolean (can be 0 or 1), Integer , Long , Double (can be a decimal number), or String .

Rule Details Dialog Box

Description	<p>Enables you to modify existing detailed information for the rule. You can also modify existing information or enter new information about the rule parameters and the Objective parameters. For more details, see “KPI Objectives” in <i>Using Dashboard</i>.</p> <p>To Access: In the Business Rule Repository page, click New Item or click the Edit button  for the appropriate rule in the Factory or Custom Rules area.</p>
Important Information	<p>For a list of the objective parameters and their details, see “List of Service Level Management Business Rules” on page 416.</p> <p>After you have created a rule you must attach it to a KPI.</p>
Included in Tasks	“Customize a Business Rule” on page 411

The following elements are included (unlabeled GUI elements are shown in angle brackets>):

GUI Element (A-Z)	Description
	<p>In the Rule parameters area, click to modify an existing parameter.</p> <p>In the Objective Parameters area, click to modify an existing parameter.</p> <p>For details, see “Parameter Details Dialog Box (Rules)” on page 507.</p>
Class Name	<p>Enter the name of the class the rule belongs to. It includes the Java class that implements the rule, with the full path to the root.</p>
Description	<p>Enter the description of the rule.</p>
Display Name	<p>Enter the name of the rule as it is to be displayed in the UI.</p>
New...	<p>In the Rule parameters area, click to enter new parameters.</p> <p>In the Objective Parameters area, click to enter new objective parameters.</p> <p>For details, see “Parameter Details Dialog Box (Rules)” on page 507.</p>
Objective parameters	<p>Default objective values for every rule that uses objectives. For details, see “KPI Objectives” in <i>Using Dashboard</i>.</p>
Relevant result type	<p>Select one of the following options:</p> <ul style="list-style-type: none"> ▶ Status. So the rule result is displayed as a status indicator ▶ Value. So the rule is displayed as a value <p>For details, see “Persistent Data and Historical Data” in <i>Using Dashboard</i>.</p>
Rule parameters	<p>Parameters used by the rule to calculate the resulting value or status. For details, see “List of Service Level Management Business Rules” on page 416.</p>

GUI Element (A-Z)	Description
Rule Type	Select one of the following options: <ul style="list-style-type: none"> ➤ Both. So the rule can be applied both to group and monitor ➤ Group. So the rule can be applied to a group ➤ Monitor. So the rule can be applied to a monitor For details, see “Monitor Rules and Group Rules” in <i>Using Dashboard</i> .
Units	Enter the type of unit applicable to the rule results. For more details about the available units, see “KPI Objectives” in <i>Using Dashboard</i> .

13

Rules API

This chapter provides information on the Service Level Management Rules API.

This chapter includes:

Concepts

- Rules API Overview on page 512
- API Group and Sibling Rule on page 514
- Calculation Mechanism for Sample Rules - Overview on page 517
- Calculating the KPI Based on Samples on page 518
- Calculating the KPI's Aggregated Results on page 519
- When to Use Sample or Duration-Based Sample Rules on page 521
- API Sample Rule on page 522
- API Duration-Based Sample Rule on page 524
- Duration-Based Sample Continuity on page 527
- Filtering with the Duration-Based Sample Rule on page 529
- API Outage by Samples Rule on page 530
- Creating Rules with the Rules API on page 532

Tasks

- Define an API Rule for a Specific KPI or Outage – Workflow on page 534
- Create a Text File-Based API Rule – Workflow on page 536
- Define an API Rule Within the Rule Repository – Workflow on page 540
- Make Rules Applicable to CI Types on page 542

- ▶ Work with Tooltip Entries on page 543
- ▶ Write to Log Files From the Rules API Code on page 544

Reference

- ▶ Examples - API Group and Sibling Rule on page 546
- ▶ Examples - API Sample Rule on page 546
- ▶ Examples - API Duration-Based Sample Rule on page 553
- ▶ Examples - API Outage by Samples Rule on page 563

Rules API Overview

This chapter describes how to use the Rules API to create business rules to calculate Key Performance Indicators (KPIs). The default Service Level Management rules appear in the section “List of Service Level Management Business Rules” on page 416.

The recommended way to create new rules is with the Rules API. The Rules API enables you to create rules using the Groovy dynamic scripting language. Users of this API should be familiar with Groovy and Java syntax, and with HP Business Availability Center administration and applications.

Important: The Rules API classes are documented in Javadoc format in the *HP BAC Rules API Reference*. These files are located in the following folder:
\\<HP Business Availability Center Gateway Server root
directory>\AppServer\webapps\site.war\amdocs\eng\doc_lib\Dashboard\
Rules_API\index.html

This section includes the following topics:

- ▶ “Types of API Rules” on page 513
- ▶ “Creating API Rules” on page 513
- ▶ “Tooltips and Log Files” on page 513

Types of API Rules

There are four types of API rules in Service Level Management:

- ▶ **Group and Sibling Rule.** This rule calculates KPIs based on aggregated values received from other KPIs, rather than from original sample data. The received data can come from the KPIs of child CIs (group), or from another KPI associated with the same CI (sibling). For details, see “API Group and Sibling Rule” on page 514.
- ▶ **Sample Rule.** This rule calculates KPIs based on data taken from sample fields. For details, see “API Sample Rule” on page 522.
- ▶ **Duration-Based Sample Rule.** This rule calculates KPIs based on data taken from sample fields, and uses both the sample’s value and its duration within the rule calculation (for example, availability over time or backlog over time). For details, see “API Duration-Based Sample Rule” on page 524.

For details on how sample rules are calculated, see “Calculation Mechanism for Sample Rules - Overview” on page 517.

- ▶ **Outage by Samples Rule.** This rule calculates outages based on data received from samples. For details, see “API Outage by Samples Rule” on page 530.

Creating API Rules

Rules can be created using the Rules API in three ways:

- ▶ Using the KPI Definition page to create a rule for a specific KPI
- ▶ Using a text file to create a new rule for multiple KPIs
- ▶ Using a clone of an API rule template in the rule repositories.

These methods are described in “Creating Rules with the Rules API” on page 532.

Tooltips and Log Files

To display KPI information in tooltips when working with the Rules API, see “Work with Tooltip Entries” on page 543.

You can write to log files from the Rules API code, as described in “Write to Log Files From the Rules API Code” on page 544.

API Group and Sibling Rule

An API Group and Sibling Rule calculates KPIs based on data received from other KPIs, rather than from original sample data. The received data can come from the KPIs of child CIs, or from another KPI associated with the same CI.

The KPI is calculated based on the aggregated values of the group or sibling KPIs. The calculated KPI results represent the aggregated results.

Note: If you are creating a sibling rule, make sure that the KPI is calculated after its sibling KPIs, as defined by the KPI's Calculation Order field. For details, see “KPI Repository page” on page 535.

This section includes the following topics:

- ▶ “Group and Sibling Rule Methods and Fields” on page 514
- ▶ “Defining a Group and Sibling Rule in the KPI Definition Page or Rule Repository” on page 516
- ▶ “Defining a Group and Sibling Rule Using a Text File” on page 517

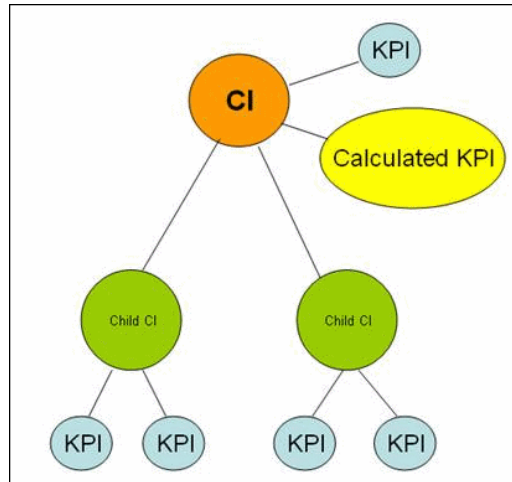
Group and Sibling Rule Methods and Fields

The Group and Sibling rule implements the Rules API Interface **GroupAndSiblingCalculator**, using the following guidelines:

- ▶ In this interface, the only method is **calculateKPI**. The method signature is:
`public void calculateKPI(CI ci, KPI kpi)`
- ▶ The **calculateKPI** method includes the parameters **ci** and **kpi**, which represent the current CI, and the KPI whose value the API rule calculates.
- ▶ The **ci** parameter type is **CI**, and is used as an accessor to KPIs of child CIs or sibling KPIs. The **KPI** objects returned by **CI** are used to get the aggregated values of these KPIs.
- ▶ The **kpi** parameter type is **KPI**, and is used to set calculation results.

In the following illustration, the Calculated KPI is calculated based on the sibling or child KPIs, and it is represented by the **kpi** parameter.

The CI to which the Calculated KPI is assigned, is represented by the **ci** parameter, and it is an accessor to the other KPIs.



The Rules API classes are documented in Javadoc format in the *HP BAC Rules API Reference*. These files are located in the following folder:

\\<HP Business Availability Center Gateway Server root directory>\AppServer\webapps\site.war\amdocs\eng\doc_lib\Dashboard\Rules_API\index.html

For examples of Group and Sibling rules, see “Examples - API Group and Sibling Rule” on page 546.

API rules can be defined within the KPI Definition page or Rule Repository, or using a text file template, as described in “Creating Rules with the Rules API” on page 532.

Defining a Group and Sibling Rule in the KPI Definition Page or Rule Repository

To define a Group and Sibling rule using the KPI Definition page or within the Rule Repository, enter the **calculateKPI** method implementation in the **KPI Calculation Script** area.

The parameters **ci** and **kpi** of the **calculateKPI** method are available for use in this script.

For detailed instructions, see “Define an API Rule for a Specific KPI or Outage – Workflow” on page 534 or “Define an API Rule Within the Rule Repository – Workflow” on page 540.

Accessing a Specific Child KPI in the KPI Definition Page

When creating a Group rule for a specific KPI in the KPI Definition page, to access a specific child KPI, the API includes a mechanism to simplify the code. When defining your KPI Calculation Script, you can enter the format "**<CI name>**".**<KPI name>**".

For an example of this, see “Examples - API Group and Sibling Rule” on page 546.

The screenshot shows the 'KPI Definition' interface. The top section, titled 'KPI', has a dropdown menu for 'KPI:' set to 'Availability'. Below it, the 'Business rule:' dropdown is set to 'API Group And Sibling Rule'. The 'Parameters:' field is empty. The bottom section, titled 'API Rule Definitions', contains a text area for the 'KPI Calculation Script'. The script text is as follows:

```
// Get the Availability KPI for the child CI "bc_10 from virtual_host_3".
KPI childKPI = "bc_10 from virtual_host_3"."Availability"
...
```

Defining a Group and Sibling Rule Using a Text File

To define a Group and Sibling rule using a text file, use the **SImGroupAndSiblingTemplate.groovy** template as described in “Create a Text File-Based API Rule – Workflow” on page 536.

Within the text file, enter the **calculateKPI** method body.

Calculation Mechanism for Sample Rules - Overview

The API Sample rule and Duration-Based Sample rule calculate KPIs based on sample values, for each combination of calendar and tracking period. This calculation process is divided into calculation cycles.

Each calculation cycle, the following steps occur:

- 1** The samples that are in the Profile database for the calculation cycle time are retrieved. For example, if a KPI is calculated for 10:00-11:00 and the cycle duration is 5 minutes, the samples that are in the database with the timestamp 10:00-10:05 are used in the first cycle's calculation.
- 2** The samples go through a filtering mechanism which determines which samples are included in the calculation.
- 3** The KPI is calculated for the cycle based on the samples that passed through the filtering mechanism. For details, see “Calculating the KPI Based on Samples” on page 518.
- 4** Aggregated KPI results are calculated based on the results for the cycle, and the previous aggregated results for the full calculation period. These aggregated KPI results are displayed in the Service Level Management reports. For details, see “Calculating the KPI's Aggregated Results” on page 519.

Calculating the KPI Based on Samples

KPI results are calculated for each calculation cycle by the **calculateKPI** method, based on the **samples** parameter. The **samples** parameter is a **List** of **Sample** objects, which hold sample field values.

The Rules API classes are documented in Javadoc format in the *HP BAC Rules API Reference*. These files are located in the following folder:

```
\\<HP Business Availability Center Gateway Server root
directory>\AppServer\webapps\site.war\amdocs\eng\doc_lib\Dashboard\
Rules_API\index.html
```

The **calculateKPI** method can be used to set KPI value, keys, and tooltips.

The value, keys, and tooltips set by the **calculateKPI** method are available to the **calculateAggregatedKPI** method, as described in “Calculating the KPI’s Aggregated Results” on page 519.

This section includes the following topics:

- “Setting KPI Value” on page 518
- “Setting KPI Calculation Keys” on page 519
- “Setting KPI Tooltips” on page 519

Setting KPI Value

KPI value should be used when calculating KPI value directly from the sample fields. For details on setting the value, refer to the **setValue** method documentation.

For an example which uses KPI value, see “Example - Sample-Based Maximum Response Time Rule” on page 551.

Setting KPI Calculation Keys

Each KPI can hold keys which are used as helpers to calculate value or tooltips. For example, when calculating average response time (total response time / total number of samples), the **setKey** method is used to set two keys for the current cycle: total response time, and total number of samples. These keys are aggregated and used to calculate the aggregated value of the KPI.

For an example which uses KPI calculation keys, see “Example - Sample-Based Average Response Time Rule” on page 547.

Setting KPI Tooltips

KPI tooltips should be used when calculating KPI tooltips directly from the sample fields. For details on setting the tooltips, refer to the **setTooltip** method documentation.

Calculating the KPI's Aggregated Results

Using the values, tooltips, and keys set by the **calculateKPI** method, the **calculateAggregatedKPI** method calculates aggregated values, keys, and tooltips.

The aggregated results are based on the KPI calculation results for the cycle, and the aggregated calculation results from the previous cycles.

The Rules API classes are documented in Javadoc format in the *HP BAC Rules API Reference*. These files are located in the following folder:

```
\\<HP Business Availability Center Gateway Server root
directory>\AppServer\webapps\site.war\amdocs\eng\doc_lib\Dashboard\
Rules_API\index.html
```

The **calculateAggregatedKPI** method can be used to set KPI aggregated value, keys, and tooltips.

This section includes the following topics:

- “Setting KPI Aggregated Value” on page 520
- “Setting KPI Aggregated Calculation Keys” on page 520

- “Setting KPI Status” on page 520
- “Setting KPI Aggregated Tooltips” on page 521

Setting KPI Aggregated Value

The KPI aggregated value can be calculated based on KPI value (for example, minimum calculation), or based on aggregated keys (for example, average response time). The KPI aggregated value is displayed in the Service Level Management report. For details on setting the aggregated value, refer to the **setAggregatedValue** method documentation.

For an example which calculates KPI aggregated value based on KPI value, see “Example - Sample-Based Maximum Response Time Rule” on page 551.

For an example which calculates KPI aggregated value based on KPI aggregated keys, see “Example - Sample-Based Average Response Time Rule” on page 547.

Setting KPI Aggregated Calculation Keys

The aggregated keys are used as helpers to calculate aggregated value or aggregated tooltips. The aggregated keys are calculated based on aggregated keys and keys from the current cycle.

For example, when calculating average response time (total response time / total number of samples), the **setAggregatedKey** method is used to set two aggregated keys: total response time, and total number of samples. These value are then used to calculate the aggregated KPI value.

For details on setting the aggregated keys, refer to the **setAggregatedKey** method documentation.

For an example which uses KPI aggregated calculation keys, see “Example - Sample-Based Average Response Time Rule” on page 547.

Setting KPI Status

If your rule sets KPI status, use the **setStatus** method within the **calculateAggregatedKPI** method.

Setting KPI Aggregated Tooltips

The KPI aggregated tooltips can be calculated based on KPI tooltips, or aggregated keys. The KPI aggregated tooltips are displayed in the Service Level Management report.

For details on setting the aggregated tooltips, refer to the **setAggregatedTooltip** method documentation.

When to Use Sample or Duration-Based Sample Rules

Use a Sample rule to calculate KPIs based on sample values and number of samples (when needed), without using sample duration in the calculation.

Use a Duration-based Sample rule to calculate KPIs based on sample values and sample duration, without using the number of samples in the calculation.

Example of Average Response Time Calculation

Average response time can be calculated using a Sample rule or a Duration-Based Sample rule.

At 10:00 a sample is received with 100 seconds as response time, and at 10:55 a sample is received with 50 seconds as response time. The rule calculation is for 10:00-11:00.

The API Sample rule calculates average response time (total response time / number of samples) = 75 seconds.

The API Duration-Based Sample rule calculates weighted response time based on the value of the samples, and on their durations. The duration of the first sample is 55 minutes and the duration of the second sample is 5 minutes. The weighted average response time for the period is $(55 \times 100 + 5 \times 50) / 60 = 95.83$ seconds.

API Sample Rule

A Sample rule calculates KPIs based on aggregated data taken from sample fields. For details on when to use the Sample rule, see “When to Use Sample or Duration-Based Sample Rules” on page 521.

For details on how the rule is calculated, see “Calculation Mechanism for Sample Rules - Overview” on page 517.

This section includes the following topics:

- “Sample Rule Methods and Fields” on page 522
- “Defining a Sample Rule in the KPI Definition Page or Rule Repository” on page 523
- “Defining a Sample Rule Using a Text File” on page 524

Sample Rule Methods and Fields

The Sample rule implements the Rules API Interface

SlmSamplesAggregatedCalculator, which contains the following methods:

```
public void calculateKPI(CI ci, SlmKPI kpi, List<Sample> samples)
```

```
public void calculateAggregatedKPI(CI ci, SlmKPI kpi)
```

```
public boolean isSampleValid(CI ci, SlmKPI kpi, Sample sample)
```

- The **calculateKPI** method calculates the KPI for each calculation cycle. This method includes the parameters **ci**, **kpi**, and **samples**. These represent the current CI, the KPI whose value the rule calculates, and the samples to be used in the rule calculation.
 - The **kpi** parameter type is **SlmKPI**, and is used to set calculation results.
 - The **samples** parameter is a **List** of **Sample** objects, which hold sample field values.
- The **calculateAggregatedKPI** method calculates the aggregated KPI. This method includes the parameters **ci** and **kpi**.

- The **isSampleValid** method is used to filter samples. If a sample is not valid, is not included in the calculation. Samples that are valid are included in the **samples** parameter of the **calculateKPI** method.

The Rules API classes are documented in Javadoc format in the *HP BAC Rules API Reference*. These files are located in the following folder:

```
\\<HP Business Availability Center Gateway Server root
directory>\AppServer\webapps\site.war\amdocs\eng\doc_lib\Dashboard\
Rules_API\index.html
```

- The rule must also set the **sampleFields** field to define which sample fields are held by the **Sample** object. These values are the values used by the rule.

For detailed examples of Sample rules, see “Examples - API Sample Rule” on page 546.

API rules can be defined within the KPI Definition page or the Rule Repository, or using a text file template, as described in “Creating Rules with the Rules API” on page 532.

Defining a Sample Rule in the KPI Definition Page or Rule Repository

To define a Sample rule using the KPI Definition page or within the Rule Repository, fill in the fields as follows:

- **Sample Fields.** List the sample fields whose values can be included in the calculation; separate between the sample names with a comma (for example: "u_lstatus", "dResponseTime").
- **KPI Calculation Script.** Enter the **calculateKPI** method implementation; do not enter the method signature. The parameters **ci**, **kpi**, and **samples** of the **calculateKPI** method are available for use in this script.
- **Aggregated Calculation Script.** Enter the **calculateAggregatedKPI** method implementation; do not enter the method signature. The parameters **ci** and **kpi** of the **calculateAggregatedKPI** method are available for use in this script.
- **Sample Filter Script.** This field contains the default implementation of the **isSampleValid** method (by default, all samples are included in the calculation). You can edit this field to exclude samples from the calculation.

For detailed instructions, see “Define an API Rule for a Specific KPI or Outage – Workflow” on page 534 or “Define an API Rule Within the Rule Repository – Workflow” on page 540.

Defining a Sample Rule Using a Text File

To define a Sample rule using a text file template, use the **SlmSampleRuleTemplate.groovy** template file as described in “Create a Text File-Based API Rule – Workflow” on page 536.

Within the text file, define the **sampleFields** field, the **calculateKPI** method body, and the **calculateAggregatedKPI** method body.

The **isSampleValid** method has a default implementation of return true (all samples are included in the calculation). To override, uncomment the method and enter your implementation.

API Duration-Based Sample Rule

A Duration-Based Sample rule calculates KPIs based on aggregated data taken from sample fields. The duration-based rule uses each sample’s duration within the rule calculation (for example, availability over time or backlog over time).

For details on when to use the Duration-Based Sample rule, see “When to Use Sample or Duration-Based Sample Rules” on page 521. For details on how the rule is calculated, see “Calculation Mechanism for Sample Rules - Overview” on page 517.

This section includes the following topics:

- “Duration-Based Sample Rule Methods and Fields” on page 525
- “Defining a Duration-Based Sample Rule in the KPI Definition Page or Rule Repository” on page 526
- “Defining a Duration-Based Sample Rule Using a Text File” on page 527

Duration-Based Sample Rule Methods and Fields

The Duration-Based Sample rule implements the Rules API Interface **SImSamplesTimeBasedAggregatedCalculator**, which contains the following methods:

```
public void calculateKPI(CI ci, SImKPI kpi, List<Sample> samples)
```

```
public void calculateAggregatedKPI(CI ci, SImKPI kpi)
```

```
public boolean isSampleValid(CI ci, SImKPI kpi, Sample sample)
```

```
public boolean isSampleAndDurationValid(CI ci, SImKPI kpi, Sample sample)
```

- The **calculateKPI** method calculates the KPI for each calculation cycle. This method includes the parameters **ci**, **kpi**, and **samples**. These represent the current CI, the KPI whose value the rule calculates, and the samples to be used in the rule calculation.
 - The **kpi** parameter type is **SImKPI**, and is used to set calculation results.
 - The **samples** parameter is a **List** of **Sample** objects, which hold sample field values and sample durations. The **samples** parameter contains the samples that passed through a filter mechanism, as described in “Filtering with the Duration-Based Sample Rule” on page 529. The last sample used in the previous calculation cycles can also be included, as described in “Duration-Based Sample Continuity” on page 527.
- A sample’s duration is defined as the interval from the sample timestamp to one of the following (whichever event occurs first):
 - the timestamp of the next sample, if the next sample is filtered using the **isSampleAndDurationValid** method
 - the timestamp of the next sample within the cycle
 - the end of the cycle
- The **calculateAggregatedKPI** method calculates the aggregated KPI. This method includes the parameters **ci** and **kpi**.
- The **isSampleValid** and **isSampleAndDurationValid** method are used for filtering, as described in “Filtering with the Duration-Based Sample Rule” on page 529.

The Rules API classes are documented in Javadoc format in the *HP BAC Rules API Reference*. These files are located in the following folder:

```
\\<HP Business Availability Center Gateway Server root
directory>\AppServer\webapps\site.war\amdocs\eng\doc_lib\Dashboard\
Rules_API\index.html
```

- ▶ The rule must also set the **sampleFields** field to define which sample fields are held by the **Sample** object. These values are the values used by the rule.

For detailed examples of Duration-Based Sample rules, see “Examples - API Duration-Based Sample Rule” on page 553.

API rules can be defined using the KPI Definition page or the Rule Repository, or using a text file template, as described in “Creating Rules with the Rules API” on page 532.

Defining a Duration-Based Sample Rule in the KPI Definition Page or Rule Repository

To define a Duration-Based Sample rule using the KPI Definition page or within the Rule Repository, fill in the fields as follows:

- ▶ **Sample Fields.** List the sample fields whose values can be included in the calculation; separate between the sample names with a comma (for example: "u_lstatus", "dResponseTime").
- ▶ **KPI Calculation Script.** Enter the **calculateKPI** method implementation; do not enter the method signature. The parameters **ci**, **kpi**, and **samples** of the **calculateKPI** method are available for use in this script.
- ▶ **Aggregated Calculation Script.** Enter the **calculateAggregatedKPI** method implementation; do not enter the method signature. The parameters **ci** and **kpi** of the **calculateAggregatedKPI** method are available for use in this script.
- ▶ **Sample Filter Script** and **Sample and Duration Filter Script.** These fields contain the default implementation of the **isSampleValid** and **isSampleAndDurationValid** methods (by default, all samples are included in the calculation). You can edit these fields to exclude samples from the calculation.

For detailed instructions, see “Define an API Rule for a Specific KPI or Outage – Workflow” on page 534 or “Define an API Rule Within the Rule Repository – Workflow” on page 540.

Defining a Duration-Based Sample Rule Using a Text File

To define a Duration-Based Sample rule using a text file template, use the **SlmDurationBasedSampleRuleTemplate.groovy** template file as described in “Create a Text File-Based API Rule – Workflow” on page 536.

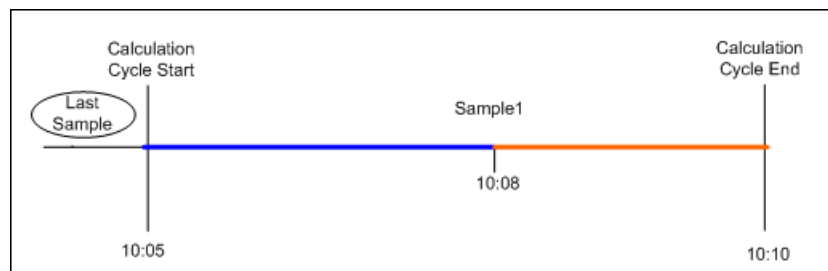
Within the text file, define the **sampleFields** field, the **calculateKPI** method body, and the **calculateAggregatedKPI** method body.

The **isSampleValid** and **isSampleAndDurationValid** methods have a default implementation of return true (all samples are included in the calculation). To override, uncomment the method and enter your implementation.

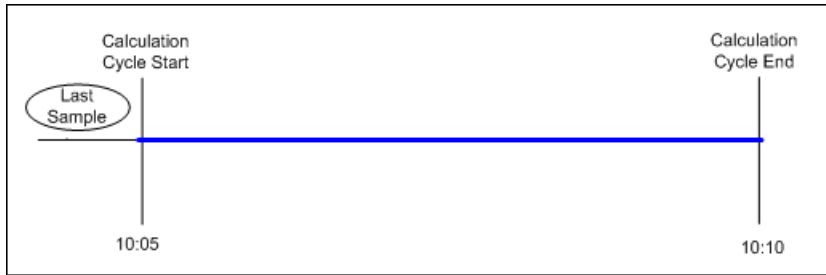
Duration-Based Sample Continuity

In the Duration-Based Sample rule, the first sample included in the **samples** parameter (for the **calculateKPI** method), is the last sample from the previous cycle’s calculation. This enables a sample’s value to be used over more than one calculation cycle.

For example, for the calculation cycle 10:05-10:10 there is one sample in the database (Sample1) with the timestamp 10:08. The **samples** parameter contains two samples: the last sample from the previous cycle (duration=3 minutes), and the sample from the current cycle (duration=2 minutes).



If there are no samples in the current cycle, the **samples** parameter contains the last sample from the previous cycle (duration=5 minutes).



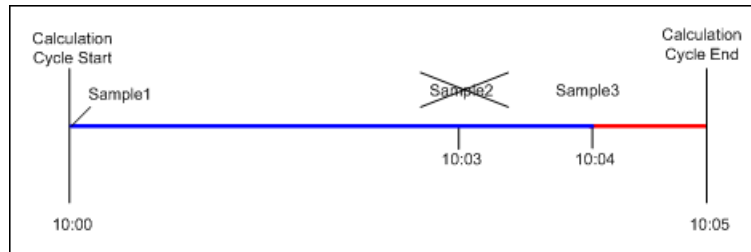
The last sample does not continue to the next calculation cycle if one of the following conditions are true:

- **No data timeout.** The last sample's timestamp has reached the no data timeout limit. For example, if the last sample's timestamp is 09:00 and the no data timeout is one hour, the sample is not included in the 10:00-10:05 calculation cycle, and all subsequent calculation cycles.
- **Downtime event.** A downtime event has occurred in the time between the last sample's timestamp and the current calculation cycle. For example, if the last sample's timestamp is 09:00 and a downtime is configured to 10:00-10:30, the sample is not part of the 10:30-10:35 calculation cycle, and all subsequent calculation cycles.

Filtering with the Duration-Based Sample Rule

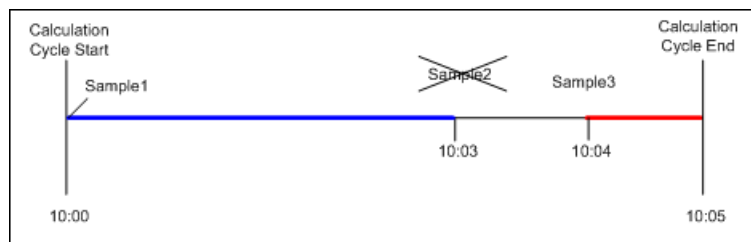
By default, the API Duration-Based Sample rule includes all samples in rule calculations. The **isSampleValid** and **isSampleAndDurationValid** methods enable filtering of samples when using this rule.

- When using the **isSampleValid** method, the duration of a filtered sample is added to the duration of the previous valid sample.



In the above example, Sample2 is filtered out using the **isSampleValid** method. The **samples** parameter contains Sample1 with 4 minutes duration and Sample3 with 1 minute duration. The total duration of all the samples in the cycle is 5 minutes.

- When using the **isSampleAndDurationValid** method, the duration of a filtered sample is not added to the duration of the previous valid sample, and it is therefore not included in the calculation.



In the above example, Sample2 is filtered out using the **isSampleAndDurationValid** method. The **samples** parameter contains Sample1 with 3 minutes duration and Sample3 with 1 minute duration. The total duration of all the samples in the cycle is 4 minutes.

API Outage by Samples Rule

An API Outage by Samples rule calculates outages based on data received from samples. An outage begins when a specific number of consecutive failures is calculated based on consecutive samples, and ends when a sample representing no failures is used in calculation.

Rule parameters (minimum number of failures, minimum duration, and maximum duration) define when an outage begins and when it ends, as described in “List of Service Level Management Business Rule Parameters” on page 498. The Outage by Samples rule parameters are demonstrated in “Examples - API Outage by Samples Rule” on page 563.

Each sample can represent a number of failures (zero or more). Using the API Outage by Samples rule, you can calculate how many failures a sample represents based on the sample values. The outage is then calculated using the outage rule parameters.

This section includes the following topics:

- ▶ “Outage by Samples Rule Methods and Fields” on page 530
- ▶ “Defining an Outage by Samples Rule in the KPI Definition Page or Rule Repository” on page 531
- ▶ “Defining an Outage by Samples Rule Using a Text File” on page 532

Outage by Samples Rule Methods and Fields

The Outage by Samples rule implements the Rules API Interface **OutageBySamplesCalculator**, which contains the following methods:

```
public void calculateOutage(Outage outage, Sample sample)
```

```
public boolean isSampleValid(Sample sample)
```

- ▶ The **calculateOutage** method calculates the number of failures represented by a **Sample**. This method includes the parameters **outage** and **sample**.
 - ▶ The **outage** parameter type is **Outage**, and is used to set the number of failures for the given **sample**.
 - ▶ The **sample** parameter type is **Sample**, which holds sample field values.

- The **isSampleValid** method is used to filter samples. If a sample is not valid, it is not included in the **calculateOutage** method calculation.

The Rules API classes are documented in Javadoc format in the *HP BAC Rules API Reference*. These files are located in the following folder:

```
\\<HP Business Availability Center Gateway Server root
directory>\AppServer\webapps\site.war\amdocs\eng\doc_lib\Dashboard\
Rules_API\index.html
```

- The rule must also set the **sampleFields** field to define which sample fields are held by the **Sample** object. These values are the values used by the rule.

For examples of the Outage by Samples rule, see “Examples - API Outage by Samples Rule” on page 563.

API rules can be defined using the KPI Definition page or the Rule Repository, or using a text file template, as described in “Creating Rules with the Rules API” on page 532.

Defining an Outage by Samples Rule in the KPI Definition Page or Rule Repository

To define an Outage by Samples rule using the KPI Definition page or within the Rule Repository, fill in the fields as follows:

- **Sample Fields.** List the sample fields whose values can be included in the calculation; separate between the sample names with a comma (for example: "u_lstatus").
- **Outage Calculation Script.** Enter the **calculateOutage** method implementation; do not enter the method signature. The parameters **outage** and **sample** of the **calculateOutage** method are available for use in this script.
- **Sample Filter Script.** This field contains the default implementation of the **isSampleValid** method (by default, all samples are included in the calculation). You can edit this field to exclude samples from the calculation.

For detailed instructions, see “Define an API Rule for a Specific KPI or Outage – Workflow” on page 534 or “Define an API Rule Within the Rule Repository – Workflow” on page 540.

Defining an Outage by Samples Rule Using a Text File

To define an Outage by Samples rule using a text file template, use the **SImOutageBySampleTemplate.groovy** template file as described in “Create a Text File-Based API Rule – Workflow” on page 536.

Within the text file, define the **sampleFields** field and the **calculateOutage** method body.

The **isSampleValid** method has a default implementation of return true (all samples are included in the calculation). To override, uncomment the method and enter your implementation.

Creating Rules with the Rules API

There are a number of ways to create rules using the Rules API, as described in the following section.

Note: The following three ways are also applicable to defining Outage calculations, using the API Outage by Samples Rule.

- **Defining a rule for a specific KPI.** Service Level Management KPIs can have the following API rules: API Group and Sibling Rule, API Sample Rule, and API Duration-Based Sample Rule.

Using the **KPI Definition** page, you can assign one of the API rules to a KPI, and enter rule details to define rule logic for that KPI.

You can then edit the rule details in the **KPI Definition** page at any time to change the rule logic for the KPI.

For details, see “Define an API Rule for a Specific KPI or Outage – Workflow” on page 534.

- **Creating a rule for multiple KPIs using a text file.** For each of the API rules there is a corresponding template file, located in the **<Data Processing server root directory>\BLE\rules\groovy\templates** directory. You can use one of the template files to create a text file defining a new rule. You then add this rule to the Rule Repository, and it can be applied like any out-of-the-box rule.

The API code cannot be seen or changed within Service Level Management, but only within the text file. If you make changes to the code within the text file, these changes are applied to all instances where the rule has been assigned, after you reload Service Level Management rules.

For details, see “Create a Text File-Based API Rule – Workflow” on page 536.

- **Defining a rule within the rule repository.** The Rule Repository contains the following API rules: API Group and Sibling Rule, API Sample Rule, and API Duration-Based Sample Rule. You can use the Rule Repository to clone an API rule and enter rule details to define the rule logic.

After the rule is applied to a KPI, you can edit rule details within the **KPI Definition** page at any time to change the rule logic for a specific KPI.

For details, see “Define an API Rule Within the Rule Repository – Workflow” on page 540.

Define an API Rule for a Specific KPI or Outage – Workflow

Each KPI or Outage has applicable API rules. Using the KPI Definition page, assign one of the API rules to a KPI or Outage, and enter the rule details to define the rule logic.

This task includes the following steps:

- “Assign an API Rule to a KPI or Outage” on page 534
- “Define the KPI or Outage Rule Logic” on page 534

1 Assign an API Rule to a KPI or Outage

- To assign an API rule for a specific KPI assigned to a CI, edit an SLA using the Agreements Manager tab > Define KPIs page. Select **Add KPI** to assign a new KPI to the CI, or modify an existing KPI. For details, see “KPI Definition Dialog Box” on page 100.

From the list of applicable business rules, select one of the API rules: API Group and Sibling Rule, API Sample Rule, or API Duration-Based Sample Rule. (API Sample Rule and API Duration-Based Sample Rule are only applicable for monitor CIs.) For a description of the rule types see “Rules API Overview” on page 512.

- To assign an API Outage rule to a CI’s Outage, edit an SLA using the Agreements Manager tab > Define KPIs page. For details, see “Add Outage Dialog Box” on page 76.

Click the Edit button to edit the Outage. From the list of applicable business rules, select API Outage by Samples Rule. (This rule is only applicable for monitor CIs.)

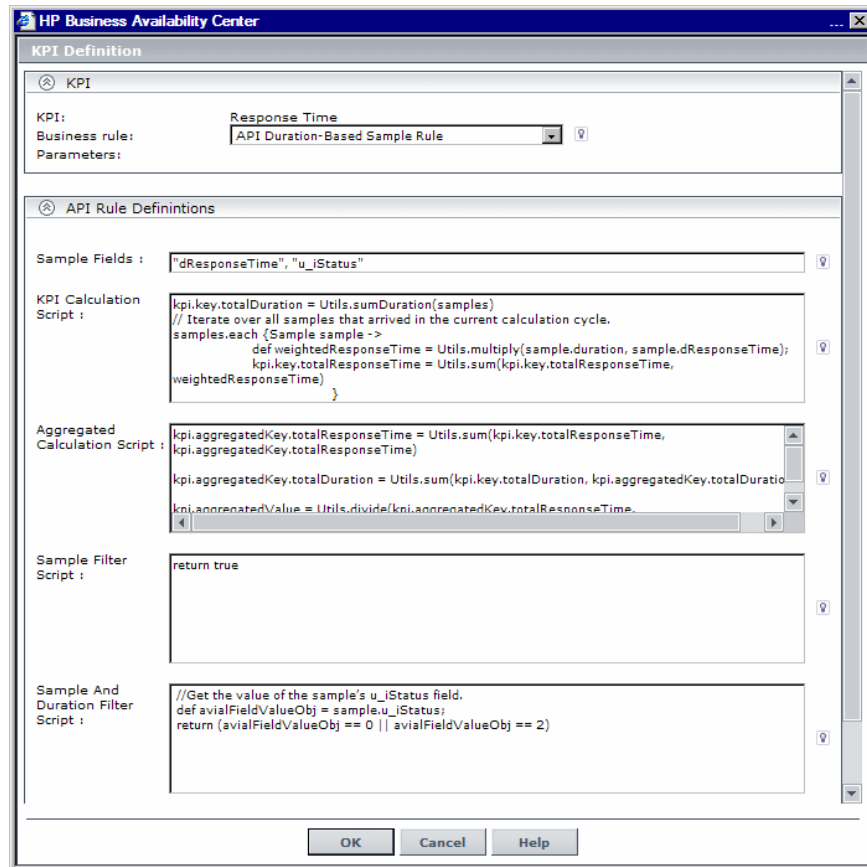
2 Define the KPI or Outage Rule Logic

Depending on the type of rule you are creating, define the rule methods and fields as described in:

- “API Group and Sibling Rule” on page 514
- “API Sample Rule” on page 522

- “API Duration-Based Sample Rule” on page 524
- “API Outage by Samples Rule” on page 530

The following screen illustrates an API Duration-Based Sample rule.



The Rules API classes are documented in Javadoc format in the *HP BAC Rules API Reference*. These files are located in the following folder:

```
\\<HP Business Availability Center Gateway Server root
directory>\AppServer\webapps\site.war\amdocs\eng\doc_lib\Dashboard\
Rules_API\index.html
```

Create a Text File-Based API Rule – Workflow

There are rule template files corresponding to the API rules; each template implements the rule's interface.

Create a text file defining a new rule using one of the templates, and then add the new rule to the Business Rule Repository. The rule can then be applied like any out-of-the-box rule.

The API code cannot be seen or changed within Service Level Management, but only within the text file. If you make changes to the code within the text file, these changes are applied to all instances where the rule has been assigned, after you reload Service Level Management rules.

This task includes the following steps:

- “Create a Text File for a Rule” on page 536
- “Add a Rule in the Rule Repository (for Group and Sibling, Sample, or Duration-Based Sample Rules)” on page 537
- “Add an Outage Rule in the Rule Repository” on page 538
- “Add the Rule to the List of Applicable Rules for a KPI or Outage” on page 539
- “Add the Rule to the CI Type's Applicable Rules” on page 539
- “Reload Rules After Editing the Text File” on page 539

1 Create a Text File for a Rule

Based on the type of rule you want to create, copy and rename one of the template files located in the **<Data Processing server root directory>\BLE\rules\groovy\templates** directory.

Within your copy of the template, define the rule methods and fields as described in:

- “API Group and Sibling Rule” on page 514
- “API Sample Rule” on page 522
- “API Duration-Based Sample Rule” on page 524

- ▶ “API Outage by Samples Rule” on page 530

Save the file to the <Data Processing server root directory>\BLE\rules\groovy\rules directory.

You must now add a rule in the Rule Repository that uses the rule logic in the text file.

- ▶ For rules other than Outage, follow the instructions in “Add a Rule in the Rule Repository (for Group and Sibling, Sample, or Duration-Based Sample Rules)” on page 537.
- ▶ For Outage rules, follow the instructions in “Add an Outage Rule in the Rule Repository” on page 538.

2 Add a Rule in the Rule Repository (for Group and Sibling, Sample, or Duration-Based Sample Rules)

Select **Admin > Service Level Management > Repositories > Business Rules > New Item** and add a new rule. For details on adding rules, see “Customize a Business Rule” on page 566.

- In the **Display Name** field, type the name of the rule you want to create (mandatory).
- In the **Class Name** field, type **groovy: <file name>**. Note that the file name must be identical (case sensitive) to the file name in the <Data Processing server root directory>\BLE\rules\groovy\rules directory.
- In the **Rule type** field, select **Both** to define a Group and Sibling rule. Select **Monitor** for other rules.
- For API Duration-Based Sample rules, create the following rule parameter:
 - ▶ In the **Rule parameters** area, click **New**.
 - ▶ In the **Name** field type **No Data Timeout**. In the **Type** field, select **Long**. In the **Default Value** field, type **3600**.
- Click **OK** to Save.

The following image shows a Duration-Based Sample rule after the rule parameter has been added:

The screenshot shows the 'Rule Details' dialog box in the HP Business Availability Center. The dialog is titled 'Rule Details' and contains the following fields and sections:

- Display Name:** Text-File Duration-Based Sample Rule
- Class Name:** groovy:MyRuleFile.groovy
- Description:** (empty)
- Rule type:** Monitor
- Relevant result type:** Status Value
- Units:** (empty)
- Rule parameters:**
 - No data timeout (with edit and delete icons)
 - New...
- Objective parameters:**
 - New...

At the bottom of the dialog are three buttons: OK, Cancel, and Help.

3 Add an Outage Rule in the Rule Repository

Within **Admin** > **Service Level Management** > **Repositories** > **Business Rules**, select the **WS SiteScope Outage** rule (316) and clone the rule.

- a** In the **Display Name** field, change the name of the rule (mandatory).
- b** In the **Class Name** field, type **groovy:** <file name>. Note that the file name must be identical (case sensitive) to the file name in the **<Data Processing server root directory>\BLE\rules\groovy\rules** directory.
- c** You can edit the **Description**, but do not change any other fields.
- d** Click **OK** to Save.

4 Add the Rule to the List of Applicable Rules for a KPI or Outage

Add the new rule to the list of applicable rules already attached to the relevant KPI. The relevant KPI for Outage rules is the **Outages** KPI (200).

For details, see the Applicable Rules GUI parameter in “KPI Details Dialog Box” on page 390.

5 Add the Rule to the CI Type’s Applicable Rules

When a rule is created using this procedure, you must make it applicable to CI types using the Infrastructure Settings.

For details, see “Make Rules Applicable to CI Types” on page 542.

6 Reload Rules After Editing the Text File

If you make changes to the text file at any time after the rule is created, perform the following steps to apply the changes.

- a** In the browser, enter, using JMX login credentials:
`http://<HP Business Availability Center server name>:29908`
- b** Click **service=BLE Offline Server** listed under **Topaz**.
- c** In the page that opens, go to the section **reloadRules** for customer rules and repository. Click **Invoke**.

Define an API Rule Within the Rule Repository – Workflow

Within the Business Rule Repository, create an API rule that can be applied to multiple KPIs or Outages. This is done by cloning one of the four API rules, and setting default rule values for specific rule parameters. After the rule is applied to a KPI or Outage, you can edit its script within the KPI Definition page at any time to change the rule logic for the specific KPI or Outage.

This task includes the following steps:

- “Clone an API Rule” on page 540
- “Edit Rule Details” on page 540
- “Add the Rule to the List of Applicable Rules for a KPI or Outage” on page 542
- “Add the Rule to the CI Type’s Applicable Rules” on page 542

1 Clone an API Rule

Select **Admin > Service Level Management > Repositories > Business Rules**. In the Business Rule Repository page, clone one of the following rules: API Group and Sibling Rule, API Sample Rule, API Duration-Based Sample Rule, or API Outage by Samples Rule.

For details on cloning a rule, see “Customize a Business Rule” on page 411.

2 Edit Rule Details



- a** Click the **Edit** button corresponding to the custom rule.
- b** In the **Display Name** field, rename the cloned rule.
- c** Within the **Rule Parameters**, set the **Default value** for each rule parameter defining your rule logic, as described in the following sections:
 - “API Group and Sibling Rule” on page 514
 - “API Sample Rule” on page 522
 - “API Duration-Based Sample Rule” on page 524

- “API Outage by Samples Rule” on page 530

For example, to define the **KPI Calculation Script**, edit the **KPI Calculation Script** rule parameter. In the **Default Value** field, enter the rule calculation script. The code that you enter becomes the default code for this rule, and appears in the KPI Definition page for all KPIs assigned this rule. (Do not change any other fields.)

The following image shows a Duration-Based Sample rule, when editing the rule parameter for KPI Calculating Script:

The screenshot displays the 'Rule parameters' section of the HP Business Availability Center interface. The 'KPI Calculation Script' parameter is selected and highlighted. Below it, the 'Parameter Details' section is visible, showing the following fields:

- Name:** 2.groovy.leaf.method.calculate.kpi
- Description:** Implement the calculateKPI method. For details, click the Help button o
- Type:** Text Area
- Default value:**

```
kpi.key.totalDuration = Utils.sumDuration(samples)
// Iterate over all samples that arrived in the current calculation cycle.
samples.each {Sample sample ->
    def weightedResponseTime = Utils.multiply
(sample.duration, sample.dResponseTime);
    kpi.key.totalResponseTime = Utils.sum
(kpi.key.totalResponseTime, weightedResponseTime)
}
```

At the bottom of the dialog, there are buttons for 'OK', 'Cancel', and 'Help'.

The Rules API classes are documented in Javadoc format in the *HP BAC Rules API Reference*. These files are located in the following folder:

```
\\<HP Business Availability Center Gateway Server root
directory>\AppServer\webapps\site.war\amdocs\eng\doc_lib\Dashboard\
Rules_API\index.html
```

3 Add the Rule to the List of Applicable Rules for a KPI or Outage

Add the new rule to the list of applicable rules already attached to the relevant KPI. The relevant KPI for Outage rules is the **Outages** KPI (200).

For details, see the Applicable Rules GUI parameter in “KPI Details Dialog Box” on page 390.

4 Add the Rule to the CI Type’s Applicable Rules

When a rule is created using this procedure, you must make it applicable to CI types using the Infrastructure Settings. For details, see “Make Rules Applicable to CI Types” on page 542.

Make Rules Applicable to CI Types

After creating a new rule, you must make it applicable to CI types.

- 1 Select **Admin > Platform > Setup and Maintenance > Infrastructure Settings > Service Level Management**.
- 2 Edit the **Configuration Item Rules**. Add the new rule to the list of applicable rules already attached to the relevant CI type, and click **Save**.

The following image shows how to add rule ID 2000 to the CI type bpm_tx_from_location.

Edit Setting	
Name:	Configuration Item Rules
Description:	Defines the business rules valid for each configuration item.
Value:	<pre> <Mappings> <Mapping> <CMDB_Classes> <CMDB_Class Name="bpm_tx_from_location"/> </CMDB_Classes> </Mapping> <Rules> <rule Id="2000"/> <rule Id="200"/> <rule Id="201"/> <rule Id="202"/> <rule Id="203"/> </Rules> </pre>

Work with Tooltip Entries

If you have used the `kpi.setTooltip` method, you must set a corresponding tooltip entry in the Infrastructure Settings.

1 Select **Admin > Platform > Setup and Maintenance > Infrastructure Settings > Service Level Management**.

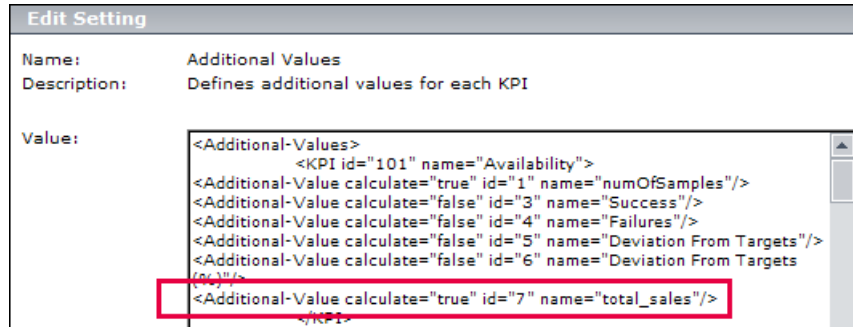
2 Edit the **Additional Values** as follows:

- a** Scroll down to the KPI where you want to add the tooltip.
- b** After the last entry for the KPI, add a line in the following format:

```
<Additional-Value calculate="true" id="<id>" name="<name>"/>
```

In the above format, `<id>` is one number higher than the current highest id (if the highest id is 5, type 6), and `<name>` is the name of the tooltip exactly as used in the code.

For example, if your code contains the method invocation `kpi.setTooltip("total_sales", value)`, and the KPI is **Availability**, type the following:



```

<Additional-Values>
  <KPI id="101" name="Availability">
    <Additional-Value calculate="true" id="1" name="numOfSamples"/>
    <Additional-Value calculate="false" id="3" name="Success"/>
    <Additional-Value calculate="false" id="4" name="Failures"/>
    <Additional-Value calculate="false" id="5" name="Deviation From Targets"/>
    <Additional-Value calculate="false" id="6" name="Deviation From Targets
    (P1)"/>
    <Additional-Value calculate="true" id="7" name="total_sales"/>
  </KPI>

```

c Click **Save**.

Write to Log Files From the Rules API Code

Within your API rules, you can write to log files from rule methods using a **logger** object. There are five log levels: debug, info, warn, error and fatal. Each of these uses a specific logger method.

By default, only log method invocations of error and fatal severity are written to the log files. You can modify this within the log configuration files.

To write to log files using the Rules API:

- 1 Within the rule method, implement one of the following methods (listed in ascending order of severity):

- `logger.debug("<API rule name> : log message");`
- `logger.info("<API rule name> : log message");`
- `logger.warn("<API rule name> : log message");`
- `logger.error("<API rule name> : log message");`
- `logger.fatal("<API rule name> : log message");`

Type the name of your API rule inside the log message to identify each log message with its source rule.

- 2 The Rules API log files are found in the **<Data Processing server root directory>\log\mercury_offline_engine\RulesAPI** directory.

Open one of the following files to view the log messages (depending on your rule type):

- **groupAndSiblingRule.log** (for API Group and Sibling rules)
- **sampleRule.log** (for API Sample and API Duration-Based Sample rules)
- **OutageRule.log** (for API Outage by Samples rules)

To modify the severity level written to a log file:

- 1 By default, only log method invocations of error and fatal severity are written to log files. To modify this setting, open the log configuration file located in **<Data Processing server root directory>\conf\core\Tools\log4j\mercury_offline_engine\slm_rules.properties**.

2 In the line corresponding with your rule type, replace the string **`${loglevel}`** with the severity level you want logged (either DEBUG, INFO, WARN, ERROR, or FATAL). Edit the following line, depending on your rule type:

- ▶ Group and Sibling rules:

```
log4j.category.com.mercury.am.bac.slm.rules.group.common.SlmGroup  
AndSiblingRule = ${loglevel}, slm.rules.api.group.appender
```

- ▶ Sample rules and Duration-Based Sample rules:

```
log4j.category.com.mercury.am.bac.slm.rules.leaf.simplified.SlmSimplifiedLeafRule = ${loglevel}, slm.rules.api.sample.appender
```

- ▶ Outage by Samples rules:

```
log4j.category.com.mercury.am.bac.slm.rules.outages.simplified.SimplifiedOutageRule = ${loglevel}, slm.rules.api.outage.appender
```

Examples - API Group and Sibling Rule

Both Service Level Management and Dashboard implement the same interface to calculate API Group and Sibling rules.

For detailed examples showing API Group and Sibling rules, see “Examples - API Group and Sibling Rule” in *Using Dashboard*.

Note that the statuses used in the **Status** class are different in Service Level Management and Dashboard. For example, **Status.OK** in Dashboard code is equivalent to **Status.EXCEEDED** in Service Level Management code. The following table shows the parallel statuses:

Dashboard Status	Service Level Management Status
OK	EXCEEDED
WARNING	MET
MINOR	MINOR_BREACHED
MAJOR	BREACHED
CRITICAL	FAILED

Examples - API Sample Rule

This section provides examples of API Sample Rules. The following examples are described:

- ▶ “Example - Sample-Based Average Response Time Rule” on page 547
- ▶ “Example - Sample-Based Average Response Time Rule with Filter” on page 550
- ▶ “Example - Sample-Based Maximum Response Time Rule” on page 551

Example - Sample-Based Average Response Time Rule

The following rule calculates average response time, based on the `dResponseTime` sample field. The rule result (aggregated value) is the average response time calculated based on all the samples that exist for the calculation period.

The rule logic is (total response time in seconds / total number of samples).

The rule uses the **SlmKPI** keys and aggregated keys to aggregate the total response time and the total number of samples, to calculate the rule result.

```
// Define the sample fields that will be used in the rule calculation.
def sampleFields = ["dResponseTime"];
```

```
/*
 * Implementation of the SlmSamplesAggregatedCalculator interface method.
 * For more information refer to the Rules API documentation.
 */

public void calculateKPI(CI ci, SlmKPI kpi, List<Sample> samples) {
    /*
     * Sum the field dResponseTime from all given samples. This represents the total
     * response time for all the samples in the current calculation cycle.
     */
    def totalTime = Utils.sumField(samples, "dResponseTime");
    /*
     * Keep the total response time, converted to seconds, on a kpi key named
     * totalResponseTime. This key is used by the calculateAggregatedKPI method.
     */
    kpi.key.totalResponseTime = Utils.divide(totalTime, 1000.0);
    /*
     * Keep the number of samples for the current calculation cycle on a kpi key named
     * totalSamples. This key is used by the calculateAggregatedKPI method.
     */
    kpi.key.totalSamples = samples.size();
}
```

```

/*
 * Implementation of the SImSamplesAggregatedCalculator interface method.
 */

public void calculateAggregatedKPI(CI ci, SImKPI kpi) {
/*
 * Keep the aggregated response time on a kpi aggregated key named
 * totalResponseTime, by adding the current aggregated totalResponseTime from the
 * kpi aggregated key, and the current calculation cycle response time taken from the
 * kpi key named totalResponseTime (calculated in the calculateKPI method).
 */
kpi.aggregatedKey.totalResponseTime = Utils.sum(kpi.key.totalResponseTime,
kpi.aggregatedKey.totalResponseTime).
/*
 * Keep the aggregated total samples on a kpi aggregated key named totalSamples,
 * by adding the current aggregated total samples from the kpi aggregated key, and
 * the current calculation cycle total samples, taken from the kpi key named
 * totalSamples (calculated in the calculateKPI method).
 */
kpi.aggregatedKey.totalSamples = Utils.sum(kpi.key.totalSamples,
kpi.aggregatedKey.totalSamples)
/*
 * Set the aggregated value of the KPI by dividing the two aggregated values.
 * This aggregated value will be displayed in the SLA reports.
 */
kpi.aggregatedValue = Utils.divide(kpi.aggregatedKey.totalResponseTime,
kpi.aggregatedKey.totalSamples)
}

```

Calculation - Sample-Based Average Response Time Rule

The following calculation illustrates the Sample-Based Average Response Time rule.

Between 10:00 and 11:00, 9 samples have arrived:

10:00 {Sample Fields: dResponseTime = 60}
 10:04 {Sample Fields: dResponseTime = 30}
 10:11 {Sample Fields: dResponseTime = 30}
 10:25 {Sample Fields: dResponseTime = 25}
 10:27 {Sample Fields: dResponseTime = 35}
 10:35 {Sample Fields: dResponseTime = 10}
 10:36 {Sample Fields: dResponseTime = 20}
 10:38 {Sample Fields: dResponseTime = 30}
 10:52 {Sample Fields: dResponseTime = 75}

Each calculation cycle is 5 minutes long. The rule calculation is as follows:

Cycle	Keys set by calculateKPI		Aggregated keys and value set by calculateAggregatedKPI		
	totalResponseTime	totalSamples	totalResponseTime	totalSamples	Aggregated Value
10:00-10:05	90	2	90	2	45
10:05-10:10	Null	0	90	2	45
10:10-10:15	30	1	120	3	40
10:15-10:20	Null	0	120	3	40
10:20-10:25	Null	0	120	3	40
10:25-10:30	60	2	180	5	36
10:30-10:35	Null	0	180	5	36
10:35-10:40	60	3	240	8	30
10:40-10:45	Null	0	240	8	30
10:45-10:50	Null	0	240	8	30
10:50-10:55	75	1	315	9	35
10:55-11:00	null	0	315	9	35
					Final result: 35

Example - Sample-Based Average Response Time Rule with Filter

This rule is the same as the previous rule (“Example - Sample-Based Average Response Time Rule” on page 547), with the addition of a sample filter.

The code for the sample fields is as follows:

```
// This rule uses the dResponseTime sample field and u_iStatus sample field.
def sampleFields = ["dResponseTime", "u_iStatus"];
```

This rule uses an additional method, as follows:

```
/*
 * Override the default implementation of the SImSamplesAggregatedCalculator
 * interface method.
 *
 * Filter samples that hold u_iStatus field value which is not 0 or 2.
 */

public boolean isSampleValid(Sample sample) {
    //Get the value of the sample's u_iStatus field.
    def avialFieldValueObj = sample.u_iStatus;
    return (avialFieldValueObj == 0 || avialFieldValueObj == 2)
}
```

Calculation - Sample-Based Average Response Time Rule with Filter

The following calculation illustrates the Sample-Based Average Response Time rule with filter.

For 10:00 - 11:00, 9 samples exist on the Profile Database:

10:00 {Sample Fields: dResponseTime = 60, u_Istatus = 0}
10:04 {Sample Fields: dResponseTime = 30, u_Istatus = 1}
 10:11 {Sample Fields: dResponseTime = 30, u_Istatus = 2}
10:25 {Sample Fields: dResponseTime = 25, u_Istatus = 1}
 10:27 {Sample Fields: dResponseTime = 35, u_Istatus = 0}
10:35 {Sample Fields: dResponseTime = 10, u_Istatus = 1}
 10:36 {Sample Fields: dResponseTime = 20, u_Istatus = 0}
 10:38 {Sample Fields: dResponseTime = 30, u_Istatus = 2}
10:52 {Sample Fields: dResponseTime = 75, u_Istatus = 1}

The samples in bold do not pass the filter. The following 5 samples are taken into calculation:

10:00 {Sample Fields: dResponseTime = 60, u_Istatus = 0}
 10:11 {Sample Fields: dResponseTime = 30, u_Istatus = 2}
 10:27 {Sample Fields: dResponseTime = 35, u_Istatus = 0}
 10:36 {Sample Fields: dResponseTime = 20, u_Istatus = 0}
 10:38 {Sample Fields: dResponseTime = 30, u_Istatus = 2}

The calculation result is = $(60+30+35+20+30)/5 = 35$



Example - Sample-Based Maximum Response Time Rule

The following rule calculates maximum response time, based on the dResponseTime sample field. The rule result (aggregated value) is the maximum response time calculated based on all the samples that exist for the calculation period. The rule uses the **SlmKPI** value to keep the maximum value for each calculation cycle.

```
// Define the sample fields that will be used in the rule calculation.
def sampleFields = ["dResponseTime"];
```

```

/*
 * Implementation of the SImSamplesAggregatedCalculator interface method.
 * For more information refer to the Rules API documentation.
 */
public void calculateKPI(CI ci, SImKPI kpi, List<Sample> samples) {
    /**
     * Find the maximum value of the dResponseTime field from all given samples,
     * and set it as the KPI value for the current calculation cycle.
     */
    kpi.value = Utils.getMax(samples, "dResponseTime");
}

/**
 * Implementation of the SImSamplesAggregatedCalculator interface method.
 */
public void calculateAggregatedKPI(CI ci, SImKPI kpi) {
    /**
     * Keep the aggregated maximum response time on the KPI aggregated value,
     * by replacing the current aggregated value with the maximum between the KPI
     * aggregated value and the KPI value (calculated in the calculateKPI method).
     * This aggregated value will be displayed in the SLA reports.
     */
    kpi.aggregatedValue = Utils.max(kpi.value, kpi.aggregatedValue)
}

```

Calculation - Sample-Based Maximum Response Time Rule

The following calculation illustrates the Sample-Based Maximum Response Time rule.

Between 10:00 and 11:00, 9 samples have arrived:

```

10:00 {Sample Fields: dResponseTime = 60}
10:04 {Sample Fields: dResponseTime = 30}
10:11 {Sample Fields: dResponseTime = 30}
10:25 {Sample Fields: dResponseTime = 25}
10:27 {Sample Fields: dResponseTime = 35}
10:35 {Sample Fields: dResponseTime = 10}
10:36 {Sample Fields: dResponseTime = 20}
10:38 {Sample Fields: dResponseTime = 30}
10:52 {Sample Fields: dResponseTime = 75}

```

The result of the rule calculation is 75.

Examples - API Duration-Based Sample Rule

This section provides examples of API Duration-Based Sample Rules. The following examples are described:

- “Example - Duration-Based Average Response Time Rule” on page 553
- “Example - Duration-Based Average Response Time Rule with isSampleValid Method Filter” on page 557
- “Example - Duration-Based Average Response Time Rule with isSampleAndDurationValid Method Filter” on page 559
- “Example - Duration-Based Average Response Time Rule with isSampleAndDurationValid and isSampleValid Method Filters” on page 561

Example - Duration-Based Average Response Time Rule

The following rule calculates the weighted average response time based on the dResponseTime sample field and sample duration, for all the samples that exist for the calculation period.

The rule logic is $\text{sum}(\text{sample response time} * \text{sample duration}) / \text{sum}(\text{samples duration})$.

The rule uses **SlmKPI** keys and aggregated keys to aggregate the total weighted response time and the total duration of samples, in order to calculate rule results.

```
// Define the sample fields that will be used in the rule calculation.
def sampleFields = ["dResponseTime"];
```

```

/*
 * Implementation of the SImSamplesTimeBasedAggregatedCalculator interface
 * method.
 * For more information refer to the Rules API documentation.
 */

public void calculateKPI(CI ci, SImKPI kpi, List<Sample> samples) {
    /**
     * Set the KPI key totalDuration to sum duration of all given samples.
     * This key is used by the calculateAggregatedKPI method.
     */
    kpi.key.totalDuration = Utils.sumDuration(samples)
    // Iterate over all samples that arrived in the current calculation cycle.
    samples.each {Sample sample ->
        /**
         * Calculate weighted response time for each sample by multiplying
         * sample duration with sample dResponseTime field value.
         */
        def weightedResponseTime = Utils.multiply(sample.duration,
            sample.dResponseTime);
        /**
         * Keep the total weighted response time for all given samples
         * on a KPI key named totalResponseTime.
         * This key is used by the calculateAggregatedKPI method.
         */
        kpi.key.totalResponseTime = Utils.sum(kpi.key.totalResponseTime,
            weightedResponseTime)
    }
}

```

```

/*
 * Implementation of the SImSamplesTimeBasedAggregatedCalculator interface
 * method.
 */

public void calculateAggregatedKPI(CI ci, SImKPI kpi) {
    /**
     * Keep the aggregated response time on a kpi aggregated key named
     * totalResponseTime, by adding the current aggregated totalResponseTime, and the
     * current calculation cycle response time taken from the totalResponseTime kpi key
     * (calculated by the calculateKPI method).
     */
    kpi.aggregatedKey.totalResponseTime = Utils.sum(kpi.key.totalResponseTime,
    kpi.aggregatedKey.totalResponseTime)
    /**
     * Keep the aggregated total duration on a kpi aggregated key named totalDuration,
     * by adding the current aggregated total duration from the kpi aggregated key,
     * and the current calculation cycle total duration.
     */
    kpi.aggregatedKey.totalDuration = Utils.sum(kpi.key.totalDuration,
    kpi.aggregatedKey.totalDuration)
    /**
     * Set the aggregated value of the KPI by dividing the two aggregated values.
     * This aggregated value will be displayed in the SLA reports.
     */
    kpi.aggregatedValue = Utils.divide(kpi.aggregatedKey.totalResponseTime,
    kpi.aggregatedKey.totalDuration)
}

```

Calculation - Duration-Based Average Response Time Rule

The following calculation illustrates the Duration-Based Average Response Time rule.

For 10:00 - 11:00, 5 samples exist on the Profile Database:

```

10:00 Sample1 {Sample Fields: dResponseTime = 60}
10:04 Sample2 {Sample Fields: dResponseTime = 30}
10:25 Sample3 {Sample Fields: dResponseTime = 25}
10:38 Sample4 {Sample Fields: dResponseTime = 30}
10:52 Sample5 {Sample Fields: dResponseTime = 75}

```

Each calculation cycle is 5 minutes long. The rule calculation is as follows:

Cycle	samples parameter		Keys set by calculateKPI		Aggregated keys and value set by calculateAggregatedKPI		
	Sample	Sample Duration	totalResponseTime	totalDuration	totalResponseTime	totalDuration	Aggregated Value
10:00-10:05	Sample1	240	16200	300			
	Sample2	60			16200	300	54.000
10:05-10:10	Sample2	300	9000	300	25200	600	42.000
10:10-10:15	Sample2	300	9000	300	34200	900	38.000
10:15-10:20	Sample2	300	9000	300	43200	1200	36.000
10:20-10:25	Sample2	300	9000	300	52200	1500	34.800
10:25-10:30	Sample3	300	7500	300	59700	1800	33.167
10:30-10:35	Sample3	300	7500	300	67200	2100	32.000
10:35-10:40	Sample3	180	8100	300			
	Sample4	120			75300	2400	31.375
10:40-10:45	Sample4	300	9000	300	84300	2700	31.222
10:45-10:50	Sample4	300	9000	300	93300	3000	31.100
10:50-10:55	Sample4	120	17100	300			
	Sample5	180			110400	3300	33.455
10:55-11:00	Sample5	300	22500	300	132900	3600	36.917
							Result: 36.917

Example - Duration-Based Average Response Time Rule with isSampleValid Method Filter

This rule is the same as “Example - Duration-Based Average Response Time Rule” on page 553, with the addition of the `isSampleValid` method filter.

The code for the sample fields is as follows:

```
// This rule uses the dResponseTime sample field and u_iStatus sample field.
def sampleFields = ["dResponseTime", "u_iStatus"];
```

This rule uses an additional method, as follows:

```
/*
 * Override default implementation of the SImSamplesTimeBasedAggregatedCalculator
 * interface method.
 *
 * Filter samples that hold u_iStatus field with value of 6.
 */
public boolean isSampleValid(Sample sample) {
    //Get the value of the sample's u_iStatus field.
    def avialFieldValueObj = sample.u_iStatus;
    return (avialFieldValueObj != 6)
}
```

Calculation - Duration-Based Average Response Time Rule with isSampleValid Method Filter

The following calculation illustrates the Duration-Based Average Response Time rule with `isSampleValid` method filter.

For 10:00 - 11:00, 5 samples exist on the Profile Database:

```
10:00 Sample1 {Sample Fields: dResponseTime = 60, u_iStatus = 0}
10:04 Sample2 {Sample Fields: dResponseTime = 30, u_iStatus = 2}
10:25 Sample3 {Sample Fields: dResponseTime = 25, u_iStatus = 6}
10:38 Sample4 {Sample Fields: dResponseTime = 30, u_iStatus = 0}
10:52 Sample5 {Sample Fields: dResponseTime = 75, u_iStatus = 2}
```

Sample3 did not pass the `isSampleValid` method filter, so the following 4 samples are taken into calculation:

10:00 Sample1 {Sample Fields: dResponseTime = 60, u_Istatus = 0}
 10:04 Sample2 {Sample Fields: dResponseTime = 30, u_Istatus = 2}
 10:38 Sample4 {Sample Fields: dResponseTime = 30, u_Istatus = 0}
 10:52 Sample5 {Sample Fields: dResponseTime = 75, u_Istatus = 2}

Note that after the filtering, the interval between Sample3 and Sample4 is considered part of the duration of Sample2.

The rule calculation is as follows:

Cycle	samples parameter		Keys set by calculateKPI		Aggregated keys and value set by calculateAggregatedKPI		
	Sample	Sample Duration	totalResponseTime	totalDuration	totalResponseTime	totalDuration	Aggregated Value
10:00-10:05	Sample1 Sample2	240 60	16200	300	16200	300	54.000
10:05-10:10	Sample2	300	9000	300	25200	600	42.000
10:10-10:15	Sample2	300	9000	300	34200	900	38.000
10:15-10:20	Sample2	300	9000	300	43200	1200	36.000
10:20-10:25	Sample2	300	9000	300	52200	1500	34.800
10:25-10:30	Sample2	300	9000	300	61200	1800	34
10:30-10:35	Sample2	300	9000	300	70200	2100	33.428
10:35-10:40	Sample2 Sample4	180 120	9000	300	79200	2400	33
10:40-10:45	Sample4	300	9000	300	88200	2700	32.666
10:45-10:50	Sample4	300	9000	300	97200	3000	32.4
10:50-10:55	Sample4 Sample5	120 180	17100	300	114300	3300	34.636
10:55-11:00	Sample5	300	22500	300	136800	3600	38
							Result: 38

Example - Duration-Based Average Response Time Rule with `isSampleAndDurationValid` Method Filter

This rule is the same as “Example - Duration-Based Average Response Time Rule” on page 553, but with the `isSampleAndDurationValid` method filter.

The code for the sample fields is as follows:

```
// This rule uses the dResponseTime sample field and u_iStatus sample field.
def sampleFields = ["dResponseTime", "u_iStatus"];
```

This rule uses an additional method, as follows:

```
/*
 * Override default implementation of the SImSamplesTimeBasedAggregatedCalculator
 * interface method.
 *
 * Filter samples that hold u_iStatus field value which is not 0 or 2.
 */
public boolean isSampleAndDurationValid(CI ci, SImKPI kpi, Sample sample) {
    //Get the value of the sample's u_iStatus field.
    def avialFieldValueObj = sample.u_iStatus;
    return (avialFieldValueObj == 0 || avialFieldValueObj == 2)
}
```

Calculation - Duration-Based Average Response Time Rule with `isSampleAndDurationValid` Method Filter

The following calculation illustrates the Duration-Based Average Response Time rule with `isSampleAndDurationValid` method filter.

For 10:00 - 11:00, 5 samples exist on the Profile Database:

```
10:00 Sample1 {Sample Fields: dResponseTime = 60, u_Istatus = 0}
10:04 Sample2 {Sample Fields: dResponseTime = 30, u_Istatus = 2}
10:25 Sample3 {Sample Fields: dResponseTime = 25, u_Istatus = 2}
10:38 Sample4 {Sample Fields: dResponseTime = 30, u_Istatus = 1}
10:52 Sample5 {Sample Fields: dResponseTime = 75, u_Istatus = 2}
```

Sample4 did not pass the `isSampleAndDurationValid` method filter, so the following 4 samples are taken into calculation:

10:00 Sample1 {Sample Fields: dResponseTime = 60, u_Istatus = 0}
 10:04 Sample2 {Sample Fields: dResponseTime = 30, u_Istatus = 2}
 10:25 Sample3 {Sample Fields: dResponseTime = 25, u_Istatus = 2}
 10:52 Sample5 {Sample Fields: dResponseTime = 75, u_Istatus = 2}

Note that after the filtering, the interval between Sample4 and Sample5 is *not* considered part of the duration of Sample3, so the total duration for the hour is 46 minutes.

The rule calculation is as follows:

Cycle	samples parameter		Keys set by calculateKPI		Aggregated keys and value set by calculateAggregatedKPI		
	Sample	Sample Duration	totalResponseTime	totalDuration	totalResponseTime	totalDuration	Aggregated Value
10:00-10:05	Sample1	240	16200	300	16200	300	54.000
	Sample2	60					
10:05-10:10	Sample2	300	9000	300	25200	600	42.000
10:10-10:15	Sample2	300	9000	300	34200	900	38.000
10:15-10:20	Sample2	300	9000	300	43200	1200	36.000
10:20-10:25	Sample2	300	9000	300	52200	1500	34.800
10:25-10:30	Sample3	300	7500	300	59700	1800	33.167
10:30-10:35	Sample3	300	7500	300	67200	2100	32.000
10:35-10:40	Sample3	180	4500	180	71700	2280	31.477
10:40-10:45	empty			0	71700	2280	31.477
10:45-10:50	empty			0	71700	2280	31.477
10:50-10:55	Sample5	180	13500	180	85200	2460	34.634
10:55-11:00	Sample5	300	22500	300	107700	2760	36.917
							Result: 39.021

Example - Duration-Based Average Response Time Rule with isSampleAndDurationValid and isSampleValid Method Filters

This rule uses both the **isSampleAndDurationValid** and the **isSampleValid** method filters. The code is described in “Example - Duration-Based Average Response Time Rule with isSampleAndDurationValid Method Filter” on page 559 and “Example - Duration-Based Average Response Time Rule with isSampleAndDurationValid and isSampleValid Method Filters” on page 561.

For 10:00 - 11:00, 5 samples exist on the Profile Database:

```
10:00 Sample1 {Sample Fields: dResponseTime = 60, u_Istatus = 0}
10:04 Sample2 {Sample Fields: dResponseTime = 30, u_Istatus = 2}
10:25 Sample3 {Sample Fields: dResponseTime = 25, u_Istatus = 6}
10:38 Sample4 {Sample Fields: dResponseTime = 30, u_Istatus = 1}
10:52 Sample5 {Sample Fields: dResponseTime = 75, u_Istatus = 2}
```

Sample3 did not pass the **isSampleValid** method filter, and Sample4 did not pass the **isSampleAndDurationValid** method filter. The following 3 samples are taken into calculation:

```
10:00 Sample1 {Sample Fields: dResponseTime = 60, u_Istatus = 0}
10:04 Sample2 {Sample Fields: dResponseTime = 30, u_Istatus = 2}
10:52 Sample5 {Sample Fields: dResponseTime = 75, u_Istatus = 2}
```

After the filtering, the interval between Sample3 and Sample4 is considered part of the duration of Sample2, but the interval between Sample4 and Sample5 is not considered part of the duration of Sample4 (filtered by **isSampleAndDurationValid**).

The rule calculation is as follows:

Cycle	samples parameter		Keys set by calculateKPI		Aggregated keys and value set by calculateAggregatedKPI		
	Sample	Sample Duration	totalResponse Time	totalDuration	totalResponse Time	totalDuration	Aggregated Value
10:00-10:05	Sample1	240	16200	300			
	Sample2	60			16200	300	54
10:05-10:10	Sample2	300	9000	300	25200	600	42
10:10-10:15	Sample2	300	9000	300	34200	900	38
10:15-10:20	Sample2	300	9000	300	43200	1200	36
10:20-10:25	Sample2	300	9000	300	52200	1500	34.8
10:25-10:30	Sample2	300	9000	300	61200	1800	34
10:30-10:35	Sample2	300	9000	300	70200	2100	33.429
10:35-10:40	Sample2	180	5400	180	75600	2280	33.157
10:40-10:45					75600	2280	33.157
10:45-10:50					75600	2280	33.157
10:50-10:55	Sample5	180	13500	180	89100	2460	36.219
10:55-11:00	Sample5	300	22500	300	111600	2760	40.434
							Result: 40.434

Examples - API Outage by Samples Rule

This section provides examples of Outage by Samples Rules. The following examples are described:

- “Example - Outage by Samples Rule and Calculation with Default Rule Parameters” on page 563
- “Example - Outage by Sample Calculation with Minimum Duration of 900 Seconds” on page 565
- “Example - Outage by Sample Calculation with Maximum Duration of One Hour” on page 566
- “Example - Outage by Sample Calculation with a Sample Representing Two Failures” on page 567

Example - Outage by Samples Rule and Calculation with Default Rule Parameters

The following section illustrates the Outage by Samples rule, based on the default Outage rule parameters:

Minimum number of failures: 2

Minimum duration: 0

Max duration: undefined

A sample represents one failure if the sample’s `u_iStatus` field value is not 0 or 2. The rule also filters out samples whose `u_iStatus` field value is 6.

```
// Define the sample fields that will be used in the rule calculation.
def sampleFields = ["u_iStatus"];
```

```

/*
 * Implementation of the OutageBySamplesCalculator interface method.
 * If the sample's u_iStatus field value is not 0 or 2, the sample represents 1 failure.
 * In any other case the sample represents no failures.
 *
 * For more information refer to the Rules API documentation.
 */

public void calculateOutage(Outage outage, Sample sample) {
    // Take the sample field's u_iStatus value.
    def statusFieldValue = sample.u_iStatus;
    if(statusFieldValue != 0 && statusFieldValue != 2){
        outage.setNumberOfFailures 1;
    }
}

```

```

/*
 * Override default implementation of the OutageBySamplesCalculator interface method.
 *
 * If the sample's u_iStatus field value is not 0 or 2, the sample represents 1 failure.
 */

public boolean isSampleValid(Sample sample) {
    def statusFieldValue = sample.u_iStatus;
    return (statusFieldValue != 6)
}

```

The following calculation illustrates the above Outage by Samples rule.

For 10:00 - 11:00, 6 samples exist on the Profile Database:

```

10:10 Sample1 {Sample Fields: u_iStatus = 1}
10:20 Sample2 {Sample Fields: u_iStatus = 1}
10:25 Sample3 {Sample Fields: u_iStatus = 6}
10:30 Sample4 {Sample Fields: u_iStatus = 0}
10:35 Sample5 {Sample Fields: u_iStatus = 6}
10:40 Sample6 {Sample Fields: u_iStatus = 2}

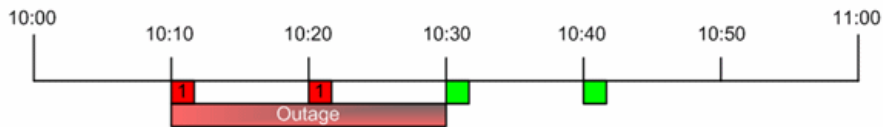
```

Sample3 and Sample5 did not pass the **isSampleValid** method. The following samples are passed to the **calculateOutage** method:

10:10 Sample1 {Sample Fields: u_iStatus = 1}
 10:20 Sample2 {Sample Fields: u_iStatus = 1}
 10:30 Sample4 {Sample Fields: u_iStatus = 0}
 10:40 Sample6 {Sample Fields: u_iStatus = 2}

For Sample1 and Sample2, the following line is invoked inside the **calculateOutage** method: **outage.setNumberOfFailures 1;**

The result of the calculation is the following:



An outage is reported with a duration of 20 minutes, from 10:10 - 10:30.

Example - Outage by Sample Calculation with Minimum Duration of 900 Seconds

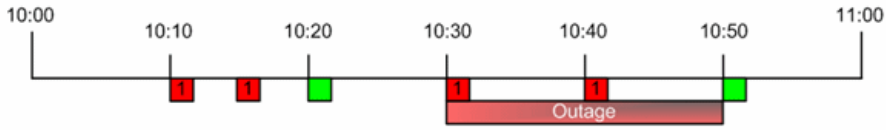
The following calculation illustrates the Outage by Samples rule, based on the following Outage rule parameters:

Minimum number of failures: 2
 Minimum duration: 900 (seconds)
 Max duration: undefined

For 10:00 - 11:00, 6 samples exist on the Profile Database:

- 10:10 - Sample representing 1 failure.
- 10:15 - Sample representing 1 failure.
- 10:20 - Sample representing no failures.
- 10:30 - Sample representing 1 failure.
- 10:40 - Sample representing 1 failure.
- 10:50 - Sample representing no failures.

The result of the calculation is the following:



An outage is reported with a duration of 20 minutes, from 10:30 - 10:50. There is no outage between 10:10 - 10:20 because the outage duration did not reach the minimum outage duration parameter.

Example - Outage by Sample Calculation with Maximum Duration of One Hour

The following calculation illustrates the Outage by Samples rule, based on the following Outage rule parameters:

Minimum number of failures: 2

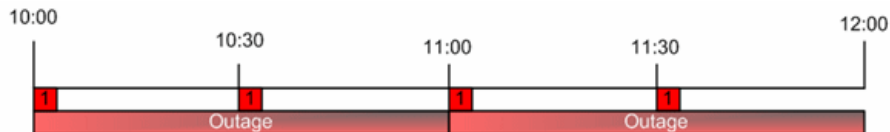
Minimum duration: 0 (default)

Max duration: 1 (hour)

For 10:00 - 12:00, 4 samples exist on the Profile Database:

- 10:00 - Sample representing 1 failure.
- 10:30 - Sample representing 1 failure.
- 11:00 - Sample representing 1 failure.
- 11:30 - Sample representing 1 failure.

The result of the calculation is the following:



Two outages are reported with a duration of 1 hour; the first outage from 10:00 - 11:00, and the second outage from 11:00 - 12:00.

Example - Outage by Sample Calculation with a Sample Representing Two Failures

The following calculation illustrates the Outage by Samples rule, based on the following Outage rule parameters:

Minimum number of failures: 2

Minimum duration: 0 (default)

Max duration: undefined

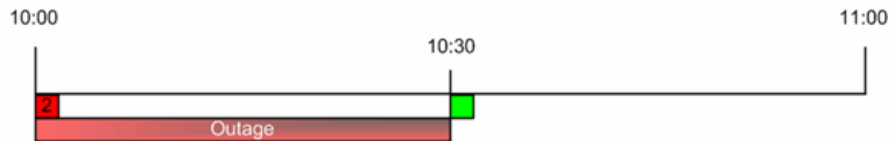
For 10:00 - 11:00, 2 samples exist on the Profile Database:

- ▶ 10:00 - Sample representing 2 failures.

The following line of code is invoked in the **outage** parameter in **calculateOutage** method: `outage.setNumberOfFailures 2;`

- ▶ 10:30 - Sample representing no failures.

The result of the calculation is the following:



An outage is reported with a duration of 30 minutes, from 10:00 - 10:30.

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