HP Smart Plug-in for DB2 Databases

for the UNIX, Linux and Windows operating system

Software Version: 4.00

Administrator's Guide

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Contents

1 Introduction

Audience

This document is meant for the HP Operations Manager Operator acting as the DBSPI Administrator. It explains the configuration and maintenance of the DB2SPI.

Prerequisites

The reader should be familiar with the HP Operations Manager product as well as have some understanding of network setup and maintenance.

Related Documents

This section illustrates what information is available for the NiCE DB2SPI. Most of them are delivered together with the NiCE DB2SPI. On HP Operations Manager for UNIX/Linux systems you may find them at /opt/OV/doc/C/db2spi/.

All Guides may also be downloaded from the NiCE Customer Portal *www.nice.de/login.html*.

The following manuals come with the DB2SPI:

- Installation Guide

  Explains installation and removal of the DB2SPI in HP Operations Manager environments (management server and managed nodes).

- Administrator's Guide

  Explains the basic configuration, deployment and administrative tasks to keep the SPI up and running successfully in the management environment.

- Operator's Guide

  Explains the tasks and applications for the HP OM operator that is responsible for DB2 server monitoring.

- Concepts and Troubleshooting Guide

  Explains the architecture and components of the DB2SPI, the files and directories used and provides sample scenarios for efficient troubleshooting.

- Reference Guide

  Explains the performance data collected, the rules they depend on and the collection characteristics.

- Release Notes

  Gives the most recent information about the product and is updated with every patch released.

In addition to the documentation for the DB2SPI, related HP Software products also provide a comprehensive set of manuals, which aim to assist you in using the products and improving your understanding of the underlying concepts.

Print History

The manual printing date and part number indicate its current edition. The printing date will change when a new edition is printed. Minor changes may be made at reprint without changing the printing date. The manual part number will change when extensive changes are made.

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2 Overview

This section describes what the DB2SPI is, what it can do, and how you can use it to improve the management of your DB2 environment.

What is the DB2SPI?

The DB2SPI is designed to simplify the management and monitoring of DB2 databases by integrating specific DB2 components into HP Operations Manager.

The integration of these two products allows you to use the powerful problem-management features of HP OM to manage and monitor the DB2 environment from one central location.

The DB2SPI provides the following high-level features:

- Monitoring of DB2 log files that relate to serious or critical issues in the DB2 environment

- Monitoring DB2 processes and proper alerting if essential processes are discovered to have died or run in excessive numbers

- Integrating DB2 applications into the HP OM GUI (DB2 administration capabilities)

- Collecting a large amount of performance data at various detail levels

- Threshold monitoring of selected performance data

- Management of DB2 instances and databases

- Integration of DB2 instances and databases into the HP Software Service Navigator (HP OM for UNIX or Linux) resp. the integrated service view (HP OM for Windows), thus treating them as services

- Graphing of collected performance data with HP Performance Manager Software

- Service reports are provided with the HP Reporter Software integration, enabling comprehensive reporting of the DB2 system status

- DB2SPI is "OMi ready", i.e., the events can be forwarded to the OMi integration platform where additional event and status correlations may be executed

DB2SPI Integrations into HP Operations Manager

The DB2SPI consists of various components that are installed or distributed in the managed environment:

- HP Operations Manager intrinsic components, for example policies, tools, node groups.

- Perl scripts, database access libraries and binary programs on the management server and the managed nodes

- A common communication interface for application interaction (ATOP, **A**pplication **T**unnel for **OP**erations) on the management server, the managed nodes, HP OM for UNIX or Linux Java display stations and HP OM for Windows management consoles.

- Reports are provided for the HP Reporter to enable efficient service reporting of performance data and database availability. Note, that the HP Performance Agent (PA, formerly known as MWA) or the embedded performance agent (CODA) is required for that.

- Graphs are provided for the HP Performance Manager to enable the graphical display of current performance data and database availability. Note, that the HP Performance Agent (PA, formerly known as MWA) or the embedded performance agent (CODA) is required for that.

Figure 1: Components of the DB2SPI
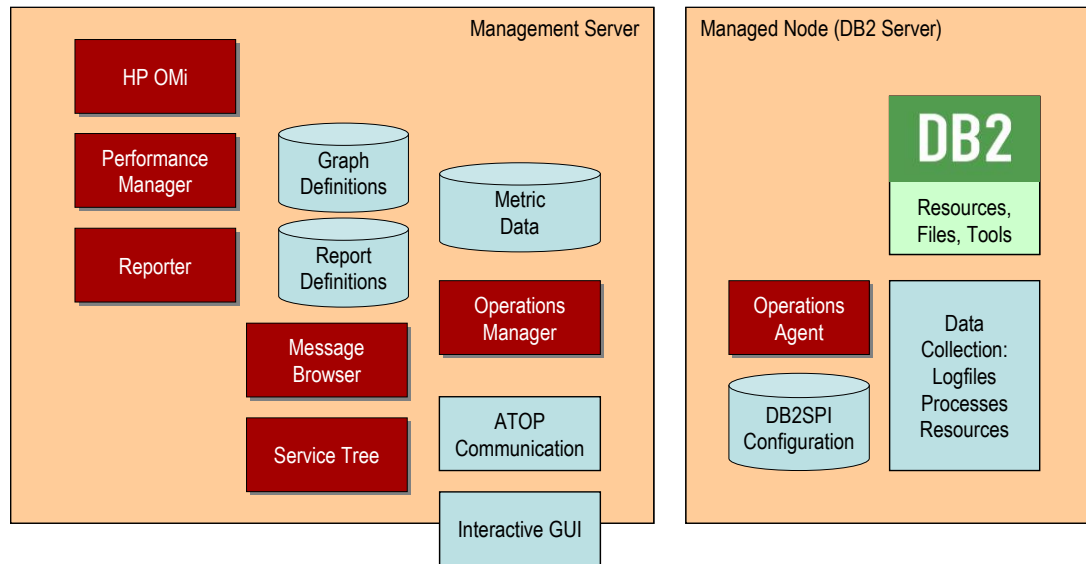
3 Getting Started

This chapter gives a brief outline of the steps required to get the DB2SPI up and running quickly in most environments for the experienced Operations Manager user.

It is strongly recommended to register at the NiCE Customer Portal to obtain the latest news, patches, permanent licenses, contributed software etc. directly from the manufacturer of the product.

The link to the NiCE Customer Portal is: *www.nice.de/login.html*.

Prerequisites and Overview

We assume that the DB2SPI has already been installed on the HP OM management server. If not, please refer to the DB2SPI Installation Guide how to do that.

We also assume that the HP OM user and the related account on the management server have appropriate administrative rights to perform the following actions.

To set up the DB2SPI and see the first messages in the message browser, you need to carry out the following high-level setup steps, each of which is described in detail in the sections that follow.

Note

When working with DB2 installed in a cluster environment, please contact support for more information about the setup.

As there are many different and complex cluster setup options, individual support has proven to be the most efficient approach.

Setup Overview

Figure 2: Setup Steps Overview
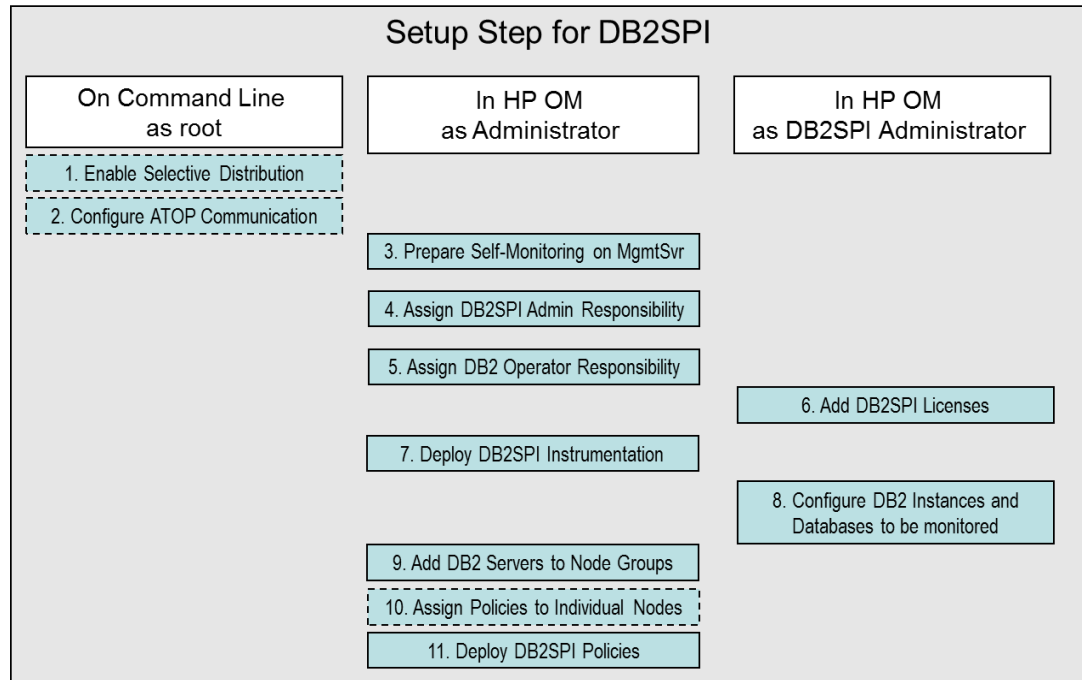
1. Enable Selective Distribution (Optional)

This (optional) step is to make sure that the "Selective Distribution" functionality in the HP Operations Manager for UNIX or Linux gets aware of the DB2SPI.

2. Configure ATOP Communication (Optional)

ATOP uses a separate IP connection for the cross-platform communication between the management server resp. its GUI on one hand and the managed nodes on the other hand.

In most environments, everything is installed and configured automatically. However, if there is a firewall between the HP OM management server, the DB2 server or the HP OM management consoles some additional configuration may be required.

3. Prepare DB2SPI Self-Monitoring on the Management Server

The DB2SPI self-monitoring policies "DB2SPI_ownlog0" needs to be deployed to the OM Management Server.

4. Assign DB2SPI Administrator Responsibility

In this step, you configure one or more Operations Manager users to see DB2SPI-related messages, typically used for the self-management of the DB2SPI, and use DB2SPI administration tools.

5. Assign DB2 Operator Responsibility

In this step, you configure the appropriate Operations Manager users to see DB2-related messages generated by the DB2SPI and use the DB2 relates tools.

6. Add DB2SPI Licenses

Before deploying any DB2SPI components to the managed nodes, you need to install the DB2SPI licenses for your environment on the management server.

Although the DB2SPI will start with a 60-day trial license automatically on the managed nodes, it is best practice to run with the regular licenses from the very start, if they are available already.

7. Deploy the DB2SPI Instrumentation

In this step, you distribute the DB2 management instrumentation provided with the DB2SPI to the DB2 servers, which are HP OM managed nodes.

This includes the ATOP configuration as well as the DB2SPI runtime licenses that are already installed.

8. Configure DB2 Instances and Databases to be monitored

In this most important step, you configure the DB2SPI to recognize the DB2 instances and databases present on the DB2 servers you want to monitor with HP OM. Some other application integrations and options are configured during this step as well.

9. Add DB2 Servers to Node Groups

In this step, you add the DB2 servers you want to manage with DB2SPI to the appropriate DB2 node groups.

10. Assign DB2SPI Policies to individual Nodes

In this step, you may assign the DB2SPI policies to individual DB2 servers you want to be monitored with DB2SPI rather than adding those nodes to the predefined node groups.

11. Deploy DB2SPI Policies

In this step, you distribute the DB2SPI policies to the DB2 servers you want to manage with HP OM.

Setup Steps in Detail

1. Enable Selective Distribution (Optional)

This step is applicable only on HP OM for UNIX or Linux in case you are using the selective distribution configuration file `/etc/opt/OV/share/conf/OpC/mgmt_sv/seldist`

The DB2SPI uses a common naming approach for all scripts and binaries that need to be deployed to the managed nodes in order to take use the "selective distribution" methods in HP OM for UNIX or Linux.

From the **command line** run the `opcseldist` utility with proper permissions to re-configure the distribution manager (opcdistm):

`/opt/OV/bin/OpC/utils/opcseldist -reconfig`

This allows the opcdistm process to reread the `seldist` configuration file without restarting the HP OM management server.

2. Configure ATOP Communication (Optional)

ATOP uses a separate IP connection for the cross-platform communication between the management server resp. its GUI on one hand and the managed nodes on the other hand.

As a default, ATOP uses port 55551 for the server communication. This port must be open throughout all firewalls as well as on the managed nodes and the OM management server.

Changing the default Port

If this port should not be suitable, you may change it with the help of a command line tool, db2s_atopcfg.pl, available on the management server after installation of the DB2SPI:

`db2s_start db2s_atopcfg.pl -sp <yourport>`

This command simply changes the server port to the specified value in all ATOP configuration files that are being used on a DB2 server at a later time, including the management server.

Details can be found in the DB2SPI Installation Guide, Appendix B: "ATOP".

Activating changed ATOP Configuration Data

ATOP configuration changes must be distributed within the managed environment to make sure communication is possible, especially if port numbers have been changed.

Three locations therefore require the updated information.

- Management Server

The ATOP server executing there consumes the "master copy" of the ATOP configuration file and needs no special attention.

— In OM for UNIX or Linux, it is a registered OV service it needs to be restarted after the configuration file has been changed:

In a terminal session on the management server, enter

`ovstop atop_server`
`ovstart atop_server`

to achieve this. Make sure you have been successful by entering

`ovstatus atop_server`

— In OM for Windows, re-start the "ATOP2 Server" service set up during installation.

Note:

No ATOP application windows should be open at the time of re-starting the ATOP server; depending on the configuration changes that might lead to unpredictable results.

- Managed Nodes

These nodes get updated with the regular distribution mechanism of Operations Manager, i.e., via "Deploy Configuration" from the Operations Manager administrator GUI.

- Java Display Stations of OM for UNIX or Linux and OM for Windows Remote Consoles

For the Java Display Stations and OM for Windows Remote Consoles there is no update method today.

So, when changes are done on the management server, the configuration file `/opt/OV/atop/bin/atopsrv.cfg` needs to be transferred manually to `%OvInstallDir%\bin\DB2SPI`.

Do not forget to re-start the "ATOP2 Server" application on Windows systems after a change to the ATOP configuration file.

3. Prepare DB2SPI Self-Monitoring on the Management Server

Most of the DB2SPI functionality is implemented on the DB2 servers (our managed nodes). But there are also components of the DB2SPI that reside on the HP OM management server, like the service tree calculation and maintenance parts.

Hence the DB2SPI log file on the management server should be monitored using a log file policy.

However, to make use of this functionality, the management server must be a managed node itself. It is not necessary to deploy DB2SPI related instrumentation to the management server for this monitoring.

To monitor the DB2SPI log file on the management server, the policy DB2SPI_ownlog0 has to be deployed to the management server node.

- On HP OM for UNIX or Linux, this policy is automatically assigned to this node during installation of the SPI, it only needs to be deployed to it.

- On HP OM for Windows, this policy has to be deployed explicitly. It is available in the Policy Group SPI for DB2->DB2SPI MgmtSvr. It is recommended to associate this policy group with the Management Server node.

"SHS Data Collector" Category

HP OM provides a framework for its Self-Healing Service in the category "SHS Data Collector". This category needs to be assigned and deployed, before executing the DB2SPI SHS tools.

- Assign the category "SHS Data Collector" to the system. (OM for Unix/Linux only)

- Deploy instrumentation of this category to the OM management server.

4. Assign DB2SPI Administrator Responsibility

Assignment in HP OM for UNIX or Linux

The installation of the DB2SPI on a HP OM for UNIX or Linux adds two new, DB2-specific user profiles to the HP OM user profile bank, the <u>DB2SPI Admin Profile</u> and the <u>DB2 Operator Profile</u>.

You can use the DB2SPI Admin Profile to create a new **HP OM user** whose role will be to manage the DB2SPI itself.

Alternatively, you can use the DB2SPI Admin Profile to expand an already existing operator's responsibilities to include the management of the DB2SPI.

This HP OM user will then be able to see all messages from all nodes in any `DB2` node group with the message group `DB2SPI.`

Note, that the management of the DB2 databases is performed via the DB2 operator profile described in "5. Assign DB2 Operator Responsibility".

The user with the DB2 operator profile will see all messages in any DB2 node group that are sent for the DB2 message group.

Assignment in HP OM for Windows

To assign the DB2SPI Administrator user role to an existing **Windows User**:

1   In the OM for Windows HP Operations Manager Console, open the "User Roles Editor".

2   Select the "DB2SPI Administrator Role" and click on "Properties".

3   In the "Users" tab you can now assign this role to certain Windows Users. Click on the "Add" button and select the user you want to assign this user role to. Click on "Add", then on "OK".

Note:

You can only assign a user role to users which are in the HP-OVE-OPERATORS user group (see also HP OM for Windows documentation).

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5. Assign DB2 Operator Responsibility

Assignment in HP OM for UNIX or Linux

You can now use the DB2-specific user profile to create a new **HP OM user** whose role will be to manage the DB2 servers.

Alternatively, you can use the DB2 operator profile to expand an already existing operator's responsibilities to include the management of the DB2 servers. This enables the operator to see all messages from all nodes in any DB2 node group with the message group DB2.

Assignment in HP OM for Windows

To assign the DB2 Operator user role to an existing **Windows User**:

1   In the OM for HP Operations Manager Console, open the "User Roles Editor".

2   Select the "DB2SPI Operator" Role and click on "Properties".

3   In the "Users" tab you can now assign this role to certain users. Click on the "Add" button and select the user you want to assign this user role to. Click on "Add", then on "OK".

> **Note:**
> **You can only assign a user role to users which are in the HP-OVE-OPERATORS user group (see also OM for Windows documentation).**

6. Add DB2SPI Licenses

All DB2 servers monitored with the DB2SPI need to have an appropriate runtime license. This is a node-locked license, which is checked by the DB2SPI whenever access to DB2 is requested via the DB2SPI.

There is only one global license file per management domain, holding all runtime licenses that have been purchased. This file is distributed to the managed nodes together with the "instrumentation" with standard HP OM means.

In order to add new runtime licenses to the global license file, a tool called "License Add" is available in the DB2SPI Admin group.

In order to install new runtime licenses, the following steps must be performed:

- Start the ATOP Server on the local machine. There is no need to stop it until the local machine is shut down. This step is not necessary on HPOM for Windows Remote Consoles.

- Locate the tool "License Add" in the DB2SPI Admin group.

- HP OM for Unix/Linux
    — Use the "Start Customized" option and go to step 3.
    — Enter the path to file holding the new licenses in the field "Additional parameters" and press "Finish". The license file needs to be stored on the HP OM management server.

- HP OM for Windows
    — Double click on the tool "License Add".
    — Enter the path to file holding the new licenses in the field "Parameters" and press "Launch". The license file needs to be stored on the HP OM management server.

- Read and accept the license terms that are shown in the ATOP window.

Only if the license terms have been accepted, the new licenses will be added to the global license file. In the next step, the global license file will be deployed together with the DB2SPI instrumentation to the DB2 Servers.

7. Deploy the DB2SPI Instrumentation

Deployment to Managed Nodes of HP OM for UNIX or Linux

In order to activate the functionality provided with the DB2SPI, you need to deploy the instrumentation of the DB2SPI category to the managed nodes, which host the DB2 servers.

Select the DB2 server and choose "Assign Categories" from the Action Menu.

Select the following categories:

- DB2SPI
- SHS Data Collector (required for SHS tools)
- SPIDataCollector (required for storing performance data)

and click "OK".

Choose "Deploy Configuration" from the Action Menu to deploy **instrumentation, monitors** and **cmds**.

Note:

Make sure to deselect "Policies" in the Deployment window. You should <u>not</u> distribute the DB2SPI <u>policies</u> at this point in time to a DB2 server.

This is because the DB2SPI is able to recognize and manage multiple DB2 instances and you need to configure DB2SPI components to recognize the multiple instances <u>before</u> you activate monitoring on the DB2 servers by distributing the DB2SPI policies.

If you accidentally distribute the DB2SPI policies, undo it. For this purpose, de-assign the node from the DB2SPI node group, re-distribute policies and then start over.

Alternatively, you may also launch the tool "DB2SPI Disable" to stop all HP OM agent related activities.

Deployment to Managed Nodes of HP OM for Windows

When using HP OM for Windows, right-click on the managed node (DB2 server) in the Console Tree and select "All Tasks → Deploy Instrumentation". You need to deploy

- DB2SPI

- SHS Data Collector (required for SHS tools)
- SPI Data Collector (required for storing performance data)

8. Configure DB2 Instances and Databases to be monitored

Any number of DB2 instances can be active on a DB2 server at any time. All or any combination of these instances might be monitored and maintained by HP Operations Manager.

In this section, you use the DB2SPI administrator's tool "Config Setup" to tell the DB2SPI, which DB2 database instances are to be monitored using DB2SPI and HP OM. If you have not done so, start the ATOP Server on your local system now. Only if you're not in using the HPOM for Windows Management Server or a HPOM for Windows Remote Console.

Due to the determination of the various DB2 entities and parameter during this configuration process, the database system must be up and running.

Before starting the configuration, make sure that DB2 is up and running.
For all instances to be monitored the "START DATABASE MANAGER" must have been given.

Configuration Setup Checklist

The following check list may be helpful to define the information that will be required during the initial configuration of the DB2SPI on the managed node.

Just print the next page and fill in the information for the DB2 server to be monitored.

You may keep this sheet as a reference then.

Table 1: Configuration Setup Checklist

For DB2 servers running on Windows:	
Localization of the DB2 installation:	US / DE / FR ?
For all DB2 server:	
Which instances should be monitored?	
Name	Verify that it has been started
Which databases should be monitored and should a different user be used for monitoring?	
Name	Excluded from monitoring? Y / N Different User? User/Password
	Yes / No / User/Password
	Yes / No / User/Password
	Yes / No / User/Password
	Yes / No / User/Password
	Yes / No / User/Password
	Yes / No / User/Password
	Yes / No / User/Password
	Yes / No / User/Password
Global configuration for all instances and databases	
Should DB2 be integrated into the HP Performance Agent for system resource utilization? (scopeux)	Yes / No
Should DB2 replication be monitored?	Yes / No
Capture path	

Apply path	
Define the time frame for the graphical data store: Required disk space is estimated after selection, with the option to change the selected range if the amount seems to be too much.	1 month 3 months 6 months 1 year

Non-root HP OM Agent on UNIX Nodes

If you are applying a non-root agent approach on your DB2 server, read on.
Otherwise, you may safely ignore this section and proceed to the next section.

If you are running the HP OM HTTPS agent on the managed in a non-root account (UNIX nodes only), you have to take an additional step before any DB2SPI tool can be executed. In this step the instance users are defined that the DB2SPI may switch to in order to connect to the databases.

After the Operations Manager agent has been switched to a non-root account by the ovswitchuser command, the following steps need to be performed on the managed node. Note that the DB2SPI can neither be configured nor operated in non-root agent environment without having executed this preparation.

These steps must be performed every time when agent user was switched:

1   Login on the managed node as user 'root'.

2   Change directory to the instrumentation directory (/var/opt/OV/bin/instrumentation)

3   Run `db2s_start db2s_root.pl`

4   Edit `/etc/db2spi.su` file to add all instance users of the instances that the DB2SPI should be monitoring. Do not forget to update this file when adding new instances.

   To allow executions for any commands as instance user db2inst1, please add '*' separated from the user name by a colon.

   For example, add your instance user db2inst1 to this file like this:

   `db2inst1:*`

   Now the DB2SPI will operate with the necessary rights.

Instance Configuration

The configuration of the managed instances and databases is the most important step on each DB2 server to be monitored. Normally, this is executed only once after proper planning what is to be managed and what not.

We therefore describe all steps in great detail.

At the end of this section (see "Instance Configuration Setup Example") a log recorded during a setup session is available that may help to see the steps in overview.

Please note that although the DB2SPI provides an auto-discovery of the instances available on the DB2 server, there is no automatic monitoring enabled for them. The user has to decide whether the instances shall be monitored.

Note:

If the DB2 "Config Setup" is not executed correctly, errors or warning are displayed and you might be unable to execute any other DB2SPI applications on the DB2 servers.

In addition, the DB2SPI will not be able to monitor the different DB2-related log files and processes on the DB2 server or collect performance data.

Also, strange message may appear in the log files and / or message browser.

To track any issue during this important phase, lots of information is collected in the log file and a separate trace file.

Upfront Checks and Preparations

When executing the "Config Setup" tool, it first checks if any DB2SPI policies are active. If so, they are all disabled, because the configuration cannot be established or replaced while they are running.

It also checks if a DB2SPI license file is available. If no license file should be found on the managed node, the setup will install a 60-day trial license Note that this type of license can only be extended by request to the manufacturer of the software as described in "Obtaining valid DB2SPI Licenses" on page 45.

Language Selection

The DB2SPI is equipped with message sets for different languages on Windows based DB2 servers.

As the very first step you have to decide about the language of your installation. A list is shown with the languages supported and you may select one of them.

Definition of the Instance Scope and Monitored Entities

The configuration of the DB2SPI is the definition of those DB2 entities that shall be monitored. It consists of two steps:

- Discovery and definition of the DB2SPI instance scope
- Selection and configuration of the DB2SPI monitored entities

The <u>instance scope</u> contains the list of instances that shall be visible to the DB2SPI. It does not make any assumptions about entities that belong to these instances. So this is kind of a high-level filter for the highest DB2 entity available.

After definition of the instance scope, the <u>included sub-entities</u> are detected and added to the monitored environment.

Sub-entities are:

- databases
- partitions
- tablespaces
- bufferpools
- DB2 processes

The DB2SPI also determines the DB2 edition, version and patch level as well as the installation paths and log file paths for all instances automatically.

All entities of the instance configuration may be modified at a later time. The DB2SPI administrative tools "Discovery Filter" and "Entity Filter" may be used. See "Maintaining Instance Monitoring " on page 52 for details.

Definition of the DB2SPI Instance Scope

After the instances have been discovered the "Config Setup" tool shows all available instances on the DB2 server as a numbered list and the user may decide which instances should be visible to the DB2SPI and belong to the instance scope.

By default the instances detected are not visible to the DB2SPI. This is represented by a '(-)' following the name of the instance. To monitor an instance it must be made visible to the DB2SPI. This can be achieved by the option "switch the visibility state of an existing instance".

After making all instances visible that should be monitored by the DB2SPI, the user may proceed with the setup by selecting "continue with

`DB2SPI setup"`. Now the sub-entities of all visible instances will be discovered.

To change the Instance Scope of the DB2SPI at a later time use the DB2SPI Admin tool "Discovery Filter".

Configuration of DB2SPI Monitored Entities

The visible instances ("Instance Scope") are listed once more. Now their actual monitoring can be enabled or disabled.

By default, instances are not monitored; hence they must be enabled by the user. When enabling monitoring for an instance, all its discovered sub-entities are set to "monitored".

If any of these entities should not be monitored, use the DB2SPI Admin tool "Entity Filter" to switch off monitoring.

Please keep in mind the different aspects of an instance, their visibility status versus their monitoring status.
Switch visibility with the DB2SPI Admin tool "Discovery Filter".
If visible, switch monitoring with the DB2SPI Admin tool "Entity Filter".

Further Configuration for Databases

At this point in time, you may elect to do further monitoring. This includes:

- Specify a database user and his password
- Exclude databases from monitoring

Specify Database User and Password

Specifying the database user and his password avoids using the instance user for database access. In some environments the instance user should only be used for administrative tasks and does not have access rights for its databases.

In case of remote databases, it is required to specify the database user and his password, since the local instance user has no rights to it at all.

The password will be stored in an encrypted file together with the configuration information. While typing the password, it is readable during the configuration setup, and it is also readable in the "Entity filter" tool.

Exclude Databases from Monitoring

By default, all databases of a monitored instance are enabled for monitoring.

However, you may select databases that shall be excluded from monitoring from the very start during the configuration setup. A question is asked if any such exclusion is to be performed.

Each database available in the respective instance is shown and you may decide if this database shall be excluded or not.

- Answer "y" (yes) if you want exclusion from monitoring (no messages, no performance data from this database)

- Answer "n" (no) if you want it to be monitored.

Excluded databases as well as instances may be included later on easily with the help of the DB2SPI Admin tool "Entity filter".

Performance Data Collection Setup

On most platforms, performance metrics can be collected with the embedded performance agent (CODA). In some cases, you can select integration into standard collector SCOPEUX.

SPI Data Collector Requirement

During the configuration of the instances to be monitored the following steps are taken automatically for the setup of performance data collection:

- Determination of the DDF-Tools availability (i.e. script ddfcomp from SPI Data Collector) on the managed node. If they don't exist during setup, no metric data will be stored for reporting or graphing!

  These tools should be available after deploying "SPI Data Collector" instrumentation that comes with the HP instrumentation.

- If available, set up specific data source descriptions for all configured instances to collect data for both HP PM and HP Reporter analysis.

- Shutdown and restart PA (if configured) to make it aware of the new configuration. This is done automatically on UNIX systems and has to be done manually on Windows systems.

If ddfcomp cannot be detected, no data collection will take place. Only OM based metric threshold monitoring (alarming) will be available, but no graphs, reports or history collection. A message about the omission of the metric collection setup is provided in this case.

Disk Space Requirements

The DB2SPI may collect a significant amount of data from tablespace monitoring in a so-called "drilldown" database. This is especially true for configurations that consist of a large number of DB2 tablespaces (more than 100). We have verified that the DB2SPI can collect data for as much as 3000 tablespaces.

In order to limit the file holding the collected data, the user is asked to select from a 1 / 3 / 6 / 12 month timeframe for the data collection in this drilldown database.

As a rule of thumb: For 88 tablespaces, DB2SPI requires 256 Mb of disk space per month.

The space required for the actual configuration (i.e., considering the monitored databases and their sub-entities, down to the tablespace level) is calculated by the "Config Setup" tool and is displayed for your convenience. If the estimated disk space is too much, it is still possible to reduce the chosen timeframe.

Another option to preserve disk space is to waive the performance data stored in the drilldown data store that is used for HP Reporter. Without the drilldown data store alarming and graphing will still be possible while requiring much less disk space.

Please see section "Switch off Drilldown Data Store" for further information.

DB2 Replication Monitoring

The "Config Setup" tool then asks if DB2 SQL Replication should also be monitored.

If answered "n", the respective DB2SPI component is disabled. Please note that it cannot be switched on at a later time without doing the complete configuration again.

If answered "y", a discovery is performed for all "Capture" schemata and "Apply" qualifiers defined on the node of our server. Configuration information is stored for the log file monitoring of DB2 Replication at a later time.

Discovery of DB2 Log Files and Finishing Setup

After these user actions, the DB2SPI continues to discover various additional configuration data automatically and directly from DB2:

- Location and name of administrative log files
- SQL capture and apply paths if SQL replication is setup and monitoring desired

After successful completion of DB2 instance setup, the tool "Config Setup" lists some additional activities that it has performed.

Note: Strange characters might appear at certain phases during the setup.

This happens if an instance user has a profile with 'Startup Screen' or alike. Since we switch into the instance user context, such user profile output may disturb the output of the tool.

Instance Configuration Setup Example

A typical "Config Setup" session is shown next. All user entries are printed in bold type.

```
This operation may take some time, because we must
synchronize this action with the OVO agent
Running preliminary DB2 instance discovery
INFO: No DB2SPI instance scope configuration file yet

The following DB2 instances are in DB2SPI's instance scope:
   1. db2inst1  (-)
   2. db2inst2  (-)

Please choose your action:
   1       add instances to DB2SPI's scope
   2       switch the visibility state of an existing instance
   3       continue with DB2SPI setup
Enter one index: 2

Please select the instance to switch the visibility state for
   1       db2inst1
   2       db2inst2
   3       db2inst3
Enter one index: 1
Visibility will be set to 'on' for instance 'db2inst1'
Is this correct? [y|n]: y

The following DB2 instances are in DB2SPI's instance scope:
   1. db2inst1  (+)
   2. db2inst2  (-)
   3. db2inst3  (-)

Please choose your action:
   1       add instances to DB2SPI's scope
   2       switch the visibility state of an existing instance
   3       continue with DB2SPI setup
Enter one index: 2

Please select the instance to switch the visibility state for
   1       db2inst1
   2       db2inst2
   3       db2inst3
Enter one index: 2
Visibility will be set to 'on' for instance 'db2inst2'
Is this correct? [y|n]: y

The following DB2 instances are in DB2SPI's instance scope:
   1. db2inst1  (+)
   2. db2inst2  (+)
   3. db2inst3  (-)

Please choose your action:
   1       add instances to DB2SPI's scope
   2       switch the visibility state of an existing instance
   3       continue with DB2SPI setup
```

```
Enter one index: 3
Searching for instances and databases (please be patient) ...

Please enter the numbers for the instances to be monitored
(separated by space)
   1     db2inst1
   2     db2inst2
Enter indexes: 1 2
The following databases have been found for instance 'db2inst1':
  DB2_105

Do you want to exclude some databases from being monitored or
define a specific monitoring account for any of them? [y|n]: y
Database 'DB2_105' has user '?' and password '?' set Do you want
to change/set this user/password?
 [y|n]: y
Enter the name of the database access user
db2v105
Enter the password
db2v105
Set user/password for 'DB2_105' to 'db2v105/db2v105'
Switch database 'DB2_105' to 'not monitored'?
 [y|n]: n
Database 'DB2_105' will be monitored
Database base filter has been completed

The following databases have been found for instance 'db2inst2':
  SAMPLE

Do you want to exclude some databases from being monitored or
define a specific monitoring account for any of them? [y|n]: y
Database 'SAMPLE' has user '?' and password '?' set Do you want
to change/set this user/password?
 [y|n]: n
Switch database 'SAMPLE' to 'not monitored'?
 [y|n]: y
Database 'SAMPLE' will not be monitored


Database base filter has been completed
Do you want DB2 to be integrated into OVPA standard collector
SCOPEUX for system resource utilization?
 [y|n]:y
SCOPEUX integration has been established

Shutting down OVPA collection software
        Shutting down scopeux, pid(s) 13725
        Waiting on 13725  (10 more tries)
        The OVPA collector, scopeux has been shut down
successfully.
NOTE:   The Transaction Tracking daemon, ttd  will be left
running. pid 13701
```

```
The OVPA scope collector is being started.
        The Transaction Tracking daemon
        /opt/perf/bin/ttd, is already running.
        It will be signaled to reprocess its configuration
file.

        The performance collection daemon
        /opt/perf/bin/scopeux has been started.

Do you want to monitor SQL replication? [y|n]: n
Adding performance measurement ...

Reporting Data Store 'DB2_SPI' will occupy 1.2881 MB of disk
space for the default buffering of 7 days.

Graphing Data Store will occupy 4.0303 MB of disk space for the
default buffering of 31 days.
Enter time frame for graphing data store [1M,3M,6M,1Y] >1M

Graphing Data Store will occupy 4.0303 MB of disk space for the
default buffering of 31 days.
Do you want to proceed with this selection? [y|n]: y
 Creating datasource 'DB2_SPI_GRAPH' ...
Looking for all bufferpools and tablespaces now ...

Reporting Data Store 'DB2SPI_DrillDown' will occupy 8.3633 MB of
disk space for the default buffering of 7 days.

Thank you, initialization finished. Configuration is in
'/var/opt/OV/conf/db2spi/db2s_instances.cfg'

Message interface opcmsg(1) is unavailable / cannot be used

Press any key to close the window ...
```

9. Add DB2 Servers to Node Groups

The DB2SPI comes pre-configured with a set of platform-specific node groups
for the DB2 servers. These node groups are automatically assigned to the
DB2SPI Core policy group groups and to the default DB2SPI user profiles.

In this step, you may add the DB2 servers to the appropriate operating
system specific nodes group, namely:

- DB2-UNIX
- DB2-WINDOWS

With HP Operations Manager for UNIX or Linux, you may do this assignment at any time, as this does not imply any deployment or other action.

However, this default node-group configuration is not required by the DB2SPI. If you prefer to set up special assignments for your own environment, or need more limited management capabilities, or perhaps simply for test reasons, you can choose to do without the default DB2SPI node groups.

Adding Nodes to DB2 Node Groups in HP OM for Windows

Make sure that you have set up the DB2SPI configuration on the DB2 node before you add the node to a DB2SPI node group. Otherwise, you will immediately see some error messages in the message browser for this node.

To add a DB2 server running on HP-UX to the correct node group:

1   In the OM for Windows Console, open the "Nodes Editor".

2   In the Node tree, drag and drop the node on the DB2-UNIX Node Group. (Alternatively create a shortcut to the node group.)

3   The DB2SPI Core policy group is automatically deployed to the node, after the node was added to the DB2SPI node group.

10. Assign DB2SPI Policies to individual Nodes (Optional)

Usually, you will have all your DB2 servers in the appropriate default node groups as described in "9. Add DB2 Servers to Node Groups". However, you may also want to assign the policy groups (or even individual policies) to a specific DB2 server. If there is no need to add individual nodes, you may skip this chapter.

With HP Operations Manager for UNIX or Linux, you may do this assignment at any time, as this does not imply any deployment or other action.

Individual Assignment in HP OM for Windows

Make sure that you have set up the DB2SPI configuration on the DB2 node before you assign DB2SPI components to it in the OM configuration. Otherwise, you will immediately see some error messages in the message browser for this node.

Use the OM for Windows Console to assign the appropriate DB2SPI policies to the managed nodes (the DB2 servers), as follows:

1 In the "Policy deployment" section of the Console Tree, right-click the DB2SPI policy group or specific policy you want to deploy and select "All Tasks → "Deploy on".

2 Select the node(s) you want to deploy the policies to and click on "OK".

11. Deploy DB2SPI Policies

After configuring the DB2SPI to recognize the DB2 instances running on the DB2 server you want to monitor with the HP Operations Manager and assigning the DB2SPI policies, you need to distribute the DB2SPI policies to the DB2 servers, as follows.

Deploying the DB2SPI policies to the DB2 server immediately activates the monitoring on the DB2 server.

Deployment to Managed Nodes of HP OM for UNIX or Linux

Make sure you have deployed the instrumentation to the managed nodes, which host the DB2 servers, as explained earlier.

Choose "Deploy Configuration" from the Action Menu of the relevant node and check the "Policies" box to deploy the policies.

Deployment to Managed Nodes of HP OM for Windows

You can deploy policies by doing one of the following:

- Add the DB2 server node to the appropriate DB2SPI node group. In this case the policies get automatically deployed to this managed node.

- Manually deploy the appropriate DB2SPI policy group or specific policies (depending on the managed node platform).

4   Optional DB2SPI Configuration

Using Several Metric Thresholds

By default, there is only one set of thresholds for each policy. When monitoring DB2 servers, instances or databases with different functions, it is helpful to give them different thresholds appropriate to their function.

Depending on the DB2 object level of here are several methods to do so:

DB2 object level	Method
DB2 server / OM managed node	Policy Prefix
DB2 instance	HP OM Filter for Message Object
DB2 database	HP OM Filter for Message Object

Policy Prefix

The DB2SPI uses fixed names for the metric threshold monitor policies in OM for UNIX or Linux and OM for Windows. These names are internally configured and hence apply to all managed systems in a similar way.

The Policy Prefix allows prefixing the names of these policies with a string freely definable, thus making it possible to maintain different sets of threshold monitors.

Usage in the DB2SPI

This can be used in the DB2SPI easily by copying the measurement threshold policies to a new name with a freely definable prefix: `MYDEV_<original_name>`, for example.

Call Syntax

Now the schedule policies collecting the DB2SPI metrics `DB2_Collect_*` need to be adapted accordingly. The schedule policy command calls the DB2SPI script `db2s_db2mon.pl` with the list of metrics to be collected.

There you may pass a `-t <prefix>` parameter before the list of metrics in the command line like:

db2s_dbmon.pl -t MYDEV_ -metrics <metric_list>

or

db2s_fsize.pl -<logfile parameter> -t MYDEV_

This will forward all values determined for the metrics listed to respective
threshold monitors which are named MYDEV_<original_name>.

> **Make sure that you will deploy only one set of metric schedule policies to the
> nodes, according to their "threshold set" desired.**

Note that all instances and databases on a given system will use the same
policies; there is no instance or database specific distinction possible with this
method.

HP OM Filter for Message Object

To specify different thresholds for DB2 instances, databases, even bufferpools
or tablespaces, use the Instance Filter mechanism available in the HP OM
Measurement Threshold Policies.

In the "Threshold" (OM for Unix and Linux) or "Threshold Level" (OM for
Windows) choose "Use Instance Filter" (OM for Unix and Linux) or "Specify
Instance Filter" (OM for Windows).

There you need to enter a pattern matching string that matches those DB2
instances or databases from the Message Object string that should comply
with this threshold.

DB2SPI Message Objects

The DB2SPI Message Object string is constructed in a fixed way that allows
pattern matching for instances, databases, buffer pools and table spaces.

Take a look at DB2SPI messages to find out the correct upper/lower case
spelling of the DB2 objects you want to monitor with Instance Filters.

Instances

For Policies monitoring the DB2 Instances with metric numbers '1xxxx':

DB2:<$MSG_NODE_NAME>:<$OPTION(inst)>

Use pattern matching string "DB2:<*.node>:db2inst1" to match all messages
from db2inst1 for example.

Databases

For Policies monitoring the DB2 Instances with metric numbers '2xxxx':

DB2:<$MSG_NODE_NAME>:<$OPTION(inst)>:<$OPTION(db)>

Use pattern matching string "DB2:<*.node>:db2inst1:SAMPLE" to match all messages from database SAMPLE on db2inst1 for example.

Tablespaces

For Policies monitoring the DB2 Instances with metric numbers '5xxxx':

```
DB2:<$MSG_NODE_NAME>:<$OPTION(inst)>:<$OPTION(db)>:
<$OPTION(ptn)>:TABLESPACES:<$OPTION(ts)>
```

Use pattern matching string "DB2:<*.node>:db2inst1:SAMPLE:node000:TABLESPACES:USERSPACE1" to match all messages from table space USERSPACE1 in database SAMPLE on db2inst1 for example.

Bufferpools

For Policies monitoring the DB2 Instances with metric numbers '6xxxx':

```
DB2:<$MSG_NODE_NAME>:<$OPTION(inst)>:<$OPTION(db)>:
<$OPTION(ptn)>:BUFFERPOOL:<$OPTION(bp)>
```

Use pattern matching string "DB2:<*.node>:db2inst1:SAMPLE:node000:BUFFERPOOL:IBMDEFAULTBP" to match all messages from buffer pool IBMDEFAULTBP on database SAMPLE on db2inst1 for example.

Suppressing Unwanted Messages from "su" Monitoring

The DB2SPI sometimes has to switch the user environment in order to execute particular applications properly. Since the 'root' user on the DB2 server is involved in this action, entries are generated in a system log file, indicating that a "su" event has taken place.

If messages of this kind appear on your system, take a look at the policy generating this message and create a new condition to suppress messages originating from DB2SPI activities.

This is similar to what Operations Manager uses on the management server itself to drop "su" events for his own database actions in the ORACLE environment.

Running the Agent in a non-root Account

The Operations Manager agent can be configured to run in a non-root account on a HTTPS agent managed node. This has quite some impact upon the

DB2SPI, because this usually disables the direct "su" capability required to switch to the proper DB2 user environment.

However, a tool is available with the DB2SPI that can be executed to enable such functionality even for non-root HTTPS agents.

After the Operations Manager agent has been switched to a non-root account by the ovswitchuser command, the following steps need to be performed on the managed node.

Note:

These steps are required if the DB2SPI is freshly deployed to such a managed node before any DB2SPI activities including "Config Setup" are performed or immediately after the agent has been switched to non-root.

Steps:

1 Login on the managed node as user 'root'.

2 Change directory to the instrumentation directory (/var/opt/OV/bin/instrumentation)

3 Run db2s_start db2s_root.pl

4 Edit /etc/db2spi.su file to add allowed users.

To allow executions for any commands as instance user, please use '*'

For example, add your instance user to this file like this:

db2inst1:*

Now the SPI will operate with the necessary rights.

These steps must be performed every time when the agent user has been switched.

In the **db2spi.su** file, you have to enter the instance user names of all instances you want to monitor with the DB2SPI. Do not forget to update this file when adding new instances.

Executing the tool "Config Delete" to remove the DB2SPI configuration does not delete **/etc/db2spi.su**. It has to be removed manually using an account with appropriate rights (root).

Manual Replication Monitoring Setup

This section describes how to set up replication monitoring, even if it has not been configured during the initial "Config Setup". The following steps are necessary to enable replication monitoring:

- Enable Monitoring

    — Edit the file **db2s_spi.cfg**, which can found in the configuration directory of the DB2SPI (Different locations on different platforms.

    — Look for the line: DB2SPI_REPLICATION_MONITOR OFF

    — Change this to "ON"

    — Save and close this file

- Register paths to replication log files

    — Look for the configuration file **db2s_replicpath.cfg** in the same folder as **db2s_spi.cfg**

    — If it does not exist, create an empty file **db2s_replicpath.cfg**

    — Enter the paths to the directories where your capture and apply log files reside. Do not include the filenames or a trailing line!

    — Save and close this file

After that the DB2SPI will automatically scan the directory for log files and add them for monitoring.

Note:

Expect the first messages after two log file scan cycles have been completed (typically 40 minutes).

DB2SPI Operation during DB2 Maintenance

In case DB2 has to go into maintenance mode for a Fix Pack upgrade, offline backup, etc. it is recommended to disable monitoring for the affected instance.

Before taking a DB2 instance offline (db2stop), all applications must be disconnected. The DB2SPI must be regarded as a DB2 application and should be stopped from attaching to the instance where the outage is planned.

There are two recommended ways to achieve this:

Disable the entire DB2SPI

Use the "DB2SPI Disable" tool or the following command on the command line of the DB2 server:

`db2s_start db2s_db2spi.pl off`

To switch on DB2SPI monitoring after the DB2 maintenance is finished and all instances are running again, use the tool "DB2SPI Enable" or the following command on the command line of the DB2 server:

`db2s_start db2s_db2spi.pl on`

Note:

When using the "DB2SPI Disable" or "DB2SPI Enable" tool, the ATOP Server on the local display station (Java GUI) needs to be running. This does not apply to HPOM for Windows Remote Consoles.

The Enabling / Disabling may take a while to complete as the proper synchronization points in the operation of the HP OM agents processing the policies have to be reached.

Enabling / disabling determines all policies that have "DB2SPI_PerfLogger", "DB2SPI_Collect", "DB2SPI_discover" or "DB2_procmon" as part of their names and switches them accordingly. Other policies like file size monitors will keep on working. If you would like to disable the monitoring permanently, remove the policies manually.

When using different policy names for DB2 monitoring make sure that these fragments are still part of the policy names in order to preserve functioning of these tools.

Note that these actions are also executed during "Config Setup" and "Config Delete".

Switching on or off the entire DB2SPI affects the state of some DB2SPI policies.

Please note that the HPOM for Windows Console/Policy Inventory of this node will not reflect the real state after using the Enable or Disable tools.

To get the current state of all policies on a specific DB2 server, use the following OMW task: "All Tasks -> Synchronize inventory -> policies".

Disable a Specific Instance

In case there are multiple instances and some instances should be monitored while one instance is being maintained the following command should be used on the command line of the DB2 server to switch off the instance to be maintained:

`db2s_start db2s_cmdinstswitch.pl <instname> off`

To find out the current status of a specific instance use the following command on the DB2 server:

`db2s_start db2s_cmdinstswitch.pl <instname> status`

Later, when the maintenance is finished and the has been started again, switch on DB2SPI monitoring for the selected instance with the following command on the command line of the DB2 server:

`db2s_start db2s_cmdinstswitch.pl <instname> on`

5 DB2SPI Administrator Tasks and Tools

In this section of the manual, tools are explained that help the DB2SPI administrator. These tools are logically grouped by their context: Licensing, Initial Configuration, Instance Maintenance, Performance Data, General Tools.

The list shown next represents the "SPI for DB2 → DB2SPI Admin" tools group, which by default contains the following tools:

DB2SPI Licensing

- License Add

- License Check

- License List

Initial configuration of DB2 instances

- Config Setup

This tool has been described in detail in chapter "8. Configure DB2 Instances and Databases to be monitored".

Maintaining Instance Monitoring

- Discovery Filter

- Entity Filter

- DB2SPI Disable

- DB2SPI Enable

- DB2SPI Test

- ServiceTree Update

- Config Delete

Affecting the Performance Data Flow

- Datastore Delete

- Datastore Setup

- Snapshot Disable

- Snapshot Enable

- OPCMON Disable
- OPCMON Enable
- PerfRep Disable
- PerfRep Enable

Tool group DB2SPI Maintenance

- Export / Import DB2SPI Config
- Rebind DB2SPI
- Self-Healing Info DB2 Server
- Self Healing Info OVO Server
- Show DB2SPI Log
- Show DB2SPI Version
- Trace Define

Many DB2SPI tools act upon a single DB2 instance. In case there is more than one instance currently being monitored on a DB2 server, the DB2SPI tool first asks which DB2 instances shall be taken.

If only one DB2 instance is present, the application immediately carries out the task requested.

A Note on GUI Requirements

The DB2SPI comes with an embedded communication component (ATOP) that enables cross-platform application execution on all operating systems.

- HP OM for UNIX or Linux environments

ATOP needs to be installed on the Java GUI station of the operator

- HP OM for Windows environments

The OM Console on the management server can be used without any other steps to take. On any other console station, the DB2SPI console package (which includes the ATOP Component) has to be installed, before the DB2SPI tools can be executed from those consoles.

The installation and configuration of ATOP components on systems is described in the "DB2SPI Installation Guide".

Note

> **The ATOP Server needs to be started before using any tools from the SPI for DB2 tool group.**

DB2SPI Licensing

This section explains the basics and background of the DB2SPI licensing.

The DB2SPI is fully protected with license enforcement on the managed DB2 servers. Licenses are obtained from NiCE via the NiCE Customer Portal (described next) after requesting them via the HP WebWare portal.

The HP portal automatically sends a notification to NiCE and the NiCE portal team will create the license keys, or will contact you if additional information should be required.

Key Attributes for Runtime Licenses

The DB2SPI requires a runtime license for each node where it is operated. Although some functions and policies may work also without a runtime license, all the critical functions and DB2 access is restricted by the license enforcement process.

The following elements are required for valid runtime license:

- Version of the DB2SPI

- Tier of the managed node (according to the HP Tiering Matrix), if instance based licenses shall not be used

- Name or IP address of the managed node

Three different kinds of runtime licenses are available:

- <u>Evaluation licenses</u> are not restricted in their name or IP space as well as its tier, hence can be operated on any node, but will expire at some time.

- A <u>regular runtime license</u> is restricted to the node name or IP address and number of instances or tier specified when requesting the license, but has no time limit.

- <u>Instant-on licenses</u> are enabled with the initial configuration of the DB2SPI on a managed in case there is no evaluation or regular license. This license lasts for 60 days. This allows every user to start with the DB2SPI right away.

> **Note:**

Instant-on licenses are created on managed nodes at runtime. There is no explicit question to accept the license terms as with regular licenses. However, the same rules apply.

In addition instant-on licenses are meant for test and evaluation systems only and should not be used in production environments.

Note that the DB2SPI cannot be operated without a valid runtime license on each node. The process of obtaining, adding and maintaining licenses is simple and mostly automatic.

License Tool Overview

This section explains how licenses can be obtained from the manufacturer of the SPI and how the license keys are managed in your HP OM environment.

Downloading the licenses typically requires internet access, either from the management server or from any other system. In the latter case, the downloaded key files need to be transferred to the HP OM management server.

There are three tools in the DB2SPI that help to maintain the runtime licenses:

- License Add:

This tool allows the addition of new runtime licenses on the management server.

- License List:

This tool lists all runtime licenses currently available on the management server. However, they must be deployed to the managed nodes in order to be active.

- License Check:

When executed on a managed node this tool verifies if there are one or more valid runtime licenses for this node. Licenses may become invalid if time expires (only evaluation and test licenses) or if the node name has changed.

Obtaining valid DB2SPI Licenses

Note that obtaining and adding valid runtime licenses is essential, because the DB2SPI functionality on the managed nodes is available only if properly licensed.

When DB2SPI is configured for the first time with no runtime license present, a 60-day trial period is granted by the SPI, but operation will terminate unless a valid runtime license has been added.

Runtime License Download from NiCE

Upon initial installation of the DB2SPI, no runtime licenses are installed as the license files are not part of the product.

Runtime Licenses can be obtained very easily via the secure NiCE Customer Portal *www.nice.de/login.html*.

Figure 3: NiCE Customer Portal

Please make sure that you create your account there as soon as you have received your DB2SPI.

In the "My Licenses" area of your personalized view you can request evaluation and production runtime licenses, which are created automatically and then can be downloaded directly via your web browser.

When changing your system (moving the DB2SPI to another node, for example), simply press Change next to the former system and enter the new data to create an update.

Make sure that you place the DB2SPI License Update File in a common folder (directory) on the management server. On OM for Windows systems, this will typically be the C:\TEMP; on OM for UNIX or Linux, it will most often be /tmp.

Adding DB2SPI Licenses

All DB2 servers monitored with the DB2SPI need to have an appropriate runtime license. This is a node-locked license, which is checked by the DB2SPI whenever access to DB2 is requested via the DB2SPI.

There is only one license file per management server, holding all runtime licenses that have been obtained. This file is distributed to the managed nodes together with the "instrumentation" (HP OM for UNIX or Linux: "monitors") with standard HP OM means.

In order to add new runtime licenses to this common file, a tool is available in the DB2SPI Admin group, "License Add".

In order to add new runtime licenses, the following steps must be performed:

Adding Runtime Licenses in HP OM for UNIX or Linux GUI

1   Make sure you have placed the DB2SPI License Update File in a common folder (directory) on the management server.

On HP OM for UNIX or Linux systems, this will typically be the /tmp directory

In the HP OM for UNIX or Linux GUI, execute the "License Add" application from the "DB2SPI Tools" application group with the "Start Customized" option.

2   In the window popping up, you need to specify the name of the DB2SPI License Update File with full path information in the parameter field.

3   Then press "OK" to start the process.

An application output window will appear showing the progress s. See figure below.

Adding Runtime Licenses in HP OM for Windows Environments

To put the runtime license in the proper directories for deployment:
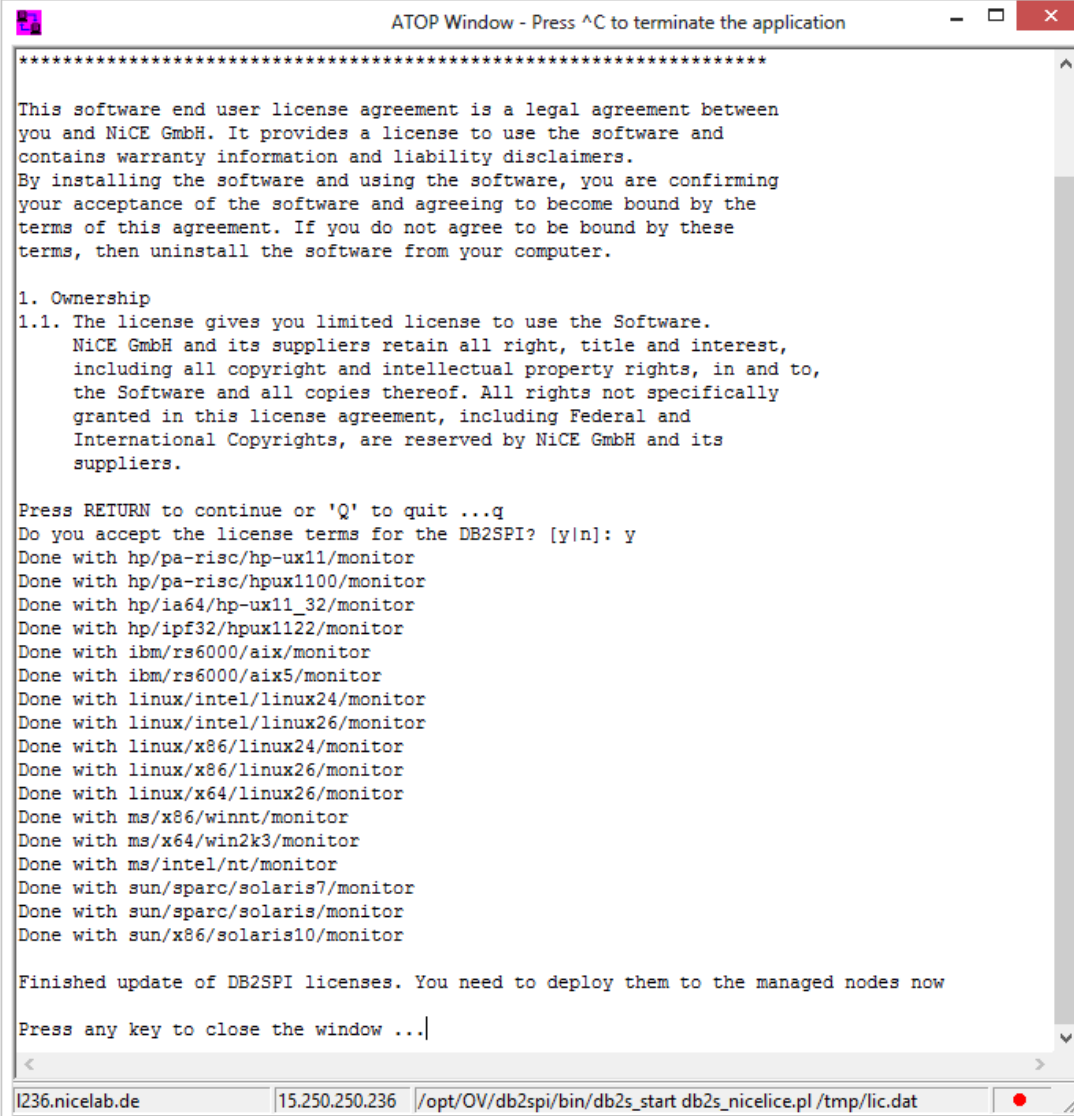
1   Make sure you have placed the DB2SPI License Update File in a common folder (directory) on the management server.

On HP OM for Windows systems, this will typically be C:\TEMP.

2   In the OM for Windows GUI, execute the "License Add" tool from the "DB2SPI Admin" tools group.

3   In the window popping up, you need to specify the License Update file with full path information in the parameter field.

4   Then press "Launch" to start the process.

An application output window will appear showing the progress. You may close that window when the process has completed.

Figure 4: "License Add" Output


```
ATOP Window - Press ^C to terminate the application

**********************************************************************

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     the Software and all copies thereof. All rights not specifically
     granted in this license agreement, including Federal and
     International Copyrights, are reserved by NiCE GmbH and its
     suppliers.

Press RETURN to continue or 'Q' to quit ...q
Do you accept the license terms for the DB2SPI? [y|n]: y
Done with hp/pa-risc/hp-ux11/monitor
Done with hp/pa-risc/hpux1100/monitor
Done with hp/ia64/hp-ux11_32/monitor
Done with hp/ipf32/hpux1122/monitor
Done with ibm/rs6000/aix/monitor
Done with ibm/rs6000/aix5/monitor
Done with linux/intel/linux24/monitor
Done with linux/intel/linux26/monitor
Done with linux/x86/linux24/monitor
Done with linux/x86/linux26/monitor
Done with linux/x64/linux26/monitor
Done with ms/x86/winnt/monitor
Done with ms/x64/win2k3/monitor
Done with ms/intel/nt/monitor
Done with sun/sparc/solaris7/monitor
Done with sun/sparc/solaris/monitor
Done with sun/x86/solaris10/monitor

Finished update of DB2SPI licenses. You need to deploy them to the managed nodes now

Press any key to close the window ...|
```
l236.nicelab.de   15.250.250.236   /opt/OV/db2spi/bin/db2s_start db2s_nicelice.pl /tmp/lic.dat

License Terms

It is mandatory to accept the license terms of the DB2SPI in order to add runtime licenses. Therefore these terms are provided in conjunction with the license installation and they can be viewed if desired.

When the question appears:

```
Do you want to read the license terms for the DB2SPI
[yn]?
```

Answer "y" or "n".

If you selected to read the license terms, they will be shown in this window in a paged manner, with the option to abort reading at any time. The text is identical with the license terms signed with the purchase of the product.

License Term Acceptance

After the terms have been shown in their entirety (or this step has been skipped with an "n" given earlier, or aborted during the read process, the question appears:

```
Do you accept the license terms for the DB2SPI [yn]?
```

- If you say "n" (no), installation of the license(s) is terminated and the product will not be licensed and cannot be used with DB2 server.
- If you say "y" (yes) you indicate the acceptance of the terms and license installation will continue.

The license(s) can only be installed if the conditions are accepted. If you say "n" (no) when asked for the acceptance of the conditions, no license will be added to the instrumentation for later deployment.

License Deployment

After installing the licenses on the management server, they need to be deployed to the managed nodes, as the check for valid licenses is performed there within the DB2 access section of the SPI.

To do so, deploy the "instrumentation" resp. "monitors" to all DB2SPI managed nodes.

The scripts and binaries on the managed nodes will scan the local license file db2s_licenses.dat for a matching, valid runtime license on the respective node.

List all installed DB2SPI Runtime Licenses

To verify the list of runtime licenses installed on the given HP OM management server use the tool "License List". It lists all runtime licenses with the related nodes and expiry dates in an ATOP window.

An example is given here:

```
      DB2SPI License Report on w134
      ==============================
DB2SPI License Report on OVO Server w134:
=================================================
This report lists all licenses found in the license file
on the management server. No validation checks are performed
for this report

  Type     Version      Expiry Date   Locked to
  ------------------------------------------------
  Tier 2  == A.04.00   2014-03-31    * (not locked)
  Tier 1  == A.04.00   2999-12-31      w155
Do you want to preserve the output in 'C:\Documents and
Settings\All Users\Application Data\HP\HP BTO
Software\shared\log\db2spi\db2s_licrep.txt'? [y|n]:
```

The keys preceding the version mean: "identical" ("==") or "up to" ("<=")

An expiry date of 2999-12-31 means an unlimited time frame.

License Check on the Managed Node

Executing the "License Check" tool can help finding out if there is a valid
runtime license for this node. It is advisable to execute it if the DB2SPI
cannot be configured at all with messages like "no license found", or if similar
messages show up during normal operation.

As you know, the runtime licenses are node locked and / or time-restricted, so
installed runtime licenses may become invalid when the "hostname" changes
or the evaluation time frame expires.

The typical output of the "License Check" is shown here:

```
      DB2SPI License Report on a48
      ==============================
DB2SPI License Report on managed node a48:
=================================================
This report lists all licenses found in the license file
on the managed node. Only licenses which were generated for
this node are listed

  Type     Version      Expiry Date   Locked to        License
is
  --------------------------------------------------------------
--
  Tier 2  == A.04.00   2014-03-31     a48              Valid
```

```
Do you want to preserve the output in '/tmp/db2s_licrep.txt'?
[y|n]: n

Press any key to close the window ...
```

Maintaining Instance Monitoring

This section contains information that how to maintain the DB2 instances you are monitoring after having executed the "Config Setup" successfully.

There are sections that explain:

- Maintain the Instance Scope (Discovery Filter)

- Enable and Disable the Monitoring of Subentities (Entity Filter)

- Enable or Disable the Activities of DB2SPI (DB2SPI Enable/Disable)

- Enforcing an Update of the Service Tree (Update ServiceTree)

- Drop the Instance Configuration Entirely (Config Delete)

Maintaining the Instance Scope (Discovery Filter)

During Configuration with the "Config Setup" tool all instances installed in the DB2 server have been discovered and displayed. The user then decided which DB2 instances should be visible for the DB2SPI – the "instance scope". Only visible instances are used for in-depth discovery of other DB2 entities like databases and may be monitored by the SPI.

The DB2SPI tool "Discovery Filter" is used to update the instance scope in which the DB2SPI discovery should act. Instances, which are switched to invisible, are excluded entirely from the monitoring scope of the DB2SPI.

Instances, which are switched visible, are now included in the discovery and may later be set to "monitored" with the Entity Filter tool.

Furthermore the tool allows adding DB2 setups in non-standard installation paths, which cannot be discovered by the DB2SPI.

Use Cases for "Discovery Filter"

- A new DB2 instance has been created:

  In case a new DB2 UDB instance is created and monitoring is desired, the "Discovery Filter" tool must be executed to add the instance to the DB2SPI scope. Add the new instances and set it to "visible".

By default, the DB2SPI discovery is executed every 60 minutes for all visible instances. Once it has completed, all database objects (databases, partitions, tablespaces, etc) have been discovered. They are now available in the DB2SPI tool "Entity Filter". Appropriate messages are forwarded to the message browser to inform the operators. One may use the "Discovery Trigger" tool to speed things up.

Do not forget to enable the new instance for monitoring by actively setting it to "monitored" using the "Entity filter".

- A DB2 instance has been dropped:

If the DB2 instance has been monitored by the DB2SPI, it needs to be dropped from the DB2SPI Monitoring.

Use the "Discovery Filter" tool to select "invisible" for the instance that has been dropped.

Enable and Disable the Monitoring of Subentities (Entity Filter)

The tool "Entity Filter" can be used to enable or disable monitoring of any entity within the DB2 instance scope. Entities are DB2 instances, databases and underlying objects (like buffer pools, table spaces, databases, etc.) and processes.

These entities are discovered automatically for "visible instances" when the DB2SPI discovery is running periodically. The entities and their relations form a "configuration element tree" that is stored and maintained in the DB2SPI instance configuration file.

This interactive tool provides navigation through this tree. It basically comprises of two alternating choices, <u>element selection</u> and <u>operation selection</u>.

At any time the user is informed about the location in the configuration element tree.

Selection of an Element to deal with

Depending on the level in the element hierarchy, an appropriate list is shown:

Level	Element List
Server	List of instances
Instance	List of databases
Database	"Tablespace" or "Bufferpools" or "Processes"

Tablespaces	List of tablespaces within that partition
Bufferpools	List of bufferpools within that partition
Processes	List of processes within that partition

The monitoring status for each element is shown with a brief indicator to the left:

+   indicates that the element is monitored

–   indicates that the element is not monitored

The tool displays all elements prefixed with a sequence number. Enter one of them to select an element for the subsequent operation. If you enter "0", no element is chosen and this level is left. Subsequently, the element list for next-higher level is shown.

Selection of an Operation to be performed

Depending on the type and level of the element chosen, a set of actions is offered to choose from. The following table lists available actions:

- Cancel

- Open element (show the sub entities from the next level)

- Set element managed (monitored)

- Set element unmanaged (not monitored)

- Modify element (in database context only)

- Create a new element (in process context only)

As always, a number must be entered to the select the desired action. Entering "0" leads you back to the latest element list for a new element selection.

Note, that setting an element "unmanaged" will also disable the monitoring of all its contained elements. Setting a previously "unmanaged" element to "managed" will restore the monitoring status the elements had earlier.

Freshly discovered elements are managed ("monitored") by default, unless they are of type "instance". Enabling the monitoring for such a new instance will also turn on monitoring for all its databases and subsequent elements.

As an example, the dialogue that has been executed when disabling monitoring of a certain partition:

```
Current entity:    DB2
Chosen subentity:  DB2:DB2
Select a function (0 to cancel)
   1.      Open element
   2.      Set element managed
   3.      Set element unmanaged

>1
Current entity:    DB2:DB2
Chosen subentity:  DB2:DB2:SAMPLE
Select a function (0 to cancel)
   1.      Open element
   2.      Set element managed
   3.      Set element unmanaged

>1
Current entity:    DB2:DB2:SAMPLE
Choose a subentity (0 to go up)
   1.      + W130_0/W130/0
   2.      + W131_1/W131/1

>2
Chosen subentity:  DB2:DB2:SAMPLE:W131_1
Select a function (0 to cancel)
   1.      Open element
   2.      Set element managed
   3.      Set element unmanaged

>3
Current entity:    DB2:DB2:SAMPLE
Choose a subentity (0 to go up)
   1.      + 000(w131.nicelab.de)
   2.      - 001(w131.nicelab.de)

>0
Current entity:    DB2:DB2
Chosen subentity:  DB2:DB2:SAMPLE
Select a function (0 to cancel)
   1.      Open element
   2.      Set element managed
   3.      Set element unmanaged

>0
Current entity:    DB2
Chosen subentity:  DB2:DB2
Select a function (0 to cancel)
   1.      Open element
   2.      Set element managed
   3.      Set element unmanaged

>0
```

```
Press any key to close the window ...
```

Whenever changing the monitoring status of any element, the DB2 service tree will be updated automatically.

Authorizing Database Access

For each database, the entity filter allows the definition of a user and password as a function at the "database" entity level. The monitoring status of the database can be easily distinguished by the "+"/"−" added to the database name, as can be seen in this dialogue screenshot:

```
... ...
Choose a subentity
  0     Go up one level
  1     > Databases
  2     > Others
Enter one index: 1
Chosen subentity:  DB2:db2inst2:Databases

Select a function
  0     Cancel
  1     Open element
Enter one index: 1
Current entity:    DB2:db2inst2:Databases

Choose a subentity
  0     Go up one level
  1     + SAMPLE/local/?/?
  2     - TEST17/remote/?/?
  3     + TEST18/remote/myboss/bosspwd
Enter one index: 2
Chosen subentity:  DB2:db2inst2:Databases:TEST17/remote/?/?

Select a function
  0     Cancel
  1     Open element
  2     Set element managed
  3     Set element unmanaged
  4     Modify element
Enter one index: 4
```

This enters a dialogue where the appropriate user information can be entered.

If no user and password was specified for a database yet, "/?/?" is shown after the local/remote attribute.

Please note that the user and password are stored in the instance configuration file in encrypted form, but are displayed unencrypted in the Entity Filter tool.

Maintaining DB2 Process Monitoring

To maintain the list of monitored DB2 processes, you may drill down in the Entity Filter tool from the instance level across databases and partitions until you end up with processes, as show in the next dialogue screenshot:

```
... ...
Current entity:
DB2:db2inst1:Databases:SAMPLE/local/?/:000(a47.nicelab.de)

Choose a subentity
  0     Go up one level
  1     > Tablespaces
  2     > Bufferpools
  3     > Processes
Enter one index: 3
Chosen subentity:
DB2:db2inst1:Databases:SAMPLE:000(a47.nicelab.de):Processes

Select a function
  0     Cancel
  1     Open element
  2     Set element managed
  3     Set element unmanaged
Enter one index: 1
Current entity:
DB2:db2inst1:Databases:SAMPLE/local/?/:000(a47.nicelab.de):Proce
sses

Choose a subentity
  0     Go up one level
  1     + db2sysc/NON/1200/1/1
  2     - db2acd/NON/1200/1/1
  3     + db2fmcd/NON/1200/1/1
  4     - db2fmd/NON/1200/1/1
  5     + db2ckpwd/NON/1200/1/1
  6     + db2wdog/NON/1200/1/1
Enter one index:
```

At this point, you must select one element or leave the level with "0".

If you want to define a new process, you also have to select a process first in order to be offered the function of creating a new entry.

```
Enter one index: 5
Chosen subentity:
DB2:db2inst1:Databases:SAMPLE:000(a47.nicelab.de):Processes:db2c
kpwd

Select a function
  0     Cancel
  1     Modify element
  2     Set element managed
  3     Set element unmanaged
  4     Create a new element
Enter one index: 4
Define a new process to be monitored
Process name to be monitored:
db2anyproc
Select the affiliation for this process
      1.      associated to a specific DB
      2.      associated to the DB2 idle process pool
      3.      no specific affiliation

>3
Allowed minimum number of processes running (-1 for no limit): -
1
Allowed maximum number of processes running (-1 for no limit): 4
Current entity:
DB2:db2inst1:Databases:SAMPLE/local/?/:000(a47.nicelab.de):Proce
sses

Choose a subentity
  0     Go up one level
  1     + db2sysc/NON/1200/1/1
  2     - db2acd/NON/1200/1/1
  3     + db2fmcd/NON/1200/1/1
  4     - db2fmd/NON/1200/1/1
  5     + db2ckpwd/NON/1200/1/1
  6     + db2wdog/NON/1200/1/1
Enter one index:
```

Enable or Disable the Activities of DB2SPI (DB2SPI Enable/Disable)

There is a tool pair, which is used to switch operation of the DB2SPI on the given node, "DB2SPI Enable" and "DB2SPI Disable". These tools affect the operation of the policies belonging to the DB2SPI and hence enable / disable all background monitoring activity of the SPI. All DB2SPI tools are kept unaffected and so are automatic and operator actions.

> **Note that the disabling may take a while to complete as the proper synchronization points in the operation of the HP OM agents processing the policies have to be reached.**

Enabling / disabling determines all policies that have "DB2SPI_PerfLogger", "DB2SPI_Collect", "DB2SPI_discover" or "DB2_procmon" as part of their names and switches them accordingly.

When using different policy names for DB2 monitoring make sure that these fragments are still part of the policy names in order to preserve functioning of these tools.

Note that these are also applied during "Config Setup" and "Config Delete".

> **Switching on or off the entire DB2SPI affects the state of some DB2SPI policies. Please note that the HP OM for Windows Console/Policy Inventory of this node will not reflect the real state after using the Enable or Disable tools.**
>
> **To get the current state of all policies on a specific DB2 server, use the following OMW task: "All Tasks -> Synchronize inventory -> policies".**

Verify Operation of DB2SPI (DB2SPI Test)

The tool "DB2SPI Test" in the DB2SPI Admin tool group tests the DB2SPI operation. It connects to reach all configured databases and returns the database status.

Enforcing an Update of the Service Tree (Update ServiceTree)

The DB2 service tree display in the GUI shows instances and their underlying components that are configured to be visible and monitored.

The DB2 services available in the service tree are determined from the list of instances and their databases, and the discovery process also takes into account the DB2 configuration itself. An update of the service tree is triggered internally whenever the "Config Setup" or "Entity Filter" tool is executed, and the DB2SPI periodically checks the DB2 instances if new databases should have been created or others have been deleted or filtered.

Waiting for the periodic check might be inconvenient sometimes, and the user might want to enforce an update immediately. This can be achieved by using the "**ServiceTree Update**" tool from the tool group "**DB2SPI Maintenance**".

When applied to a managed DB2 server node, it immediately performs the discovery and cross-checks with the instance and database lists.

Please note that there is no output from the tool, just the message of the OM agent about successful or failed script execution.

More details about the service tree data processing can be found the "DB2SPI Concepts Guide".

Drop the Instance Configuration Entirely (Config Delete)

If you want to delete the DB2SPI from a DB2 server, or if you entered data incorrectly during the instance setup, you can execute the "Config Delete" tool to remove <u>all</u> instance configuration settings. You can re-enter the new or corrected values by running "Config Setup" again.

When clearing the instance settings this way, the HP OM policies are still deployed, but disabled automatically.

If you want to disable DB2 monitoring permanently, you should also remove the node from the respective DB2SPI node group and remove all DB2SPI policies from it.

When dropping the instance configuration, the DB2 service tree will be updated automatically and delete the respective branches for this node.

A typical dialogue can be seen here (some lines are not shown to keep it shorter):

```
W158
       DB2SPI Configuration Deletion
       ===============================
Removing DB2SPI configuration files ...
Are you sure? [y|n]: y
Please wait ...
Processing 'DB2SPI_ownlog1' ...
       * Disable all policies for the specified selection on
host
         'localhost'.
INFO:    Disable operation completed successfully.
Processing 'DB2_repliclog_win' ...
       * Disable all policies for the specified selection on
host
         'localhost'.
INFO:    Disable operation completed successfully.
Processing 'DB2SPI_fsize' ...
       * Disable all policies for the specified selection on
host
         'localhost'.
INFO:    Disable operation completed successfully.
Should the performance data stores be preserved? [y|n]: n
Removing performance measurement ...
```

```
Removing 'C:\Program Files\HP OpenView\data\db2spi\metrics'
Removing 'C:\Program Files\HP OpenView\data\tmp\db2spi'
Removing 'C:\Program Files\HP OpenView\data\conf\db2spi'

The instance configuration data have been deleted

Finished

C:\Program Files\HP OpenView\data\log\db2spi\db2s_trace.log
        1 file(s) copied.

Press any key to close the window ...
```

Note:

If the DB2SPI was setup to work with a non-root Agent, "Config Delete" cannot delete /etc/db2spi.su.

It has to be removed manually using an account with appropriate rights (root). The file does only exist if the special setup for non-root Agent systems was done.

Affecting the Performance Data Flow

This section contains information that you require when maintaining the processing of metric data collected.   Please see the "DB2SPI Concepts Guide" for details how performance data are collected and processed by the DB2SPI.

The data flow shown in Figure 5: Metric Data Collection and affecting Tools can be affected at three points, symbolized there by three pairs of tool labels and implemented as applications in the "DB2SPI Admin" application group.

This section describes the purpose and steps of these applications.

Figure 5: Metric Data Collection and affecting Tools
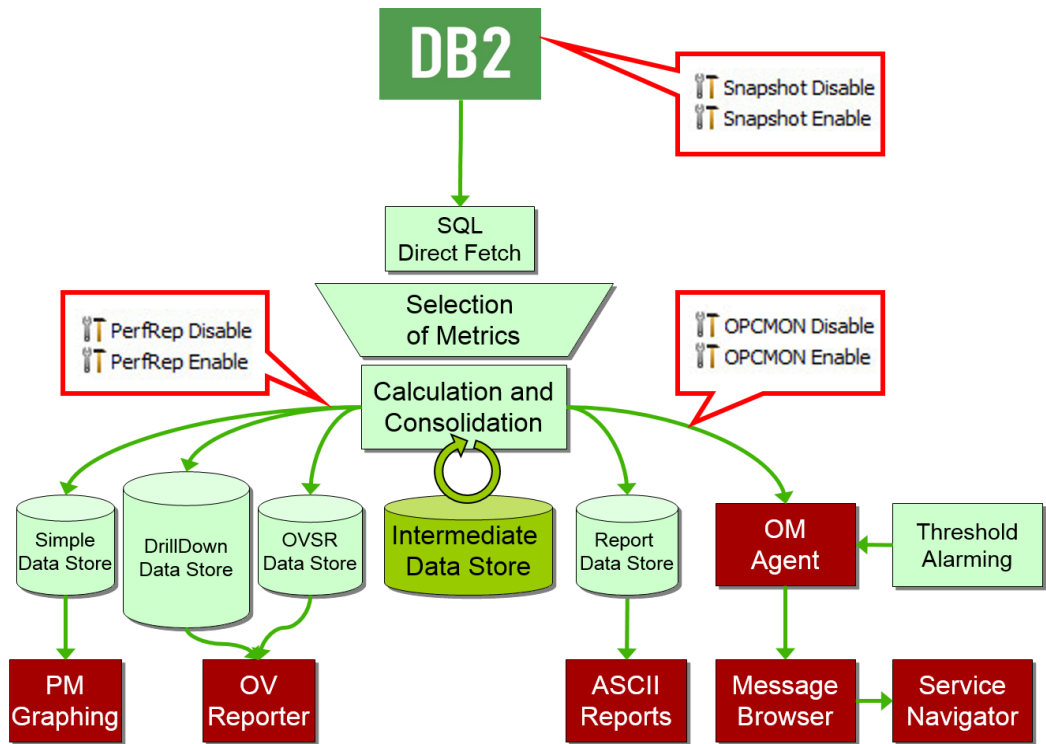
Enable / Disable DB2 Snapshots (local Databases)

The DB2SPI uses an extremely efficient method to obtain performance data via direct SQL access. DB2 must be configured to provide performance snapshot data. By default, there are no such data provided, so there would be no performance data for threshold monitoring, graphing and reporting.

With the tool "Snapshot Enable" the DB2 instance and its local databases are reconfigured to provide such information. In Figure 6 you see the dialogue of "Snapshot Enable" execution:

Figure 6: Dialogue during "Snapshot Enable" process

```
       Starting snapshot data collection on s40
       ==========================================

Please select an instance on s40
```

```
   1     db2inst1
   2     db2inst2
Enter one index (\a to abort): 1

   Instance Attachment Information

 Instance server        = DB2/SUN64 8.2.3
 Authorization ID       = DB2INST1
 Local instance alias   = DB2INST1

DB20000I  The UPDATE DATABASE MANAGER CONFIGURATION command
completed
successfully.

DB20000I  The DETACH command completed successfully.

DB20000I  The TERMINATE command completed successfully.

Snapshot creation has been enabled for instance 'db2inst1'

Press any key to close the window ...
```

Disabling DB2 snapshot data creation works similar by executing the "Snapshot Disable" tool in the DB2SPI Admin application group,

A proper message is written to the DB2SPI log file and to the HP OM message browser to inform about the change of the switch.

Alternatively, enter the following command in a command shell on the DB2 server:

> **db2 update dbm cfg using DFT_MON_BUFPOOL on DFT_MON_LOCK on DFT_MON_SORT on DFT_MON_STMT on DFT_MON_TABLE on DFT_MON_UOW on**

Note that DB2 may sometimes show misleading messages on the terminal window when performing this switch, consequently making the DB2SPI believe that it failed.

However, sometimes these are just warnings without impact. You may verify correct operation afterwards with the "Show Snapshot" tool if you are in doubt.

Enable / Disable DB2 Snapshots (remote Databases)

The tools Snapshot Enable and Snapshot Disable do not work for remote databases, which are mapped into the local instance due to permission reasons.

In order to obtain data from remote databases, the following steps must be performed manually unless these settings have been made on the remote system already:

- Log on to the local (monitoring) system as the local instance user and start the DB2 command line interface (Note: This can easily be achieved by the "DB2 CLP" tool we provide with the product).

- Execute the command

  list node directory

- Check for the "Node name" in the output

  ```
  Example:
  Database alias                      = DBAlias
  Database name                       = DBName
  Node name                           = 1234567
  ```

- Attach to the remote node using the "Node name" and the remote credentials

  attach to <nodename> user <remoteuser> using <remotepassword>

  ```
  Example:
  attach to 1234567 user db2inst1 using instpwd
  ```

- Enable all snapshot data to be taken by executing

  update dbm cfg using DFT_MON_BUFPOOL on DFT_MON_LOCK on DFT_MON_SORT on DFT_MON_STMT on DFT_MON_TABLE on DFT_MON_UOW on

  detach

- Close the DB2 command line tool.

Enable / Disable OPCMON Forwarding

The forwarding of metric data to HP OM to ensure threshold monitoring and Operations Manager message creation can be enabled or disabled with the "OPCMON Enable" and "OPCMON Disable" applications.

Note:

When disabled, threshold monitoring does not take place and you will not receive any messages in the HP OM message browser if DB2 resources are outside their normal range.

At the same time, metrics may still be forwarded to CODA for reporting / graphing.

A proper message is written to the DB2SPI log file and to the Operations Manager message browser to inform about the change of the switch.

Enable / Disable Metric Forwarding to CODA

DB2 systems that do not have CODA installed should disable "performance data forwarding". A pair of switches is available: "PerfRep Enable" and "PerfRep Disable".

A proper message is written to the DB2SPI log file and to the HP OM message browser to inform about the change of the switch.

At the same time, metrics may still be forwarded to HP OM for threshold monitoring and alerting.

Switch off Drilldown Data Store

The drilldown data store requires the most disk space of the whole DB2SPI performance data store. To preserve disk space, it is possible to waive the drilldown performance data and still store everything for alarming and graphing.

This configuration should take place after the "Config Setup" has been executed successfully.

Open the DB2SPI configuration file **%OVO_DATADIR%/conf/db2spi/db2s_spi.cfg** on the DB2 server and locate the following section:

```
#------------------------------------------------------------
#          DB2SPI_DRILLDOWN_STORE:
#          ---------------------
#          Enable/disable storage of drilldown values in the
#          DDF data stores.  Should be switched off if the data
#          forwarding takes longer than five minutes (see
#          warning in browser).
#          Values: ON      enable (default)
#                  OFF     disable
DB2SPI_DRILLDOWN_STORE ON
#------------------------------------------------------------
```

Now change the value of the DB2SPI_DRILLDOWN_STORE parameter from "ON" to "OFF".

Tool group DB2SPI Maintenance

Export / Import DB2SPI Config

The "Export DB2SPI Config" tool exports instance configuration in a XML format for backup or migration scenarios. If there are identical development and production systems, or if the members of a cluster have the same setup in terms of:

- Instances
- Databases
- Partitions
- table spaces
- buffer pools
- DB2 adm log file paths
- DB2 diag logfile paths
- DIAGSIZE parameter

Use the tool "Import DB2SPI Config" to load the configuration on another (identical) DB2 servers to prevent doing "Config Setup" several times.

Rebind DB2SPI

The tool "Rebind DB2SPI" drops the DB2SPI database access packages and rebinds it to all database that are currently monitored.

This is a convenient way to update the database access in case it has been updated by a DB2SPI patch or hotfix. Please see the relevant patch or hotfix documentation, if it is required for this patch or hotfix.

Another occasion to use this tools would be a migration of the already monitored DB2 databases to a newer DB2 version. Please consult the SPI support about any other steps for a database migration.

Self-Healing Info tools

If a problem is detected, real-time data needs to be collected to determine the cause. This helps solving product problems by collecting the required DB2SPI data.

Use this tool to send basic support information when advised to do so by the DB2SPI support.

The SHS collector may be run in one of the following ways:

- Self-Healing Info DB2 Server

  If the problem concerns a managed node, it is run by launching the new DB2SPI tool "Self-Healing Info DB2 Server" on the managed node in question. A sample tool execution window looks as follows:

- Self-Healing Info HP OM Server

  If the problem concerning DB2SPI occurs on the Operations Manager server, the tool "Self-Healing Info HP OM Server" should be run to collect data from the Operations Manager management server.

Figure 7: OM for Windows Self-Healing Tool Output
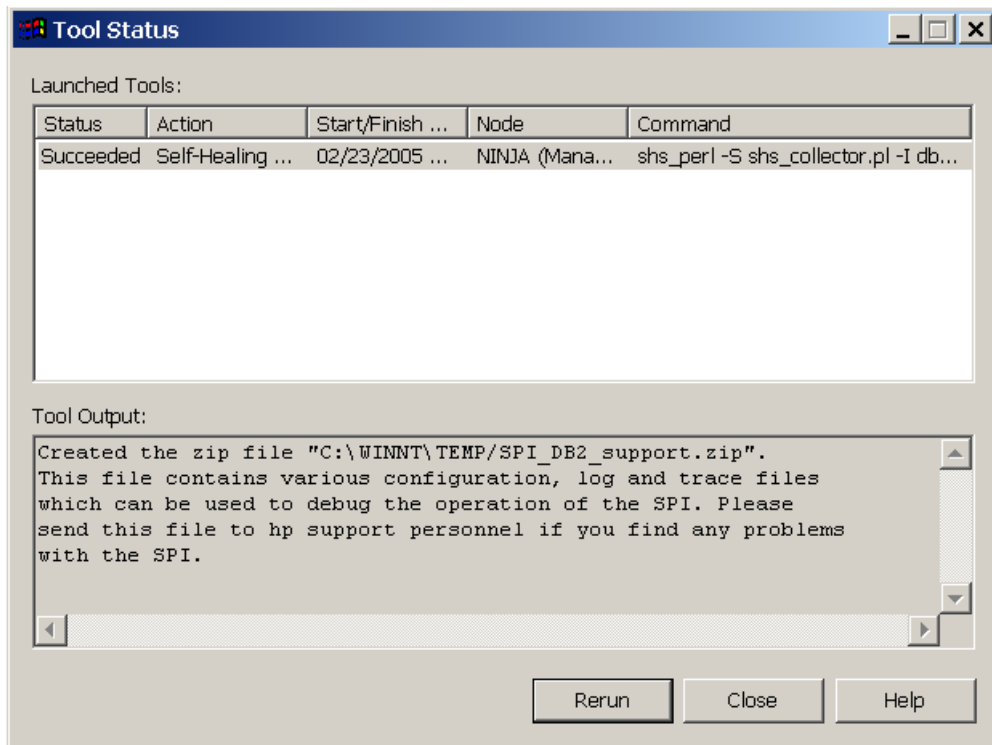
The complete path to the directory, where the collected data was stored is given in the tool output window (see example above). The data is contained in a .zip or .tar file, depending on the operating system on the managed node (Windows/UNIX).

The uncompressed data / files can also be found in the subdirectory `SPI_DB2.`

Show DB2SPI Log

The "Show DB2SPI Log" tool opens a terminal window and displays the DB2SPI log file for the DB2 server that is being selected.

Screen output is separated into pages. After each page the user may decide to continue viewing the output or jumping to the end.

- In order to continue browsing through the snapshot, simply press <**RETURN**>.

- If you want to cancel, hit <**Q**> and <**RETURN**>

- At the end, the script asks if the output of the report shall be saved to disk. If confirmed, a text file with the respective output is saved to disk and can be viewed at any time

Show DB2SPI Version

This tool shows the DB2SPI version of the instrumentation that is deployed on the selected managed node (DB2 Server).

Trace Define

The "Trace Define" tool is used to define tracing of the DB2SPI itself. Tracing can be helpful in troubleshooting difficulties in the operation of the DB2SPI.

You should not enable tracing unless requested by DB2SPI support, or if you are sure that a trace may help resolving a problem you ran into. Tracing may produce enormous amounts of data if run for a longer time, so may sure to turn it off after the problem has been tracked.

DB2SPI tracing is organized by areas and follows the same dialogue concept as the Entity Filter.

You may see a sample session next how to configure tracing the "process monitoring" functionality of the DB2SPI.

```
Current entity:    ALL

Choose a subentity
```

```
  0      Exit program
  1      - DB2 Metrics
  2      - DB2 Service Discovery
  3      - DB2 Logfile Monitoring
  4      - DB2 Process Monitoring
  5      - DB2 Administration Tools
  6      - DB2 Information and Reports
  7      - DB2SPI Administration
  8      - Other DB2SPI Tools and Services
Enter one index: 4
Chosen subentity:  ALL:DB2 Process Monitoring

Select a function
  0      Cancel
  1      Open DB2 Process Monitoring
  2      Get trace for DB2 Process Monitoring
  3      Disable tracing DB2 Process Monitoring
Enter one index: 2
Current entity:    ALL

Choose a subentity
  0      Exit program
  1      - DB2 Metrics
  2      - DB2 Service Discovery
  3      - DB2 Logfile Monitoring
  4      + DB2 Process Monitoring
  5      - DB2 Administration Tools
  6      - DB2 Information and Reports
  7      - DB2SPI Administration
  8      - Other DB2SPI Tools and Services
Enter one index: 0
```

The hierarchy of the various areas can be seen from the following list:

```
DB2 Metrics
  Metric Collection
  Metric Reporting and Graphing

DB2 Service Discovery
  Discovery
  Service Tree

DB2 Logfile Monitoring
  Adminstrative Log Entries
  Replication Log Entries
  Filesize Monitoring
  DB2SPI Logfile Compression

DB2 Process Monitoring
  Processes
```

```
DB2 Administration Tools
  Flexible Management
  Common Management
  Snapshot Data Collection

DB2 Information and Reports
  Instance List
  DB2 Configuration
  DB2 Manager Configuration
  Show Snapshot
  Show Replication Status
  Show Metric Report

DB2SPI Administration
  Entity Filter
  Global Metric Collection from DB2
  Metric Forwarding to OVPA/CODA
  Metric Forwarding to OVO

Other DB2SPI Tools and Services
  License Report
  Instance Start/Stop
```