

HP SOA Systinet

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Concepts Guide

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Welcome to This Guide

Welcome to HP SOA Systinet, the foundation of Service Oriented Architecture, providing an enterprise with a single place to organize, understand, and manage information in its SOA. The standards-based architecture of SOA Systinet maximizes interoperability with other SOA products.

How This Guide is Organized

HP SOA Systinet Concepts Guide gives an overview and introduction to the concepts used by SOA Systinet to manage an SOA.

This guide includes:

[SOA and SOA Systinet on page 11](#). An introduction to SOA Systinet.

[SOA Repository on page 13](#). The content management system for SOA.

[SOA Definition Model on page 15](#). An introduction to the SOA Definition Model used in SOA Systinet.

[User Perspectives on page 17](#). The use of user specific perspectives in SOA Systinet.

[Services on page 19](#). How SOA Systinet manages services and contracts.

[Governance on page 23](#). Using policies, tools, tasks and reports to govern your SOA.

[Additional Features on page 27](#). An introduction to additional features of SOA Systinet.

[HP SOA Systinet Product Family on page 29](#). An overview of the HP family of SOA products.

Document Conventions

The typographic conventions used in this document are:

run.bat make	Script name or other executable command plus mandatory arguments.
<code>[--help]</code>	A command-line option.
either or	A choice of arguments.
<i>replace_value</i>	A command-line argument that should be replaced with an actual value.
<code>{arg1 arg2}</code>	A choice between two command-line arguments where one or the other is mandatory.
<code>rmdir /S /Q System32</code>	Operating system commands and other user input that you can type on the command line and press Enter to invoke. Items in <i>italics</i> should be replaced by actual values.
<code>C:\System.ini</code>	Filenames, directory names, paths and package names.
<code>a.append(b);</code>	Program source code.
<code>server.Version</code>	An inline Java or C++ class name.
<code>getVersion()</code>	An inline Java method name.
Shift-N	A combination of keystrokes.
Service View	A label, word or phrase in a GUI window, often clickable.
New->Service	Menu choice.

Documentation Updates

This manual's title page contains the following identifying information:

- Software version number
- Document release date, which changes each time the document is updated
- Software release date, which indicates the release date of this version of the software

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Support

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- For the latest information about support processes and tools available for products formerly produced by Mercury, we encourage you to visit the Mercury Customer Support Web site at: <http://support.mercury.com>.
- For the latest information about support processes and tools available for products formerly produced by Systinet, we encourage you to visit the Systinet Online Support Web site at: <http://www.systinet.com/support/index>.
- If you have additional questions, contact your HP Sales Representative.

HP Software Support

You can visit the HP Software Support Web site at:

www.hp.com/managementsoftware/services

HP Software online support provides an efficient way to access interactive technical support tools. As a valued support customer, you can benefit by using the support site to:

- Search for knowledge documents of interest
- Submit and track support cases and enhancement requests
- Download software patches
- Manage support contracts

- Look up HP support contacts
- Review information about available services
- Enter into discussions with other software customers
- Research and register for software training

Most of the support areas require that you register as an HP Passport user and sign in. Many also require a support contract. To find more information about access levels, go to: www.hp.com/managementsoftware/access_level

To register for an HP Passport ID, go to: www.managementsoftware.hp.com/passport-registration.html

1 SOA and SOA Systinet

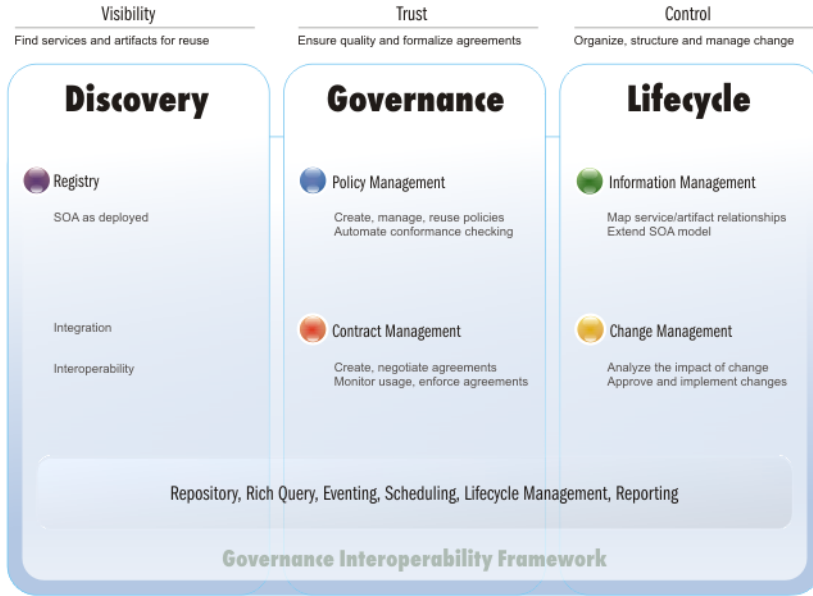
SOA is an architectural style that defines the principles of service oriented architecture and programming. Service oriented development focuses on systems that are built from a set of autonomous services. Therefore *SOA* is about designing business functionality as shared reusable services.

SOA Systinet represents *SOA* in an extensible information model called the *SOA Definition Model (SDM)*. The *SDM* uses a declarative modeling language to describe *SOA* components. It defines *SOA* artifacts and the relationships between them.

The *SDM* enables you to model artifacts such as services and their relationships, metadata and constraints. You can then view and work with the artifacts in *SOA Systinet* as follows:

- **Repository.** A repository of key *SOA* artifacts including services and their relationships. *SOA Systinet* becomes the place where service providers and consumers obtain a common view of *business services* they offer and consume.
- **Discovery.** *SOA Systinet* indexes published artifacts so they can be browsed and searched using both full text search and query languages.
- **Full history.** *SOA Systinet* manages and maintains versions of all data published to the repository so you can track changes made to an artifact (for example, how a document evolved over time), see who modified it, and when, and roll back a change if necessary.
- **Self-describing services.** When *SOA Systinet* contains an artifact and represents its relationship to other artifacts, it becomes self-describing. In the case of service artifacts, this enables service consumers to obtain enough information to search and identify the services they choose to use.

Figure 1. SOA Systinet Functional Overview



After SOA infrastructure becomes an important part of enterprise internal systems, its functionality is critical. The blueprint of SOA artifacts (providing visibility, discovery and reuse) is no longer sufficient. Despite the fact that the number of services grows and their relationships and dependencies are more and more complex, the growth of this production SOA must be controlled as a whole. Only then can the agile growth of the SOA system be ensured, preventing redundant functionality, ensuring compliance with policies (both technical and enterprise one) and providing overall visibility.

SOA Systinet resolves this—it is a governance platform used to manage vital SOA.

2 SOA Repository

The repository is the content management system for SOA reflecting the SOA Definition Model. Hence the repository can be considered the foundation of SOA Systinet. Users access the repository indirectly through higher level features described in the HP SOA Systinet User Guide.

The repository is a database designed to store documents. It has special features for accessing XML document content. Whereas relational databases are designed to hold tabular data, the repository supports the hierarchical organization of documents and the data they contain. Features of the repository include versioning, document management, reliability and failover.

Complimentary to the repository is the reporting service which is a customizable, extensible query component allowing you to access the data you need quickly and efficiently.

The repository includes the following resource types:

- Documents – XML or binary
- Collections – containing documents or other collections

A *document* is like a file, and analogous to a row in a relational database. Binary documents can contain any type of data, including text, but are treated as atomic items of data for most purposes. Features relying on knowledge of the document format are only provided for XML documents.

A *collection* is like a directory. They are analogous to tables in a relational database but they can contain other collections and hence form a hierarchy.

More details are given in the HP SOA Systinet Reference Guide, which describes the structure of the repository and the format of the resources it contains.

3 SOA Definition Model

At the core of SOA Systinet is the SOA Definition Model (SDM). The SDM enables you to organize, understand and manage the business, policy, contract and deployment data relating to SOA services, categorizations, relationships and specifications. The SDM defines the SOA Systinet data schema, reflecting the actual semantics of the SOA in your enterprise. Hence it determines the structure of data in the repository described in the HP SOA Systinet Reference Guide. The flexibility and extensibility of the SDM ensure that SOA Systinet can keep up with the evolution of your SOA.

This section introduces the basic concepts of the SDM:

- [Artifacts on page 15](#)
- [Properties on page 16](#)
- [Relationships on page 16](#)
- [Taxonomies on page 16](#)

Artifacts

SOA Systinet artifacts allow an SOA to be described from the following perspectives:

- Abstract
- Deployment
- Metadata

The artifact types form a hierarchical taxonomy which is described in detail in SDM Model in the HP SOA Systinet Reference Guide. Each leaf in the tree of artifact types represents a category corresponding to a single type. The purpose of other artifact types is to represent categories corresponding to a number of artifact types. The root type artifact represents a category containing all SOA artifact types defined.

Properties

Artifacts have properties. There are three kinds of property:

- **Primitive Properties.** Examples of primitive properties are name, description and timestamp.
- **Taxonomy-based properties.** Taxonomies are used for the categorization of artifacts. Examples include geographical location, lifecycle stage and importance.
- **Relationships.** Relationships capture logical as well as physical dependencies between artifacts enabling, for example, impact and what-if analysis. Relationship-based properties are either explicitly created by users or implied by the model for a type of source document and related target document.

Relationships

You can create a relationship between two artifacts by selecting an artifact and associating it with another artifact. Artifact relationships are reciprocal and SOA Systinet automatically creates the inverse relationship.

Taxonomies

Taxonomies are also known as value sets. A taxonomy defines a set of values that can be used for the categorization of artifacts.

SOA Systinet typically uses taxonomies to define sets of fixed values. These are usually referred to as categories. The categories of a taxonomy can be organized either hierarchically or as a flat list.

In SOA Systinet, taxonomies are not checked, which means that property values (categories) are not validated.

4 User Perspectives

SOA Systinet is designed to be flexible. It supports a variety of typical requirements, yet recognizes that there are many other use-cases and scenarios in the SOAs of different enterprises.

To meet the needs of typical users, a number of *perspectives* are defined by default. These perspectives are designed to meet the needs of typical user roles. This documentation also uses these perspectives to explain SOA processes, but like other aspects of the system, perspectives are designed to be customizable.

Furthermore, a user is not forced to assume a particular perspective. The web UI enables information to be viewed from any perspective based on permissions granted by the administrator. A user can switch to any permitted perspective at any time. Access to available information is limited only by security mechanisms.

Perspectives make it possible to present the information most relevant to particular users according to their typical use of SOA Systinet.

The default perspectives offered by SOA Systinet are:

- **Administrator.** The administrator perspective is designed for the administrator of the users, groups and perspectives in SOA Systinet as well as other critical functions. The perspective displays account management, access rights and other features not intended for use by other users.
 - ▶ The administrator role is a role in SOA governance and lifecycle management and not necessarily in the system administration of SOA Systinet itself.
- **Service Publisher.** The service publisher perspective is designed for users who publish, implement and manage business services. The perspective displays service management and publication features not visible to the general user.
- **General.** The general perspective is intended for users who are not involved in the administration of SOA Systinet or the publication and implementation of services. Typically, they are service consumers who do not need to see service publication and management features.

The administrator can configure perspectives in SOA Systinet. For more information, see the HP SOA Systinet Administration Guide.

5 Services

A business service in SOA Systinet is a high-level abstraction of a service in business rather than technical terms.

SOA Systinet includes the Service Catalog to publish and implement your services and then make them available to consumers, as follows:

- **Service Implementation.** The service catalog is the gateway to service provision. From this view of services it is possible to manage all the associated implementations, documentation and usage plans.
- **Service Discovery.** SOA Systinet provides several patterns of service discovery ranging from searching the repository, exposing services via WSIL or RSS, or exposing them via a UDDI registry such as HP HP SOA Systinet Registry.

This chapter introduces these concepts in the following sections:

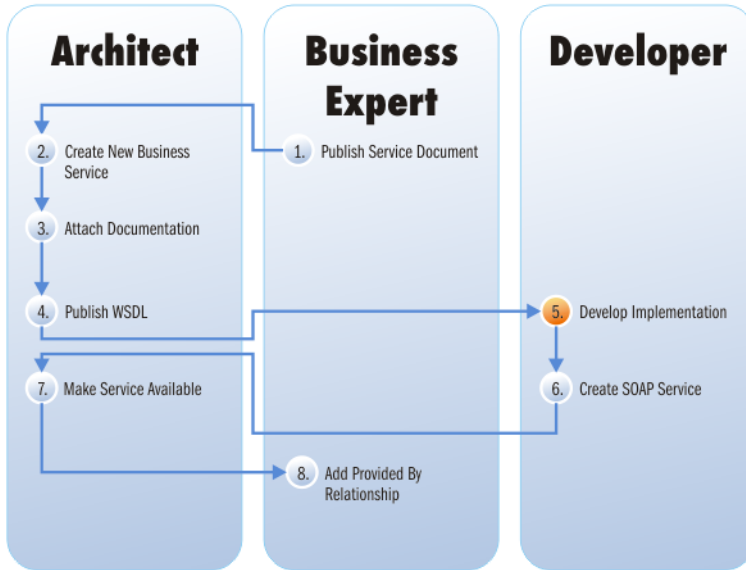
- **Service Implementation on page 19.** An brief look at Services in SOA Systinet

Service Implementation

One of the main uses of SOA Systinet is to publish and implement business services.

SOA Systinet uses a set of publication wizards enabling services to be added to your SOA and made available to consumers. The lifecycle diagram describes a typical publication procedure and the steps required to achieve this. Each step is described in brief in this section and explained in detail in the HP SOA Systinet User Guide.

Figure 1. Business Service Lifecycle



- **Business Expert**

- 1 The business expert publishes a service document in SOA Systinet describing a proposed new service. See Adding Documentation.

- **Architect**

- 2 The architect receives notification of the new service requirement and having reviewed the documentation creates a new business service. See Creating a Business Service.

- 3 The existing service document and a new technical document is created and attached to the service. See Adding Service Documentation.

- 4 A WSDL document is published containing a technical description of the service. See Publishing Metadata.

- Developer
 - 5 The developer then reviews the documentation and uses the WSDL to develop an implementation of the business service (for example, in MS Visual Studio).
 - 6 Having completed development a SOAP service is added to the business service with relevant documentation. See [Adding a SOAP Service](#).
- Architect
 - 7 The business service is then made available by editing it and changing its **Lifecycle Status** to production and setting the **Enable Consumption Requests** flag. See [Making the Service Available](#).
- Business Expert
 - 8 The business expert then adds another relationship describing who the service is provided by. See [Adding a Relationship](#).

6 Governance

SOA Systinet provides a full suite of governance utilities allowing you to control your SOA as it grows and evolves.

This chapter introduces the one important concept in SOA Systinet governance:

- **Tools, Tasks, and Reports on page 23.** The SOA Systinet suite of tools allows you to create a set of automated scheduled tasks that produce reports giving you complete visibility and control of your SOA.

Tools, Tasks, and Reports

SOA Systinet allows you to monitor your SOA through the use of tools, tasks, and reports.

Tools provide additional functionality for the repository content. The tools can keep the repository content up-to-date, check the validity of artifacts against their schemas (for example whether WSDL is valid against the WSDL schema), impose data integrity according to additional rules in published artifacts (for example, that every service must be associated with an architect). Also, impact management helps users to understand the dependencies between artifacts and allows them to assess the impact of changes to their artifacts (for example what happens if an XSD document is changed).

A *task* specifies the execution of a tool on selected artifacts or resources.

The result of executing a tool is a *report*.

Every use case is provided by a particular tool. Tools are organized as special artifact types; each tool is represented by an individual artifact. Currently SOA Systinet contains the following tools which are described in full in the User Guide:

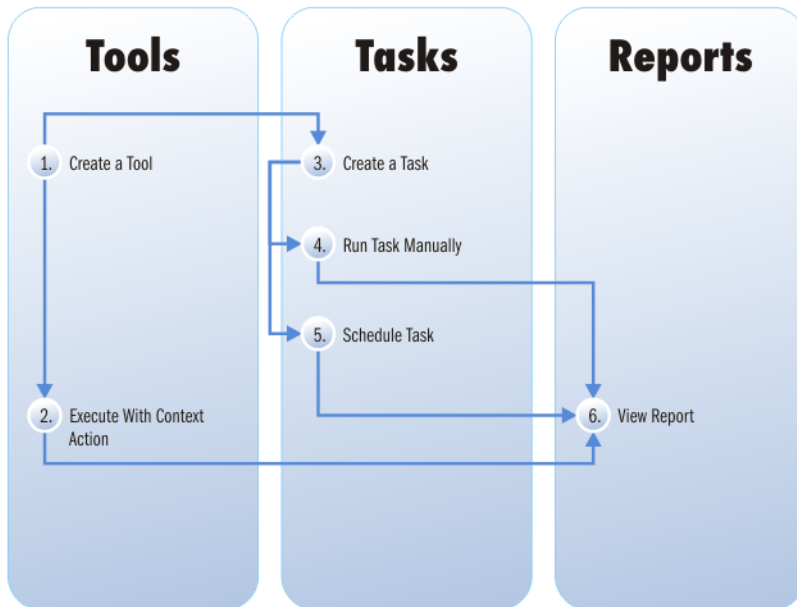
- **Impact Tools.** *Impact Management* tools enable you to perform impact and dependency analysis.
- **Sync Tools.** Change management tools are used to keep the blueprint of the corporate SOA being maintained by SOA Systinet in synchronization.

- **Job Tools.** Job Tools are a way of using customized Java Classes to perform specific functions.
- **Reporting Tools.** Reporting Tools access scripts created on the reporting server

The automation of the governance tasks to ensure that the corporate SOA is under continuous control is described in Scheduling a Task in the HP SOA Systinet User Guide.

There are a number of ways to make use of these tools in order to produce reports. The lifecycle diagram shows the different ways to execute a tool to produce a report. Each step is described in detail in the SOA Systinet User Guide.

Figure 1. Tool Execution Lifecycle



1 You can create several types of tools or use the tools provided with SOA Systinet. The creation of each tool is explained in detail in the HP Systinet User Guide:

- Impact Tools

- Sync Tools
 - Job Tools
 - Reporting Tools
- 2 Using a context action it is possible to execute a tool from the detail view of artifacts. The tools it is possible to run in this way will depend on the artifact. See the Context Actions section in the description of each tool. Performing these actions will immediately produce a report of the results of the execution of that tool on that artifact.
 - 3 An alternative to running a tool directly is to create a task. This is more useful than directly running a tool because it is possible to create a particular task requiring a document or collection to be checked using the tool on a periodic basis. See [Creating a Task](#).
 - 4 After you create a task you can execute it at any time, immediately producing a report by clicking **Run** on the detail page of the task.
 - 5 Alternatively, set a time for the task to be executed or even establish a schedule for the task to be performed on a periodic basis. See [Setting a Schedule](#).
 - 6 The result of a tool or task execution is a report. For more information, see [Reports](#).

7 Additional Features

In addition to the other features and concepts described in this guide, SOA Systinet also includes:

User Management. The administrator can manage users and groups and configure registration characteristics and access rights. See User Account Management in the HP SOA Systinet Administration Guide for details.

Single Sign-On. SOA Systinet uses SSO to enable you to access different applications using a single login.

Categorization. Predefined taxonomies allow you to categorize and classify the artifacts in your SOA. This enables lifecycle management, and searching and filtering according to the needs of your organization. Taxonomies can be imported from the **Tools** tab. A separate product, HP SOA Systinet Taxonomy Editor, is also available to create and manage taxonomies.

Registry Integration. Customizable mapping between UDDI registries and SOA Systinet is used to enable imports and integration. The Registry Integration chapter in the HP SOA Systinet User Guide describes this feature in detail.

HP Business Availability Center Integration. SOA Systinet utilizes service availability statistics by integrating with HP BAC. The BAC Integration chapter in the HP SOA Systinet User Guide describes this feature in detail.

LDAP Integration. SOA Systinet can integrate with user accounts held on an LDAP server.

API. The REST Http Interface provides another way to access the repository. It is intended for developers who wish to manipulate and query the repository without using the web interface. The REST Interface chapter in the HP SOA Systinet Developer Guide provides detailed information about the features and uses of the API.

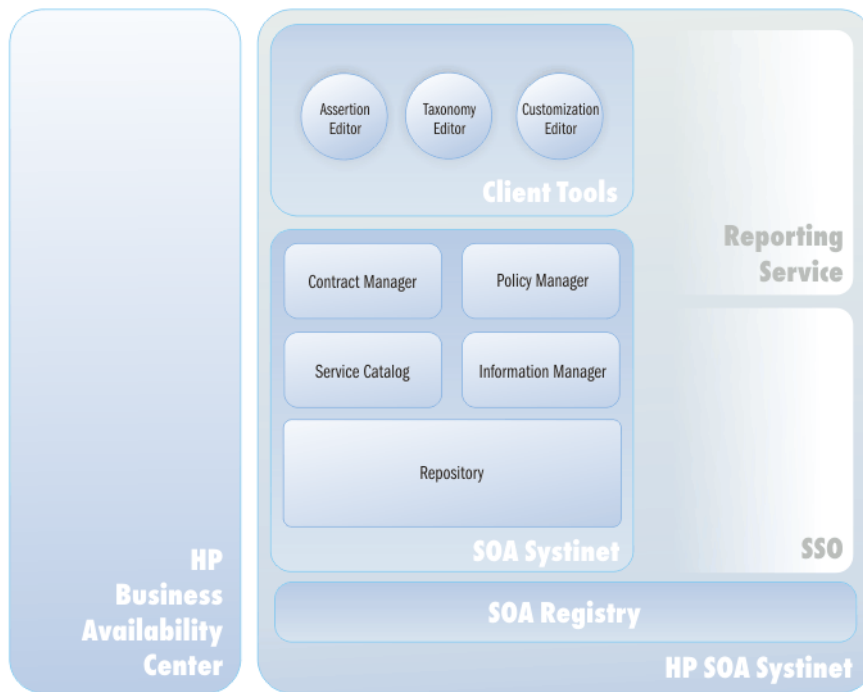
RSS Subscription and Notification. RSS allows you to subscribe to constantly updated information giving notification of changes to repository data. The RSS chapter in the HP SOA Systinet Developer Guide describes the types of feeds supported and how to use them.

W3C Accessibility Compliance. SOA Systinet is fully compliant with the W3C Guidelines on accessibility. More information about this can be found at the [Web Accessibility Initiative website](http://www.w3.org/WAI/) [http://www.w3.org/WAI/].

8 HP SOA Systinet Product Family

SOA Systinet is part of a larger family of SOA products designed to cover the entire range of SOA requirements.

Figure 1. HP SOA Systinet Products



HP SOA Systinet

Designed to enable SOA to be established and governed in a production environment with the following components:

- The **Visibility Edition** consists of:
 - The **Service Catalog** is the entry point for the provision and management of services.
 - **Information Manager** provides a suite of governance tools and low level access to the repository.
 - The **Reporting Service** monitors and report on your SOA.
 - The **SSO Service** manages access to Systinet products with a single login per user.
 - The **Repository** organizes and manages your SOA data.
- In addition the **Standard Edition** contains:
 - **Policy Manager** enables your production environment to conform to your business policy.
 - **Contract Manager** enables the management of provider-consumer relationships.

Client Tools

Included with SOA Systinet are a set of client tools enabling you to customize your SOA environment:

- The **Customization Editor** enables you to customize the SOA model and the navigation and appearance of the user interface in SOA Systinet.
- The **Assertion Editor** enables the creation of the building blocks of technical and business policies.
- The **Taxonomy Editor** enables the creation of customized taxonomies to categorize your SOA artifacts according to your needs.

HP SOA Systinet Registry enables the publication and indexing of your services in a central location.

HP Business Availability Center. SOA Systinet integrates with HP BAC in order to access service availability statistics allowing you to monitor actual performance against your service level objectives.



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