Systinet

Software Version: 10.03
Windows and Linux Operating System

Concepts Guide

Document Release Date: April 2017
Software Release Date: April 2017

Hewlett Packard
Enterprise

Legal Notices

Warranty

The only warranties for Hewlett Packard Enterprise products and services are set forth in the express warranty statements accompanying such products and services. Nothing herein should be construed as constituting an additional warranty. Hewlett Packard Enterprise shall not be liable for technical or editorial errors or omissions contained herein.

The information contained herein is subject to change without notice.

Restricted Rights Legend

Confidential computer software. Valid license from Hewlett Packard Enterprise required for possession, use or copying. Consistent with FAR 12.211 and 12.212, Commercial Computer Software, Computer Software Documentation, and Technical Data for Commercial Items are licensed to the U.S. Government under vendor's standard commercial license.

Copyright Notice

© 2003 - 2017 Hewlett Packard Enterprise Development LP

Trademark Notices

Adobe™ is a trademark of Adobe Systems Incorporated.

Microsoft® and Windows® are U.S. registered trademarks of Microsoft Corporation.

UNIX® is a registered trademark of The Open Group.

This product includes an interface of the 'zlib' general purpose compression library, which is Copyright © 1995-2002 Jean-loup Gailly and Mark Adler.

Documentation Updates

To check for recent updates or to verify that you are using the most recent edition of a document, go to: https://softwaresupport.hpe.com/.

This site requires that you register for an HP Passport and to sign in. To register for an HP Passport ID, click **Register** on the HPE Software Support site or click **Create an Account** on the HP Passport login page.

You will also receive updated or new editions if you subscribe to the appropriate product support service. Contact your HPE sales representative for details.

Support

Visit the HPE Software Support site at: https://softwaresupport.hpe.com/.

Most of the support areas require that you register as an HP Passport user and to sign in. Many also require a support contract. To register for an HP Passport ID, click **Register** on the HPE Support site or click **Create an Account** on the HP Passport login page.

To find more information about access levels, go to: https://softwaresupport.hpe.com/web/softwaresupport/access-levels.

HPE Software Solutions Now accesses the HPSW Solution and Integration Portal website. This site enables you to explore HPE Product Solutions to meet your business needs, includes a full list of Integrations between HPE Products, as well as a listing of ITIL Processes. The URL for this website is https://softwaresupport.hpe.com/km/KM01702731.

About this PDF Version of Online Help

This document is a PDF version of the online help. This PDF file is provided so you can easily print multiple topics from the help information or read the online help in PDF format. Because this content was originally created to be viewed as online help in a web browser, some topics may not be formatted properly. Some interactive topics may not be present in this PDF version. Those topics can be successfully printed from within the online help.

Contents

Chapter 1: HPE Systinet Overview

HPE Systinet is the foundation of application and service infrastructure management. HPE Systinet is a design-time governance platform for application and service infrastructure. It enables you to publish, maintain, develop, and govern your application and service infrastructure in a central catalog. HPE Systinet provides extensive functionality enabling you to take an application or service from a design document through its entire development lifecycle into production and then manage the relationships between providers and consumers. Throughout the lifecycle you can ensure that your content maintains its consistency and conforms to your company policy.

HPE Systinet helps organizations to manage APIs and application integrations of heterogeneous IT systems. It promotes collaboration of IT teams by uniting APIs meta data from the IT environment. It enables maximum visibility, service reuse and application interoperability. It provides flexible and cost-effective implementation of composite applications, micro services and application integrations in cloud environment.

Key Features

The following are the key features of HPE Systinet:

- Technology independent API management repository supporting SOAP, REST, Swagger and more

- Automated subscription management, auditing and versioning

- Configurable lifecycle processes and task-based workflows

- Design-time cross-team standards validation, enforcement and KPI reporting of acceptance criteria

- Powerful visualization tools for API modeling and impact analysis

The following image provides an overview of HPE Systinet capabilities:

HPE Systinet achieves the business competitiveness by handling the following challenges:

- Modern applications – compositions with complex dependencies

- Multiple business channels – portals, mobile, cloud, IoT

- Cloud vs. on-premise applications – manage connectivity

- DevOps and integration testing in continuous delivery

- Massive redundancies of data and API functionality

- API market is a new growing business model

User Persona

HPE Systinet caters to the following target user persona:

Target Persona	HPE Systinet solution
Integration team	Manage APIs, versioning of APIs, and API lifecycle process. Perform impact analysis.
API architect	Design new API.
Tester	Test API and perform impact analysis.
Solution architect	Discover and introduce new APIs, retire old APIs, and impact analysis.
Developer	Integrate with API and develop new API.
Ops team	Impact analysis and API documentation.

HPE Systinet Documentation Set

HPE Systinet documentation set consists of core guides, non-core guides and online help. The core guides include documents that help you understand the concepts, install and configure the product, administer and customize HPE Systinet. The non-core guides help you understand system requirements, supported versions of software and hardware, set up virtual appliance, and user guides to understand workbench editors.

The following image gives an overview of the HPE Systinet documentation set:
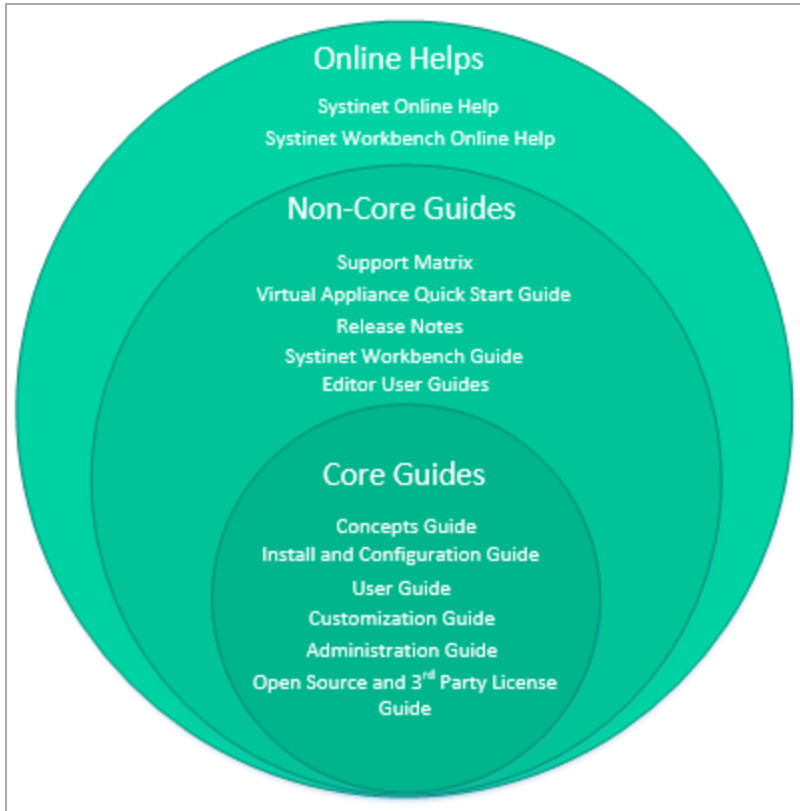
For a complete list of all the documents and their links to download, refer *HPE Systinet Documentation Library*.

Chapter 2: System of Records for Web Services and APIs

HPE Systinet software is designed to create, develop and share APIs with no constraints, govern service lifecycle and ensure standards compliance. HPE Systinet help speed-up solution analysis, reduce API redundancies, cross-team collaboration, and measure API quality and KPIs. In other words, HPE Systinet is a system of records for web services and APIs.

The following capabilities make HPE Systinet a system of records for web services and APIs:

Artifacts Repository

HPE Systinet is a catalog that stores your application interface, application components, and contracts as artifacts.
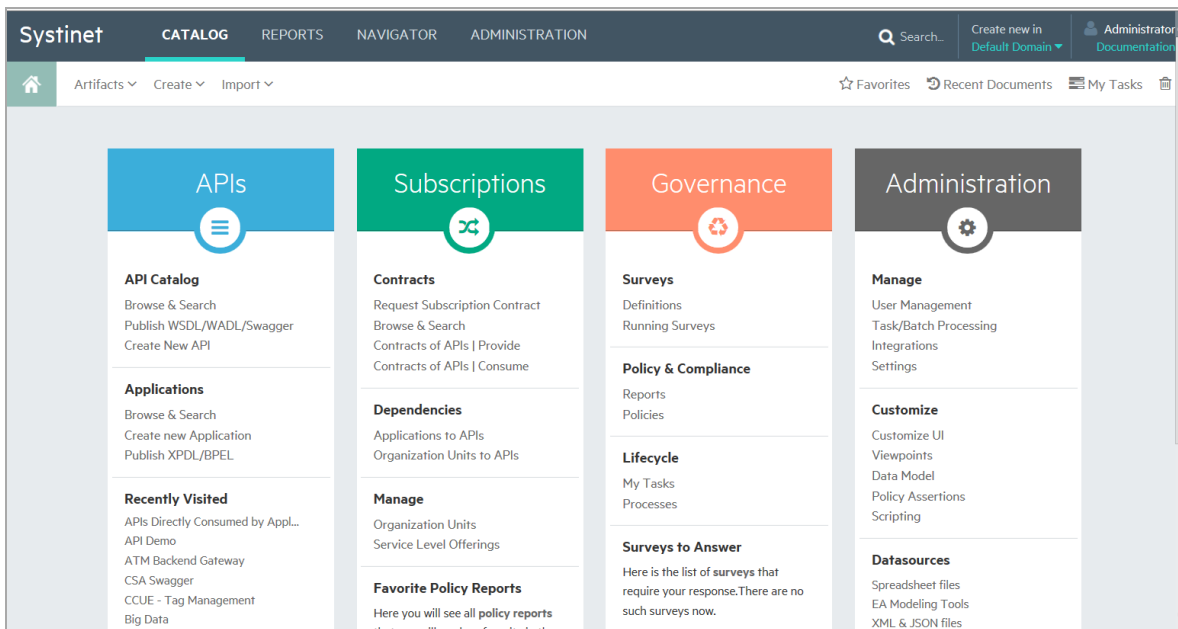
The Catalog provides a single, central storage point enabling you to organize your data and metadata. The Catalog stores and organizes your business data. The most important entities in your business, such as services and their implementations, users and groups, projects and business processes, are represented in the Catalog by artifact instances. The Catalog provide a central reference point for

governance and provision. The content of the Catalog conforms to the Service Definition Model or Systinet Data Model (SDM).

The SDM defines the structure of artifacts, their properties and relationships that HPE Systinet repository works with. The SDM is a schema describing the hierarchy of artifact types in HPE Systinet. The model consists of a hierarchy of artifact types with each artifact type defining the set of properties applicable to it. The hierarchy enables properties to be defined for a higher level artifact and then inherited by the artifact types beneath it. Common properties are also organized into property groups which are assigned to artifact types.

For more information, refer *HPE Systinet User Guide* and *HPE Systinet Customization Guide*.

Role Based Security, Domains

HPE Systinet offers functionality across the entire service development lifecycle. In most organizations, these functions are performed by many individuals and teams with specific permissions. HPE Systinet uses Roles to enable you to define and assign these permissions. Defining and assigning the permissions allows you to focus on user or group on specific functionality or tasks. Also helps you to restrict their access to artifacts appropriate to the role.

HPE Systinet enables the administrator to assign users to specific roles based on their job. These roles restrict their access to artifacts, and limit their functionality that is appropriate to their role.

Most organizations restrict access to resources by user and group permissions. HPE Systinet extends this type of security by enabling the use of domain and role-based access rights. HPE Systinet uses Access Control Lists (ACL) to define who can access particular resources and their permissions. Each ACL consists of a set of Access Control Elements (ACE) which define a resource or collection of resources.

Domains provide a logical separation of data within the Catalog. Each domain can represent a discrete working area for an individual department or organizational unit. This separation allows users to focus on the data that is most relevant to them and enables data to be structured by working area.

HPE Systinet enables the administrator to a create domain structure that reflects the organization of your business. Each artifact in the Catalog belongs specifically to one domain and the administrator can assign users specific roles in specific domains. This enables you to organize your Catalog and restrict the access and visibility of data to only those users who need it.

For more information, refer *HPE Systinet Administration Guide*.

Collaboration

HPE Systinet is a collaborative platform enabling you to actively participate and provide information to other users throughout the service lifecycle.

HPE Systinet provides the following collaboration features:

- Comments

- Notifications

- Events

- Tasks

- Ratings

- Feeds

- Sharing

For more information, refer *HPE Systinet User Guide*.

Publishing

HPE Systinet enables you to upload data content with specific support for definition documents that describe application infrastructures. HPE Systinet processes the content of the document and enables you to create or modify artifacts to represent this infrastructure in Systinet.

HPE Systinet can process the following definition document types:

- Swagger

- Web Service Definition Language documents (WSDL)

- Web Application Description Language documents (WADL)

Simple Object Access Protocol (SOAP) services use a transport protocol, typically HTTP (known as SOAP over HTTP). It is also possible to use Java Message Service (JMS) as a transport protocol for underlying SOAP communication. JMS provides a more robust and reliable method for transporting SOAP messages than HTTP. Web services that use the JMS transport protocol can be described in WSDL attributes. HPE Systinet publishing detects these attributes and applies them to the appropriate artifacts during upload.

For more information on how to publish content, refer *HPE Systinet User Guide*.

Version

All services and artifacts have version numbers assigned to them by HPE Systinet when they are created, or imported to the Catalog. As users create new versions, the versioning process within HPE Systinet implements automatic changes to version numbers for individual artifacts, groups of artifacts, or the entire service, based on the scope of the changes being made.


When a version is created in HPE Systinet then a new branch (newly created artifact instance) is created. The properties of the new branch are automatically set according to the previous version. In other words, as a starting point, the new branch is essentially a clone of the previous version. HPE recommends creating a new branch only when it is necessary to have more than one active version (artifact instance) at the same time.

You can use the Version in Artifact View page for quick navigation between different versions (branches). The Version Tree, Show Audit Log and New Version context actions in Artifact View page help you manage the versions.

The following image is an example of the version tree:
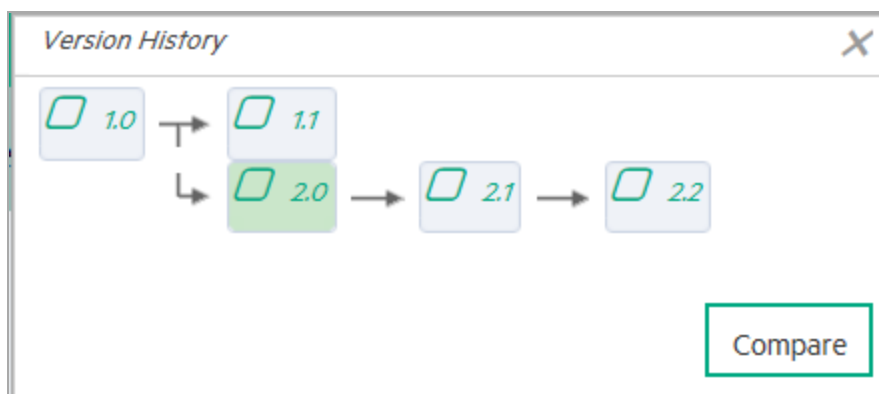
For more information, refer *HPE Systinet User Guide*.

Revisions

Revisions are used to track changes to individual artifacts and content in the catalog. HPE Systinet stores a complete history of each artifact instance as a revision. Whenever an artifact changes Systinet automatically creates a new revision. There is no versioning schema associated with the tracking of revisions. You normally work with the latest revisions of artifacts in the UI, but the History tab in Artifact View page enables you to view and compare different artifact revisions and see the history of all changes.

	Revision ▲	Date	Actor	Lifecycle Stage	Lifecycle Process
☐	1	5/10/2015	👤 HP Systinet Administrator	Development	Application Lifecycle
☐	2	10:21 AM	👤 HP Systinet Administrator	Development	Application Lifecycle
☐	3	10:28 AM	👤 HP Systinet Administrator	Development	Application Lifecycle
☐	4	10:28 AM	👤 HP Systinet Administrator	Development	Application Lifecycle

For more information, refer *HPE Systinet User Guide*.

Chapter 3: Subscriptions Management

HPE Systinet subscriptions management includes managing applications using APIs, lifecycle based contract development, and approval process.

Applications Using APIs

HPE Systinet provides list of all applications with provided and consumed APIs. It also provides list of contracts with their status and usage monitoring.

For a provided service to be consumed, there are several steps required by the provider and a discovery process for the consumer. Having found a service that meets their requirements the consumer and provider can establish a contract.

For more information, refer *HPE Systinet User Guide*.

Lifecycle Driven

Artifacts have several lifecycle stages ranging from being merely a candidate through development, implementation, and eventual deprecation and reuse. Each stage has own specific features and each organization has different detail requirements for these different stages. The stages can be divided into development and runtime stages and before a service can be allowed to move from one stage to another, all necessary policy requirements and approvals must be in place.

In HPE Systinet lifecycle processes are defined and given policy, task and approval requirements by an administrator. These processes are then either automatically or manually applied to artifacts.

When all the requirements and tasks are complete, the artifact owner makes a request to move the process to the next stage. If the administrator has assigned approvers, they are notified and are required to vote on approval. Depending on transition type, the governed artifact moves to the next stage and the lifecycle automatic actions defined for these stages are triggered.

For more information, refer *HPE Systinet User Guide*.

Approval Process

In HPE Systinet, each stage of an artifact in a lifecycle undergoes an approval process. The following image describes the flow of each lifecycle stage:
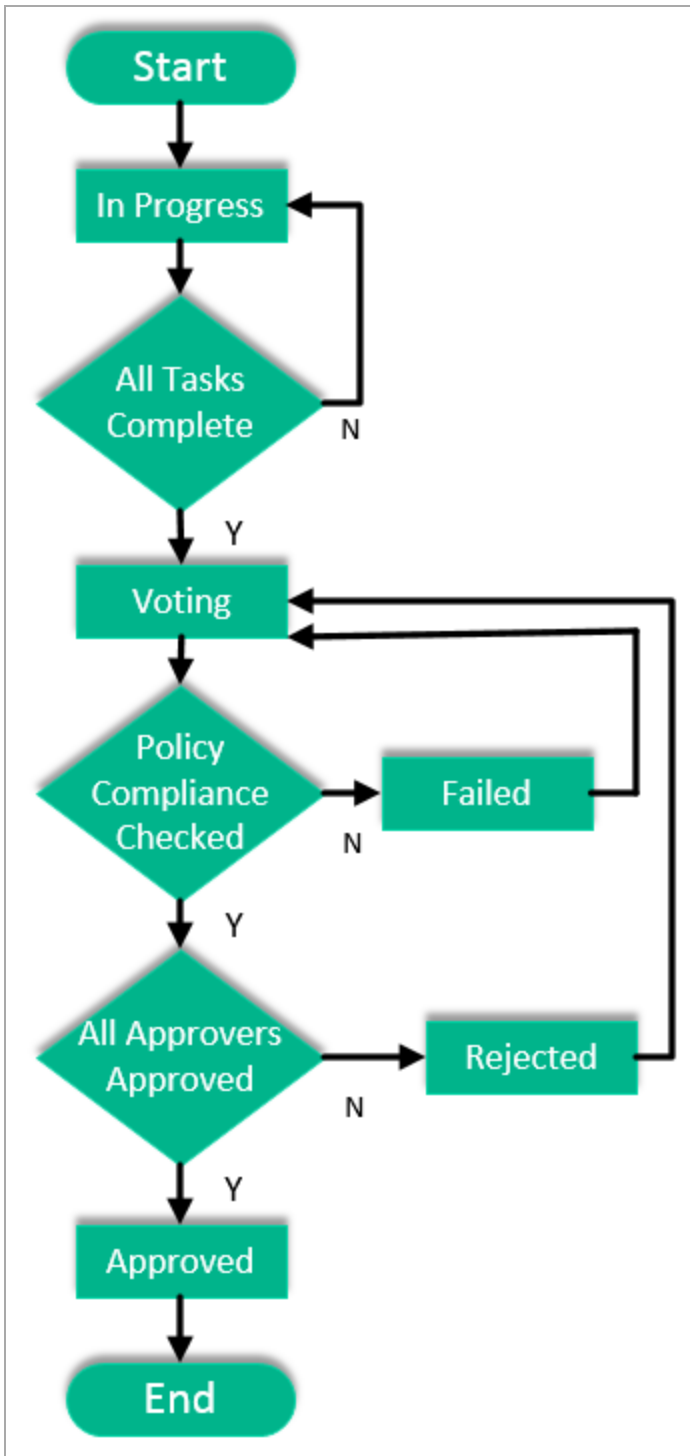
When an artifact enters a stage then the stage has the initial status set as *In Progress*. After all tasks have been completed , a user requests approval and the stage status is changed from *In Progress* to *Voting*. At the beginning of *Voting*, the system checks whether all required policies are complaint. If not, the status is changed from *Voting* to *Failed*. The requestor is informed about the failed policy validation and he must repair the artifact and then request for approval again. Once all required policies are compliant, approvers are notified that their vote is required. When all approvers approve the request, the stage status is changed from *Voting* to *Approved*. If any approver rejects the request, the request is rejected (regardless of the fact that some approvers may approve it) and the stage status is change from *Voting* to *Rejected*. The requestor is notified about the rejection and he must repair the artifact(s) and request approval again.

Chapter 4: Reports and Navigator

The HPE Systinet Navigator functionality displays the structure and dependencies of the applications, services, and processes in the Catalog, rather than focusing on details of single artifact.
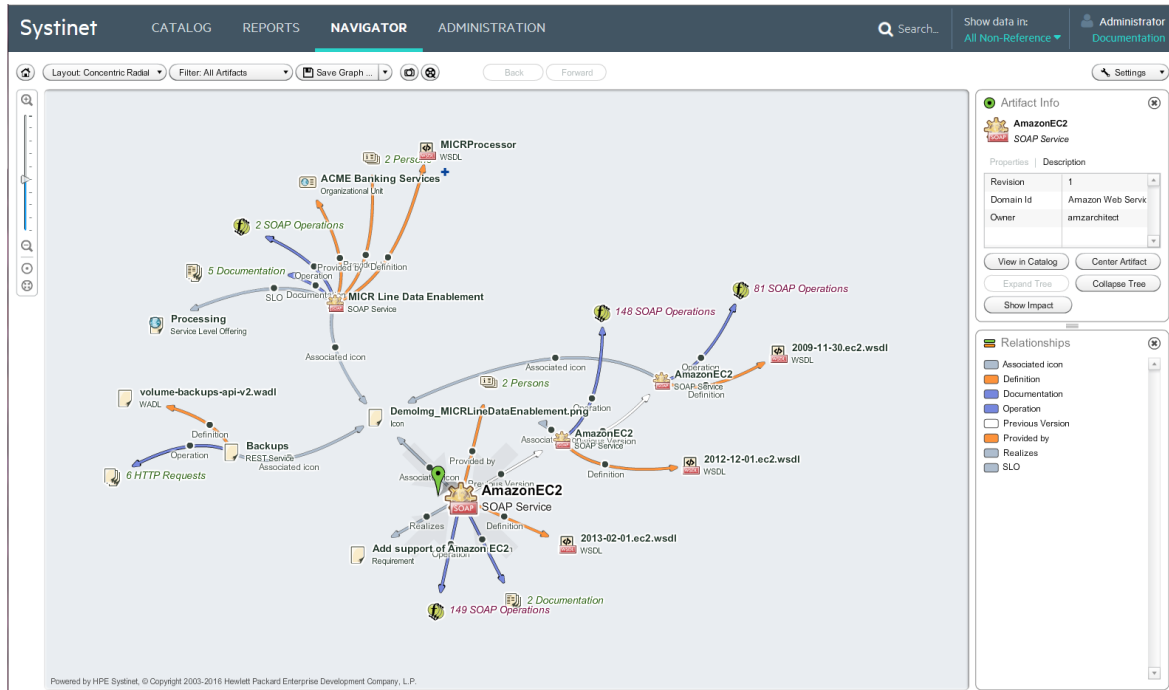
HPE Systinet provides many reports that you can run based on the artifacts. On the Reports tab, you can access many artifact, policy, and custom reports. You can also customize the reports that appear on your dashboard.
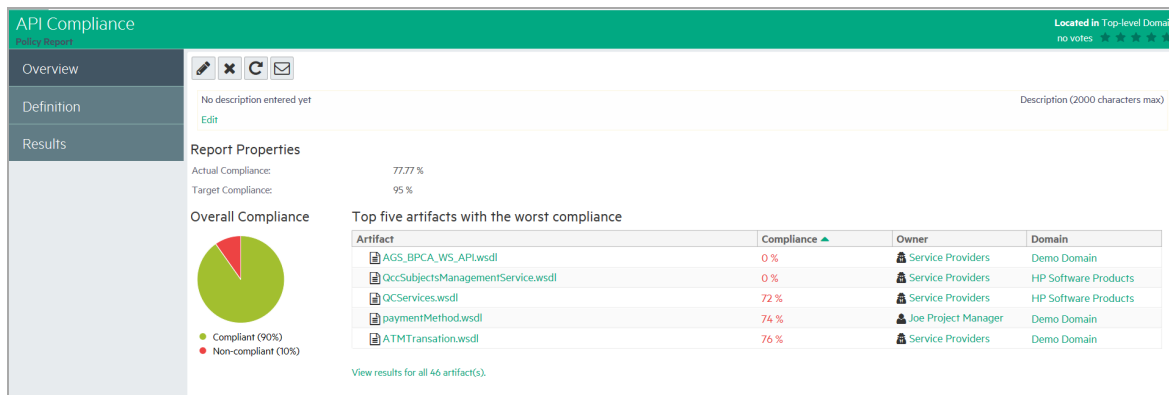
Dependency and Impact Analysis

HPE Systinet allows you to manage relationships to understand impacted objects and dependencies of a decision.

- **Reports ViewPoints**: from this report, we could have the analysis impacted objects or dependencies of selected artifact through layers of model.

- **Tree view**: Systinet provide a Tree View tab in artifact view page. From this page, you can view the analysis of impacted objects or dependencies.

- **Navigator**: You can also see the impacted objects of selected artifact from Navigator view page.

For more information, see *HPE Systinet User Guide*.

Extensible Reporting Framework

HPE Systinet allows you to customize your reports. Administrators can therefore create and deploy new reports without having to restart Systinet.

Administrators are authorized to create new reports and add them in to HPE Systinet. This is a complicated task and requires extensive knowledge of various concepts such as DQL, script editing and data source definition syntax.

For more details on DQL and report creation, see *HPE Systinet Customization Guide*.

Chapter 5: Runtime Integration (RGIF)

HPE Systinet implements runtime integration using the Runtime Gateway Interoperability Framework (RGIF). RGIF provides enforcement of both run-time and design-time policies and is based on Systinet contract management with contracts being identified during run-time as well as detecting rogue services. Service proxies are auto-deployed to run-time integration as managed endpoints and service capacities are monitored on a per contract basis. The RGIF interface helps HPE Systinet to communicate with Policy Enforcement Point (PEP).

Contracts Provisioning

HPE Systinet RGIF allows you to:

- define workflow with approval process.

- customize policies and control manual tasks.

- monitor contract service.

- track complete history from design time to run time.

- identify capacity issues and plan accordingly.

Discovery

HPE Systinet RGIF provides ability to discover REST and Web services from PEPs.

From runtime devices, web services are discovered and synchronized to Systinet as artifacts, while REST services are synchronized as API artifacts. Discovered artifacts could then be governed within Systinet or deployed to different runtime devices or environments.

Policies from runtime devices are also discovered, decomposed and synchronized into Systinet as RGIF artifacts (proxy, universal policy and policy parameter artifacts).

Third Party Appliances (Layer7)

HPE Systinet RGIF features multi-device support. The following Third Party appliances are supported for automatic configuration of runtime governance integration:

- Vendor neutral (Layer 7, IBM Datapower)
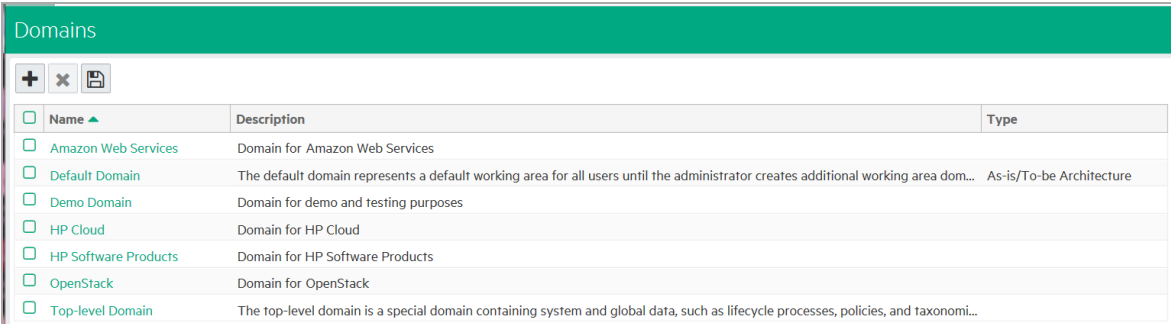
- Open Architecture

For more information, refer *HPE Systinet User Guide*.

Chapter 6: Administration

Administration in HPE Systinet can be broadly classified in the following areas:

Manage Content

The most important content management concept in HPE Systinet is the use of Domains. The administrator can create a domain structure that represents your organizational structure. Each domain represents a working area with users assigned to specific roles within each domain and the content of the domain managed to restrict its visibility and access rights.

Domains		
Name ▲	**Description**	**Type**
Amazon Web Services	Domain for Amazon Web Services	
Default Domain	The default domain represents a default working area for all users until the administrator creates additional working area dom...	As-is/To-be Architecture
Demo Domain	Domain for demo and testing purposes	
HP Cloud	Domain for HP Cloud	
HP Software Products	Domain for HP Software Products	
OpenStack	Domain for OpenStack	
Top-level Domain	The top-level domain is a special domain containing system and global data, such as lifecycle processes, policies, and taxonomi...	

The administrator is also responsible for the day-to-day maintenance of the data content in the Catalog and reports about its status.

Manage Users

The management of users is normally delegated to an external user store, such as LDAP, where the management of the people and groups who actually use HPE Systinet should take place. You can import user from LDAP and synchronize profiles with LDAP.

HPE Systinet handles user management by assigning roles and groups to the users.

Manage Security

HPE Systinet manages and controls user access to Catalog content. HPE Systinet uses Access Control Lists (ACL) to restrict access based on users, groups, or roles.

Manage Lifecycle Process

In Systinet lifecycle processes are defined and the administrator provides the policy, task, and approval requirements. These processes are then automatically or manually applied to artifacts. Manual lifecycle tasks can be assigned to different users and can have policies that must be validated before a task is completed. Policies as well as permissions can be associated with the lifecycle process stage.
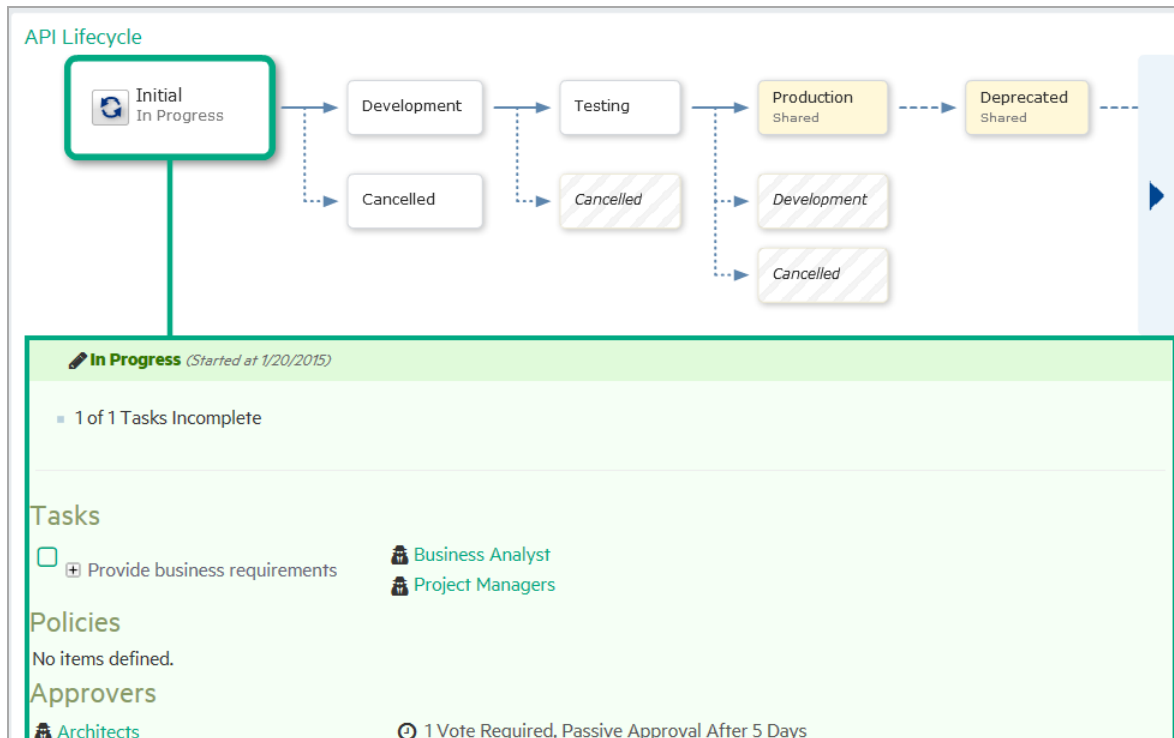
Manage Validations

HPE Systinet allows to perform validation of all artifacts in governance against the policies that apply to their current lifecycle stage.

Policy management and validation uses the following artifact types:

- **Technical Policy** - A technical policy consists of a set of assertions and references to other technical policies, and serves as the central point of reference for validation.

- **Assertion** - An assertion is a validation check for a single piece of data which can either pass or fail.

- **Lifecycle Stage Validation** - Lifecycle stages in a lifecycle process can have a set of policies associated with them that serve as validation checks for artifacts at that lifecycle stage.

Manage Customization

HPE Systinet administers customize data model definitions, catalog pages, and reports. For more information, refer *HPE Systinet Customization Guide*.

HPE Systinet also facilitates role-based UI customization where users are presented with information and functionality relevant to their roles.

For more information, refer *HPE Systinet Administration Guide*.

Chapter 7: Policy Management and Governance

HPE Systinet enables you to validate Catalog content against published policies to ensure its consistency and conformance to your business policy.The policies can be used to ad doc or scheduled validation in the following ways:

- **Lifecycle Stage Validation**

  Lifecycle stages in a lifecycle process can have a set of policies associated with them that serve as validation checks for artifacts at that lifecycle stage. Policies can be optional or required and can also validate that tasks associated with the stage are complete. These policies are automatically validated when a user requests stage approval or can be manually validated by users.

- **Manual Validation**

  You can use the Policy Report feature of the Reports tab to perform ad-hoc manual validation. You can set up a policy report which validates a selected set of artifacts against a set of selected technical policies.

- **Artifact Form Validation**

  The administrator can configure a set of technical policies that validate an artifact whenever it is created or modified. You can use this type of validation to ensure that new and amended artifacts contain a minimum set of descriptive data such as keywords and impact type, and enforce rules such as the versioning schema. Each artifact type can have its own set of form validation.

- **IDE Integration**

  HPE Software also provides a set of IDE plugins with integrated policy validation functionality.

For more information, refer *HPE Systinet Administration Guide*.

Chapter 8: Service Look up Discovery and Binding

The RGIF feature of HPE Systinet allows to discover REST and Web services from PEPs. Policies from runtime devices are also discovered, decomposed and synchronized into Systinet as RGIF artifacts. For more information, refer *HPE Systinet User Guide*.

HPE software also provides a set of plug-ins for IDEs that embed Systinet functionality in each development environment. HPE Software provide the following IDE integration products:

- **Systinet Plugin for Eclipse**

  Enables you to search the Catalog, generate service clients and skeletons from Systinet resources, perform local resource validation against Systinet policies, and publish local resources to the Catalog. You can also make contract and lifecycle approval requests and use the Navigator feature from within Eclipse.

- **Systinet Plugin for Visual Studio**

  Enables you to search the Catalog, generate web references from Systinet resources, and publish local resources to the Catalog. You can also make contract and lifecycle approval requests and use the Navigator feature from within Visual Studio.

For more information on IDE integration, refer *HPE Systinet Customization Guide*.