



Service Catalog Integration with ServiceNow

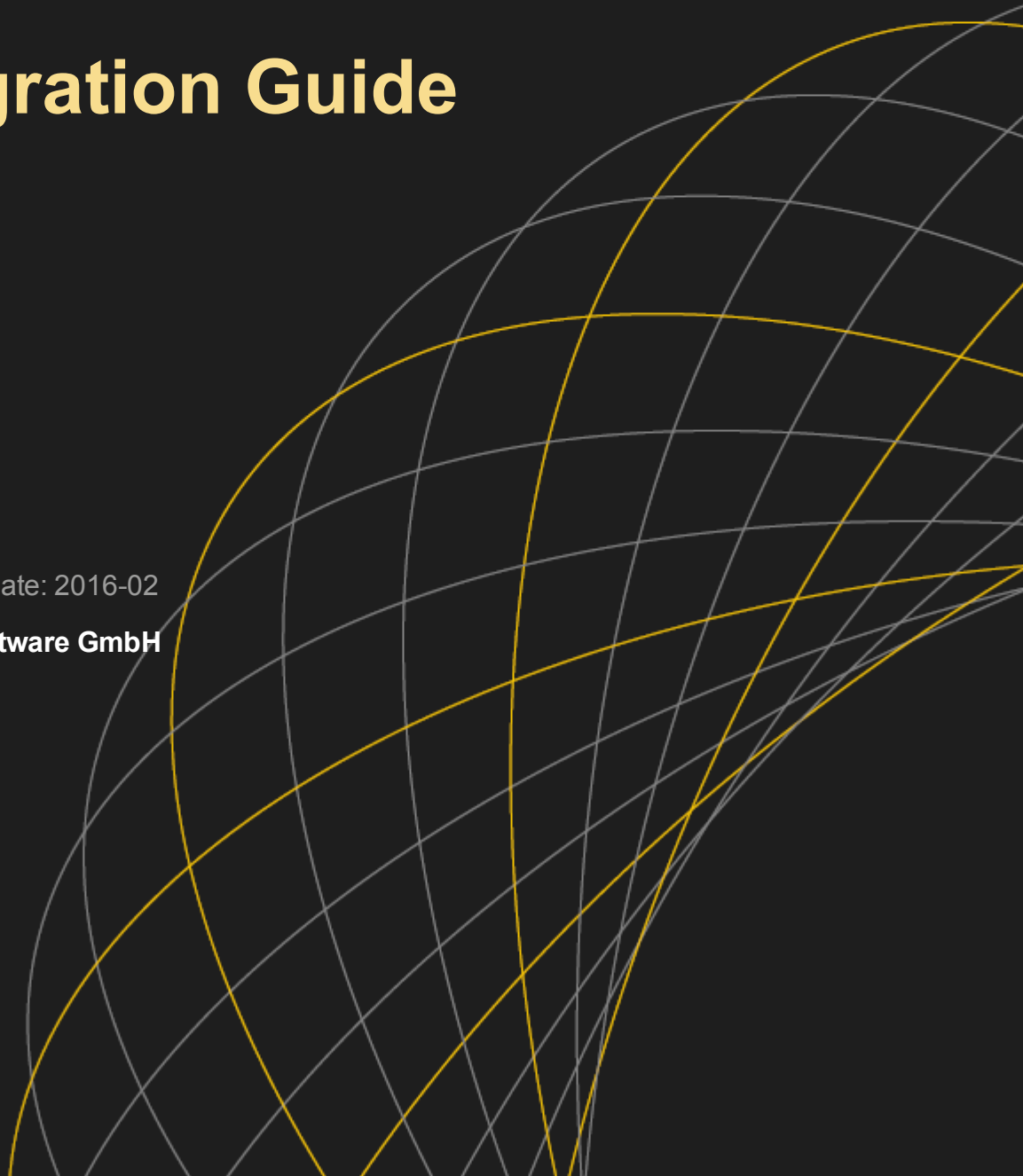
ONE Automation Platform

Integration Guide

Version: 1.1

Publication Date: 2016-02

Automatic Software GmbH



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2016-02-16	Changes reflecting the ServiceNow certified SNSC app version 1.1 for ServiceNow version Fuji and Geneva
2015-09-30	Changes reflecting SNSC version 1.1 BETA for ServiceNow version Fuji
2015-07-13	Changes reflecting SNSC version 1.0.1
2015-04	Updates and improvements due to reviews
2015-02	Descriptions of parameters added, examples clarified regarding login user/password
2014-12	Minor changes reflecting the focus on ServiceNow integration
2014-10	Service Orchestration Offering Guide - All sections new

 Note, that this document is not updated automatically neither by Automic revision service nor any other way. When in doubt that this is not the latest version, contact Automic sales team near your location. Visit <http://automic.com/company/contact-us> for further reference.

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1 About Service Catalog Integration with ServiceNow Integration Guide

Automic congratulates you on using Service Catalog Integration with ServiceNow. This Integration Guide relates to Service Catalog Integration with ServiceNow, a part of our ONE Automation platform. Let's automate your business!

Welcome to the World of Automic!

Automating your business processes – that's what Automic solutions and offerings are about. Financial transactions, software deployment or database operations, to name just a few, with any of these you may adapt the Automic ONE Automation platform and targeted offerings individually to your needs – and relieve every day work from recurrent tasks.

Covered Version

This guide relates to Service Catalog Integration with ServiceNow version .

Vendor Information

Released by Automic Software GmbH, Am Europlatz 5, 1120 Vienna, Austria, www.automic.com


See also [About Automic Software](#), [Community and Support](#).

Content of this Section

This chapter provides a guideline on the document's revision, scope, purpose or target group and on how to use the document.

Revision History and Update Service

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1.1 Scope & Purpose

This guide contains instructions on how to administer, integrate install and configure use/migrate to Service Catalog Integration with ServiceNow version .

1.2 Target Group

This Integration Guide is compiled to be used by personnel who is responsible for the management and execution of software deployment. The personnel has received [Training Services](#) on Service Catalog Integration with ServiceNow at the required level either through Automatic or through an authorized partner.

 Administrators find relevant instructions in the Service Catalog Integration with ServiceNow Administrator Guide.

1.3 Usage

The document structure supports the instructional mode. Therefore, this Administration and Installation/Migration/User Guide contains primarily procedures that reflect the administrator/user's tasks and refers to the [Guides & References](#) section further readings for additional details.

To improve access to relevant information, this guide provides the following structure and features:

- Table of Contents
- System Overview
- Plot of the document
- Search for keywords within and print a topic from electronic media (e.g. PDF, HTML5)

To ensure accessibility and timeliness this Integration Guide has to be

- regarded as part of the product,
- kept with the system to guarantee quick access,
- passed on to subsequent administrators of the product, and
- accurately updated with possible further documentation updates.

1.4 Typographical Conventions








This topic describes the notations and symbols used in this document.

1.4.1 Text

Text	Used For	Examples
Bold	Names of buttons, fields, windows, text fields, symbols, (GUI) elements, columns, flags, login masks, entities and shortcuts.	Option Login to: , Help button, Content tab


<i>Italics</i>	Names of products, programs, documents, chapters and book titles.	<i>Enterprise Control Center</i> help; for more details, see the <i>Getting Started</i> chapter.
Bold italics	Numerations such as in combo boxes, radio buttons, checklists, checkboxes	Set the system and name parameters.

1.4.2 Symbols

Symbol	Description
	Warning, indicates possible problems.
	Critical warning (system crash, DB inconsistency)
	Provides useful information (such as notes and related concepts).
	Steps that can only be performed by administrators.
	Indicates a step. For example, an installation step.
	Indicates peculiarities that are based on specifications of the authorization system (such as privileges and rights)
	Tips for easier handling or better performance.

1.5 Safety And Disclaimer Of Warranty

Service Catalog Integration with ServiceNow is designed to manipulate IT systems and its components. Therefore all guides include warnings, recommendations and precautions that must be observed. It is within the sole responsibility of any user or administrator of the Service Catalog Integration with ServiceNow system and its components to protect and ensure affected service levels and avoid harm or damage to any system involved, even without warning in the documentation.

-  Be aware that deploying releases to target systems may lead to major disruptions of services, workflows or applications within the production system. Automic accepts no liability for losses arising from making use of ARA or any changes, mistakes, printing or production errors.

1.6 Feedback

We are constantly improving Service Catalog Integration with ServiceNow. We hope you enjoy using it as much as we enjoy developing it.

If you have any queries or suggestions concerning this documentation then please get in touch with us - see [About Automic Software, Community and Support](#). Your input will help us to make Service Catalog Integration with ServiceNow even better. We look forward to hearing from you!

1.7 Guides & References

Service Catalog Integration with ServiceNow Guides

The following guides and reference documents are available for Service Catalog Integration with ServiceNow:

Name	Content
User Guide	Detailed descriptions about using Service Catalog Integration with ServiceNow
Administration Guide	Information about administering Service Catalog Integration with ServiceNow
Installation Guide	Guidelines for planning, installing and updating Service Catalog Integration with ServiceNow
Release Notes	Release notes of the individual Service Catalog Integration with ServiceNow versions

Obtaining Guides

You can view and download the most up-to-date version of your guide on docs.automic.com.

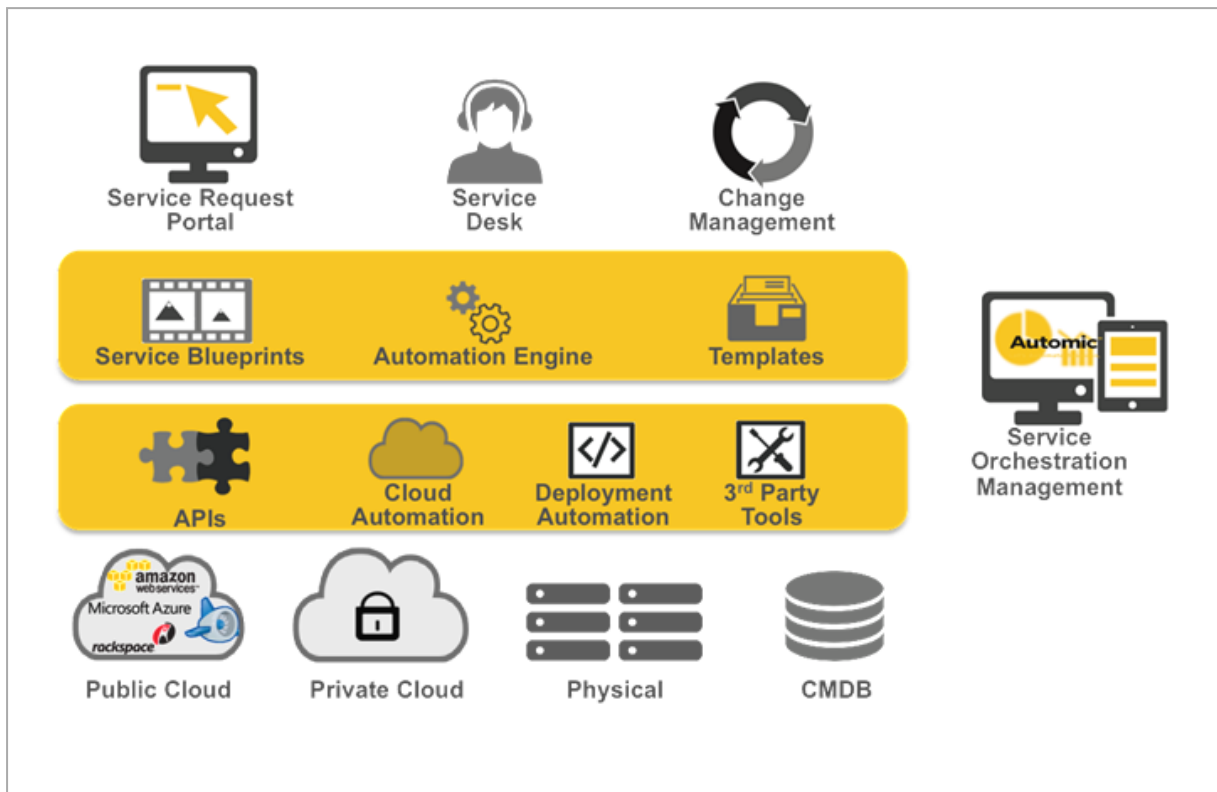
1.8 About Application Service Orchestration (ASO)

Our Service Orchestration Offering focus on deploying a service rather than software and infrastructure - e.g., for Automated Help Desk Fulfillment or Automated SAP System Copy.

Automic's Service Orchestration Offering operates from the Service Management perspective, providing service catalog-driven orchestration of infrastructure provisioning and software deployment to deliver a complete, ready-to-run service to the requestor. Automation covers configuration tasks, e.g. data loading and pre-release backups as well as being able to roll-back to a previous configuration.

You can deploy services in a single workflow and consistently in development, test and production environments.

Offering Concept



Automic Service Orchestration leverages existing ITSM platform, infrastructure and software management systems.

Examples

Example use cases for Application Service Orchestration Offering:

- Automated testing: Automated acceptance testing of new release and configuration package
- Analytics / Monthly reports: Create monthly order reports and build compute-intense scoring
- Self service: Create new instances of e.g., an multi-tier WebLogic application for a new branch office
- Deployment: Provisioning of a server with database and a certain pre-configuration on a separate server
- Access management: Grant/revoke access for users to a specific custom application

About Service Catalog Integration

Our Service Catalog Integration shows how you can consume Automic Services using third party applications. This integration provides service catalog-driven orchestration of infrastructure provisioning and software deployment to deliver a complete, ready-to-run service to the requestor.

To achieve this, you can integrate your Automic Automation Platform with ServiceNow using the AutomicServiceNow Service Connector (SNSC), Service API (SAPI) and Authentication Server (OAuth).

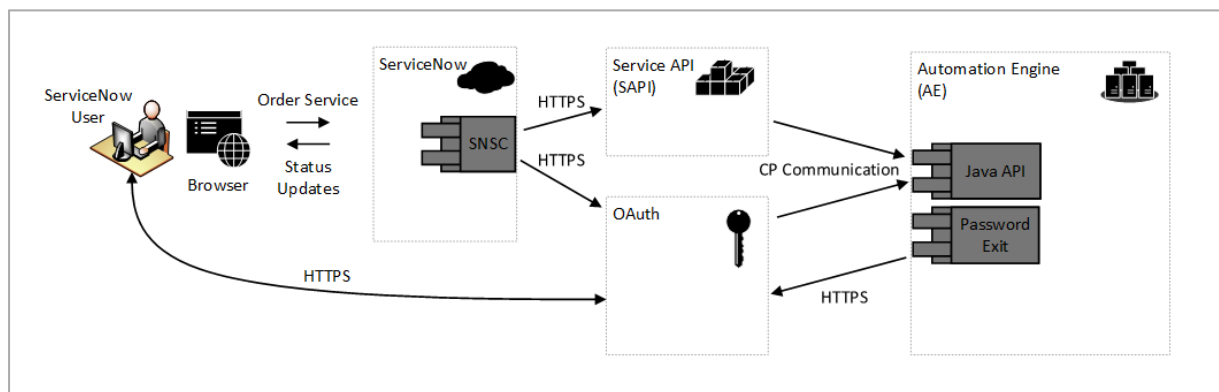
This solution enables ServiceNow users to select services published in the ServiceNow Service Catalog that are automatically fulfilled by Automic workflows in concert with ServiceNow processes, such as approvals. For example, when a ServiceNow user requests the service 'Provisioning of a virtual machine

XYZ', the ordering and approval process follows the definitions in ServiceNow and is finally executed by Automatic Automation Engine. The user can monitor the progress of the fulfillment via the ServiceNow user interface.

Examples for services delivered by ONE Automation via the ServiceNow Service Catalog:

- Month-end close financial process, including incremental provisioning and data updating
- Copy and restore or duplicate an SAP System, including coordination of process and system shut-down/pause and start-up
- Provision and deploy to or change a Siebel environment
- Provision and deploy a WebLogic domain or cluster with application and data
- Promote, provision, deploy and initiate testing of software from one stage (dev/test) to the next environment
- Provision, deploy, change, update, patch, triage, remediate or execute other IT Process Automation (ITPA, Run Book Automation)
- Document processing with automated ticket creation, updating and closing which complies with ServiceNow processes
- Consistently publish and execute services with multiple instances of service catalogs

Architectural Overview



Architecture of ServiceNow service catalog integration.

Automation Engine (AE)

The Automation Engine contains the workflows which are published as Automatic Services via Service API and it is responsible for the user and permission management. Automation Engine objects are used to store the workflows and login data according to the Automation Engine object structure.

From the Automation Engine's point of view, the OAuth Authorization Server is an external system responsible for user authentication. Automation Engine supports validation of passwords via the Password Exit function.

OAuth Authentication Server

The OAuth Authentication Server is the main component for managing tokens for authentication. It offers standardized HTTP interfaces to remote client applications (e.g., ServiceNow) and end users as well as restricted HTTP interfaces for internal components (Automation Engine: permission management and data store).

Service API (SAPI)

The Service API component provides REST API access to Automation Engine workflows and publishes them as Atomic Services.

From the Authorization Server's perspective, SAPI is an internal component that allows remote client applications to use OAuth for authentication and therefore needs to be able to validate OAuth tokens.

ServiceNow Service Connector (SNSC)

The ServiceNow Service Connector connects ServiceNow with the AtomicService API. Via the Service API it reads the Automation Engine services (workflows and prompt sets) and generates ServiceNow service catalogs out of it.

Web Browser

The web browser is the user interface for the end user to consume Atomic Services via ServiceNow and to communicate with the OAuth Authorization Server for authentication.

1.9 About ONE Automation Platform

ONE Automation makes it easy to build automated workflows across the different IT silos and departments for complete business process automation. The platform allows to orchestrate processes, big data and cloud technologies, as well as deploying infrastructure and new or existing applications built on top.

Orchestrate on-premise, cloud and hybrid processes within one single business workflow using REST and SOAP based web services.

Use templates and actions to build workflows of any scale and share them with your team or across departments. Customize and adapt workflows, add new tasks to workflows and link the tasks to predecessors or successors using our graphical interface. You also can schedule workflows based on time, calendar or interval. Create custom calendars and patterns to suit the most complex of execution windows. Optionally you can trigger workflows based on the occurrence of any event, such as self service request, file arrival, console or database event, or system workload breaching a threshold.

ONE Automation Platform consists of the following components (depending on your license model):

- Automation Engine: enterprise job scheduling and advanced workload automation solution - see [About Automation Engine \(AE\)](#)
- Atomic Web UI: build and monitor workflows using our unified graphical user interface
- Agents: integrate various operating system platforms including Windows Server, UNIX, Linux, iSeries, z/OS and other mainframe operating systems
- Adapters: orchestrate applications including Oracle, SAP, PeopleSoft, JD Edwards, JMS, Webservice and Hadoop - integrate with development tools including JIRA, Jenkins, TeamForge and GitHub
- Product Add-ons: enhance ONE Automation Platform capabilities - e.g., integrate Active Directory with LDAP Sync
- Templates and Actions: examples and ready-to-use workflows for various re-occurring tasks

The ONE Automation Platform is the stable basis for our specialized offerings on top.

1.10 About Automation Engine (AE)

Automation Engine is a core component of Automic's ONE Automation Platform.

The Automation Engine is an enterprise job scheduling and advanced workload automation solution with a fully integrated managed file transfer capability that is designed to meet the demanding enterprise requirements of today's business world.

It provides a centralized, scalable and multi-tenant architecture that takes advantage of a centralized database management system, an object-oriented design with an enormous time-saving potential, native application support and the ability to embed conditional business rules. It responds dynamically to the changing state of the business as represented by changes in the corporate data and is flexible and easy to use for end-users. Moreover, it enables security and compliance across the enterprise. Transparency with full end-to-end control is guaranteed including full version control so that everything that happens is fully documented.

1.11 About Service API (SAPI)

The SAPI component provides REST API access to Automic Automation Engine workflows published as services (Automic Services).

SAPI publishes all workflows as a service where a link in the Automation Engine folder `\SERVICES` pointing to the related workflow exists. Services are presented in service catalogs, according to the sub-folder name in folder `\SERVICES`.

SAPI runs on a tomcat application server and communication can be SSL encrypted. Authentication is necessary for each request and is done via OAuth.

SAPI calls are stateless and result in a JSON formatted response (media type: application/json).

1.12 About OAuth Authorization Server

OAuth is an open protocol that allows secure authorization in a simple and standard method from web, mobile and desktop applications. It enables third-party applications to authenticate on behalf of a user.

OAuth Authorization Server is a Java-based web application that runs on any Tomcat server. It is responsible for issuing and managing all OAuth tokens according to OAuth 2.0 specification. The OAuth server registers a password exit in the AE that allows to authenticate users via OAuth token.

Although it is designed to run in a distributed system. It also runs together with the Automic Web UI (ECC) and the Service API (SAPI) on the same Tomcat server. You may also deploy OAuth Authorization Server independently from ECC and SAPI.

See also: oauth.net

1.13 About ServiceNow

ServiceNow provides software and services to support IT service management (ITSM).

See also: <http://www.servicenow.com/>

1.14 About ServiceNow Service Connector (SNSC)

The SNSC connects ServiceNow with the Atomic Service API. This solution enables an out-of-the-box Service Catalog Integration by connecting ServiceNow with the Service API of our ONE Automation.

Via the Service API SNSC reads the Automation Engine services (workflows and prompt sets), generates ServiceNow service catalogs out of it and publishes the services to the ServiceNow Service Catalog. Access of SNSC to the Automation Engine workflows is secured using OAuth.

SNSC is part of the Application Service Orchestration (ASO) offering.

The main functionality is the following:

- Import Automation Engine services into ServiceNow, scheduled and ad-hoc
- Trigger service execution (i.e., the workflow execution in the Automation Engine) from a third-party application (e.g., ServiceNow)

For the user, SNSC is transparent when it comes to filling in required variables: SNSC provides drop-down fields filled with values from Automation Engine variables the same way as they are presented to you in the AE User Interface.

2 Getting Started

2.1 System Requirements


Requirements for ServiceNow - Service API Automation Engine integration.

See Automic Compatibility Checker (docs.automic.com/compatibility).

2.2 Installation Packages

You need to install two different installation packages. Although both are provided by Automic, you download and install them separately

Where to get the installation packages from:

- SNSC is available on the ServiceNow app store.
- Automic Service Orchestration is available on the [Download Center](#)
-  Contact your account manager for the download information.

Next step: [Installation and Configuration](#)

3 Installation and Configuration

For a successful integration, you must install and configure the following components carefully.


Install and configure as follows:

- [Installation of Password Exit with AE](#)
- [Installation of OAuth Authorization Server, Configuration of OAuth](#) including configuration of [OAuth Password Exit with AE](#)
- [Installation of SAPI](#) and [Configuration of SAPI](#)
- [Installation of SNSC](#) and [Configuration of SNSC](#)

Optionally, you may tweak your SNSC installation: [Optimize Your SNSC Installation](#)


3.1 Installation of Password Exit with AE

You need to install Password Exit to use OAuth as login method for your Automation Engine (AE) or Integrated Windows Authentication for ARA version 5.

 For installation and configuration basics see also: [AE documentation - Application Integration Guide - Program Exits - Password Exit](#).

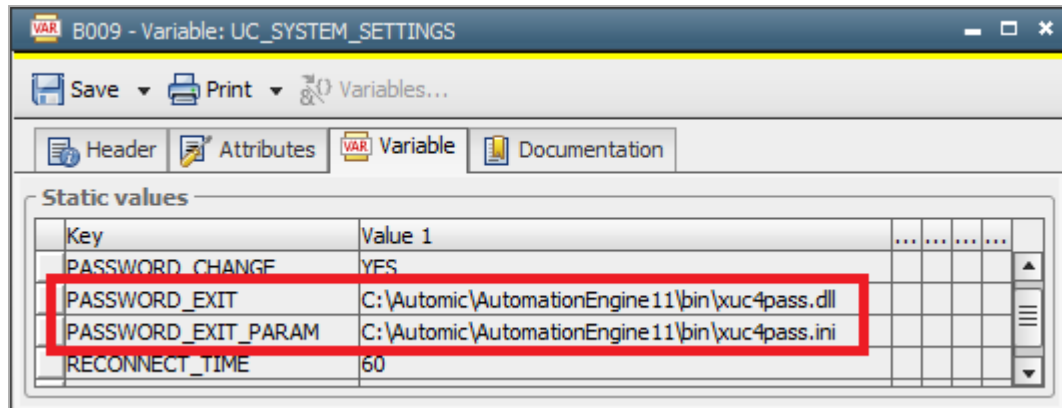
Steps:

1. Install scriptable command line tool to send HTTP post requests (e.g., curl) on the AE host.

 Remember to install a version with SSL support for HTTPS communication.

2. Copy the library (.so or .dll) and the ini file to the bin directory of the AE
3. Login to AE client 0
4. Set the paths to the library and ini file (e.g., xuc4pass.dll and xuc4pass.ini) in UC_SYSTEM_SETTINGS: parameters PASSWORD_EXIT and PASSWORD_EXIT_PARAM

Parameter	Description	Example
PASSWORD_EXIT	Path to Password Exit library	c:\automic\AE\bin\xuc4pass.dll
PASSWORD_EXIT_PARAM	Path to configuration file	c:\automic\AE\bin\xuc4pass.ini



Variable object UC_SYSTEM_SETTINGS with configured password exit library and ini file (example: xuc4pass).

- Adapt the ini file (e.g., xuc4pass.ini) where PASSWORD_EXIT_PARAM is pointing to: Set Url to your OAuth validation end-point URL you want to use:

Parameter	Type	Default Value	Description
Url	String	-	OAuth validation endpoint URL Example: <code>http://oauthsrv/oauth2/validate</code> ⚠ Protocol indication (http/https) is required. ℹ Needs to be the same as specified in sapiConfig.xml.
OutputFile	String	-	Output file to store run-time information
Logging	Number	-	Logging level: <ul style="list-style-type: none"> 0 ... disable logging 1 ... writing to target AE WP log-file
tokenPrefix	String	Bearer	Prefix for the access-token ℹ If the received prefix matches this value, the string is regarded as token, otherwise as password.
cmd	String	-	cURL command used to call the service method to verify login user
Search	String	"access_token"	String to be found in messages, if validation is successful (only then "access_token" appears)

Example content of the ini file (e.g., xuc4pass.ini) using cURL:

```
[Settings]
Url=http://oauthsrv/oauth2/validate
outputFile=C:\Automic\AE\Temp\xuc4pass_log.txt
Logging=1
tokenPrefix=Bearer
cmd=C:/curl/curl --user User1:PWord %0 -data "access_token=%1"
Search="access_token":
```

- Restart the AE
 - ✓ Now, Password Exit is active

3.2 Installation of OAuth Authorization Server

Deploy OAuth Authorization Server to a Tomcat server. You must also install and configure Password Exit.

The OAuth server consists of a web server component and a password exit component.

Deploy OAuth Authorization Server:

- Copy `oauth_server.war` to your Tomcat container.
- Install and configure Password Exit



 See also: [Installation of Password Exit with AE](#).


3.3 Configuration of OAuth

Configuration of OAuth is done via multiple configuration files (`configuration.properties`, `uc4config.xml`, `logback.xml`) and password exit component configuration.

3.3.1 configuration.properties

Parameters

Parameter	Type	Description
Encryption.Key	String	Key to be used for AES encryption  You may use a tool to generate encryption keys.
Encryption.IV	String	Initialization vector for the AES encryption
AutomationEngine.System	String	Name of the AE system which is validating the logins
AutomationEngine.AEUser	String	Name of the technical AE user for the internal processing Format: user name/department Example: OAUTH_SERVER_USER/MYDEPARTMENT
AutomationEngine.AEPassword	String	Password for the technical AE user
AccessToken.CacheTimeout	Number	Number of seconds that the OAuth server keeps a token validation result in its memory Default value: 30
ValidationEndpoint.Username	String	User name for the basic authentication for the validation endpoint  This must be the same user name as specified in Password Exit's ini file (see Installation of Password Exit with AE).

Parameter	Type	Description
ValidationEndpoint.Password	String	Password for the basic authentication for the validation endpoint  This must be the same password as specified in Password Exit's ini file (see Installation of Password Exit with AE).

Example

```
Encryption.Key = B174A26A71490437AA024E4FADD5B497
Encryption.IV = 9E892875A52C59A3
```

```
AutomationEngine.System = AE11
AutomationEngine.AEUser = OAUTH_SERVER_USER/MYDEPARTMENT
AutomationEngine.AEPassword = 123
```

```
AccessToken.CacheTimeout = 30
ValidationEndpoint.Username = User1
ValidationEndpoint.Password = PWord
```

3.3.2 uc4config.xml

Configure connections in uc4config.xml.

See also: Automation Engine Administration Guide.

3.3.3 Logback Configuration

Use the following configuration files:

- **logback.xml** at <Tomcat installation path>/webapps/oauth-server/WEB-INF/classes for main log configuration
- **logback-access.xml** at <Tomcat installation path>/webapps/oauth-server/WEB-INF/classes for access log configuration (request/response log)


 For bug reporting, edit logback.xml and set logger level to trace.

logback.xml Parameters

Name	Description	Xml Element	Default value
Current log location	Name of current on-going log file	/configuration/.../file	<Tomcat installation path>/logs/oauth-server.log
Archived log location	Archived log location and file name pattern	/configuration/.../fileNamePattern	<Tomcat installation path>/logs/oauth-server*.log
Max History	number of archived logs will be kept	/configuration/.../maxHistory	30


Name	Description	Xml Element	Default value
Loggers	Log level for special package	/configuration/logger	level="info"
Root level	Default log level of all loggers	/configuration/root	level="warn"
Appenders	Log appenders	/configuration/root/appender-ref	ref="CONSOLE" ref="FILE"

3.3.4 OAuth Password Exit with AE

 For installation and configuration basics see Automation Engine documentation - Application Integration Guide - Program Exits - Password Exit.

Requirement

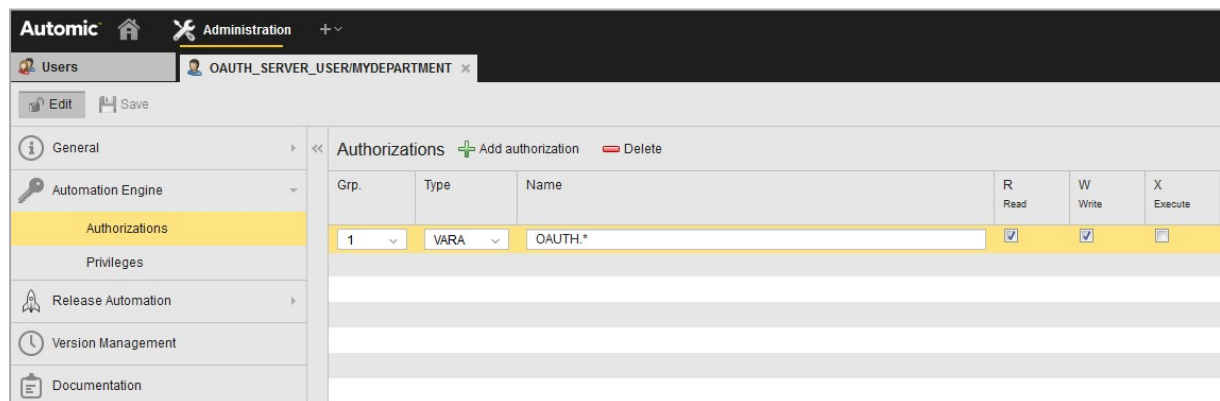
Password Exits installed.

 Make sure, that the parameters PASSWORD_EXIT and PASSWORD_EXIT_PARAM in UC_SYSTEM_SETTINGS are configured.

See also: [Installation of Password Exit with AE](#)


Create Technical AE User

You need an internal technical user together with OAuth server installation. You must configure its name and password in the configuration file. This user is used to manage the tokens as well as to retrieve the client information. It therefore requires read and write access rights to all objects starting with the OAuth prefix OAUTH.*.



Grp.	Type	Name	R Read	W Write	X Execute
1	VARA	OAUTH.*	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Access rights for technical user (example).

 Note that you must create the technical user on each OAuth enabled AE client using the same name and password as configured in OAuth server configuration.

Load AE Variables and Clean-up Workflow from XML to AE

Load the variables and the clean-up workflow definition from oauth.xml to each AE client where OAuth will be used. You can find the steps in the file readme.txt in the OAuth package. See [Schedule Clean-up](#)

Process.

AE Variable for OAuth Clients

Create a static AE Static Variable object (VARA) for each registered OAuth client during the client registration. It stores both, the client's basic information and its endpoints.

The XML with an empty/dummy data (OAUTH.SAMPLE_CLIENT.CLIENT_INFORMATION) is provided as part of the OAuth Server package. You must install this in the proper AE client.

Syntax for object name

OAUTH.[CLIENT_ID].CLIENT_INFORMATION

⚠ [CLIENT_ID] must be replaced by the same value as specified in key value for client_id (see 'Records' below).

Title

[CLIENT_NAME]

Records

Key	Value 1	Example
client_id	Unique ID of an OAuth client (capital letters) ⚠ This field must contain the same value as specified in [CLIENT_ID] in the object name.	SERVICE_NOW
client_secret	AES encrypted password of the client *) see note below	AES_12345 will be encrypted as HvrxloGyDADDncVgDlIYUg==
grant_types	List of possible [grant_type], separated by semi-colons (or comma) **) see note below	password;refresh_token; authorization_code
name	Human readable name of the client	Service Now
description	Additional information about the client	ServiceNow - service generator extension
application_url	Main URL of the clients application	https://myhost.servicenow.com/
authorization_code_timeout	Timeout of authorization codes of this client in seconds	180
access_token_timeout	Timeout of access tokens of this client in seconds	30

*) Note: To encrypt passwords, you may use third-party tools like the openssl command line call `openssl enc`.

**) Note: The values for grant_types must be set to one of the following:

- `authorization_code`: The client received an authorization code during the process Obtain Authorization with Authorization Code and wants to exchange it to an `access_token`.

- `password`: The client has the resource owners credentials and wants to Obtain Authorization with Resource Owner Credentials.
- `client_credentials`: The client wants Obtain Authorization with Client Credentials.
- `refresh_token`: The client wants to Renew access tokens

AE Variable for OAuth Access Tokens

Create a static variable object during the OAuth server installation for storing all generated access tokens.


AE Object	Static Variable (VARA)
Composite Name	Object: OAUTH.ACCESS_TOKENS Title: OAuth Access Tokens
Records	(empty)

AE Variable for OAuth Refresh Tokens

Create a static variable object during the OAuth server installation for storing all generated refresh tokens.

AE Object	Static Variable (VARA)
Composite Name	Object: OAUTH.REFRESH_TOKENS Title: OAuth Refresh Tokens
Records	(empty)

Each generated refresh token is stored in one record. The settings below are applied for each record:

Key	The key is an SHA-256 hash that's calculated over the issued refresh token. Example: AF340C9954BA6A1CD93B648643F3CCB5986AE3657DA9F924145E517A6DAE11F7T  The issued refresh token is not stored in the system. Verification is based on hash code.
Value 1	Fully qualified ID of the OAuth client the token was issued for. E.g. AE10LLV/99/service_now
Value 2	Fully qualified AE user name the token belongs to in the format [SYSTEMNAME]/[CLIENT]/[USERNAME]/[DEPARTMENT], e.g. AE10LLV/99/AE_USER_NAME/SBB01
Value 3	The creation time stamp of the access token in ISO-8601 format, e.g. 2014-01-20T14:00:00Z
Value 4	-
Value 5	-

AE Variable for OAuth Authorization Tokens

Create a static variable object during the OAuth server installation for storing all generated authorization tokens.

AE Object	Static Variable (VARA)
------------------	------------------------

Composite Name	Object: OAUTH.AUTHORIZATION_CODES Title: OAuth Authorization Codes
Records	(empty)


Each generated authorization token is stored in one record. The settings below are applied for each record:

Key	The code is a random string which contains 16 characters, uppercase Latin letters or number Example: WLCEO4AZHLHKO0WC
Value 1	Fully qualified ID of the OAuth client the token was issued for Example: AE10LLV/99/service_now
Value 2	Fully qualified AE user name the token belongs to in the format [SYSTEMNAME]/[CLIENT]/[USERNAME]/[DEPARTMENT] Example: AE10LLV/99/AE_USER_NAME/SBB01
Value 3	-
Value 4	-
Value 5	The expired time of the authorization code in ISO-8601 format Example: 2014-01-20T14:00:00Z

Schedule Clean-up Process

You may schedule the OAUTH.CLEANUP_TOKENS workflow for a recurring execution, recommended once per day.

You can use the workflow OAUTH.CLEANUP_TOKENS (title 'Process to cleanup expired tokens and authorization codes') to cleanup expired access tokens and authorization codes in a background process.

 This workflow XML is shipped with the OAuth package. You must install it in the proper AE client.

3.4 Installation of SAPI





Deploy Service API to a Tomcat server.

Copy `sapi.war` to your Tomcat container.

3.5 Configuration of SAPI

Configuration of Service API (SAPI) is done via `sapiConfig.xml`.

Parameters

Section	Parameter	Type	Description
Environment	mode	String	Has to be one of <ul style="list-style-type: none"> • testing • development • staging • production
	absoluteUrl	Boolean	Flag whether links are returned as relative or as absolute links: <ul style="list-style-type: none"> • True: absolute links • False: relative links
	baseUrl	String	REST API root URL  Only used if parameter absoluteUrl is set to true.
AutomationEngine	saraFolderPath	String	Name of REST API root folder Default value: <code>/SERVICES</code>
OAuthServer	validationUrl	String	OAuth validation endpoint URL Example: <code>http://oauthsrv/oauth2/validate</code>  Protocol indication (http/https) is required.
	username	String	User name for the basic authentication of the OAuth validation endpoint  This must be the same user name as specified in OAuth configuration file configuration.properties for parameter ValdidationEndpoint.Username.
	password	String	Password for the basic authentication of the OAuth validation endpoint  This must be the same password as specified in OAuth configuration file configuration.properties for parameter ValdidationEndpoint.Password.

Example

```
<?xml version="1.0" encoding="UTF-8"?>
<Configuration>

  <AutomationEngine saraFolderPath="/SERVICES" />

  <OAuthServer
    validationUrl="http://oauthsrv/oauth2/validate"
    username="User1"
    password="PWord" />

  <Environment
    mode="development"
    absoluteUrl="false"
    baseUrl="http://url_to_sapi_root" />

</Configuration>
```

3.6 Installation of SNSC

You must install ServiceNow Service Connector at your ServiceNow instance.

Requirements for installing SNSC with ServiceNow

- You need ServiceNow administrator rights (admin and security_admin)
- REST Message must be supported by the ServiceNow instance

Steps

1. Open the ServiceNow app store with a user who owns the roles *admin* and *security_admin*.
2. **Search** for *Automatic Apps*.
3. Click **ServiceNow Service Connector (SNSC)** and follow the instructions from ServiceNow.

3.7 Configuration of SNSC

You can enhance ServiceNow with the AutomaticServiceNow Service Connector to enable the execution and monitoring of Automation Engine services directly from the ServiceNow service catalog.

3.7.1 Update Application Access for Tables

Steps:

1. Login to the target instance with a user that has admin and security_admin roles, set **Application Scope** to *Global*
2. Navigate to **Automatic SNSC > Support > Used ServiceNow's Tables**
3. Open each of the following tables *io_set_item*, *item_option_new*, *item_option_new_set*, *sc_category*, *sc_cat_item*, *sysauto_script*


Make sure that the options *Can create*, *Can update*, *Can delete* are checked in **Application Access** section for the six tables mentioned:

Columns	Controls	Application Access
Accessible from: All application scopes		
Can read	<input checked="" type="checkbox"/>	Allow access to this table via web services <input checked="" type="checkbox"/>
Can create	<input checked="" type="checkbox"/>	Allow configuration <input checked="" type="checkbox"/>
Can update	<input checked="" type="checkbox"/>	
Can delete	<input checked="" type="checkbox"/>	
<input type="button" value="Update"/> <input type="button" value="Delete All Records"/>		

- ✓ Application access is now configured

3.7.2 Configuration of ServiceNow System Properties

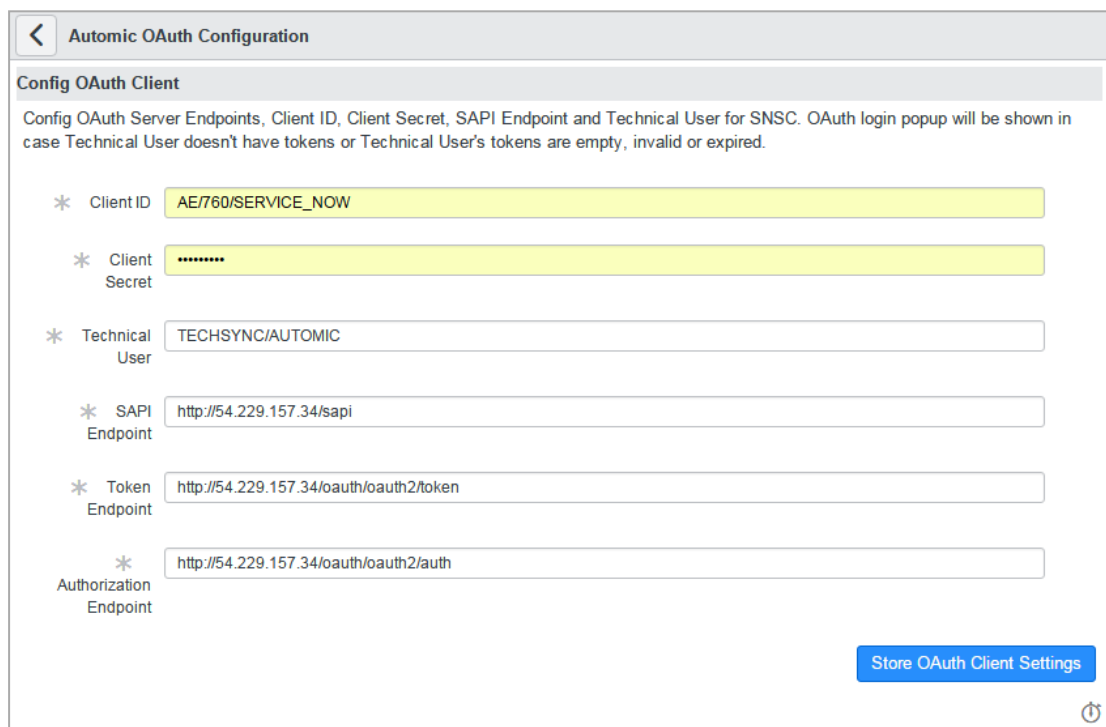
SNSC uses ServiceNow System Properties to store SAPI and OAuth configuration properties.

 You may use an intermediate mid server when you can not connect from your ServiceNow instance to SAP or OAuth servers. See also: wiki.servicenow.com/index.php?title=MID_Server.


To configure ServiceNow for using OAuth and SAPI start the *Automatic OAuth Configuration* wizard.

Steps:


1. Login to the target ServiceNow instance with an user who owns the roles *admin* and *security_admin*.
2. Navigate to **Automatic SNSC > Automatic Configuration > Automatic OAuth Configuration**.
3. In **Automatic OAuth Configuration** and modify following configuration parameters:




Automatic OAuth Configuration wizard: Input fields for AE client, SAPI and OAuth configuration properties.

Configuration Parameter	Description
Client ID	Identity of OAuth client (AE system name / client number / user name) Example: AE/777/SERVICE_NOW  Typically the ID of the ServiceNow instance registered with OAuth server.
Client Secret	Secret phrase of OAuth client user Example: AES_12345, the value will be encrypted in ServiceNow

Configuration Parameter	Description
Technical User	User Name/Department Example: TECHSYNC/AUTOMIC
SAPI Endpoint	Root endpoint URL of SAPI, the URL from which SNSC will start discovering services Example: <code>http://mycompany.com/sapi</code> ⚠ Protocol indication (http/https) is required.
Token Endpoint	Endpoint for token requesting/refreshing URL Example: <code>http://mycompany.com/oauth2/token</code> ⚠ Protocol indication (http/https) is required.
Authorization Endpoint	Authorization endpoint URL Example: <code>http://mycompany.com/oauth2/auth</code> ⚠ Protocol indication (http/https) is required.

 Note: OAuth login will pop up in case the Technical User doesn't have a valid token (empty or expired token) or no access data are stored before.

4. Click **Store OAuth Client Settings**.

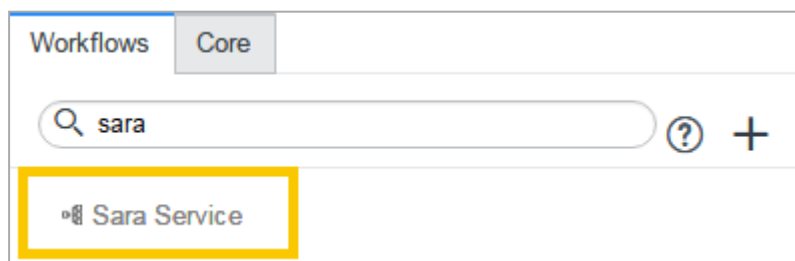
 New values are effective immediately.

- ✓ OAuth Client Settings are activated.

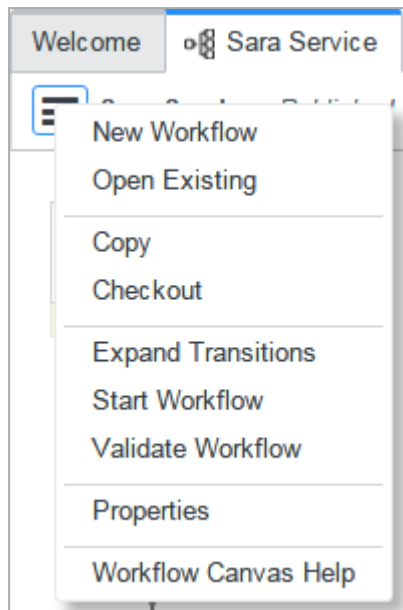
3.7.3 Set up the Approval Group

Steps:

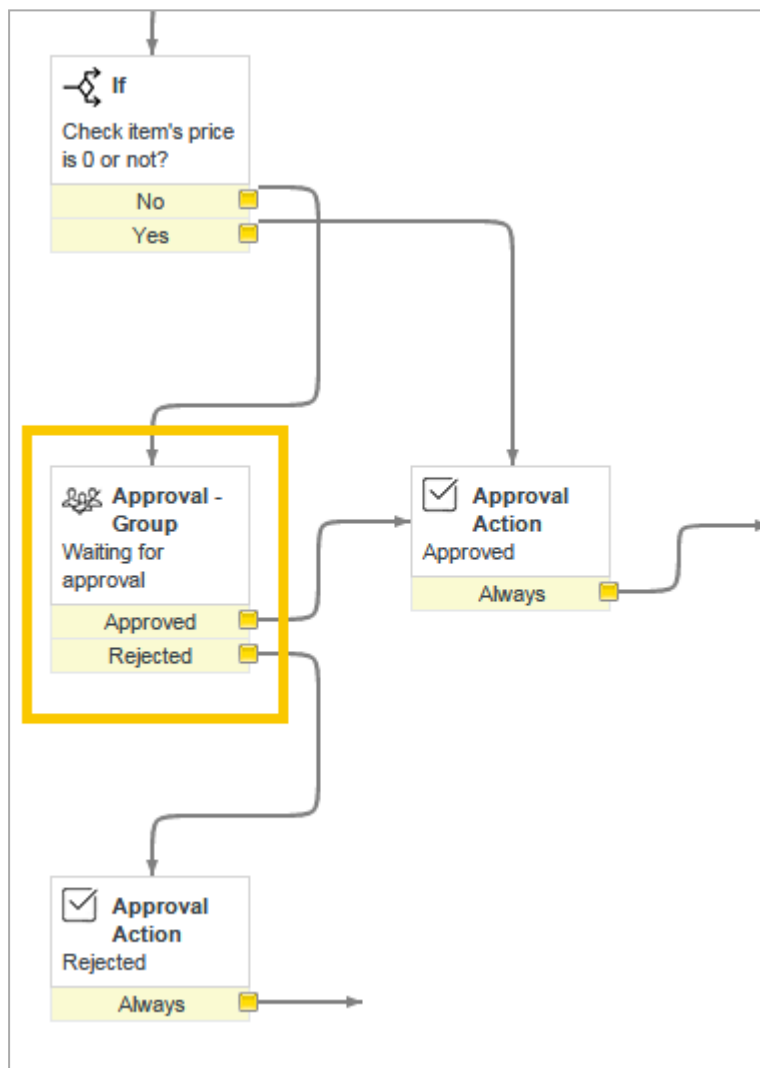
1. Login to the target instance with a user that has admin role and set the scope to **Automatic SNSC**.
2. Navigate to **Workflow > Workflow Editor**.
3. Search for and select the workflow named **Sara Service**:



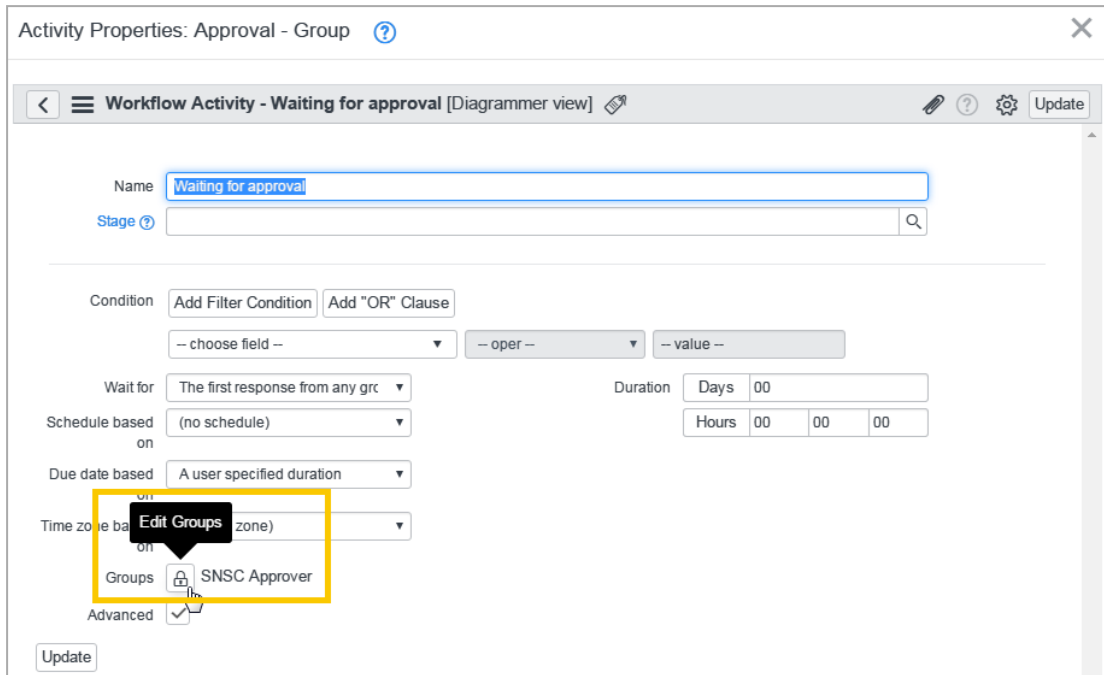
4. Click **Menu** and **Checkout** the workflow:



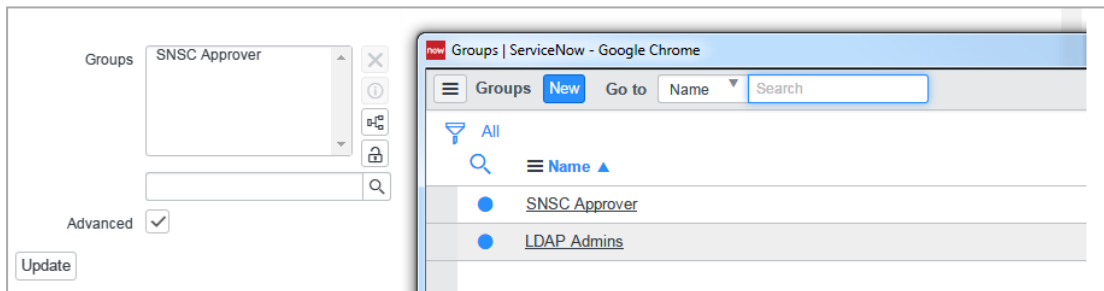
5. Double-click on activity named **Waiting for Approval**



- Choose group name which you want it to be Approval Group in Groups:



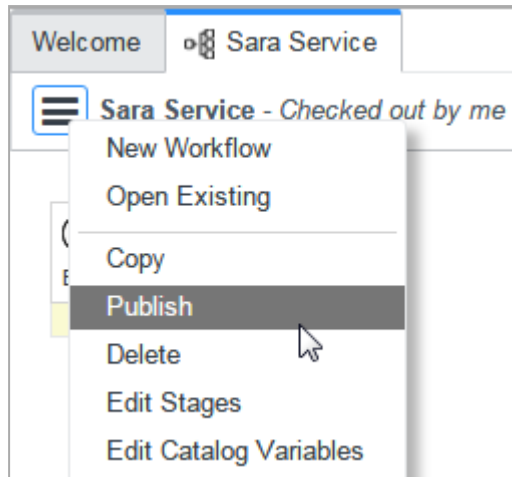
Click **Edit Groups**.



Add the approver from the look-up list.

Note: Approvers have to be assigned to your Approval Group and granted with **approver_user** and **x_ausgh_sns.user** roles.

- Click **Update**.
- Publish workflow again:



- ✓ Now, you configured the Approval Group for SNSC.

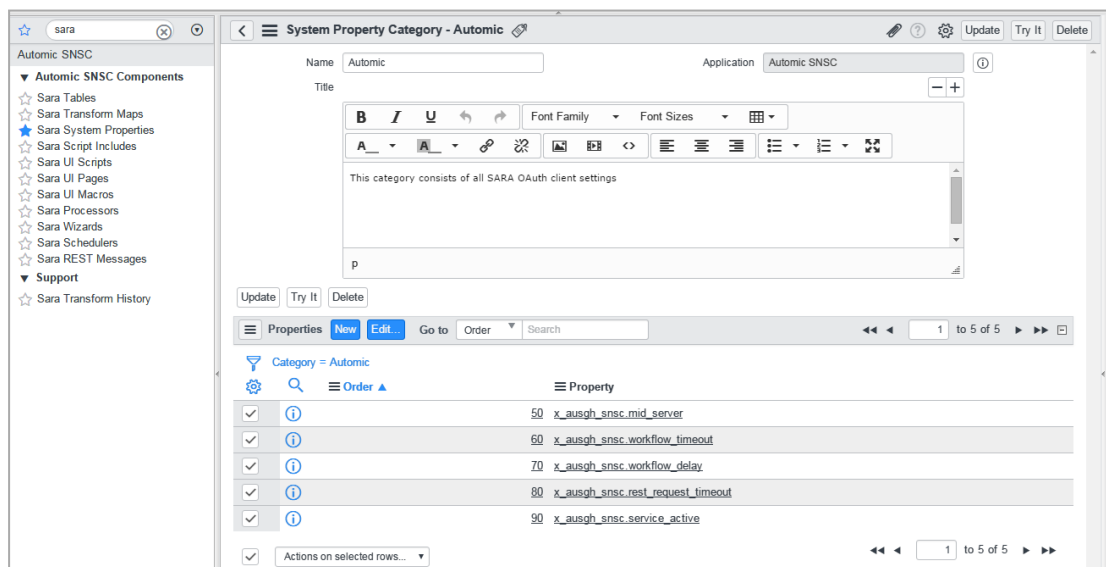
3.8 Optimize Your SNSC Installation

You can optimize your ServiceNow Service Connector installation by tweaking SNSC System Properties in ServiceNow.

How to change SNSC System Properties in ServiceNow

Steps:

1. Log-in as Administrator
2. In the **Automatic SNSC** section, click on **Sara System Properties**:



The list of Sara system properties appears (example).

3. Click the system property link, edit the values and confirm.

System Properties

- **x_ausgeh_snsc.mid_server**

Name of established MID server that will be used by SNSC to connect to SAPI and OAuth server in certain ServiceNow set-ups.

 Leave this property empty to connect directly with SAPI and OAuth server.

- **x_ausgeh_snsc.workflow_timeout** in seconds

Specifies the maximum waiting time for the workflow execution to finish. If the value equals 0, the duration time will be forever. If the execution of the workflow exceeds this maximum waiting time, the execution will end NOT_OK.

During this waiting time, the status of workflow execution is checked in intervals specified in parameter `com.automic.sara.workflow_delay`.

Default value: 0


- **x_ausgeh_snsc.workflow_delay** in seconds

Specifies the time interval when checking a workflow's execution status (service's status). If the value equals 0, the time interval will be 60 seconds.

Default value: 0

- **x_ausgeh_snsc.rest_request_timeout** in seconds

Specifies the amount of time the instance waits for a response from the web service provider.

 If you set the value to 0, the timeout will be 60 seconds.

- **x_ausgeh_snsc.service_active**

The default status of services after importing.

Can be one of the following:

- `true`: the service is active right after import
 - `false`: the service is inactive right after import
-


4 Service Management

Service Management covers administrative activities to import, update and clean-up the ServiceNow service catalogs containing Automatic Services.

Use Cases

The administrative use cases are the following:

- [Importing Services to ServiceNow](#) manually
- [Bulk Remove Automatic Services in ServiceNow \(Clean-up\)](#)
- User management is handled via Automation Engine

 See also: Automation Engine Administration Guide

4.1 Importing Services to ServiceNow

You need to import Automatic Services to ServiceNow ServiceNow Service Catalog in order to use them from ServiceNow.

ServiceNow Service Connector provides a wizard for importing services.

When Automatic Services (AE workflows) change, you must update the ServiceNow Service Catalog. To remove Automatic Services based on now deleted workflows [Bulk Remove Automatic Services in ServiceNow \(Clean-up\)](#). To update changed services, import the services again.

You can keep your service catalog up-to-date either manually or on a scheduled basis.

4.1.1 Preperation in Automation Engine

To publish a workflow as an Automatic Service, you add a link in the \SERVICES folder pointing to the related Automation Engine workflow. You can create service catalogs by creating sub-folders to the \SERVICES folder.

Example:

- Root folder: \SERVICES
- Service catalog for deployment services: \SERVICES\DEPLOY

Workflow: All services are workflows stored in the \SERVICES folder structure either as workflow objects or links to workflow objects. All other objects are ignored by the SAPI and you can use them only internally within Automation Engine.

PromptSet: The PromptSets assigned to a workflow are interpreted by SAPI as input forms. Their physical location as well as their name does not matter.

Variable: Variable objects are used to define the look-up resources for SAPI. The physical location of the variable as well as its name does not matter.

4.1.2 Steps for Importing Services


To configure ServiceNow Service Catalogs serving as target service catalogs for importing services, start the *Automatic Import Services* wizard. When you click **Import Services**, new values are effective immediately.

Steps:

1. In ServiceNow, open the **Automatic Configuration** service catalog.
2. Click **Automatic Import Services** service.
3. Select the **Target Category** to import catalogs and services to.

Automatic target categories are:

- Automatic Services
- Automatic Configuration


 All imported catalogs will become sub-categories of this category.

4. If session is timed out, you need to log-in via an OAuth login pop-up.
- ✓ The successful service execution is confirmed with a message.

4.2 Bulk Remove Automatic Services in ServiceNow (Clean-up)

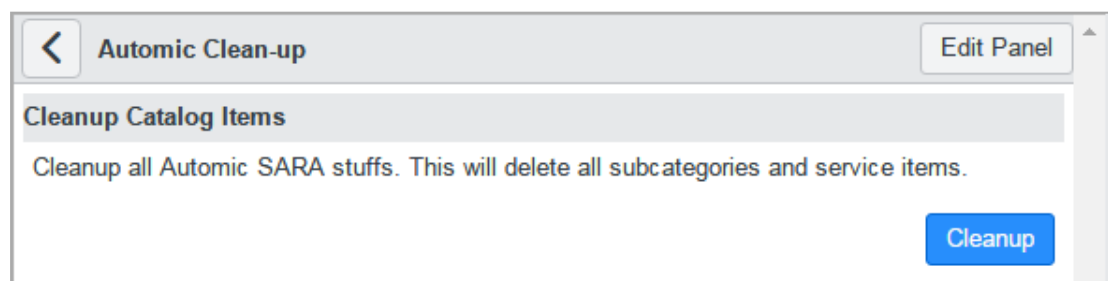
This administrative service removes all services that were created via SNSC.

The **Automatic Clean-up** service will delete all sub-categories and service catalog items generated by SNSC.

 Warning: During next synchronization, the services will be created again, if the corresponding AE workflows are still linked to the folder or a sub-folder of \SERVICES.

Steps:

1. In ServiceNow, open the **Automatic Configuration** service catalog.
2. Open the **Automatic Clean-up** service:



3. Click **Cleanup**.
- ✓ The successful service execution is confirmed with a message.

5 Usage: Trigger Service Execution via ServiceNow

5.1 Ordering Automatic Services via ServiceNow Service Catalog

Ordering Automatic services works the same way as ordering any other service from a ServiceNow Service Catalog.

Steps:


1. Open the ServiceNow **Service Catalog**

Among other catalogs, you will find an **Automatic** service catalog.

2. Select the service category item within the service category for Automatic services

3. Select the service and fill in the form (if required)

4. Click **Order Now**


 Alternatively you can add the service to the cart (click **Add to Cart**) and order after collecting additional services.

5. When you consume an Automatic service for the first time in a session, authorization based on AE user name (system name / client number / user name / department) and password is required. Click **OK** to confirm or **Cancel** to abort.

The **Order Status** page is displayed

ServiceNow automatically updates the stage flow.

ServiceNow polls the SAPI server regularly and the stage of the service request is updated accordingly to the execution status of the Automation Engine workflow execution.

-  After performing the above steps, the order of an Automatic Service via ServiceNow was successful

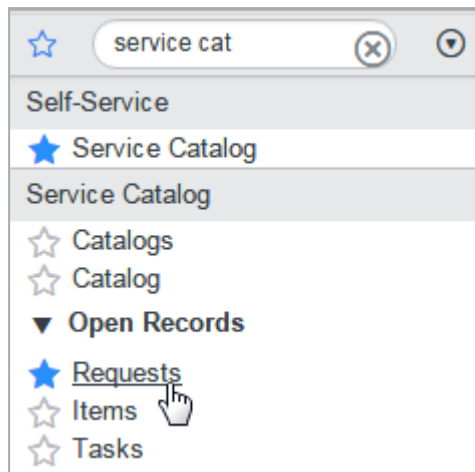
See also: ServiceNow documentation.

5.2 Check the State of Your Order in ServiceNow

You can check the states of your pending service requests from ServiceNow.

Steps:

1. Go to **Service Catalog > Open Records > Requests**



2. Click on your request number
- ✓ In section **Requested Item** the current state (**Stage**) of your order is displayed.

6 Release Notes

The following is the change history of Service Catalog Integration with ServiceNow version 1.1.

Bug Fixes

For an up-to-date list of bug fixes and known issues for a product version, go to the Automatic Download Center (downloads.automic.com). Click **Advanced Mode**, then select the application and version, and check **Bug Fixes**.

Compatibility Information

Compatibility Information and system requirements can be found on our website Automatic Compatibility Checker (docs.automic.com/compatibility).

Release Notes 1.1

Enhancements

Changes to comply with ServiceNow version Fuji and Geneva (certified by ServiceNow)

Easy and fast installation via ServiceNow app store

Service catalog synchronization:

- Synchronization of sub-catalogs
- Synchronization preserves customizations of catalog items
- Active workflows are published to ServiceNow while inactive workflows are not published

Supports audit capabilities within ServiceNow

A technical user can be used to execute the workflows in the Automation Engine

Integration in ServiceNow's approval system

Quantity field for catalog items is removed from the shopping cart (quantity is always '1')

Waiting time for workflow completion can be configured

Notes for Update Installations

Previous version of SNSC must be completely removed from the ServiceNow instance (including all ServiceNow-tables ServiceNowSN-workflows related to SNSC) before installing a new version of SNSC

The versions of Automation Engine, OAuth and SAPI must match with the specified requirements

To install the SNSC app from the ServiceNow app store, follow the instructions from ServiceNow

Bug Fixes

ServiceNow incorrectly reports that workflows ended with the status "Ended Failed (Completed)"

Known Issues

IF and *FOR-EACH* workflows are not supported

Release Notes 1.0.1

Enhancements

You can configure SNSC to wait for a specified time so that ServiceNow can report the status of the workflow execution correctly. When the execution takes longer than the waiting time allows, the execution will end with the status "Ended Failed (Completed)". See also: [Optimize Your SNSC Installation](#).

Bug Fixes

Fixed:

- When the configuration of the Token Endpoint is wrong, the ServiceNow User Interface freezes after login, and the log is not meaningful
- When the configuration of the Authorization Endpoint is wrong, the ServiceNow User Interface displays an empty pup-up after login, and the log does not contain this event
- Cannot consume service with prompt-set values containing commas (,)

Release Notes 1.0

Key Features

Automatic Service Orchestration (ASO) includes components to enable publishing of Automation Engine workflows as Automatic Services to third-party applications like ServiceNow.

With our Service Catalog Integration, ServiceNow users can order Automatic Services and track their request status via ServiceNow.

Automatic Components:

- Automation Engine Password Exit
 - OAuth Authentication Server
 - Service API
 - ServiceNow Service Connector
-

About Automic Software, Community and Support

This topic introduces the Automic Software company and how to leverage the full potential of our solutions to you.

You can also obtain Automic documentation online from docs.automic.com.

Automic Company

Automic Software is dedicated to business automation.

Automic is the world's most comprehensive platform in automating businesses. Founded 1985, Automic pioneered the largest, independent, globally deployed automation platform which powers the enterprise, application and infrastructure. Now, as the consumerization of IT accelerates, Automic is re-imagining how organizations integrate next generation service models such as Cloud, DevOps and Big Data. Today, our software automates tens of millions of operations a day for over 2,000 customers worldwide. We challenge conventional thinking, enabling our customers to be faster, smarter, in control. Automic – the standard in business automation.

Find out more at our website www.automic.com.

Global Headquarter: Automic Software GmbH, Am Europlatz 5, 1120 Vienna, Austria

Automic Community

Want to connect with other Automic users to compare notes or learn how others are tackling problems that you're running into?

Talk with other users from around the world to learn how they optimize their business automation with Automic. Interact with the Automic Team to get ONE Automation Platform tips and tricks straight from the source.

Join the Automic Community (community.automic.com) and become an Automic Insider and be among the first to get news about new products and events, even before they are generally announced!

Download Center

Make sure that you are using our products to their fullest potential.

The Automic Download Center (downloads.automic.com) is the place where you find product downloads, documentation and information on new releases and hot-fixes about your Automic solution. It's all in one place: from service hotfixes, release notes, and all guides. You will also find patch descriptions, known bugs or workarounds.

Technical Support

We have a support team you can trust.

Our team of professionals is ready to support you, anytime and anywhere. Three support centers located in Europe, the United States, and Asia Pacific build the core of the Automic support organization.

Our Technical Support Team (support@automic.com) makes sure that your closest Automic experts are never more than a few hours flight away, no matter on which continent your subsidiaries and data centers are located. Automic software is designed to provide global connectivity for international companies. You are employing Automic software on a global scale and therefore you can expect global service.

Training Services

Do you want to learn even more about Automic solutions?

We offer a range of training options on how to get the most out of your Automic solution. Depending on your location, either open training sessions at an Automic Software Service Center, or personalized training sessions at your company's site suits best. Visit the training site and get detailed information about currently offered courses.

See also: <http://automic.com/about/training/>

Glossary

This topic provides brief definitions of terms used in Automic documentation.

A

action

Actions are predefined building blocks for recurring activities. They are commonly used for managing third party systems or in deployment scenarios.

AES

Abbreviation for Advanced Encryption Standard, a specification for the encryption of electronic data.

Automation Engine

The Automation Engine is an application for managing when and how objects run. Processes and various other object types can be selected and then specified to run at or within certain times. This allows you to manage processing in Automation Engine systems in an automated way and from a remote and central location. Furthermore, the activities of these objects are tracked and recorded for logging and analysis purposes. [Formerly called "(UC4) Automation Platform" and "(UC4) Operations Manager."]

Automic Compatibility Checker

A web-based Automic tool that provides an up-to-date list of required infrastructure products and versions for every Automic product. The webpage for the checker is in the public domain at <http://docs.automic.com/compatibility>.

Automic services

Automic services consist of Automation Engine workflows provided as a service including the required prompt set.

C

client

A closed environment within an Automation Engine system where you can create and run objects. A client name consists of a 4-digit number that must be indicated when a user logs on to the Automation Engine system. Users and their rights are also defined in clients. A particular Automation Engine object type.

communication process

A communication process is part of the component Automation Engine. It is responsible for connecting the components.

D

department

Department name to which the Automation Engine user belongs.

Download Center

The Download Center (<http://downloads.automic.com/>) is the place where you find everything you need to know about your Automic solution to make sure you are using our products to their fullest potential.

E

ECC

Abbreviation for the Enterprise Control Center

endpoint

An endpoint is used for providing web services. You can access the exposed services via URI.

Enterprise Control Center

Automic's web application that provides a single, browser-based interface for the ONE Automation platform.

I

IT Service Management

ITSM is a process-based approach to establish and optimize the support of business processes by well aligned IT services.

ITSM

Abbreviation for IT Service Management.

J

JMS

Abbreviation for Java Message Service for managing messages (create, send, receive, and read) between two or more clients.

JMS Message

An object that contains the data being transferred between JMS clients - there are different message types: e.g. MapMessage, StreamMessage, TextMessage (Text, XML, JSON, YAML), BytesMessage.

JMS Provider

Manages Queues, Topics and Sessions; there are several commercial and open-source JMS Provider implementations (e.g. Apache ActiveMQ, TIBCO EMS, IBM WebSphere MQ, Oracle WebLogic Server).

O

OAuth

OAuth is an authorization service for web-, desktop- or mobile applications. Main feature is that OAuth allows clients to access server resources on behalf of a resource owner without sharing their credentials.

OAuth Authentication Server

Authentication Server is the main component for managing tokens for authentication.

ONE Automation

The name of an Automic platform (product family). [Formerly called "ONE Automation Platform."]

P**Package Manager**

The Automic Package Manager is a command line tool to share, retrieve and update solution packages on top of the Automation Engine.

password

A secret combination of characters for a Automation Engine user.

password exit

The AE Password Exit function supports validation of passwords for e.g., OAuth Authorization Server.

PromptSet

A user-defined input mask for executable objects. An Automation Engine object type.

R**Release Automation**

Name of the ECC perspective to control Automic Release Automation.

release notes

Release Notes contain information about highlights, new functions, improvements, and corrections for various versions and releases of the Automic product family.

REST

Representational State Transfer, a software architecture for distributed systems e.g., web services.

RichClient

Deprecated Term. Replaced by: UserInterface

S**Service API**

Automic Service API is a Rest API to access AE workflows and publishes them as Automic Services.

Service Catalog

A service catalog is a list of services from which a user or an application can consume (obtain and utilize) one or more services. In the ECC, the term also refers to a perspective presenting the workflows that the user is allowed to execute.

service consumer

Uses a service provided via SAPI.

Service Management

Short for IT Service Management.

ServiceNow Service Connector

ServiceNow Service Connector connects ServiceNow with the Automic Service API.

SOAP

Abbreviation for Simple Object Access Protocol.

status

It provides information about how a task has ended or if it is still active.

system name

Name of the Automation Engine instance to which a user is connected.

T

templates

Pre-defined 'workflows' for specific components/tasks, e.g. Tomcat, SubVersion.

token

A token is used for authentication within a session between a client and a server. A (soft) token is a unique identifier which is generated and sent from a central server to a client software. The client uses the token to authenticate each request.

Tomcat

Apache Tomcat is an open source implementation of the Java Servlet and JavaServer Pages technologies.

U

UC4 Automation Platform

Deprecated Term. Replaced by: ONE Automation

user name

Name of the Automation Engine user.

UserInterface

This is the Automation Engine's graphical user interface. [Formerly called the "Rich Client", "RichGUI" and "Dialog Client."]

V

variable

It stores or retrieves values dynamically at runtime. An individual Automation Engine object type.

W

WebLogic

WebLogic is a e-commerce platform provided by Oracle.

work process

A part of the component Automation Engine. It is responsible for an Automation Engine system's processes (see also 'Primary work process').

workflow

An object of the Automation Engine that can include several executable objects and which runs them in a specified order. [Formerly called "ProcessFlow" and "JobPlan."]

workflow execution

An execution is an instance of a workflow. It can be monitored and controlled using the workflow monitor.
