



NetIQ® Aegis Adapter for EMC Smarts

Installation Guide

November 2011

Contents

Overview.....	1
Product Requirements.....	1
Implementation Overview.....	1
Ensuring Minimum Rights and Privileges.....	2
Installing the Smarts Console on the Aegis Server.....	2
Installing the Smarts Adapter.....	2
Installing the Event Renderer.....	3
Configuring the Smarts Adapter.....	4
Configuring the Domain Manager Information.....	5
Verifying a Successful Installation.....	5
Workflow Activities Overview.....	6
Uninstalling the Smarts Adapter.....	6
Data Type Mappings.....	6

This document describes how to install and configure the NetIQ Aegis Adapter for EMC Smarts.

THIS DOCUMENT AND THE SOFTWARE DESCRIBED IN THIS DOCUMENT ARE FURNISHED UNDER AND ARE SUBJECT TO THE TERMS OF A LICENSE AGREEMENT OR A NON-DISCLOSURE AGREEMENT. EXCEPT AS EXPRESSLY SET FORTH IN SUCH LICENSE AGREEMENT OR NON-DISCLOSURE AGREEMENT, NETIQ CORPORATION PROVIDES THIS DOCUMENT AND THE SOFTWARE DESCRIBED IN THIS DOCUMENT "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SOME STATES DO NOT ALLOW DISCLAIMERS OF EXPRESS OR IMPLIED WARRANTIES IN CERTAIN TRANSACTIONS; THEREFORE, THIS STATEMENT MAY NOT APPLY TO YOU.

This document and the software described in this document may not be lent, sold, or given away without the prior written permission of NetIQ Corporation, except as otherwise permitted by law. Except as expressly set forth in such license agreement or non-disclosure agreement, no part of this document or the software described in this document may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, or otherwise, without the prior written consent of NetIQ Corporation. Some companies, names, and data in this document are used for illustration purposes and may not represent real companies, individuals, or data.

This document could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein. These changes may be incorporated in new editions of this document. NetIQ Corporation may make improvements in or changes to the software described in this document at any time.

© 2011 NetIQ Corporation. All rights reserved.

U.S. Government Restricted Rights: If the software and documentation are being acquired by or on behalf of the U.S. Government or by a U.S. Government prime contractor or subcontractor (at any tier), in accordance with 48 C.F.R. 227.7202-4 (for Department of Defense (DOD) acquisitions) and 48 C.F.R. 2.101 and 12.212 (for non-DOD acquisitions), the government's rights in the software and documentation, including its rights to use, modify, reproduce, release, perform, display or disclose the software or documentation, will be subject in all respects to the commercial license rights and restrictions provided in the license agreement.

EMC Smarts, Smarts and EMC are trademarks or registered trademarks of EMC Inc.

Jalasoft and the Jalasoft logo are trademarks or registered trademarks of Jalasoft Inc.

ActiveAudit, ActiveView, Aegis, AppManager, Change Administrator, Change Guardian, Compliance Suite, the cube logo design, Directory and Resource Administrator, Directory Security Administrator, Domain Migration Administrator, Exchange Administrator, File Security Administrator, Group Policy Administrator, Group Policy Guardian, Group Policy Suite, IntelliPolicy, Knowledge Scripts, NetConnect, NetIQ, the NetIQ logo, PSAudit, PSDetect, PSPasswordManager, PSSecure, Secure Configuration Manager, Security Administration Suite, Security Manager, Server Consolidator, VigilEnt, and Vivinet are trademarks or registered trademarks of NetIQ Corporation or its subsidiaries in the USA. All other company and product names mentioned are used only for identification purposes and may be trademarks or registered trademarks of their respective companies.

For purposes of clarity, any module, adapter or other similar material ("Module") is licensed under the terms and conditions of the End User License Agreement for the applicable version of the NetIQ product or software to which it relates or interoperates with, and by accessing, copying or using a Module you agree to be bound by such terms. If you do not agree to the terms of the End User License Agreement you are not authorized to use, access or copy a Module and you must destroy all copies of the Module and contact NetIQ for further instructions.

Overview

The NetIQ Aegis Adapter for EMC Smarts (Smarts adapter) allows the automation of run books and broader processes in EMC Smarts from your NetIQ Aegis Console.

The Smarts adapter includes a library of workflow activities specific to EMC Smarts that Process Authors can use in the Workflow Designer.

For more information about activities or activities libraries, see the *Process Authoring Guide for Aegis*.

Product Requirements

The Smarts adapter requires the following software versions:

- Aegis 2.2
- EMC Smarts 7.04 and EMC Ionix 8.1
- Microsoft .NET Framework 2.0

One of the following operating systems:

- Windows Server 2003 Service Pack 2 or later (32-bit)
- Windows Server 2008 Service Pack 2 or later (32- and 64-bit)
- Windows Server 2008 R2

This version of the Smarts adapter does not support upgrading from any previous version. You must uninstall any previous version of the adapter before you install this version.

Implementation Overview

The following table provides an overview of tasks to configure the Smarts adapter.

	Steps	For more information, see...
<input type="checkbox"/>	1. Configure the minimum rights and privileges for installing the Smarts adapter.	"Ensuring Minimum Rights and Privileges" on page 2
<input type="checkbox"/>	2. Install the Smarts console on the Aegis Server computer.	"Installing the Smarts Console on the Aegis Server" on page 2
<input type="checkbox"/>	3. Install the Smarts adapter.	"Installing the Smarts Adapter" on page 2
<input type="checkbox"/>	4. Install the Event Renderer on the Web Server computer.	"Installing the Event Renderer" on page 3
<input type="checkbox"/>	5. Configure the Smarts Adapter.	"Configuring the Smarts Adapter" on page 4
<input type="checkbox"/>	6. Configure a new Smarts Server.	"Configuring a New Smarts Server" on page 4
<input type="checkbox"/>	7. Configure the License Assignment	"Configuring the License Assignment" on page 4

	Steps	For more information, see...
<input type="checkbox"/>	8. Configure the Domain Manager Information.	“Configuring the Domain Manager Information” on page 5
<input type="checkbox"/>	9. Verify the installation was successful.	“Verifying a Successful Installation” on page 5

Ensuring Minimum Rights and Privileges

Before installing the Smarts adapter, ensure the user who installs the adapter has the following minimum rights and privileges:

- Privileges to change/create the values of the files they want to update or create.
- Assigned to the admin profile in the Smarts environment.

Installing the Smarts Console on the Aegis Server

Before you install the Smarts adapter, you must install the Smarts console on the Aegis Server computer. The Smarts console includes the Smarts API, which the Smarts adapter installation program requires to verify credentials for the broker and Domain Manager(s) available in the Smarts environment.

For more information about installing the Smarts console, see the appropriate documentation for EMC Smarts.

Installing the Smarts Adapter

The Smarts adapter allows Aegis to communicate with EMC Smarts, and allows Process Authors to add Smarts activities to an Aegis workflow. You must install the Smarts adapter on the Aegis Server computer. For more information about installing Aegis, see the *Administrator Guide for Aegis*.

If your Aegis server computer is part of a cluster, you must install the Smarts adapter on each node in the cluster. The installation program automatically detects whether the node is active or passive. The Smarts adapter needs to be installed with the same feature set selected, on both the Aegis active node and all the Aegis passive nodes.

To install the Smarts adapter on the Aegis Server computer:

1. Log on to the Aegis Server computer with a local administrator account.
2. Run the setup program from the folder where you downloaded the Smarts adapter.
3. Click **Next**.
4. Accept the license agreement, and then click **Next**.

5. *If the Aegis Server and Web Server are on the same computer in your Aegis environment*, on the Select Components window, select the following options:
 - Smarts Adapter
 - Event Renderer and Parsers
6. *If the Aegis Server and Web Server are on separate computers in your Aegis environment*, on the Select Components window, select **Smarts Adapter**.

For more information about installing the event renderer on a separate Web Server computer, see [“Installing the Event Renderer”](#) on page 3.

7. On the Logon Information page of the installation wizard, complete the following steps:
 - a. *If the Aegis Server computer is not part of a cluster environment*, verify the Aegis Server computer name or IP address and the server port.
 - b. *If the Aegis Server computer is part of a cluster environment in the active node*, verify the cluster name or IP address and the server port.
 - c. Specify the logon credentials for the Aegis service account. If you do not know the logon credentials for the Aegis service account, contact your Aegis administrator.
 - d. *If the Aegis Server computer belongs to a domain*, ensure you specify the correct domain.
 - e. Click **Next**.
8. Click **Next**.
9. Follow the remaining instructions in the NetIQ Aegis Adapter for EMC Smarts Setup wizard, and then click **Finish**.

Installing the Event Renderer

The event renderer for the Smarts adapter provides rendering functionality for the layout of Smarts event details in the Operations Console.

If your Web Server computer is part of a cluster, you must install the event renderer on the active node first, and then on each passive node.

To install the event renderer on the Web Server computer:

1. Log on to the Web Server computer with a local administrator account.
2. Run the setup program from the folder where you downloaded the Smarts adapter.
3. Click **Next**
4. Accept the license agreement, and then click **Next**.
5. On the select components window, select **Event Renderer**, and then click **Next**.

Follow the remaining instructions in the NetIQ Aegis Adapter for EMC Smarts Setup wizard, and then click **Finish**.

Configuring the Smarts Adapter

When the installation is complete, the Aegis Adapter Configuration Utility allows you to configure the following:

- A new Smarts server
- License assignment
- Domain Manager information

Configuring a New Smarts Server

Using the Aegis Adapter Configuration Utility, you can add a new Smarts server at any time. You can also specify the Smarts class names with instances you want to represent as computers in the Resource Management databases.

To configure a new Smarts server:

1. In the NetIQ program group, click **Aegis > NetIQ Aegis Adapter Configuration Utility**.
2. In the left pane, click **EMC Smarts Adapter**.
3. On the Edit menu, click **New Entry**.
4. Provide the appropriate information, and then click **Save All**.
5. Restart the NetIQ Aegis Namespace Provider service.

Configuring the License Assignment

Using the Aegis Adapter Configuration Utility, you can configure the license assignment for the Smarts adapter. The Smarts adapter licensing defines a Smarts System as an environment with one Domain Manager Broker and any number of Domain Managers. The Smarts adapter currently enforces licensing on a “per system” basis, which requires one license for each active Domain Manager Broker.

If you have more than one Smarts environment, you can configure the order in which the available licenses are assigned.

To configure the license assignment:

1. In the NetIQ program group, click **Aegis > NetIQ Aegis Adapter Configuration Utility**.
2. In the left pane, click **EMC Smarts Adapter**.
3. Under Licensing Order, click the Smarts server for which you wish to sort the license assignment, and then specify the order in which to assign the license.
4. On the File menu, click **Save All**.
5. Restart the NetIQ Aegis Namespace Provider service.

Configuring the Domain Manager Information

A Smarts environment can include multiple Domain Managers with which the Smarts adapter can communicate. To allow the Adapter to interact and receive events, you must enable the **Monitored** parameter

The following information is provided by the Smarts Broker and is not editable:

- Domain Manager host name
- Domain Manager name
- Domain Manager port

To configure the domain manager:

1. In the NetIQ program group, click **Aegis > NetIQ Aegis Adapter Configuration Utility**.
2. In the left pane, click the Domain Manager you wish to configure.
3. Provide the appropriate user information for your environment.
4. To configure when Aegis receives event notifications, select one of the following options:
 - **Listen Topology Events** - Aegis receives event notifications when Domain Manager objects are added or removed, or when a link between them changes.
 - **Listen Object Events** - Aegis receives event notifications when the Domain Manager detects an abnormal situation in the objects it monitors. You can also restrict the class and instance, the events in which you are interested, and events types (events, problems, and event aggregations).
 - **Listen Property Updated Events** - Aegis receives event notifications when the Domain Manager detects changes to the properties of the objects it monitors. You can also restrict the class ranges, instances, and properties.
 - **Listen Notification Events** - Aegis receives event notifications when the Domain Manager detects new, updated, or deleted values for a notification attribute, or when the state for a notification attribute changes. This option is available only if the selected Domain Manager is also a Global Manager.
5. On the File menu, click **Save All**.
6. Restart the NetIQ Aegis Namespace Provider service.

Verifying a Successful Installation

Once you install the Smarts adapter, you can verify whether your installation was successful with the following steps:

1. Start the Aegis Configuration Console.

For more information about starting the console configuration, please see the *Administrator Guide for Aegis*.
2. In the Navigation pane, click **Administration**.
3. In the left pane, click Namespace Browser.
4. In the namespace tree, expand JSIQSMARTS > JSIQSMARTS_System > Smarts Server > JSIQSMARTS_DomainManager.
5. Ensure you see the Domain Managers you configured during the installation process.

After verifying a successful installation, NetIQ recommends you build a simple workflow with one of the activities in the Smarts Adapter library. For more information about building workflows, see the *Process Authoring Guide for Aegis*.

Workflow Activities Overview

The activities in the Smarts Adapter Library allow Aegis to perform the following types of tasks:

- Obtain detailed information about notifications, their related objects, and the events which cause them.
- Update notifications.
- Notify and clear notification events.
- Look for Smarts Objects and recover their attributes and relations.
- Create, update, rediscover, manage/un-manage, and remove Smarts objects.
- Initiate Smarts object operations.
- Initiate tasks in the Domain Managers, such as discovering new devices, codebook correlation tasks, and executing tools.

Uninstalling the Smarts Adapter

You can uninstall the Smarts adapter using Add/Remove Programs in Windows Control Panel.

If you are uninstalling from a cluster environment, ensure the following:

- Uninstall the adapter from all passive nodes first.
- Remove the node from the cluster before you uninstall the adapter.

Data Type Mappings

The following table describes the mapping of Smarts to Aegis data types.

Smarts Internal Type	Smarts Type	Aegis Type	Description
SM_BOOLEAN	boolean	BOOL	A boolean value
SM_INT	int	SINT32	32-bit integer
SM_UINT	unsigned-int	UINT32	32-bit unsigned integer
SM_LONG	long	SINT64	64-bit integer
SM_ULONG	unsigned-long	UINT64	64-bit unsigned integer
SM_SHORT	short	SINT16	16-bit integer
SM_USHORT	unsigned-short	UINT16	16-bit unsigned integer
SM_FLOAT	float	FLOAT	32-bit IEEE floating-point

Smarts Internal Type	Smarts Type	Aegis Type	Description
SM_DOUBLE	double	DOUBLE	64-bit IEEE floating-point
SM_CHAR	char	STRING	8-bit native character
SM_STRING	string	STRING	32-bit pointer to NULL-terminated character string.
SM_OBJREF	relationship	ATTRLIST	Represents an object in the Domain Manager repository. An object in the Domain Manager repository is uniquely identified by its class name and its name. The Aegis attribute list created to represent this data type will contain two attributes: -ClassName (string), for example a Switch -InstanceName (string), for example a Core Switch
SM_BOOLEAN_SET	boolean set	BOOL_ARRAY	Set of booleans
SM_INT_SET	int set	SINT32_ARRAY	Set of 32-bit integers
SM_UINT_SET	unsigned-int-set	UINT32_ARRAY	Set of 32-bit unsigned integers
SM_LONG_SET	long set	SINT64_ARRAY	Set of 64-bit integers
SM_ULONG_SET	unsigned-long-set	UINT64_ARRAY	Set of 64-bit unsigned integers
SM_SHORT_SET	short set	SINT16_ARRAY	Set of 16-bit integers
SM_USHORT_SET	unsigned-short set	UINT16_ARRAY	Set of 16-bit unsigned integers
SM_FLOAT_SET	float set	FLOAT_ARRAY	Set of 32-bit floats
SM_DOUBLE_SET	double set	DOUBLE_ARRAY	Set of 64-bit floats
SM_CHAR_SET	char set	STRING_ARRAY	Set of characters
SM_STRING_SET	string set	STRING_ARRAY	Set of strings
SM_OBJREF_SET	relationship set	TABLE	Represents a set of objects in the Domain Manager repository. The Aegis table used to map this Smarts data type will define one row for each object included in the object set, each row will contain an attribute list defining two attributes: - className (string) - instanceName (string) For example: ClassName Switch InstanceName Core Switch ClassName Port InstanceName MC1/0
SM_ANYVALARRAY	structure set	TABLE	A Smarts SM_ANYVAL type is an object that can hold different types. An SM_ANYVALARRAY is an array (set) of SM_ANYVALs. This Smarts type will be mapped to a Table where each row will contain an attribute list defining three attributes: - type (string) - index (int) - value (Value) For example: Type SM_BOOLEAN Index 0 Value True Type SM_STRING Index 1 Value "Some Text" Type SM_INT_SET Index 2 Value [4,7,6,7,5]

Smarts Internal Type	Smarts Type	Aegis Type	Description
SM_ANYVALARRAY_SET	structure set	TABLE	<p>A Smarts SM_ANYVALARRAY_SET is a set of SM_ANYVALARRAYs.</p> <p>This Smarts type will be mapped to a Table where each row will contain an attribute list defining three attributes:</p> <ul style="list-style-type: none"> - type (string) will be "SM_ANYVALARRAY" - index (int) - value (table) a table with the same structure used to map the SMANYVALARRAY Smarts type <p>For example:</p> <p>Type SM_ANYVALARRAY Index 0 Value</p> <p style="padding-left: 20px;">Type SM_FLOAT Index 0 Value 0.5 Type SM_STRING Index 1 Value "Some String"</p> <p>Type SM_ANYVALARRAY Index 1 Value</p> <p style="padding-left: 20px;">Type SM_BOOLEAN Index 0 Value True Type SM_INT Index 2 Value 125</p>