

**MasterScope Service
Governor3.22.0
Service Governor Installation Guide
(Windows)**

Disclaimer

The copyrighted information noted in this document shall belong to NEC Corporation.

Copying or revising this document, in whole or in part, is strictly prohibited without the permission of NEC Corporation.

This document may be changed without prior notice.

NEC Corporation shall not be liable for any technical or editing errors or omissions in this document.

NEC Corporation shall not be liable for the accuracy, usability, or certainty of information noted in this document.

Trademarks

- Adobe, the Adobe logo, and Acrobat are trademarks or registered trademarks of Adobe Systems Incorporated in the United States of America and other countries.
- Microsoft and Windows are registered trademarks of Microsoft Corporation in the United States of America and other countries.
- Other Microsoft products mentioned in this guide are also registered trademarks of Microsoft Corporation in the United States of America and other countries.
- Intel and Itanium are trademarks or registered trademarks of Intel Corporation in the United States of America and other countries.
- Introscope is a registered trademark of CA Technologies.
- UNIX is a registered trademark of the Open Group in the United States of America and other countries.
- HP-UX and PA-RISC are registered trademarks of Hewlett-Packard Company in the United States of America and other countries.
- Other Hewlett-Packard Company products mentioned in this guide are registered trademarks of Hewlett-Packard Company in the United States of America and other countries.
- Oracle, Exadata, and Solaris are registered trademarks of Oracle Corporation and its subsidiaries and affiliates in the United States of America and other countries.
- Linux is a trademark or registered trademark of Linus Torvalds in the United States of America and other countries.
- Red Hat is a trademark or registered trademark of Red Hat, Inc. in the United States and other countries.
- SUSE is a registered trademark of Novell, Inc. in Japan.
- AIX is a registered trademark of the International Business Machines Corp. in the United States of America.
- PATLITE are registered trademarks of PATLITE Corporation.

All the other system names, company names, and product names in this document are trademarks or registered trademarks of their respective companies.

Note that the ® or ™ mark are not indicated in this document.

Notes on exporting this product

This product (including software) may be applicable to the controlled cargo (or services) regulated by the Foreign Exchange and Foreign Trade Law. To export the product to outside of Japan, an export permit from the Japanese government is required. When information materials, etc. are required for the export permit application process, contact your distributor or the nearest sales office.

Preface

Notation Rules of This Document

This document describes the precautions and related information as follows:

Note

A functional, operational, or configurational notice, warning, or complement is described.

Tip

Indicates the location of additional information or reference destination information

Notation list

The following notation rules are applied in this document.

Notation	How to use	Example
[] square brackets	Placed before and after an item (such as a text box, check box, or tab) on the screen	Enter the machine name in the [Machine Name] text box. The [All] check box
"" double quotes	Placed before and after a screen name (such as a dialog box window), or the name of a manual other than this one.	<i>"Setting" window</i> <i>"Installation Guide"</i>
[] square brackets in the command line	Indicates that the specification of the value in [] can be omitted.	add [/a] Gr1
Monospace font	Output from the command-line system (such as a message prompt)	Execute the following command: <code>replace Gr1</code>
Italicized monospace font	An item that should be replaced by users with a valid value If the value contains a space, surround it with " " (double quotes).	add <i>GroupName</i> <code>InstallPath= "Install Path"</code>
Json example	Json examples are shown with breaks and indents added in order to improve the readability.	<pre>{ "ID": ["45ed3512"], "Manager": { "ErrorMessage": "", "Name": "localhost", "Status": 200, "StatusCode": 200 } }</pre>

Glossary

This document uses the terms below.

Term	Description
Service Governor	Name of this product Official name is MasterScope Service Governor
Installation directory	Refers to the destination to which MasterScope Service Governor is installed. The default value is C:\Program Files (x86)\NEC\UMF\Operations
Tomcat installation directory	Refers to the destination (included in the ServiceGovernor WebAPI Base Option package) to which Tomcat is installed. The default value is C:\Program Files (x86)\NEC\UMF\Operations\Tomcat
Manager	A server that runs the services of "MasterScope UMF Operations Manager_n".
EXPRESSCLUSTER X	An NEC product that can be used to switch running processes between nodes in a duplicated system. In this document, a host system included in a cluster is referred to as a node.

Contents

Chapter 1. Operating Environments/System Requirements	1
1.1 System Requirements.....	2
1.1.1 Hardware Requirements	2
1.1.2 Software Requirements	2
1.1.2.1 List of Supported Platforms.....	2
Chapter 2. Installing ServiceGovernor	3
2.1 Installing ServiceGovernor.....	4
2.1.1 Installing ServiceGovernor from the Installer	4
Chapter 3. Setting Up ServiceGovernor	9
3.1 API Authentication Key	10
3.2 Setting SSL/TLS for a Manager	12
3.2.1 Setting a Manager	12
3.2.2 Setting Up ServiceGovernor.....	13
3.3 Settings for Adding a Manager.....	13
3.3.1 Preparation	13
3.3.2 Setting Up the ServiceGovernor Property File.....	14
3.4 Settings for Deleting a Manager.....	16
3.4.1 Settings for Deleting a Manager	16
3.5 Setting SSL/TLS for Tomcat	17
3.5.1 Importing the Certificate	18
3.5.2 Modifying the Tomcat Settings	18
3.5.3 Changing env.bat.....	18
3.5.4 Restarting the Service.....	19
3.6 After the Tomcat Settings Are Monitored.....	19
3.7 About the Port Numbers Used.....	19
3.8 Verifying Operation of ServiceGovernor	20
3.8.1 Enabling/Disabling the API Verification Screen	20
3.8.2 Operation Verification	21
Chapter 4. Constructing a ServiceGovernor Cluster	22
4.1 Preface	23
4.1.1 Supplemental Information	23
4.1.2 Target Products	23
4.2 Creating a New Failover Group.....	23
4.3 Setting Up Shared Resources (Floating IP)	24
4.4 Setting Up ServiceGovernor.....	26
4.4.1 [Active] Installing ServiceGovernor	26
4.4.2 [Active] Setting Up ServiceGovernor	26
4.4.3 [Active] Setting Up the Tomcat Service	26
4.4.4 Moving to the Standby System.....	26

4.4.5 [Standby] Installing ServiceGovernor	26
4.4.6 [Standby] Setting Up ServiceGovernor	26
4.4.7 [Standby] Setting Up the Tomcat Service	26
4.4.8 Moving to the Active System	27
4.5 Adding Service Resources.....	27
Chapter 5. Uninstalling ServiceGovernor	30
5.1 Uninstalling ServiceGovernor	31
5.1.1 Uninstalling ServiceGovernor with Uninstaller	31
Chapter 6. Upgrading	35
6.1 Upgrading ServiceGovernor.....	36
6.1.1 Upgrading ServiceGovernor from the Installer	36
6.1.2 Reversion after Upgrade of ServiceGovernor	39
6.2 Upgrading the Application Server	40
6.2.1 Upgrading the Application Server from the Installer	40
6.2.2 Reversion after Upgrade of the Application Server	44
Chapter 7. Backing Up the Files	46
Chapter 8. Restoring the Backed Up Files.....	47
Chapter 9. Precautions	48
9.1 Precautions on Products	49
9.2 Precautions on Operation	49
9.2.1 About Bloating of the Tomcat Log	49
9.2.2 Starting ServiceGovernor as a User with Non-Administrator Privileges.....	57
9.2.3 About Tomcat Shutdown Port	62
Chapter 10. Appendix.....	63
10.1 About the Certificate for SSL/TLS Setting	64
10.1.1 Status Certificate Created Using a Public Certificate Authority	64
10.1.2 Self-Issued, Self-Signed Certificate	65
Chapter 11. Open Source Software License	66
11.1 About commons-codec-1.7.....	67
11.2 About commons-logging-1.1.1	71
11.3 About log4j-1.2.14	75
11.4 About jackson-all-1.8.5	79
11.5 About Apache Tomcat 8.0	83

Chapter 1.

Operating Environments/System Requirements

Contents

1.1 System Requirements.....	2
------------------------------	---

This section describes the operating environment.

1.1 System Requirements

1.1.1 Hardware Requirements

Type	Hardware Requirements
CPU	At least Intel Compatible 2GHz 4 Core
Memory capacity	At least 4GB
Disk capacity	At least 4GB

1.1.2 Software Requirements

1.1.2.1 List of Supported Platforms

This package runs on the following software:

OS
Windows Server 2008 Standard Edition (x86,x64) Windows Server 2008 Standard Edition R2 (x86,x64) Windows Server 2008 Enterprise Edition (x86,x64) Windows Server 2008 R2 Enterprise Edition (x86,x64) Windows Server 2012 Standard (x86,x64) Windows Server 2012 R2 Standard (x86,x64) Windows Server 2012 Datacenter (x86,x64) Windows Server 2012 R2 Datacenter (x86,x64)

Chapter 2.

Installing

ServiceGovernor

Contents

2.1 Installing ServiceGovernor.....	4
-------------------------------------	---

⚠ Caution

When constructing a cluster environment, refer to "[Chapter 4. Constructing a ServiceGovernor Cluster \(page 22\)](#)" before performing this procedure.

2.1 Installing ServiceGovernor

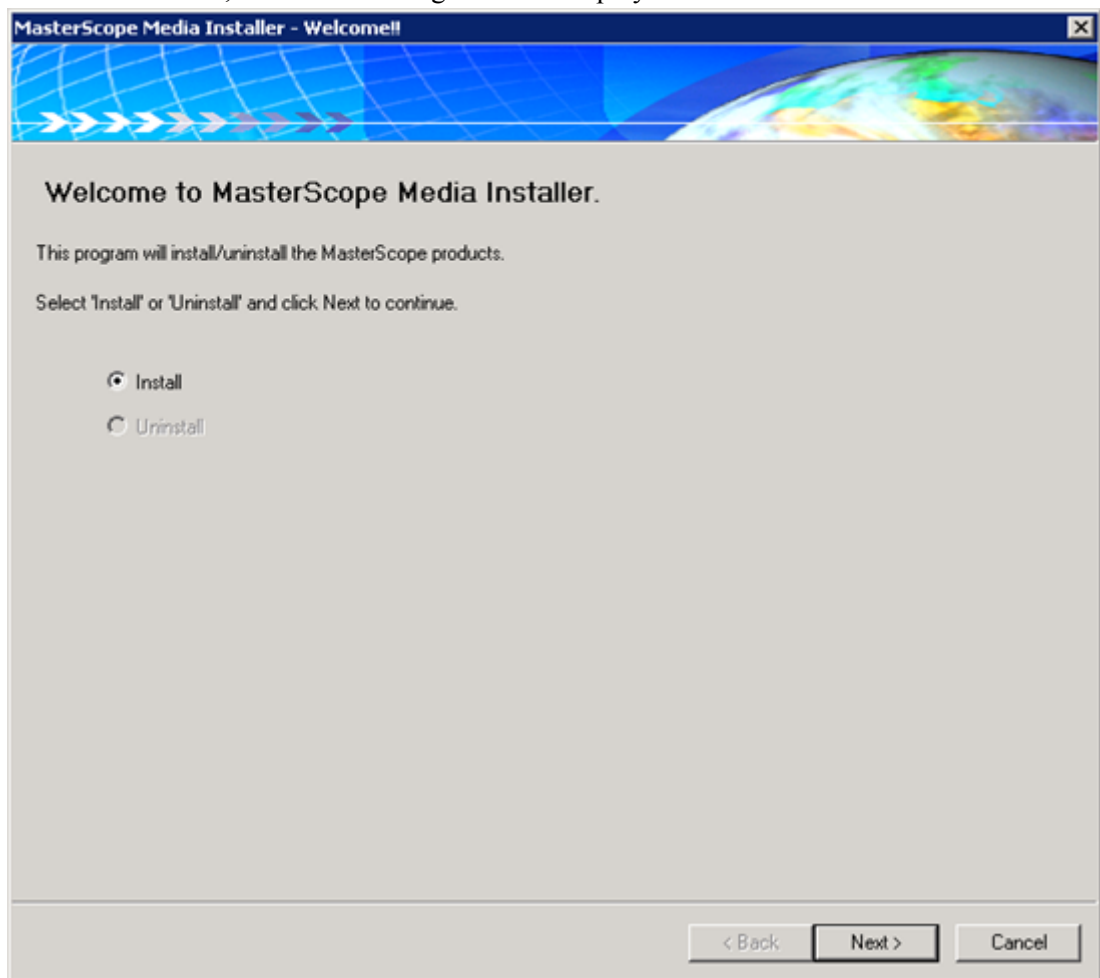
The following and subsequent pages describe the procedure for installing ServiceGovernor.

2.1.1 Installing ServiceGovernor from the Installer

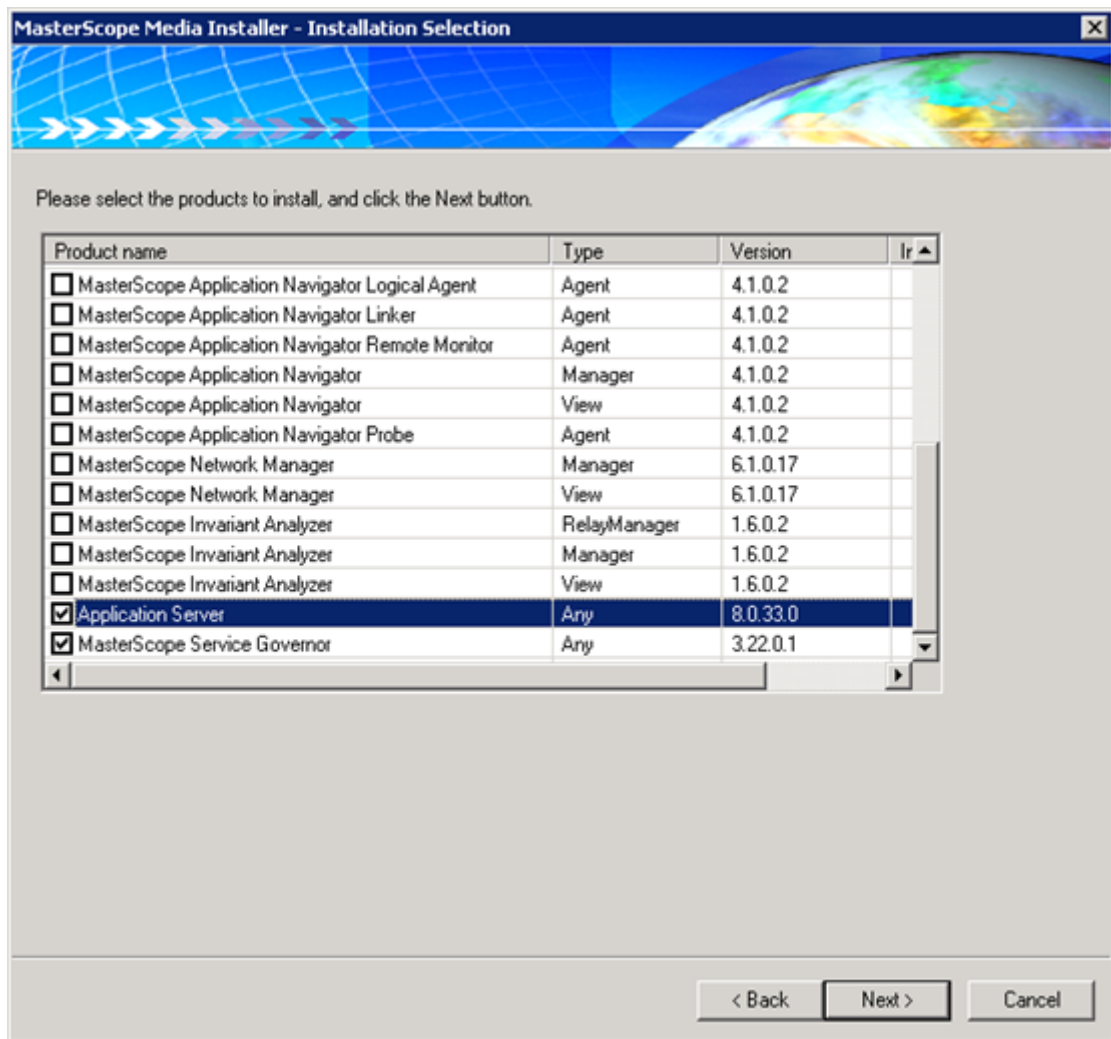
1. Insert the installation DVD into the DVD drive.
2. Execute the following command from the Explorer or command prompt to start the installer.

```
> <Install DVD>\Windows\Setup.exe
```

3. The installer starts, and the following screen is displayed.



4. Select [Install], and click [Next].
5. The [Installation Selection] screen is displayed.

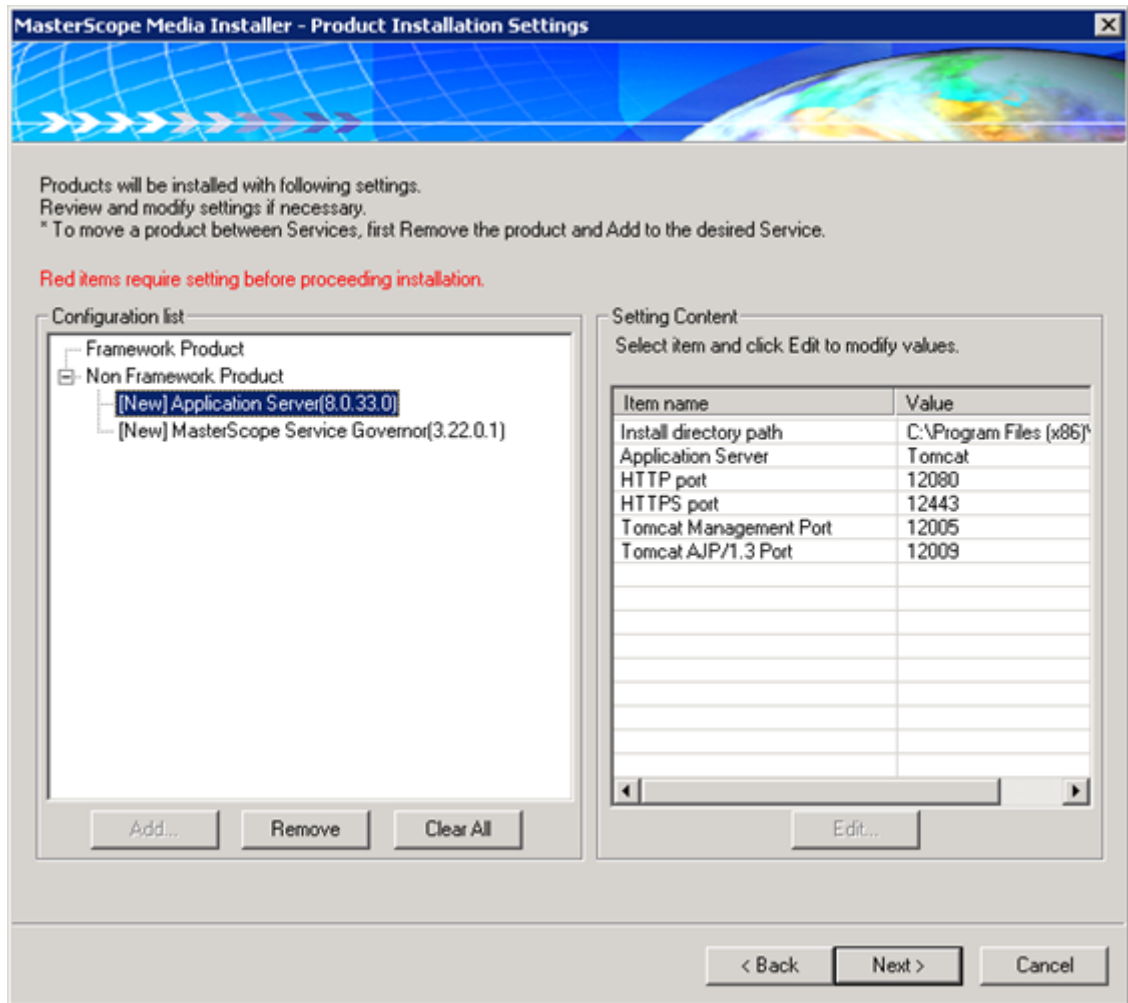


6. Check the boxes of the following product names.

- Application Server
- MasterScope Service Governor

7. Click [Next].

The [Product Installation Settings] dialog box is displayed.



8. Select [Configuration list] > [Application Server], and set the setting items in [Setting Content].

Click the setting item and click [Edit...], or double-click the setting item.

The setting screen for the selected setting item opens.

The details of parameters are as follows.

Field name	Setting value
Installation destination folder	Specify the installation destination folder. The default value is defined in " Glossary (page iii) ". Specify the folder path, by using up to 55 characters.
Application Server	Specify Tomcat.
HTTP port	Specify the HTTP port number of ServiceGovernor . The default value is "12080".
HTTPS port	Specify the HTTPS port number of ServiceGovernor . The default value is "12443".
Tomcat management port number	Specify the Tomcat management port number. The default value is "12005".

Field name	Setting value
Tomcat AJP/1.3 port number	Specify the Tomcat AJP/1.3 port number. The default value is "12009".

Caution

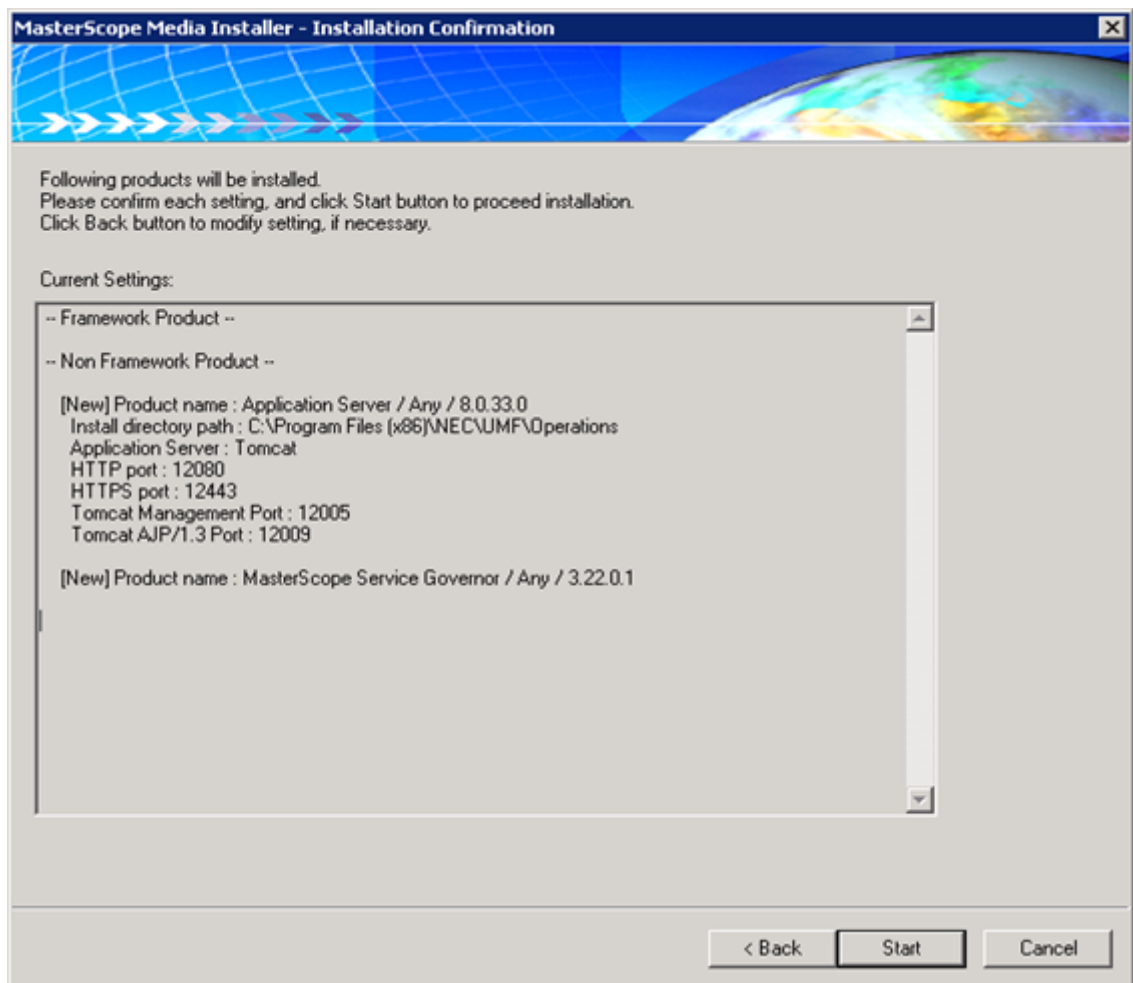
For the port number, specify a number that differs from those of the other products.
Otherwise, the Tomcat service cannot be started up.

Caution

Note that the installation destination folder name is not case-sensitive.
The following characters cannot be used for an installation destination folder.
 \ / : * ? " > < | ; ' &

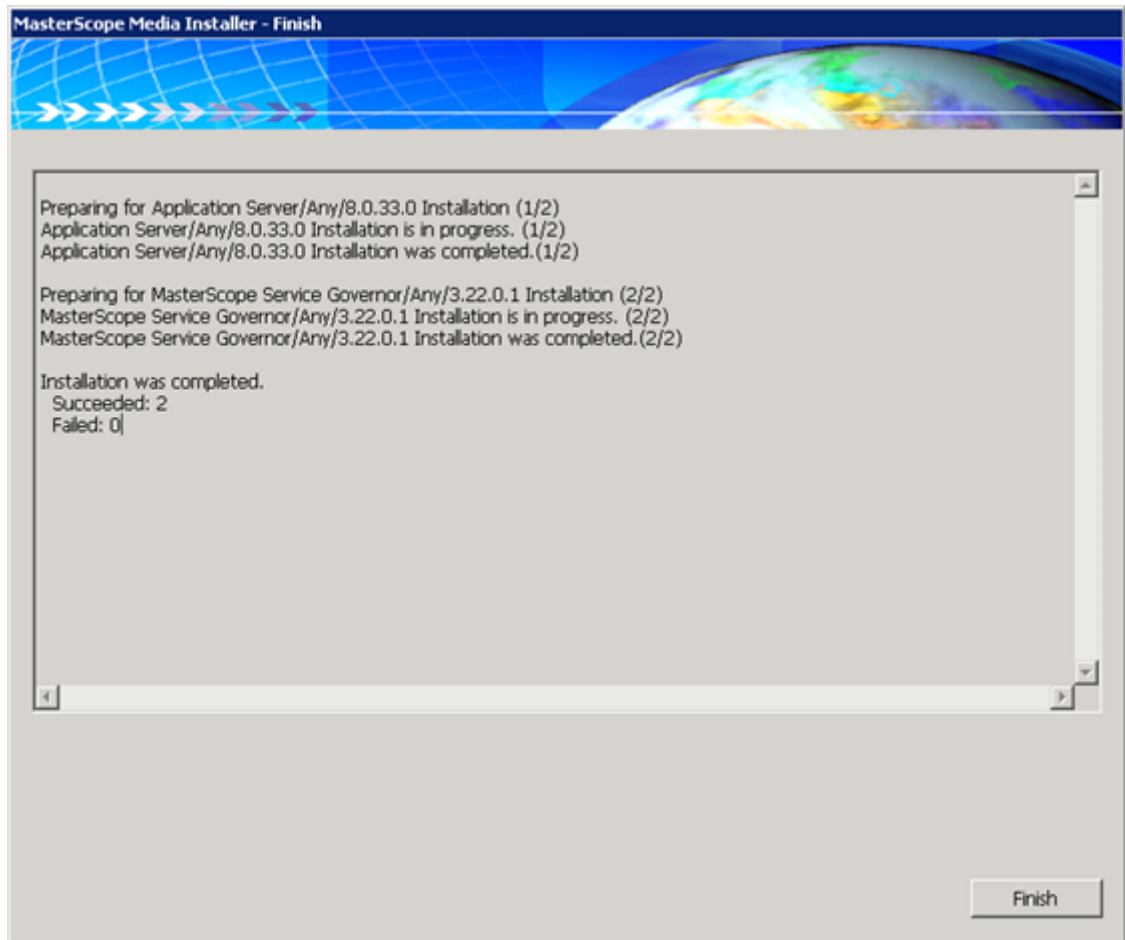
9. Click [Next].

The [Installation Confirmation] screen is displayed.



10. Check the details, and click [Start].

Installation starts. When the installation is complete, the [Finish] screen is displayed.



If the screen as above is displayed, the installation is complete.

11. Click [Finish].

Chapter 3.

Setting Up ServiceGovernor

Contents

3.1 API Authentication Key	10
3.2 Setting SSL/TLS for a Manager	12
3.3 Settings for Adding a Manager	13
3.4 Settings for Deleting a Manager	16
3.5 Setting SSL/TLS for Tomcat	17
3.6 After the Tomcat Settings Are Monitored	19
3.7 About the Port Numbers Used	19
3.8 Verifying Operation of ServiceGovernor	20

3.1 API Authentication Key

Create the authentication key for ServiceGovernor

1. Log into the manager under the Administrators privileges.
2. Open the Tools folder within the installation destination folder of the manager component.
3. Perform the following WebApiTool.bat command to create the access key.

```
> cd "< Installation directory>\Tools"
>WebApiTool.bat createkey <UserName> -description "<Description>"
```

* Specify any value for <UserName> and <Description>.

Caution

- An ASCII character or numeric value can be specified for <UserName>.
- The character string specified for <UserName> will be displayed as the user name of the [Audit Log] view on the manager's monitoring terminal.

Confirm that the following is displayed as a standard output.

```
NORMAL END.

command exit code:0
COMMAND SUCCEEDED.
```

4. Confirm the created access key.

Perform the following command to display the created access key.

```
> cd "< Installation directory>\Tools"
>WebApiTool.bat showkey <UserName>
```

Confirm that the following is displayed in a standard output.

```
-----
UserName : <UserName>
Description : <Description>
AccessKeyId : /TZfHsSFsdfsL3ghfE9hKyRYLW2ufSbcnYWf1m4RBVrw=
SecretAccessKey : rSQ2z2Yn/OgSHhL3R7j6IWuiErtMl1CBMJQWtWpE5rXuU=
-----
NORMAL END.

command exit code:0
COMMAND SUCCEEDED.
```

5. Specify the displayed AccessKeyId and SecretAccessKey as the portal products.

Write down the values of the authentication access key (AccessKeyId) and authentication secret key (SecretAccessKey) and specify them to the portal products.

To use WebAPI of ServiceGovernor , it is necessary to include the assigned access key in the Http request header required to use WebAPI.

6. When the portal products use WebAPI, create the Http request header as follows.

Use the following Http request header for authentication.

HTTP header	Description
Date	Specifies in the WebAPI request date (RFC1123 format).
Authorization	Specifies the created access key and signature described later. Specify "SharedKeyLite" as the authentication method.

Use the following algorithm to create the Authorization header.

- Read the access key generated with the WebApiTool.bat command on the manager.

```
AccessKeyId : /TZfHsSFsdfsL3ghfE9hKyRYLW2ufSbcnYWf1m4RBVrw=
SecretAccessKey : rSQ2z2Yn/OgSHhL3R7j6IWuiErtM11CBMJQWtWpE5rXuU=
```

- Determine the request date.

```
Date = "Wed, 19 Dec 2012 08:01:10 GMT"
```

- Acquire the WebAPI path with the query character string ("?" or after) excluded.

```
CanonicalizedResource = "/umf/categories"
```

Caution

If you need URLEncode, generate the target character string using the WebAPI path that results after encoding.

- Concatenate the request date and path by using a line feed character (CRLF) and create the character strings to be authenticated.

```
CRLF = "¥x0D¥x0A"
StringToSign = Date + CRLF + CanonicalizedResource
```

- Create the HMAC (SHA256) from the character strings to be authenticated and SecretAccessKey and encode it in Base64.

```
Signature = Base64(HmacSHA256(SecretAccessKey, StringToSign))
#=> "dSvqioC9hIUjnnDk7dhHcQ6oRCxJN1hc0Wdev393ZYc="
```

- Create the HTTP request header.

Example of Http request header:

```
Date: Wed, 19 Dec 2012 08:01:10 GMT
Authorization: SharedKeyLite /TZfHsSFsdfsL3ghfE9hKyRYLW2ufSbcnYWf1
m4RBVrw=:dSvqioC9hIUjnnDk7dhHcQ6oRCxJN1hc0Wdev393ZYc=
```

Caution

This procedure is required to perform setup on the portal product that uses WebAPI of ServiceGovernor. If no signature is specified or the specified signature has a wrong value, WebAPI will fail to be executed.

- To operate ServiceGovernor in a cluster configuration, copy the following files from the active server to the standby server.

```
<Installation directory>\Tomcat\vdCApiKey.jks
```

3.2 Setting SSL/TLS for a Manager

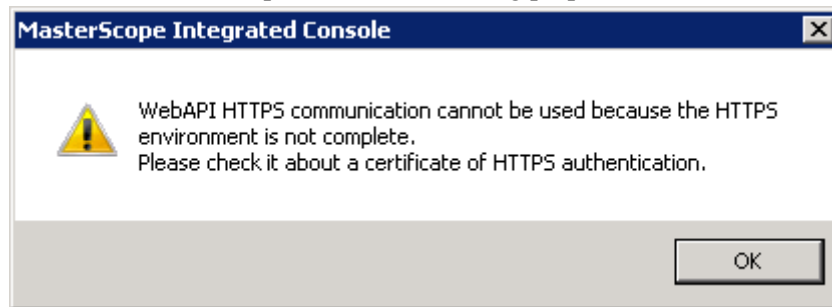
To connect between ServiceGovernor and a manager using SSL/TLS, use this procedure.

If SSL/TLS is not used, this procedure is not required.

3.2.1 Setting a Manager

Check the [Use HTTPS cryptogram] box on the [Web Monitoring View] tab by referring to Setting up internal communication with ServiceGovernor.

If a warning as shown in the following figure was output during option setting or you want to modify the server certificate, perform the following preparation.



1. Stop the manager.
2. Check the file name settings of the server certificate and private key.
If any of the files does not exist, create an empty file and add the setting.
File name
Windows:
`<installation destination folder>\Manager\sg\HttpServerMgr.ini`

Linux:
`<installation destination directory>/Manager/sg/HttpServerMgr.ini`

Contents specified

```
[ApiServer]
CertificateFile=server.crt
PrivateKeyFile=server.key
```

Parameter name	Description
CertificateFile	Specifies the server certificate file name. When the file name is omitted, server.crt is used as the default setting value.
PrivateKeyFile	Specify the private key file name. When the file name is omitted, server.key is used as the default setting value.

* If you want to specify other parameters other than the default server certificate or private key, specify a file name that differs from the default file name.

3. Store the server certificate and private key to be used.
Store in the following the server certificate and private key file names that have been set in "2. (page 12)".

Windows:

```
<installation destination folder>\Manager\sg\HttpServer\conf
```

Linux:

```
<installation destination directory>/Manager/sg/HttpServer/conf
```

4. Start the manager.

Attention

- Only Windows or Linux manager supports the WebAPI function. No manager other than a Windows or Linux manager can use the WebAPI function.
 - If you create a server certificate or private key, specify a file name that differs from the default file name.
 - If you create a server certificate or private key, create the private key in RSA format without encryption or the server certificate in x509 format.
-

3.2.2 Setting Up ServiceGovernor

Change the {URL} protocol to https by reference to ["3.3.2 Setting Up the ServiceGovernor Property File \(page 14\)"](#).

⚠ Caution

To operate ServiceGovernor in a cluster configuration, make a change on both the active and the standby servers.

3.3 Settings for Adding a Manager

The "manager" refers to a server that runs the service of "MasterScope UMF Operations Manager_n".

When a manager having access to ServiceGovernor is added, perform the preparation using the following procedure and edit the ServiceGovernor configuration file.

⚠ Caution

To operate ServiceGovernor in a cluster configuration, set the following ServiceGovernor settings on both the active and the standby servers.

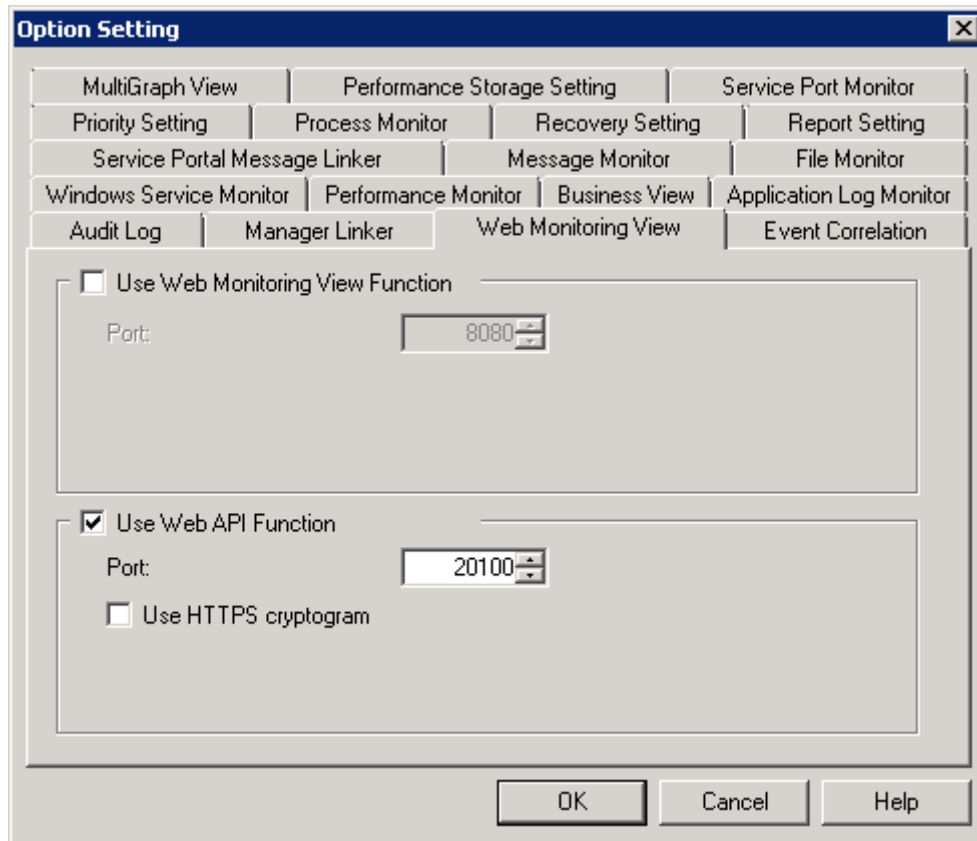
3.3.1 Preparation

1. Setting up internal communication with ServiceGovernor

Set up internal communication with ServiceGovernor for the manager.

For this setting, use the monitoring screen connected to the manager.

After changing to the definition mode, open the "Option Setting" screen by using [Option] in the [Setting] menu, and then select the [Web Monitoring View] tab.



Check the [Use Web API Function] box, and set [Port]. This port number will be used for the internal communication port specified in {URL} of "3.3.2 Setting Up the ServiceGovernor Property File (page 14)".

3.3.2 Setting Up the ServiceGovernor Property File

Set the properties for ServiceGovernor.

The configuration file of the properties is \Tomcat\conf\fwapi.properties in the installation folder.

A description of each parameter and a setting example are shown below.

◆Parameter description

Parameter name	Description
fw.manager{n}.host	Specify the URL and port number of the manager. This parameter must be specified. In addition, name resolution must be possible with this parameter. The format of the parameter is as follows. fw.manager{n}.host={URL},{SelfHost},{Manager Type} The default value of port number is 20100.

◆Format of the fw.manager{n}.host parameter

Enter a serial number starting with 1 in {n} of the fw.manager{n}.host key character string. When two managers are used, set the following.

```
fw.manager1.host={URL},{SelfHost},{Manager Type}
fw.manager2.host={URL},{SelfHost},{Manager Type}
```

Set the following elements to the setting values. Use a comma (,) as a separator.

Setting element	Setting value
{URL}	http://<manamer name>:<port number> In addition, name resolution must be possible with this parameter. The default value of port number is 20100.
{SelfHost}	Specify <manager name>. The manager name specified here must be the same as the HostName property in the [SelfNode] section set in the following file under the installation destination folder of the management server. In addition, name resolution must be possible with this parameter. Windows: <installation destination folder>\Manager\sg\SysMonMgr.ini Linux: <installation destination directory>/Manager/sg/SysMonMgr.ini [SelfNode] HostName=MOM01
{Manager Type}	If two or more managers are linked hierarchically, specify "MoM" for the entry of the high-level manager. Specify "RM" for the entry of the low-level manager. Omit this parameter unless two or more managers are linked.

◆Setting example

Adding managers "mom03" and "mom04"

The following is a setting example where the original host name is registered for SysMonMgr.ini and the default value is set for a port number.

```
#fw.manager{n}.host={URL},{SelfHost},{Manager Type}
fw.manager1.host=http://mom03:20100,mom03
fw.manager2.host=http://mom04:20100,mom04
```

On the machine on which ServiceGovernor has been installed, execute the following command to reflect the modified properties. After logging in with Administrators rights, execute the following WebApiTool.bat command to reflect the changed properties.

```
> cd "< Installation directory>\Tools">WebApiTool.bat properties reload fwapi
```

Confirm that the following is displayed as a standard output.

```
Normal End. PropertyFile(fwapi.properties) was reload.
```

```
-----
HTTP STATUS: 200
SUCCEEDED.
```

```
command exit code:0
COMMAND SUCCEEDED.
```

⚠ Caution

If [ServiceGovernor — HTTP Port] was changed in the procedure for installing ServiceGovernor, the following error message is output.

```
Abort Connection Error :IO error has happened. http response cord can't be received.
```

The specified port number must be identical to the port number within <installation folder>\Tools\env.bat.
If the value has been changed from the default value (12080), change the following parameters in the env.bat file.

For the SSL/TLS port, change [MANAGER_PROTOCOL] to [https].

Setting example

```
set MANAGER_PROTOCOL=https
set MANAGER_PORT=12443
```

Execute the following command to check the loaded property values.

```
> cd "< Installation directory>\Tools"
>WebApiTool.bat properties show fwapi
```

Confirm that the following is displayed as a standard output.

```
fw.manager1.host=http://mom03:20100,mom03
fw.manager2.host=http://mom04:20100,mom04
```

3.4 Settings for Deleting a Manager

When a manager having access to ServiceGovernor is deleted, perform the preparation using the following procedure and edit the ServiceGovernor WebAPI configuration file.

⚠ Caution

To operate ServiceGovernor in a cluster configuration, perform the following procedure on both the active and the standby servers.

3.4.1 Settings for Deleting a Manager

From the following files, delete the "fw.manager1.host=..." line, which specifies the target server to be deleted.
¥Tomcat¥conf¥fwapi.properties

On the machine on which ServiceGovernor has been installed, execute the following command to reflect the modified properties. After logging in with Administrators rights, execute the following WebApiTool.bat command to reflect the changed properties.

```
> cd "< Installation directory>\Tools">WebApiTool.bat properties reload fwapi
```


Confirm that the following is displayed as a standard output.

```
Normal End. PropertyFile(fwapi.properties) was reload.
-----
HTTP STATUS: 200
SUCCEEDED.

command exit code:0
COMMAND SUCCEEDED.
```

Caution

If [ServiceGovernor — HTTP Port] was changed in the procedure for installing ServiceGovernor, the following error message is output.

```
Abort Connection Error :IO error has happened. http response cord can't be received.
```

The specified port number must be identical to the port number within <installation folder>\Tools\env.bat.
If the value has been changed from the default value (12080), change the following parameters in the env.bat file.
For the SSL/TLS port, change [MANAGER_PROTOCOL] to [https].

Setting example

```
set MANAGER_PROTOCOL=https
set MANAGER_PORT=12443
```

Execute the following command to check the loaded property values.

```
> cd "< Installation directory>\Tools"
>WebApiTool.bat properties show fwapi
```

Confirm that the following is displayed as a standard output.

```
fw.manager1.host=http://mom03:20100,mom03
fw.manager2.host=http://mom04:20100,mom04
```

3.5 Setting SSL/TLS for Tomcat

If the ServiceGovernor API is used through SSL/TLS connection, perform this procedure.

If SSL/TLS is not used, this procedure is not required.

Caution

To operate ServiceGovernor in a cluster configuration, perform the following procedure on both the active and the standby servers.

Caution

The following procedure is available only if you use both the Tomcat and the Java software included in the ServiceGovernor package.

3.5.1 Importing the Certificate

Before performing this procedure, prepare the server certificate and import it to the key store file.

For how to set the server certificate, see ["10.1 About the Certificate for SSL/TLS Setting \(page 64\)"](#).

Caution

When ServiceGovernor is upgraded, the installation folder is replaced by the new directory.

If <key store file name> is created under <installation destination folder>

\Tomcat

, it is recommended that it be placed under <installation destination folder>

\Tomcat\conf

.

3.5.2 Modifying the Tomcat Settings

Modify the following file with a text editor.

```
<Installation directory>\Tomcat\conf\server.xml
```

* <installation folder> is the destination in which ServiceGovernor is installed.

By default, modify the settings as follows.

```
<!-- ←1.Delete
    <Connector port="12443" protocol="org.apache.coyote.http11.Http11NioPro
    tocol"
                                maxThreads="150" SSLEnabled="true" scheme="https" secure="tr
    ue"
    2.Addition→      keystoreFile="<Keystore File Name>"
    2.Addition→      keystorePass="<Keystore Password>"
                                clientAuth="false" sslProtocol="TLS" />
--> ←3.Delete
```

* For <key store file> and <key store password>, specify the <key store file name> and <key store password>, which you specified in ["3.5.1 Importing the Certificate \(page 18\)"](#).

Setting example (for Tomcat8)

```
<Connector port="12443" protocol="org.apache.coyote.http11.Http11NioProtoco
l"
                                maxThreads="150" SSLEnabled="true" scheme="https" secure="true"
                                keystoreFile="C:\keystore.jks"
                                keystorePass="changeit"
                                clientAuth="false" sslProtocol="TLS" />
```

3.5.3 Changing env.bat

When SSL/TLS for ServiceGovernor has been enabled, modify env.bat by referring to ["3.6 After the Tomcat Settings Are Monitored \(page 19\)"](#).

3.5.4 Restarting the Service

Restart the "Apache Tomcat 8.0 ServiceGovernor" service.

3.6 After the Tomcat Settings Are Monitored

Caution

To operate ServiceGovernor in a cluster configuration, perform the following procedure on both the active and the standby servers.

If any of the following Tomcat server.xml settings was modified manually, you also need to modify the environment configuration file for ServiceGovernor tools.

- Enable/disable SSL/TLS
- HTTP port number

Target file:

<installation destination folder>\Tools\env.bat

The specified port number must be identical to the port number within <installation folder>\Tools\env.bat.

If the value has been changed from the default value (12080), change the following parameters in the env.bat file.

For the SSL/TLS port, change [MANAGER_PROTOCOL] to [https].

Setting example

```
set MANAGER_PROTOCOL=https
set MANAGER_PORT=12443
```

3.7 About the Port Numbers Used

ServiceGovernor uses the following network port numbers by default.

If a firewall such as Windows Firewall is enabled in the system environment, open the following port.

For functions that are not used, set so that they will be closed.

Component	Item	Program name	Protocol	Connection destination port number	Connection source target	Connection source port number	Whether the port number can be changed or not
Application Server	* Apache Tomcat	<installation folder>\Tomcat\bin\tomcat8.exe	TCP	12080	RESTFul API client * If http communication is used * If SSL/TLS	Automatic	Yes

Component	Item	Program name	Protocol	Connection destination port number	Connection source target	Connection source port number	Whether the port number can be changed or not
		(The path varies according to the OS environment.)			is used, close the port.		
			TCP	12443	RESTFul API client * If https communication is used	Automatic	Yes
			TCP	12005	Tomcat management port number * Close the port.	Automatic	Yes
			TCP	12009	Tomcat AJP/1.3 port number * Close the port.	Automatic	Yes

3.8 Verifying Operation of ServiceGovernor

Verify that the installation and setup of ServiceGovernor have been completed successfully.

3.8.1 Enabling/Disabling the API Verification Screen

Enable or disable the API verification screen.

Change the setting for `fw.restconsole.check.enable` in the following file
`\Tomcat\conf\fwapi.properties`

within the installation destination folder.

■When enabling:

Set `fw.restconsole.check.enable` to `true`.

Setting example:

```
fw.restconsole.check.enable=true
```

■When disabling:

Set `fw.restconsole.check.enable` to `false`.

Setting example:

```
fw.restconsole.check.enable=false
```

After completing the change, execute the following command to update the setting.

```
> cd "< Installation directory>\Tools"
> WebApiTool.bat properties reload fwapi
```

3.8.2 Operation Verification

1. Enable the API verification screen by referring to "[Enabling/Disabling the API Verification Screen \(page 20\)](#)".
2. Open the Web browser, and access the following URL.
`http://localhost:12080/umf/APIConsoleService`

Note

The scheme, host name, and port number to be specified for the URL must be changed according to your settings.

3. Enter the following on the displayed screen.

URI	http://localhost:12080/umf/fw/topology/agent
AccessKey	AccessKeyId generated in ""3.1 API Authentication Key (page 10)""
SecretKey	SecretAccessKey generated in ""3.1 API Authentication Key (page 10)""
Header	Content-Type: application/json; charset=utf-8 X-FW-API-Version: 1.0
RequestBody	(None)

4. Select GET with the radio button for Method.
5. Click the [submit] button.
6. If the following is displayed, ServiceGovernor is operating normally.

```
Response Status Code = 200

{"Topology": [{"TreeNode": {"NodeType": "root",
:
:
:
```

7. Disable the API verification screen by referring to ["Enabling/Disabling the API Verification Screen \(page 20\)"](#).

Chapter 4.

Constructing a ServiceGovernor Cluster

Contents

4.1 Preface	23
4.2 Creating a New Failover Group.....	23
4.3 Setting Up Shared Resources (Floating IP)	24
4.4 Setting Up ServiceGovernor.....	26
4.5 Adding Service Resources.....	27

These procedures are available to operate ServiceGovernor in a cluster environment.

These procedures are unnecessary if you want to operate ServiceGovernor in a single configuration.

The procedures in this chapter assume that those in the subsequent sections must be performed in the order as described.

[Active] and [Standby] represent the systems in which to perform the procedures described in this section.

Caution

If you operate ServiceGovernor in a cluster configuration, the configuration file of ServiceGovernor and the log output by ServiceGovernor are managed separately on the active and standby servers.

Note that, for this reason, if the configuration file of ServiceGovernor is modified or the log is viewed, you need to perform the same process on both the active and the standby servers.

4.1 Preface

This document provides an example procedure for using EXPRESSCLUSTER X to set up a cluster configuration that has two nodes (for duplication). EXPRESSCLUSTER X is an NEC product that can be used to switch running processes between nodes in a duplicated system. In this document, a host system included in a cluster is referred to as a node.

4.1.1 Supplemental Information

If the incorrect procedure is used to upgrade the OS on a cluster server, failovers might occur at unexpected times. In the worst case, this might damage the system. Be sure to upgrade the OS in accordance with the procedure on the setup card.

4.1.2 Target Products

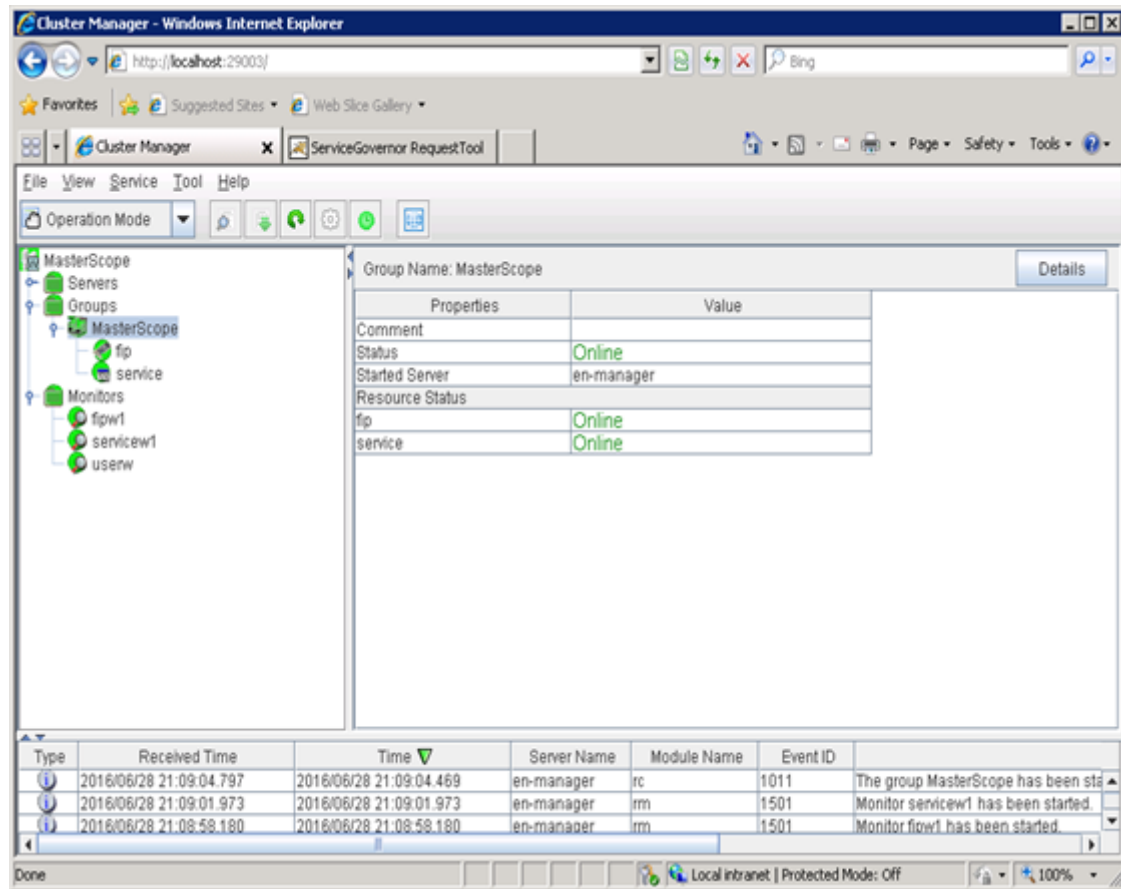
This document covers the following products.

- EXPRESSCLUSTER X 3.1 for Windows
- EXPRESSCLUSTER X 3.2 for Windows
- EXPRESSCLUSTER X 3.3 for Windows

4.2 Creating a New Failover Group

For EXPRESSCLUSTERX, nodes connected to the cluster are managed using units called failover groups (hereinafter "groups"). For details of how to create groups, refer to Chapter 5 in the EXPRESSCLUSTER X document, "Installation and Creation Guide".

If another product supported by the MasterScope framework has been installed, the same group is available.



4.3 Setting Up Shared Resources (Floating IP)

The following describes how to set up shared resources for a failover group.

Here, the following shared resources are assumed:

Floating IP address: 192.168.1.10

Right-click the group, and then select [Add Resource] from the displayed pop-up menu. The [Resource Definition] screen is displayed.

Set up the floating IP address.

Right-click the group, select [Add Resource] from the displayed pop-up menu, select [floating ip resource] for [Type], and then enter the group name in the [Name] text box.

The screenshot shows the 'Resource Definition of Group(MasterScope)' dialog box. The left sidebar has a 'Steps' section with 'Info' selected. The main area is titled 'Group Resource Definitions' and contains the following fields:

- Type:** A dropdown menu with 'floating ip resource' selected.
- Name:** A text box containing 'fip'.
- Comment:** An empty text box.
- Get Licence Info:** A button.
- Description:** A text area with the text 'Select the type of group resource and enter its name.'

At the bottom right, there are three buttons: '< Back', 'Next >', and 'Cancel'.

Specify the floating IP address in the [IP Address] text box.

The screenshot shows the same dialog box, but the 'Steps' section now has 'Dependency' selected. The main area has tabs at the top: 'Common', 'en-manager', and 'en-manager2'. The 'Common' tab is active and contains an 'IP Address' text box. At the bottom right, there are three buttons: '< Back', 'Finish', and 'Cancel'. A 'Tuning' button is also visible in the bottom right corner of the main area.

4.4 Setting Up ServiceGovernor

Caution

- Perform the installation on the active server first and then on the standby server.

4.4.1 [Active] Installing ServiceGovernor

Install ServiceGovernor on the active server according to the procedure in "[Chapter 2. Installing ServiceGovernor \(page 3\)](#)".

4.4.2 [Active] Setting Up ServiceGovernor

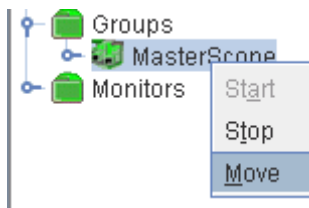
Set up ServiceGovernor according to the procedure in "[Chapter 3. Setting Up ServiceGovernor \(page 9\)](#)".

4.4.3 [Active] Setting Up the Tomcat Service

On the "Service" screen, open the properties of the [Apache Tomcat 8.0 ServiceGovernor] service, stop the service, and then change [Startup Type] to [Manual].

4.4.4 Moving to the Standby System

In the EXPRESSCLUSTER WebManager window, right-click the MasterScope group and select [Move] to move to the standby system.



4.4.5 [Standby] Installing ServiceGovernor

Install ServiceGovernor on the standby server according to the procedure in "[Chapter 2. Installing ServiceGovernor \(page 3\)](#)".

Caution

All the input items, including the installation path and port number, must be identical to those of the active server.

4.4.6 [Standby] Setting Up ServiceGovernor

Set up ServiceGovernor according to the procedure in "[Chapter 3. Setting Up ServiceGovernor \(page 9\)](#)".

Caution

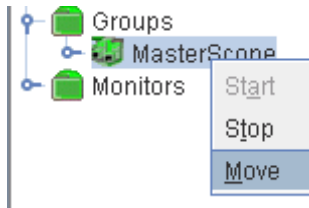
For "[3.1 API Authentication Key \(page 10\)](#)", execute only step "[7. \(page 11\)](#)".

4.4.7 [Standby] Setting Up the Tomcat Service

On the "Service" screen, open the properties of the [Apache Tomcat 8.0 ServiceGovernor] service, stop the service, and then change [Startup Type] to [Manual].

4.4.8 Moving to the Active System

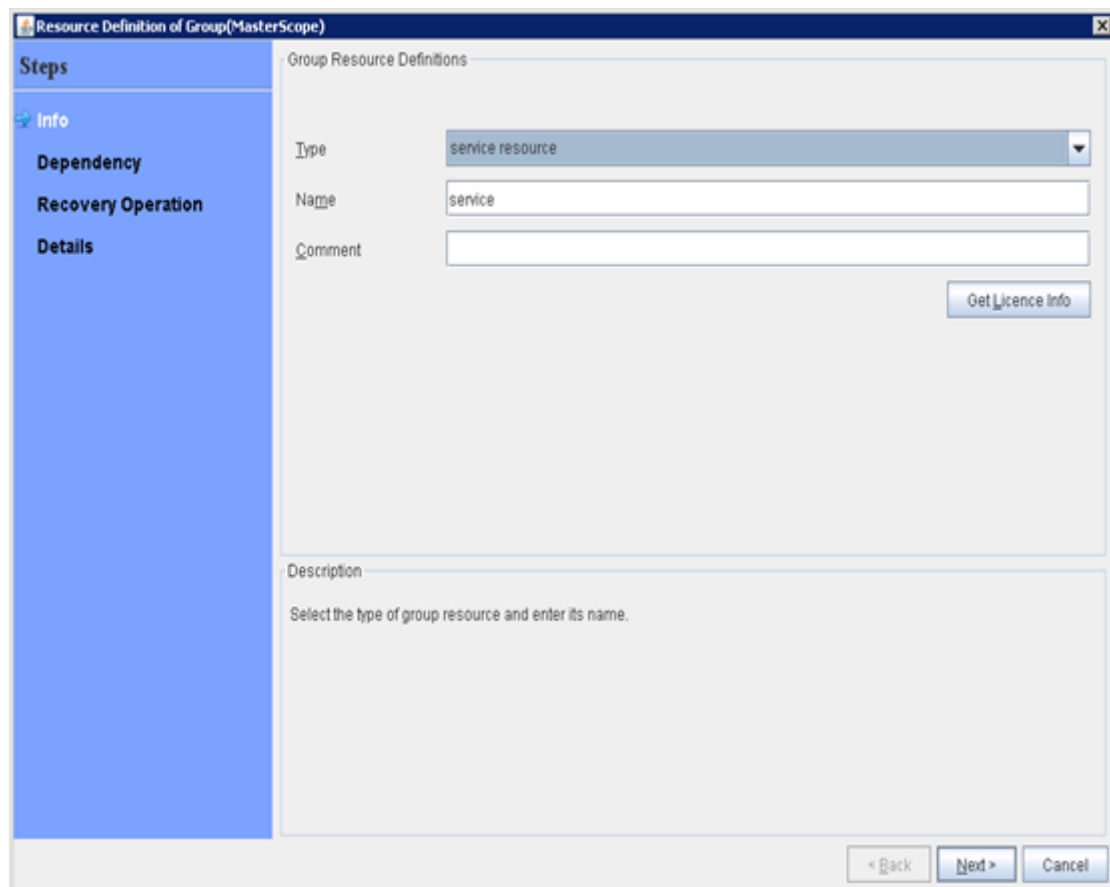
In the EXPRESSCLUSTER WebManager window, right-click the MasterScope group and select [Move] to move to the active system.



4.5 Adding Service Resources

Start up WebManager, and then select a failover group. (Here, select [MasterScope].)

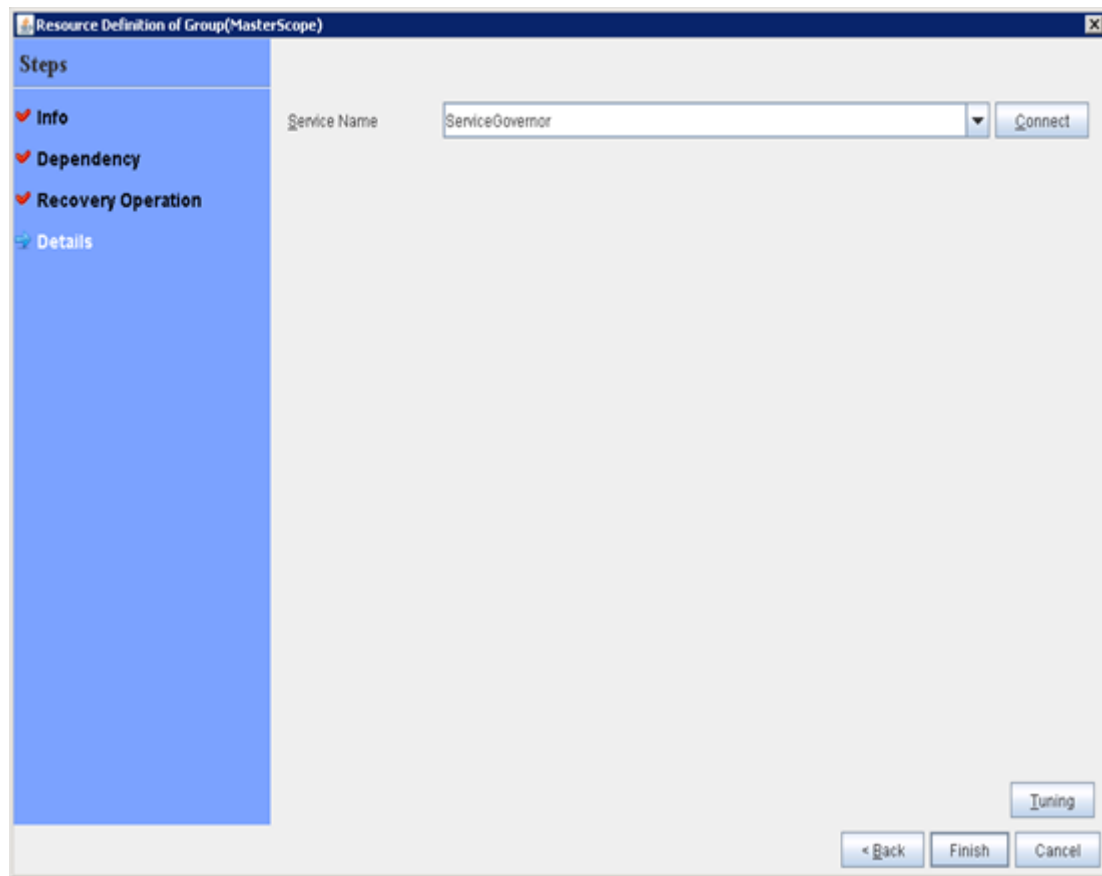
Right-click the group, select [Add Resource] from the displayed pop-up menu, select [service resource] for [Type], and then enter the group name in the [Name] text box.



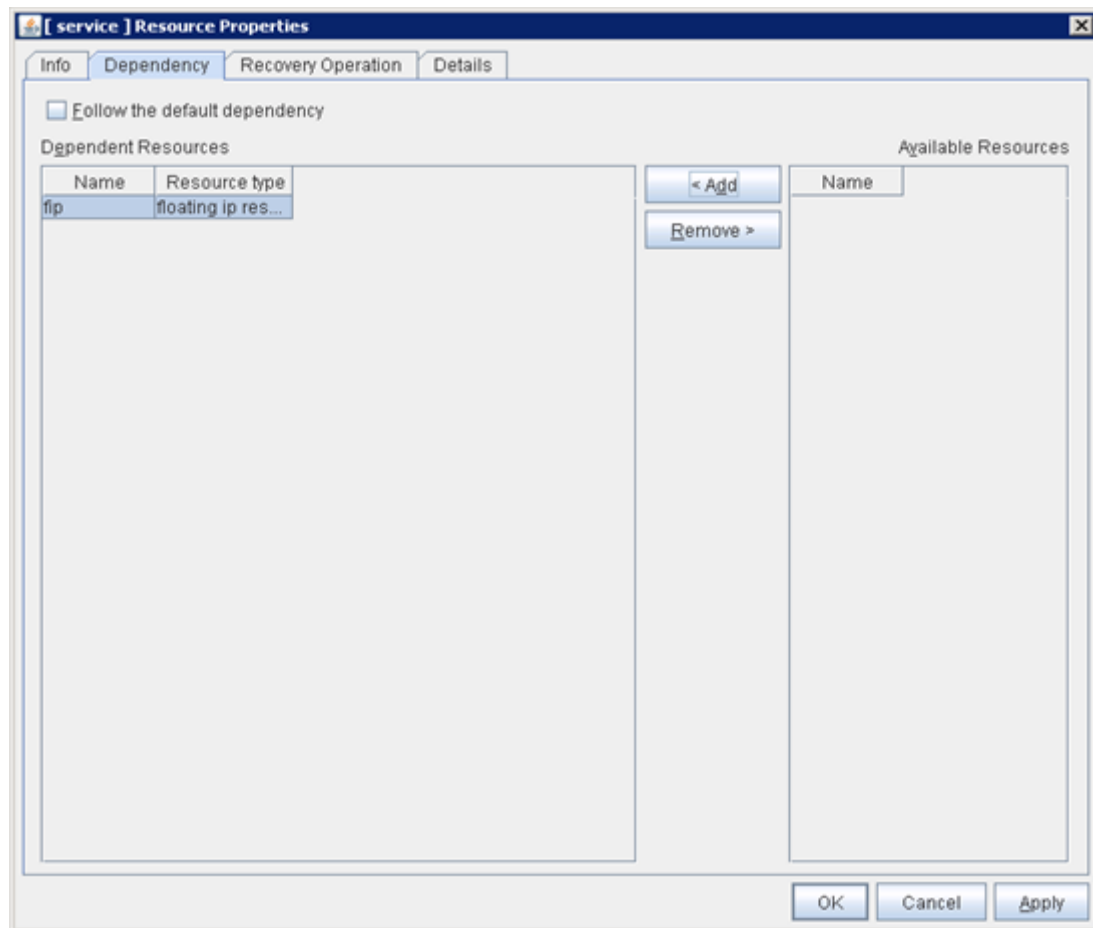
Specify the Windows service name for the product in the [Service Name] text box.

Enter the following service name.

ServiceGovernor



To set up the dependencies, clear the [Follow the default dependence] check box, and then add the floating IP address to the resources that are depended on.



After specifying the settings, return to the failover group properties, and then confirm that the settings have been applied.

Chapter 5.

Uninstalling ServiceGovernor

Contents

5.1 Uninstalling ServiceGovernor	31
--	----

5.1 Uninstalling ServiceGovernor

The following and subsequent sections describe the procedure for uninstalling the ServiceGovernor.

Caution

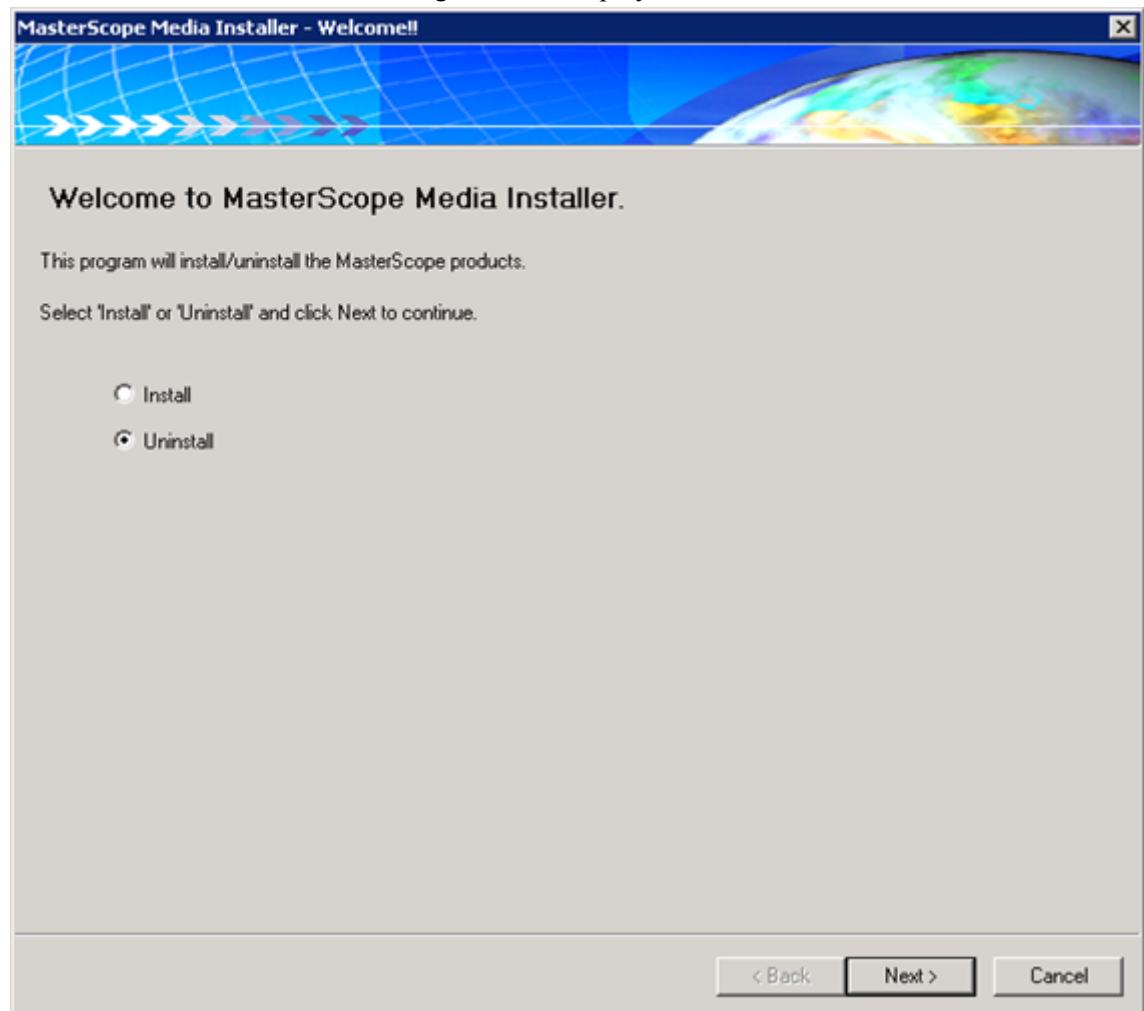
If ServiceGovernor is operating in a cluster environment, perform this procedure on both the active and the standby servers.

5.1.1 Uninstalling ServiceGovernor with Uninstaller

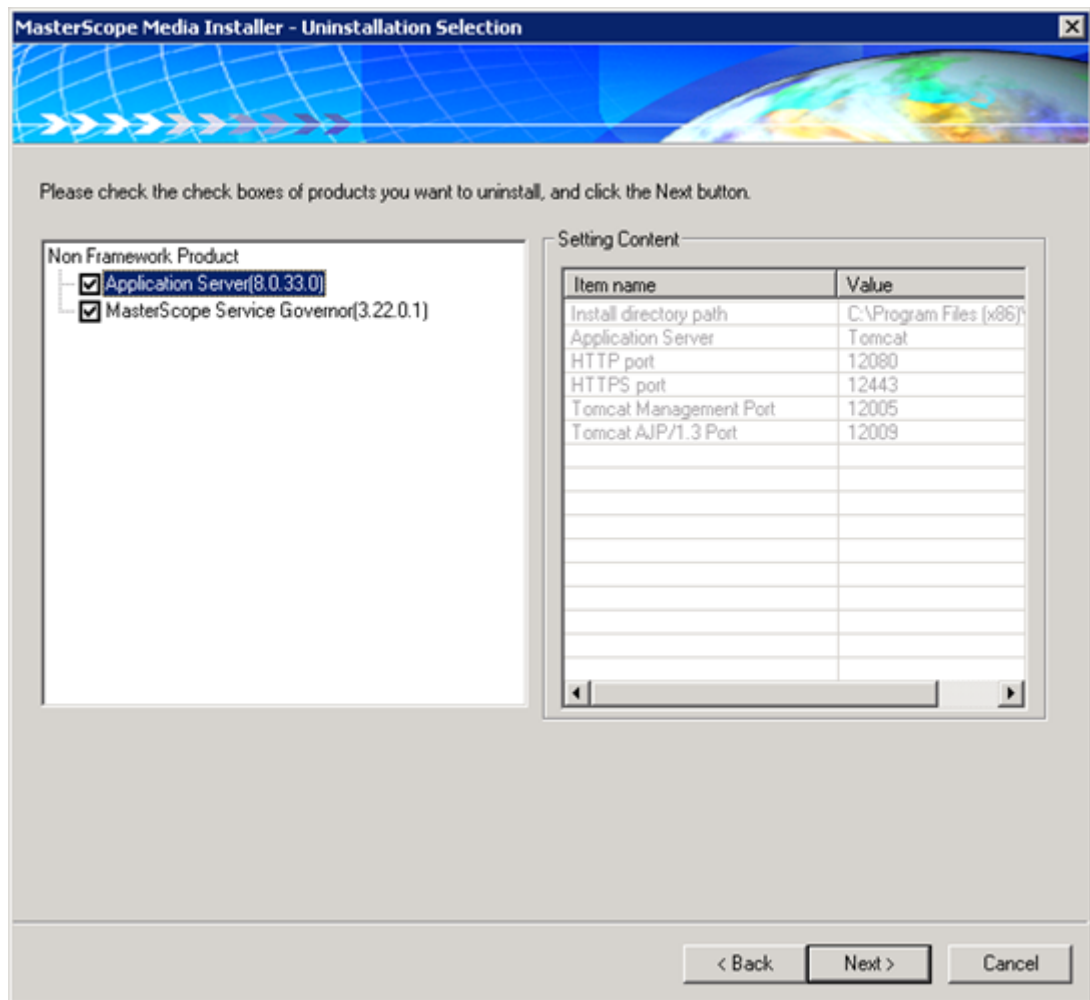
1. Insert the installation DVD into the DVD drive.
2. Execute the following command from the Explorer or command prompt to start the installer.

```
> <Install DVD>\Windows\Setup.exe
```

3. The installer starts, and the following screen is displayed.



4. Select [Uninstall], and click [Next].
5. The [Uninstallation Selection] screen is displayed.



6. Check the boxes of the following product names.

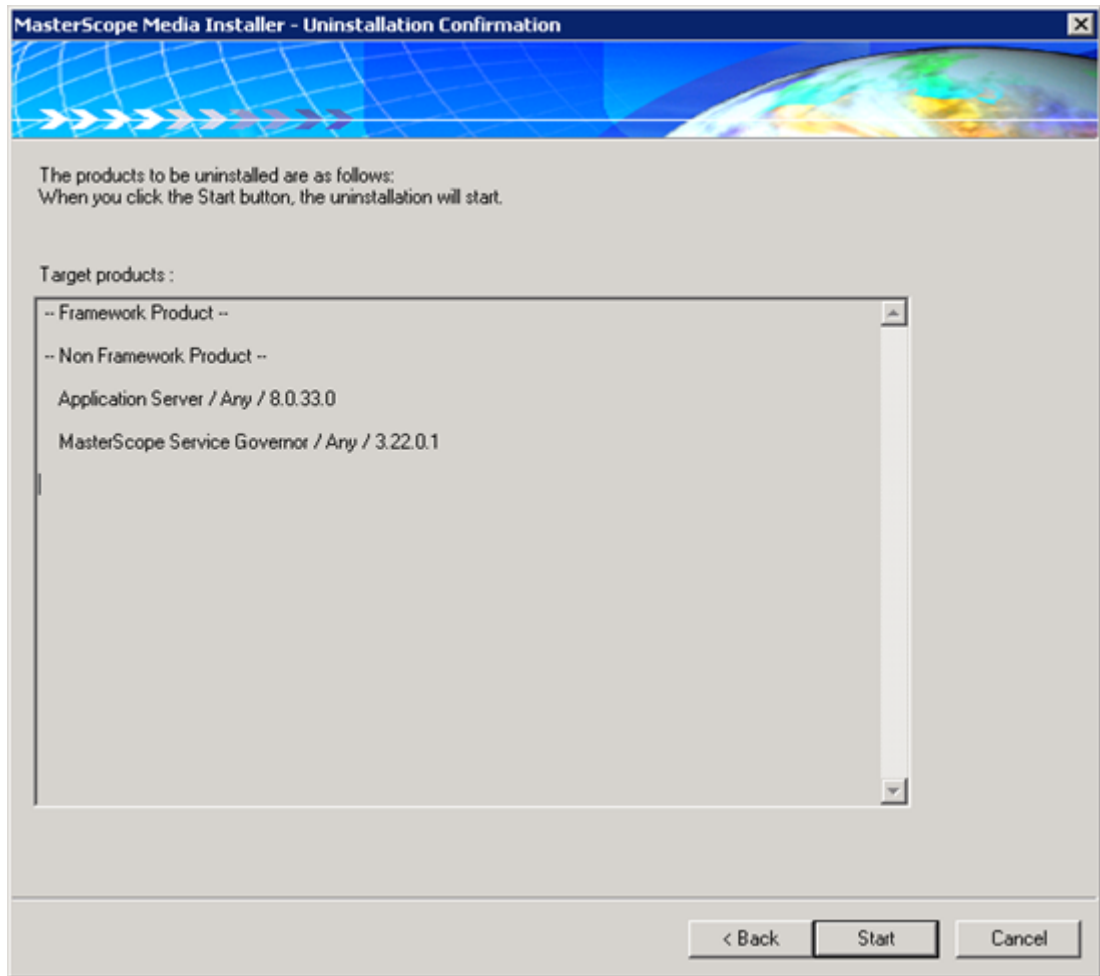
- Application Server
- MasterScope Service Governor

Caution

If the uninstall target is the upgraded environment from MasterScope Service Governor 3.21.0.0 or older version, or from Application Server 8.0.24.0 or older version, delete the following file.

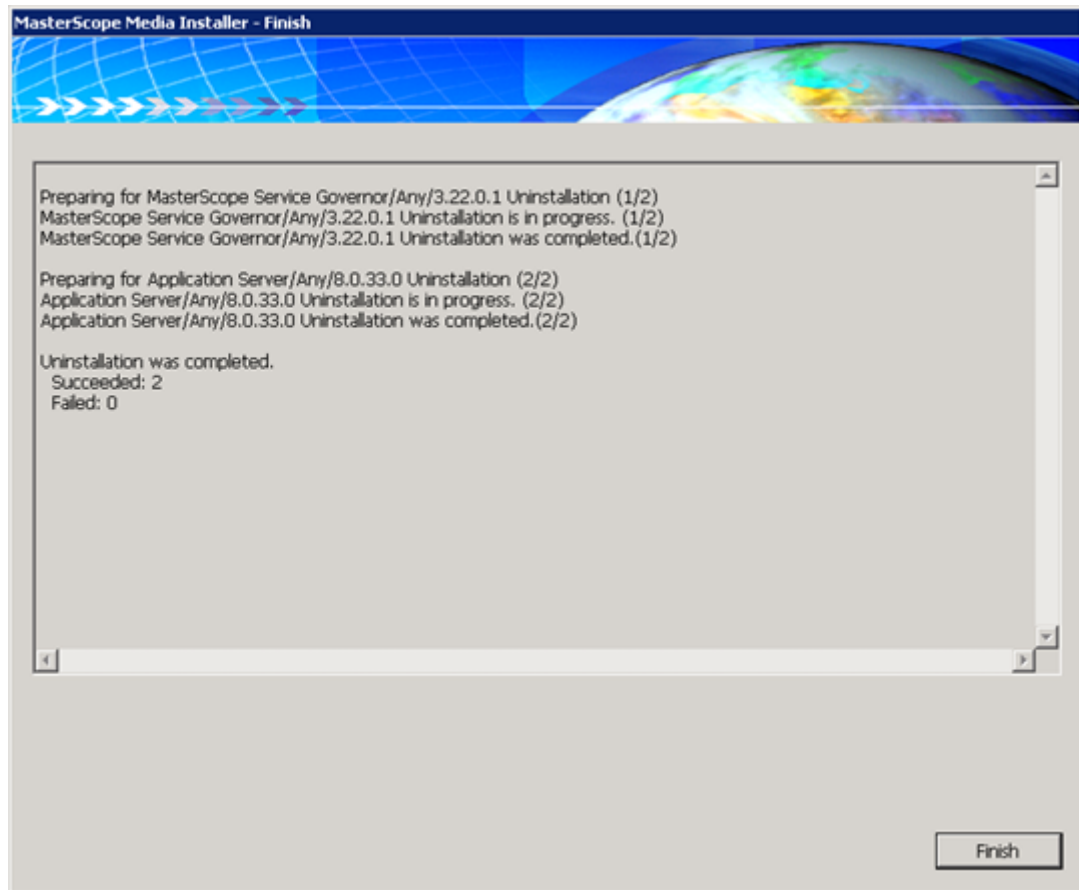
- <Installation directory>\Tomcat\conf\vdapi.properties

7. Click [Next].
8. The [Uninstallation Confirmation] screen is displayed.



9. Check the details, and click [Start].

Uninstallation starts. When the Uninstallation is complete, the [Finish] screen is displayed.



If the screen as above is displayed, the installation is complete.

10. Click [Finish].

Chapter 6. Upgrading

Contents

6.1 Upgrading ServiceGovernor.....	36
6.2 Upgrading the Application Server	40

You can individually upgrade ServiceGovernor itself and the application server on which ServiceGovernor operates.

The individual installation is described in the procedures below. However, like the installation procedure in ["2.1.1 Installing ServiceGovernor from the Installer \(page 4\)"](#), you can simultaneously upgrade the body of ServiceGovernor and the application server on which its ServiceGovernor operates.

6.1 Upgrading ServiceGovernor

Subsequent sections describe the procedure for upgrading ServiceGovernor.

Caution

If ServiceGovernor is operating in a cluster environment, perform this procedure on both the active and the standby servers.

Caution

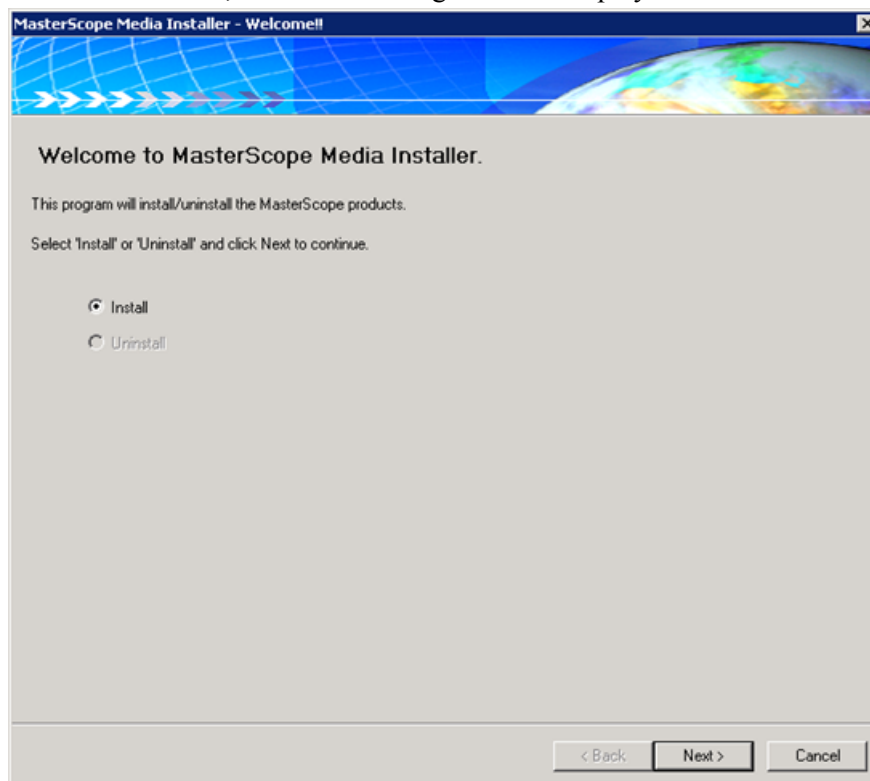
For MasterScope Service Governor 3.21.0.0 or earlier or Application Server 8.0.24.0 or earlier, uninstall the existing version according to the installation guide for that version before installing the new version.

6.1.1 Upgrading ServiceGovernor from the Installer

1. Insert the installation DVD into the DVD drive.
2. Execute the following command from the Explorer or command prompt to start the installer.

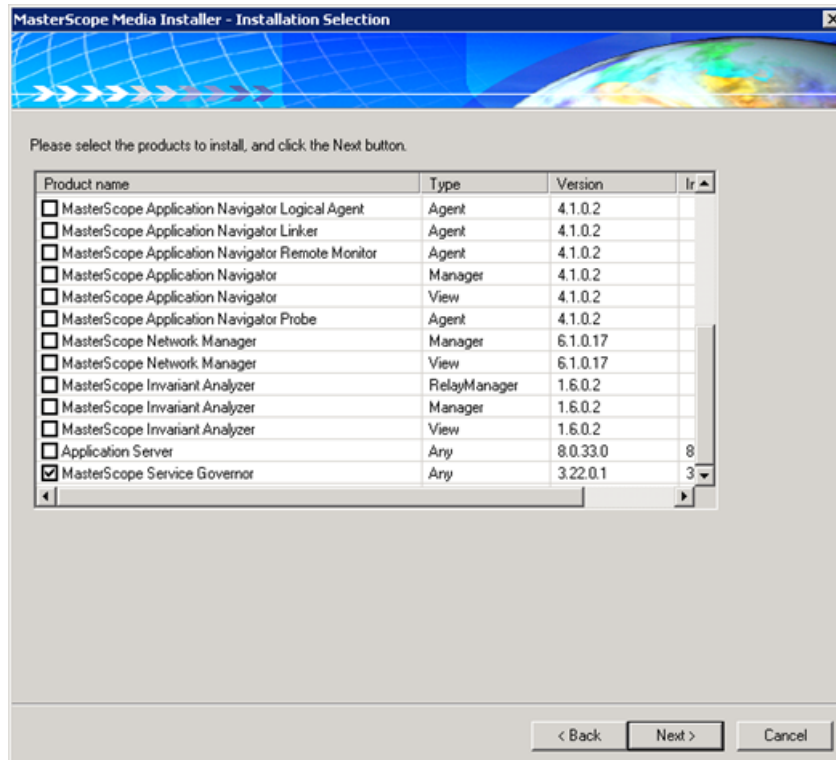
```
> <Install DVD>\Windows\Setup.exe
```

3. The installer starts, and the following screen is displayed.

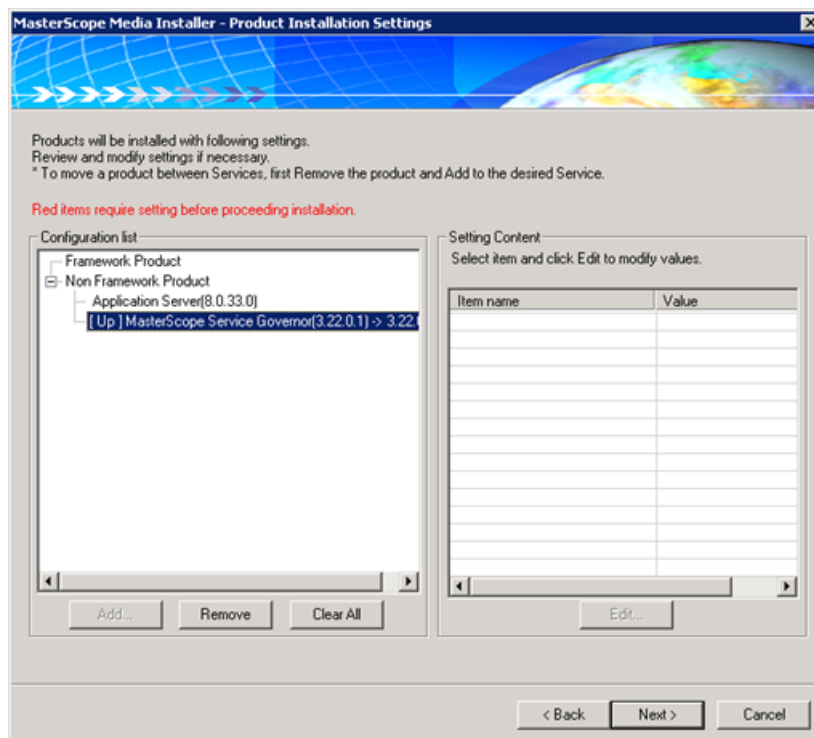


4. Select [Install], and click [Next].

5. The [Installation Selection] screen is displayed.

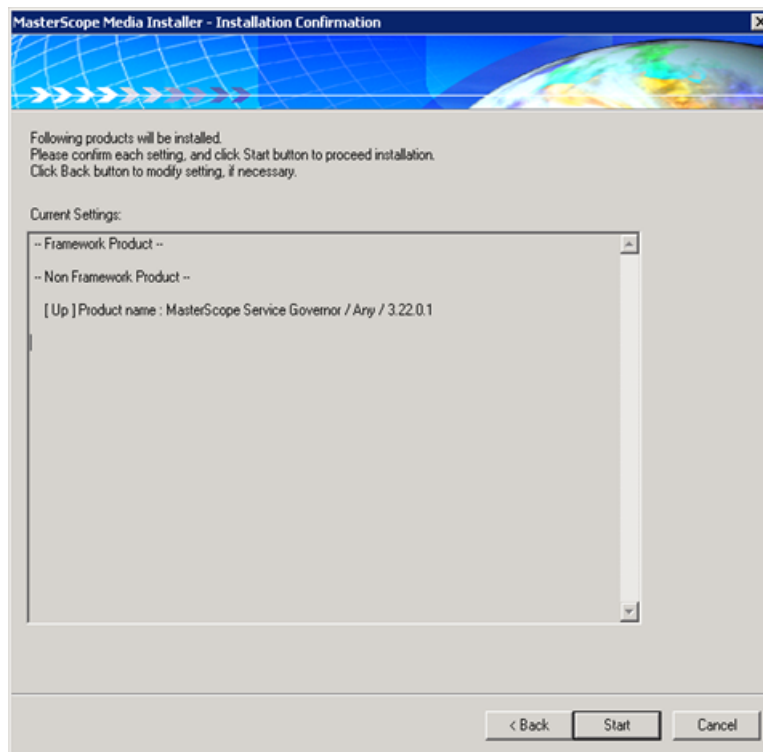


6. Check the boxes of the following product names.
 - MasterScope Service Governor
7. Click [Next].
8. The [Product Installation Settings] dialog box is displayed.

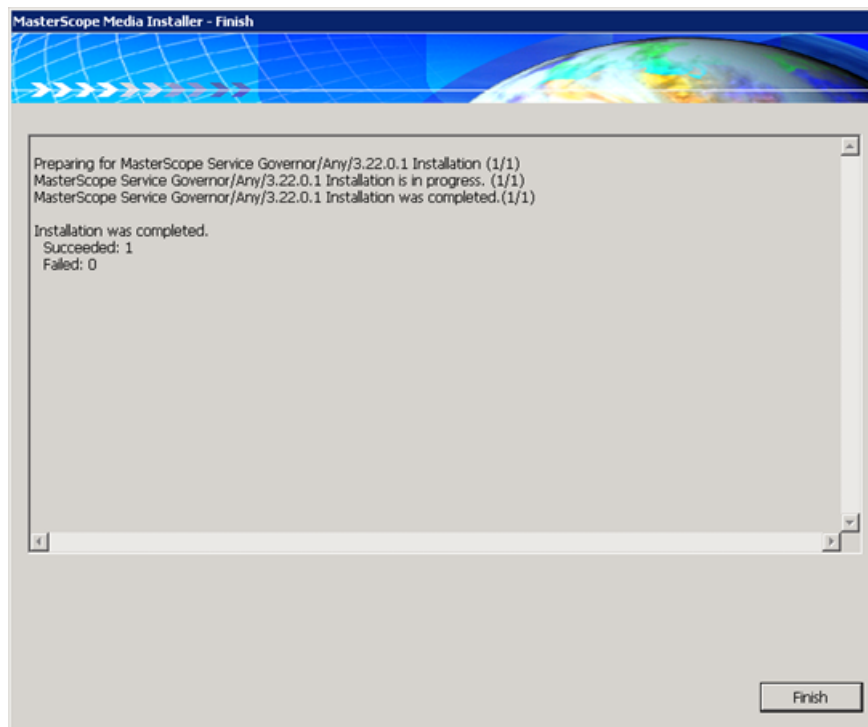


No setting values can be changed.

9. Click [Next].
10. The [Installation Confirmation] screen is displayed.



11. Check the details, and click [Start].
12. Installation starts. When the installation is complete, the [Finish] screen is displayed.



13. If the screen as above is displayed, the installation is complete.
14. Click [Finish].

6.1.2 Reversion after Upgrade of ServiceGovernor

If a problem occurs after upgrade of ServiceGovernor, you can restore it to the previous version by using the backup acquired before the installation. The backup is saved automatically.

The backup contains the following files. The file settings can be restored by the restoring procedure.

- <installation folder>\Tools\env.bat
Tomcat port number, protocol (http/https), JDK version used, etc.
- Jar files including the plug-ins operating on ServiceGovernor
Restore the plug-ins used to implement the API The plug-ins for the old version are restored.

Caution

Delete unnecessary backup files manually. For the backup directory folder, see the following procedure.

Perform the following procedure.

1. Using the following command, stop the ServiceGovernor service.

```
net stop ServiceGovernor
```

2. Copy backup files from the following backup folder to the folder storing the ServiceGovernor plug-in (jar file).

ServiceGovernor plug-in storage folder

```
<Installation directory>\Tomcat\FrameworkPlugins
```

ServiceGovernor plug-in backup folder

```
<Installation directory>\Tomcat_BackUp\FrameworkPlugins_BackUp\FrameworkPlugins_<Date>
```

<Date> indicates the date when ServiceGovernor was upgraded.

3. Copy backup files from the following backup folder to the folder storing the ServiceGovernor tools.

ServiceGovernor tool storage folder

```
<Installation directory>\Tools
```

ServiceGovernor tool backup folder

```
<Installation directory>\Tomcat_BackUp\Tools_BackUp\Tools_<Date>
```

<Date> is the date when ServiceGovernor was upgraded.

4. Delete the application file of ServiceGovernor and the folder to which they are deployed.

File path of the ServiceGovernor application to be deleted

```
<Installation directory>\Tomcat\webapps\umf.war
```

Folder to which the ServiceGovernor application file to be deleted is deployed

```
<Installation directory>\Tomcat\webapps\umf
```

5. Copy the application file of ServiceGovernor from the following backup folder to the storage folder. Then, rename the file to "umf.war".

File path of ServiceGovernor application

```
<Installation directory>\Tomcat\webapps\umf.war
```

Backup file path of ServiceGovernor application

```
<Installation directory>\Tomcat_BackUp\umfwar\umf.war.<Date>
```

<Date> is the date when ServiceGovernor was upgraded.

6. Using the following command, start the ServiceGovernor WebAPI service.

```
net start ServiceGovernor
```

The reverting procedure is now complete.

Caution

- The setting files under the following folder are not upgraded automatically. If the settings have been changed after upgrading, restore them to the settings preceding the upgrade.

ServiceGovernor setting file storage folder

```
<Installation directory>\Tomcat\conf
```

6.2 Upgrading the Application Server

Subsequent sections describe the procedure for upgrading the application server(s).

Caution

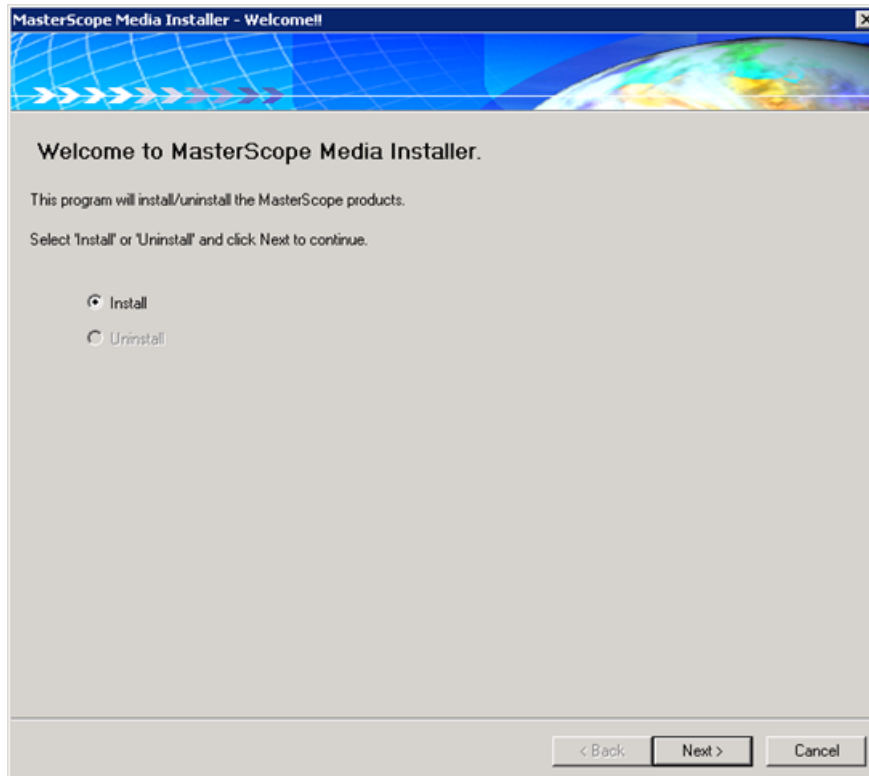
- If the application server is operating in a cluster environment, perform this procedure on both the active and the standby servers.
- The parameters, such as the port numbers, specified during the initial installation cannot be changed by installation of the upgraded version.
- None of the files under <installation folder>\Tomcat\conf is upgraded. After upgrading, perform the necessary setting changes involved with the Tomcat upgrade. If you want to upgrade the files under conf individually, you can use the Tomcat software stored under the file path on the following media. DVD drive:\Windows\Product\CloudProviderAPI\Tomcat_X64 (or Tomcat_X86) . After uncompressing Tomcat in the desired folder, refer to the conf folder.
- The upgrade changes the Tomcat startup user to the local system. If the Tomcat startup user has been changed after the installation, set the startup user again by referring to ["9.2.2 Starting ServiceGovernor as a User with Non-Administrator Privileges \(page 57\)"](#).

6.2.1 Upgrading the Application Server from the Installer

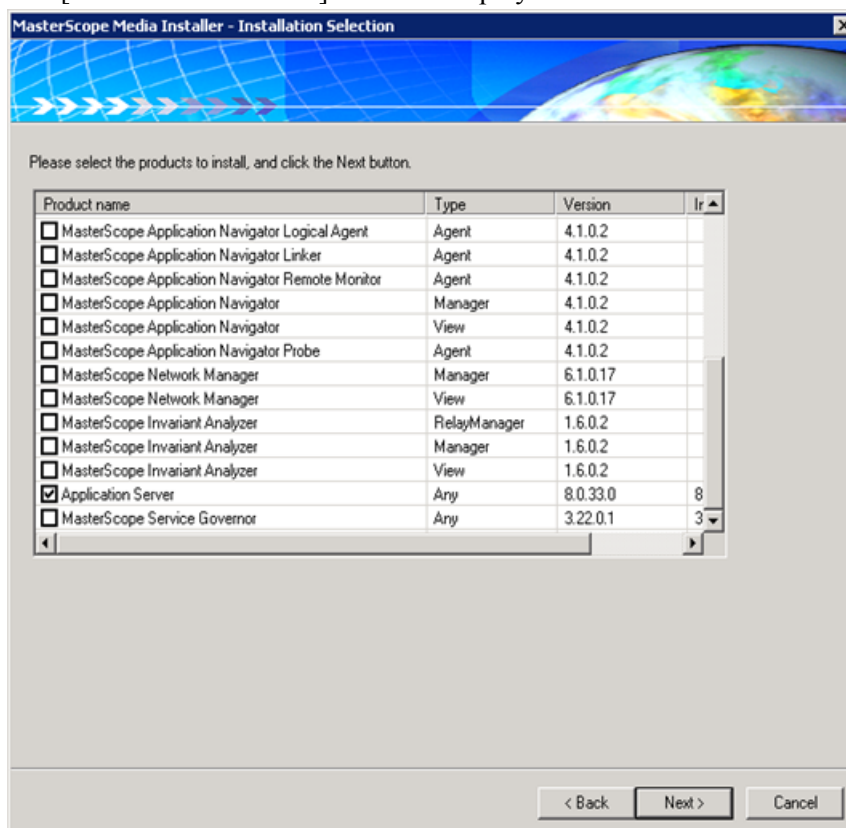
1. Insert the installation DVD into the DVD drive.
2. Execute the following command from the Explorer or command prompt to start the installer.

```
> <Install DVD>\Windows\Setup.exe
```


3. The installer starts, and the following screen is displayed.

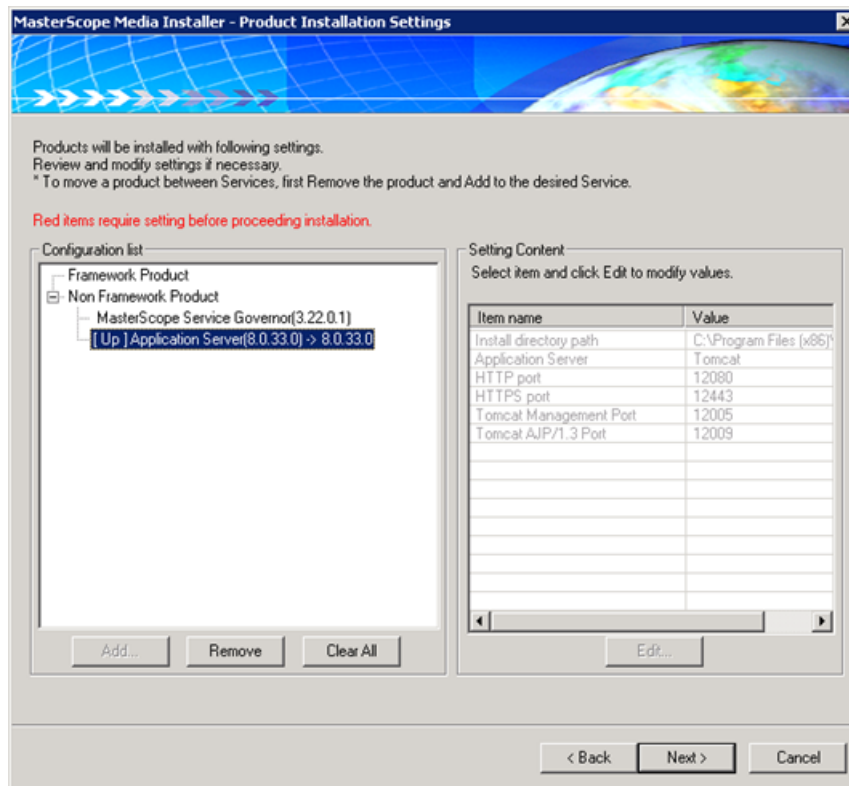


4. Select [Install], and click [Next].
5. The [Installation Selection] screen is displayed.



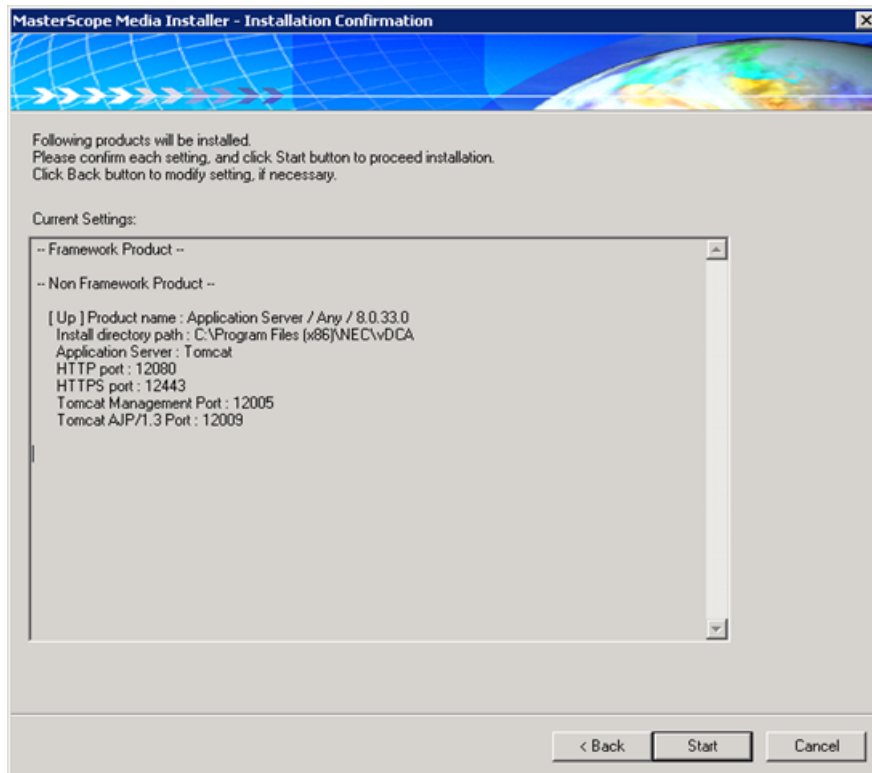
6. Check the boxes of the following product names.

- Application Server
7. Click [Next].
 8. The [Product Installation Settings] dialog box is displayed.

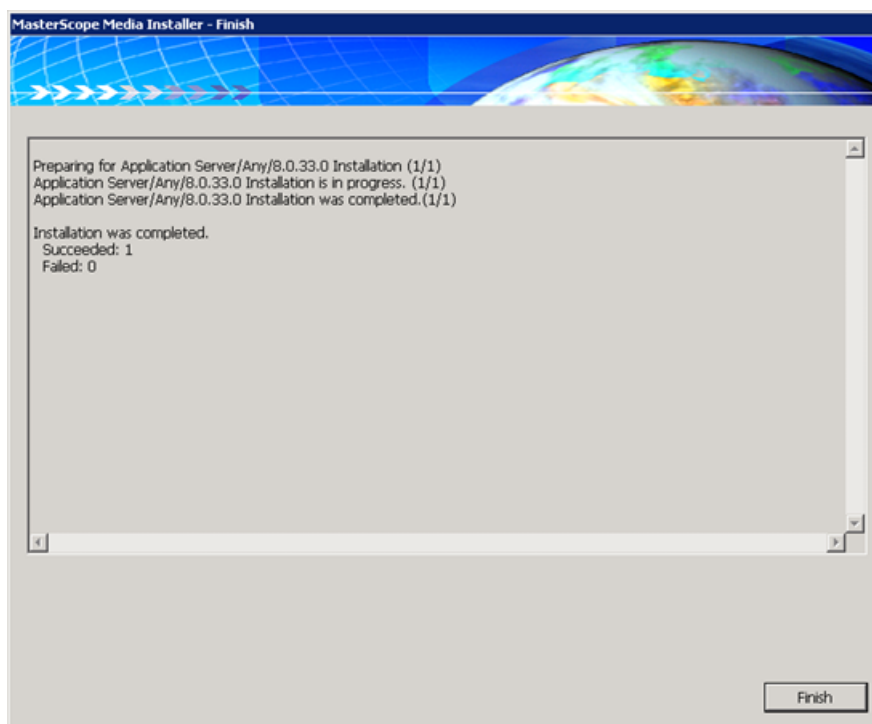


No setting values can be changed.

9. Click [Next].
10. The [Installation Confirmation] screen is displayed.



11. Check the details, and click [Start].
12. Installation starts. When the installation is complete, the [Finish] screen is displayed.



13. If the screen as above is displayed, the installation is complete.
14. Click [Finish].

6.2.2 Reversion after Upgrade of the Application Server

If a problem occurs after upgrade of the application server, you can restore it to the previous version by using the backup acquired before the installation. The backup is saved automatically.

The backup contains the following files. The file settings can be restored by the restoring procedure.

- <installation folder>\Tomcat\conf\server.xml
Tomcat port number, SSL/TLS settings, etc.
- <installation folder>\Tomcat\conf\fwapi.properties
Manager settings, connection timeout value, and other settings managed by ServiceGovernor
- <installation folder>\Tomcat\vdCApiKey.jks
User settings for user authentication that is performed during access to ServiceGovernor, as well as access key settings
- Other user-specified files stored under Tomcat (e.g., SSL/TLS certificate)

Caution

Delete unnecessary backup files manually. For the backup directory folder, see the following procedure.

Perform the following procedure.

1. Using the following command, stop the ServiceGovernor service.

```
net stop ServiceGovernor
```

2. Copy the backup files from the following backup folder to the application server installation folder.

Application server installation folder

```
<Installation directory>\Tomcat
```

Application server backup folder

```
<Installation directory>\Tomcat_BackUp\Tomcat_<Date>
```

The date is the date when the application server was upgraded.

3. Using the following command, start the ServiceGovernor service.

```
net start ServiceGovernor
```

The reverting procedure is now complete.

Caution

- The setting files under the following folder are not upgraded automatically. If the settings have been changed after upgrading, restore them to the settings preceding the upgrade.

ServiceGovernor setting file storage folder

```
<Installation directory>\Tomcat\conf
```


Chapter 7.

Backing Up the Files

The following describes the procedure to follow to back up ServiceGovernor and its application server settings. <installation directory> in the procedure below is defined in "[Glossary \(page iii\)](#)". * Replace it according to your environment.

1. Back up the following files in the desired folder.
 - <installation folder>\Tomcat\conf\fwapi.properties
 - <installation folder>\Tomcat\conf\fwbaselog.properties
 - <installation folder>\Tomcat\conf\responseheader.properties
 - <installation folder>\Tomcat\conf\server.xml
 - <installation folder>\Tomcat\conf\logging.properties
 - All files under <installation folder>\Tomcat\conf\FrameworkPlugins
 - Other user-specified files stored under the <installation folder>\Tomcat\conf (e.g., SSL/TLS certificate)
 - <installation folder>\Tomcat\vDCApiKey.jks
 - <installation folder>\Tools\env.bat
 - <installation folder>\Tools\WebApiTool.bat
 - <installation folder>\Tools\evidence\conf\apikeylog.properties

Chapter 8.

Restoring the Backed Up Files

The following describes the procedure to follow to restore the ServiceGovernor settings and its application server settings. The default value of <installation directory> in the procedure below is defined in "[Glossary \(page iii\)](#)". * Replace it in accordance with your environment.

1. Using the following command, stop the ServiceGovernor service.

```
net stop ServiceGovernor
```

2. Overwrite the following files, which were backed up with the backup procedure.

- <installation folder>\Tomcat\conf\fwapi.properties
- <installation folder>\Tomcat\conf\fwbaselog.properties
- <installation folder>\Tomcat\conf\responseheader.properties
- <installation folder>\Tomcat\conf\server.xml
- <installation folder>\Tomcat\conf\logging.properties
- Other user-specified files stored under the <installation folder>\Tomcat\conf (e.g., SSL/TLS certificate)
- <installation folder>\Tomcat\vDCApiKey.jks
- <installation folder>\Tools\env.bat
- <installation folder>\Tools\WebApiTool.bat
- <installation folder>\Tools\evvidence\conf\apikeylog.properties

For the following folder, delete all the files once from the folder before overwrite saving.

- All files under <installation folder>\Tomcat\conf\FrameworkPlugins

3. Start the ServiceGovernor WebAPI service by using the following command.

```
net start ServiceGovernor
```

Chapter 9.

Precautions

Contents

9.1 Precautions on Products	49
9.2 Precautions on Operation	49

9.1 Precautions on Products

- The port number specified for installation of ServiceGovernor must differ from those for the other services.
- In order to modify any of the files under <installation folder>\Tomcat\conf in an environment where ServiceGovernor is operated in a cluster configuration, be sure to make the same modifications to both the active and the standby servers.
- To perform the Tomcat SSL/TLS setting procedure, you need to use the Tomcat and Java software included in the ServiceGovernor package.
- To use ServiceGovernor, you need to perform the procedure shown in ["3.1 API Authentication Key \(page 10\)"](#). If no signature is specified or the specified signature is invalid, WebAPI will fail to be executed.
- Then the application server is upgraded, the startup user returns to the local system. If ["9.2.2 Starting ServiceGovernor as a User with Non-Administrator Privileges \(page 57\)"](#) has been executed, perform the procedure again after upgrading.

9.2 Precautions on Operation

9.2.1 About Bloating of the Tomcat Log

Unless the Tomcat log data is deleted periodically, the Tomcat log folder will bloat because of file accumulation.

The following describes the procedure for deleting the log folder periodically.

If you follow the setting of this procedure, the default value for deleting the log is as follows.

Retention period	If the last date of update is earlier than the specified period, the log data is retained; all the files before that date are deleted. Default value: 7
Files to be deleted	Default setting: catalina.*.log commons-daemon.*.log host-manager.*.log localhost.*.log localhost_access_log.*.txt manager.*.log servicegovernor-stderr.*.log servicegovernor-stdout.*.log

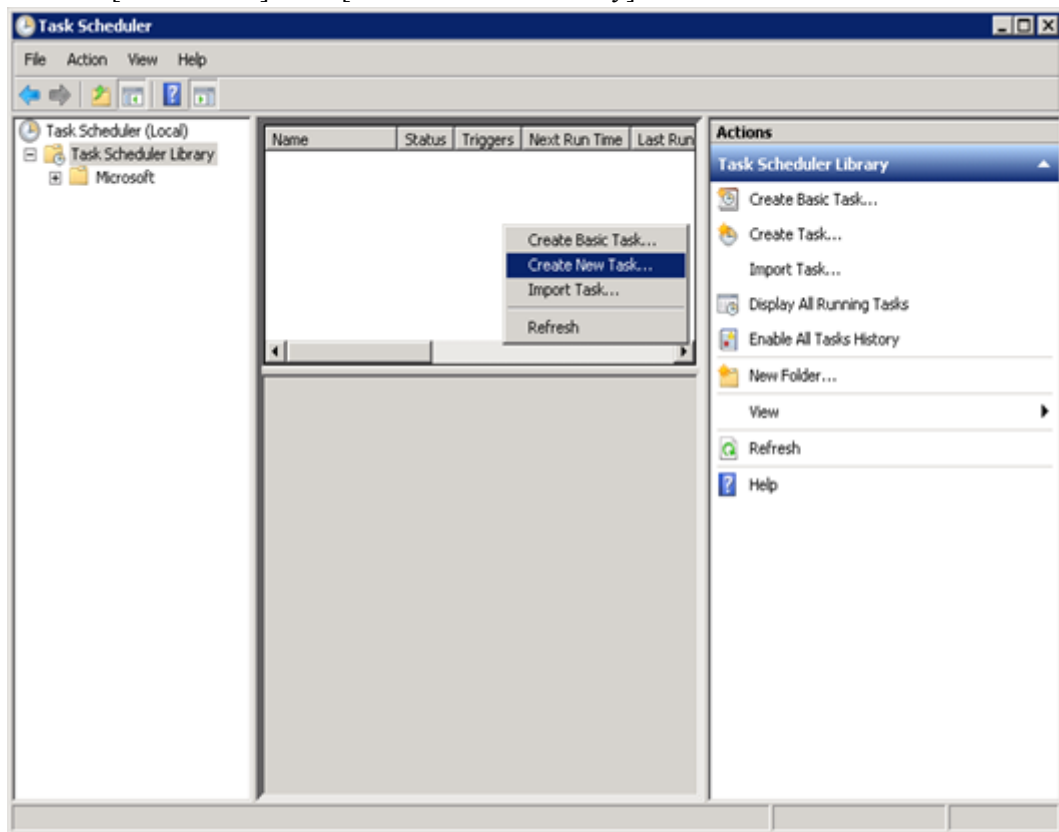
Caution

If ServiceGovernor is operating in a cluster environment, perform this procedure on both the active and the standby servers.

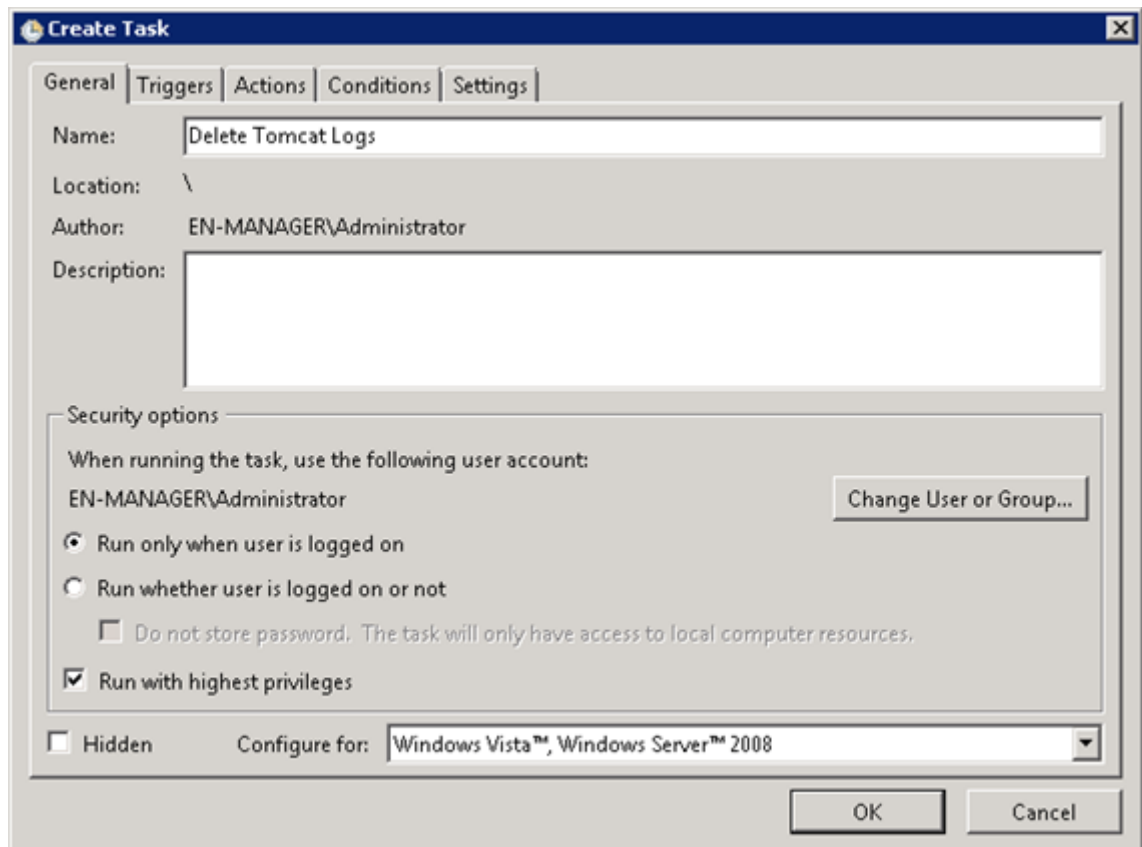
1. Open the following batch file used for deletion of Tomcat log using a text editor, and check the names of the log files to delete, the log file paths to delete, and the deletion period. Modify them if necessary.
Make modifications according to your environment. If you modify a process, perform it on your own responsibility.

```
<Installation directory>\Tools\TomcatLogDel.bat
```

2. Save the files.
3. Start up the task scheduler.
For Windows Server 2008, the scheduler starts up by selecting the following.
[Start Menu] > [Administrative Tools] > [Task Scheduler]
4. Perform [Create Task] from [Task Scheduler Library].



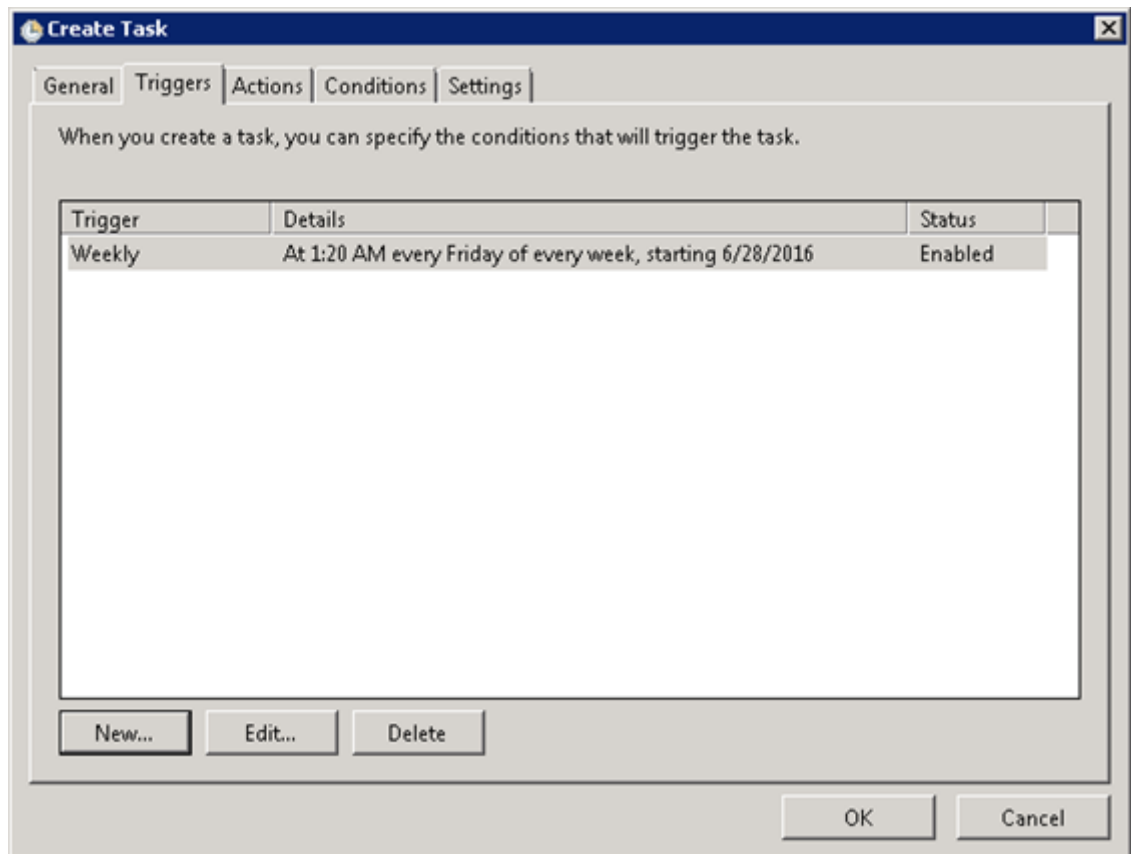
5. Set up the task.
Perform the settings below on each tab on the [Properties] screen.
6. Configure [General] tag.



Setting parameter examples

Parameter	Value
When runnning the task,use the . . .	System
Run with highest privileges	Enabled
Configuration	Windows Server 2008
Hidden	Disabled

- Configure [Trigger] tag.
Select the [Trigger] tab and press the [New...] button.
Set and add the parameters. The trigger settings are listed as shown below.



After pressing the [New...] button, set the following on the displayed [Edit Trigger] screen.

Edit Trigger

Begin the task: **On a schedule**

Settings

☐ One time
☐ Daily
☒ Weekly
☐ Monthly

Start: 6/28/2016 1:20:41 AM ☐ Synchronize across time zones

Recur every: 1 weeks on:

☐ Sunday ☐ Monday ☐ Tuesday ☐ Wednesday
☐ Thursday ☒ Friday ☐ Saturday

Advanced settings

☐ Delay task for up to (random delay): 1 hour
☐ Repeat task every: 1 hour for a duration of: 1 day
☐ Stop all running tasks at end of repetition duration
☐ Stop task if it runs longer than: 3 days
☐ Expire: 6/28/2017 1:21:14 AM ☐ Synchronize across time zones
☒ Enabled

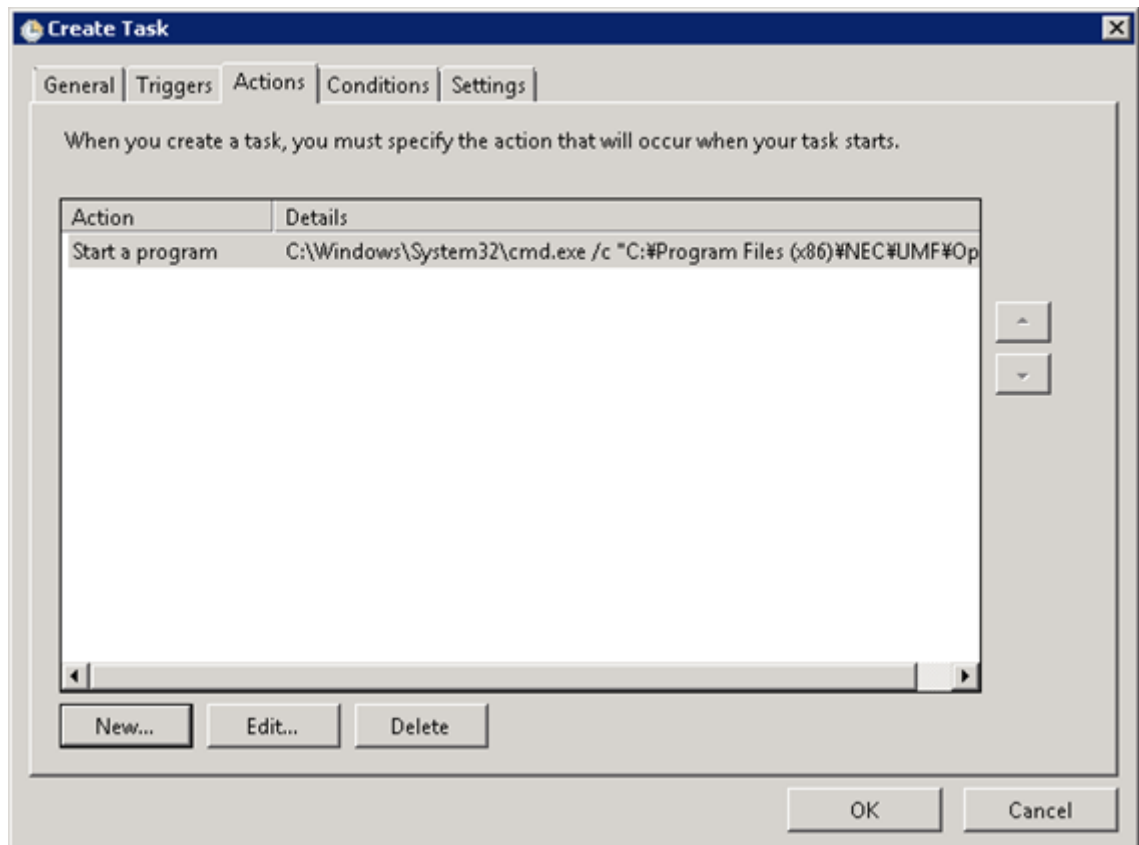
OK Cancel

Setting parameter examples

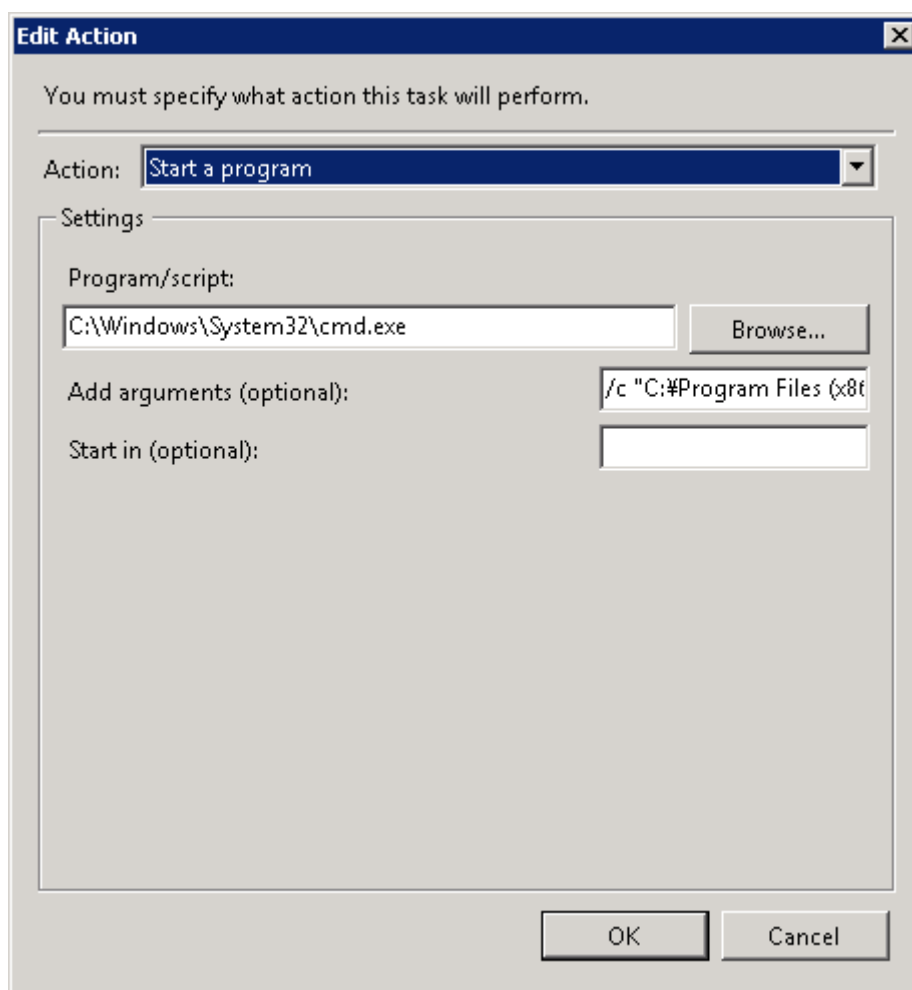
This example deletes by executing a deletion script at 0:00 every Friday.

Parameter	Value
Begin the task	On a schedule
Settings	Weekly
Start	12:00 AM
Recur Every	1 week
Friday	Enabled
Delay task for:	Disabled
Stop all running tasks at end of repetition duration	Disabled
Stop task if it runs longer than:	Disabled
Expires on	Disabled
Enabled	Enabled

- Configure [Actions] tag.
Select the [Actions] tab and press the [New...] button.
Set and add the parameters. The operation settings are listed as below.



After pressing the [New...] button, set the following on the displayed [Edit Action] screen.



Setting parameter examples

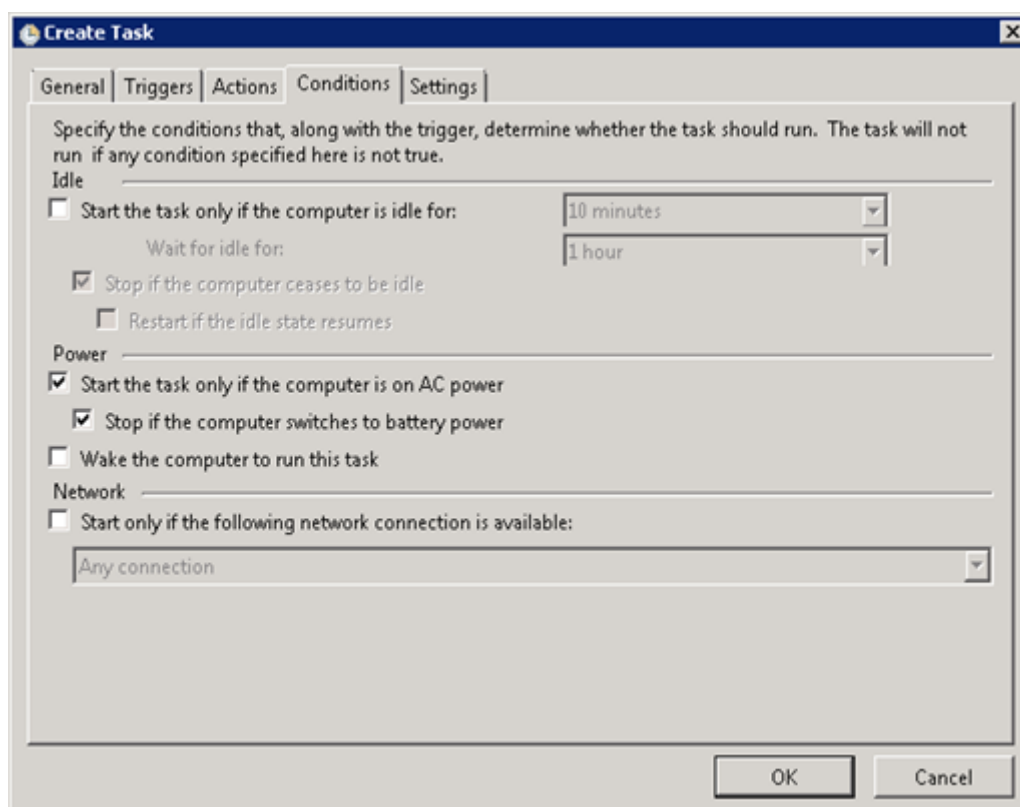
Parameter	Value
Action	Start the program
Program	C:\Windows\System32\cmd.exe
Add arguments	/c "C:\Program Files (x86)\NEC\UMF\Operations\Tools\TomcatLogDel.bat"
Hide	Disabled

If the Tomcat log deletion batch is executed without any option like the above parameter example, the following default parameter values will be used for execution.

Parameter	Value
-path	C:\Program Files (x86)\NEC\UMF\Operations\Tomcat\logs
-day	7

By specifying the path and day, you can set the target period of deletion.

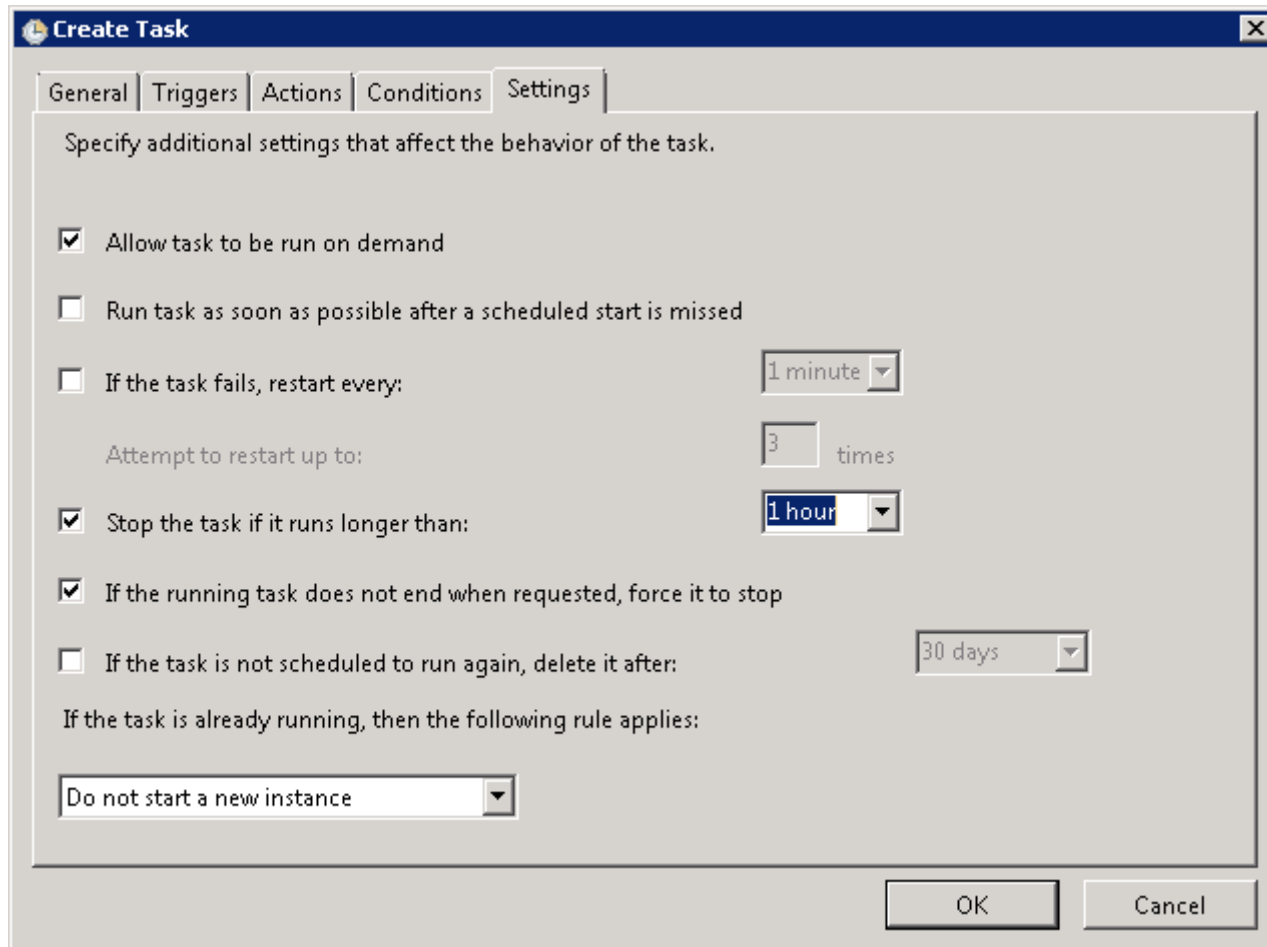
9. Configure [Conditions] tag.



Set the parameters as follows.

Parameter	Value
Start the task only if the computer is on AC power	Enabled
Stop if the computer switches to battery power	Enabled
Wake the computer to run this task	Disabled
Start only if the following network connection is available:	Disabled

10. Configure [Setting] tag.



Set the parameters as follows.

Parameter	Value
Allow task to be run on demand	Enabled
Run task as soon as possible after a scheduled start is missed	Disabled
If the task fails, restart every:	Disabled
Stop the task if it runs longer than:	Enabled 1 hour
If the running task does not end when requested, force it to stop	Enabled
If the task is not scheduled to run again, delete it after:	Disabled
If the task is already running, then the following rule applies:	Do not start a new instance

- By selecting and right-clicking the created task and selecting [Run], you can check whether the task is executed normally. Check the messages output to the schedule log (e.g., start, stop). In addition, check that the log saved for the specified period was deleted at the specified date/time.

9.2.2 Starting ServiceGovernor as a User with Non-Administrator Privileges

You can use the local system account to start up the Tomcat software installed during installation of ServiceGovernor.

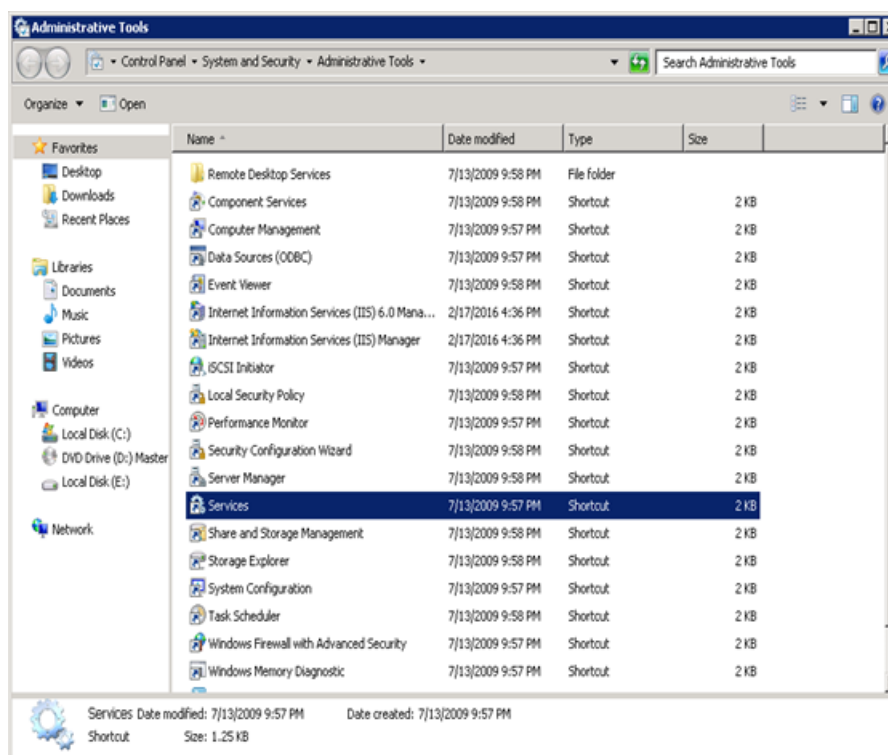
If there is a buffer overflow in the application server or other servers when Tomcat is executed with a local system account, an arbitrary application could be executed under root privileges.

If necessary, consider starting Tomcat under privileges other than the local system account by using the following procedure, for example.

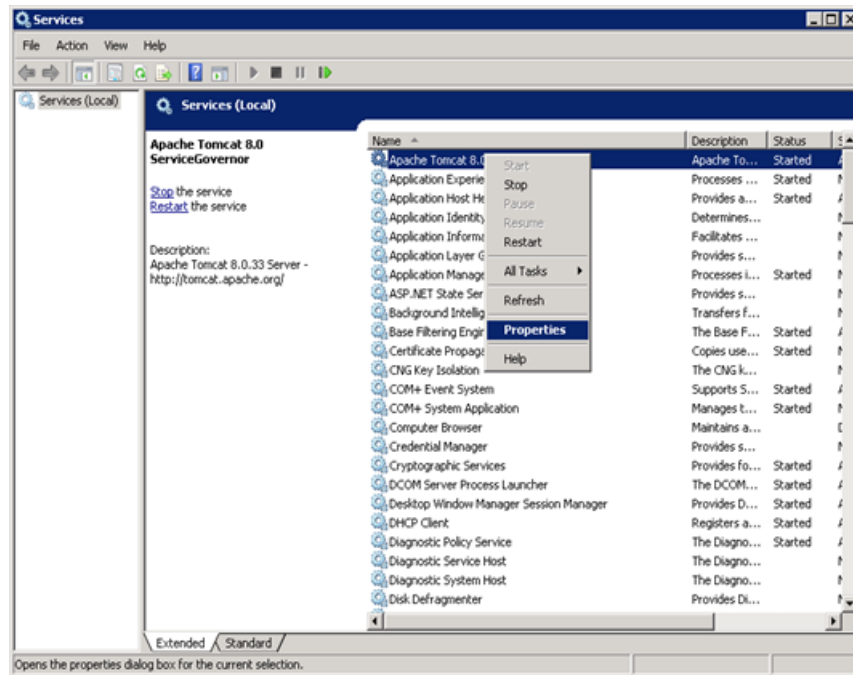
1. Creating a user
Create the user used to start up Tomcat
2. Changing the privileges of the Tomcat installation directory
Change to the user for which the privileges of full control of the Tomcat installation directory were created.
3. Changing the user who starts Tomcat
Change to the user for which the log on setting was created under [Control Panel] > [Administrative Tools] > [Services > [Apache Tomcat 8.0 ServiceGovernor]].

The following explains the procedure for changing the user. The procedure below is an explanation for Windows Server 2012 R2. Replace it accordingly based on your environment.

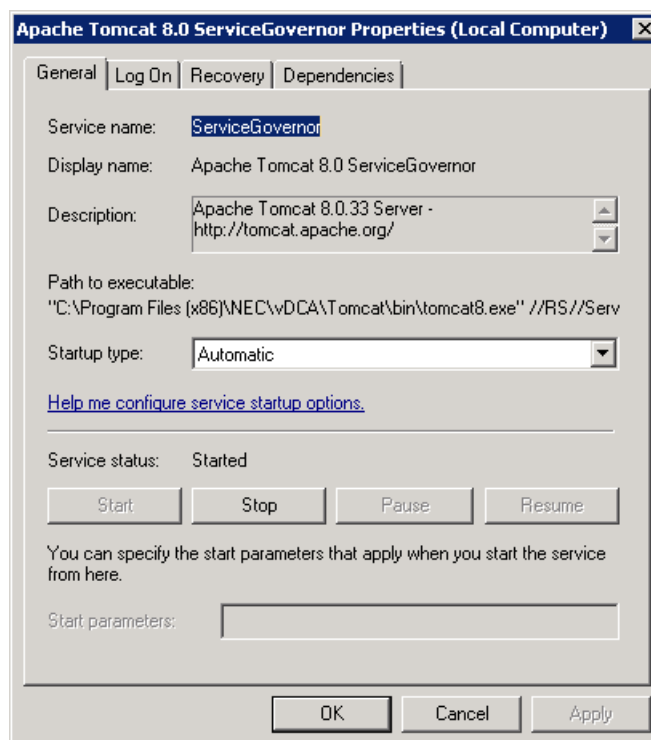
- a. Click [Administrative Tools] > [Services] to start "Service".



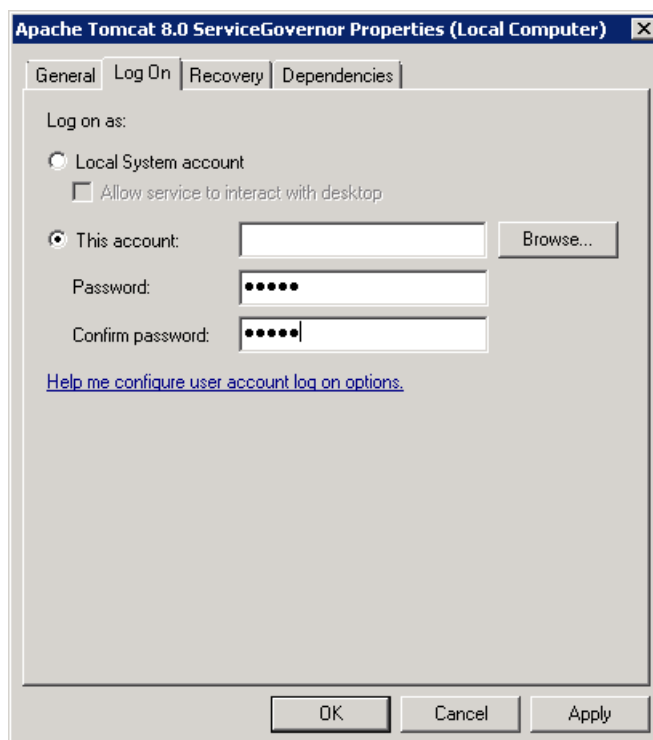
- b. Right-click [Apache Tomcat 8.0 ServiceGovernor], and select [Properties].



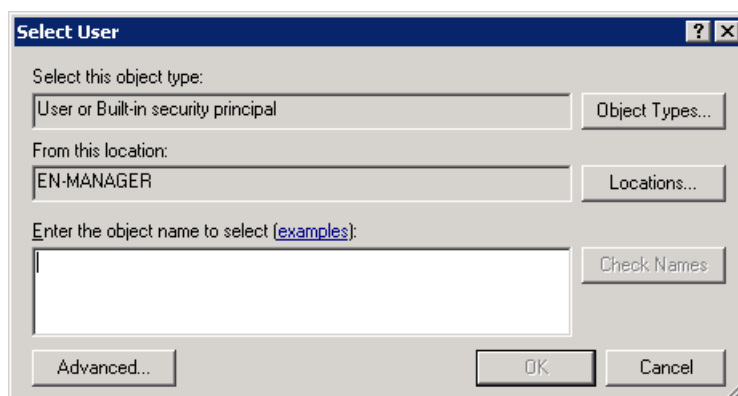
- c. Select the [LogOn] tab from the “Properties” screen.



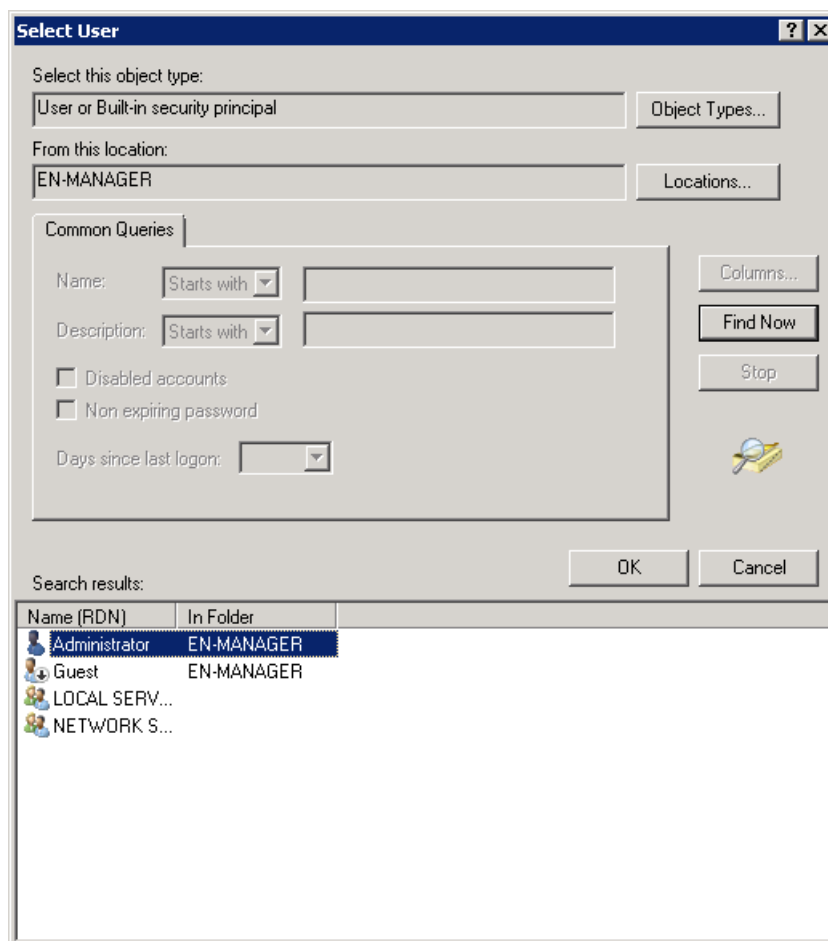
- d. Check the [This account] box, and press the [Browse...] button.



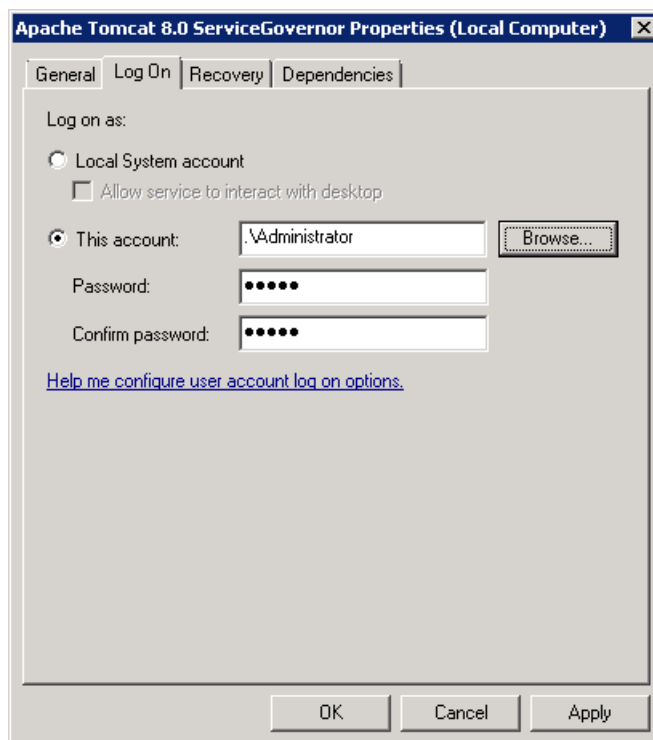
- e. On the [Select User] screen, press the [Advanced...] button to start up the screen available for user search.



- f. Press the [Find Now] button, and select from the search result the user created for the target OS. Then, press the [OK] button.



- g. Check that the selected user has been set on the [Log On] tab on the "Properties" screen. Then, enter the password that the user uses or log in, and press the [OK] button.



- h. On the [Services] screen, check that the [Apache Tomcat 8.0 ServiceGovernor] service has been started by the specified user.

Name ^	Description	Status	Startup Type	Log On As
Apache Tomcat 8.0 ServiceGovernor	Apache To...	Started	Automatic	.\Administrator
Application Experience	Processes ...	Started	Manual	Local System
Application Host Helper Service	Provides a...	Started	Automatic	Local System

The entire procedure is now complete.

9.2.3 About Tomcat Shutdown Port

Immediately after installation of ApplicationServer, the shutdown port is running.

Consider the following measures for vulnerability.

- Change the shutdown character string.

Modify the following file with a text editor.

server.xml

```
<Server port="8005" shutdown="SHUTDOWN">
```

- Restrict access to the shutdown port.
Limit access to the shutdown port (8005) by installing firewall equipment, setting iptables or software such as Windows Firewall.

Chapter 10. Appendix

Contents

10.1 About the Certificate for SSL/TLS Setting	64
--	----

10.1 About the Certificate for SSL/TLS Setting

Introduction

There are two ways of creating a server certificate. One is to create a server certificate using a public certificate authority. The other is to create a self-issued, self-signed certificate. The latter should generally be used when access from many unspecified users is not permitted. The way of setting the SSL/TLS setting varies according to the type of certificate you want to use; an example for each of both procedures is shown below.

Caution

Note that the procedures, extensions, and other information in this document are shown just as examples for reference purposes and we do not guarantee their contents.

Caution

Tomcat accepts key store files of JKS (default) or PKCS #12 format. In this document, the key store file format is JKS (default of Tomcat) unless otherwise noted.

10.1.1 Status Certificate Created Using a Public Certificate Authority

1. Create a secret key in the key store.

```
> keytool.exe -genkey -alias <Alias> -keyalg RSA -keystore <Keystore File Name> -storepass changeit
```

Set any value for each item to be input after execution of a command. For the password of the key, specify changeit.

Caution

If you want to change the password of the key from changeit, set the same password as that of the key store.

Caution

For CN, specify the host name or IP address that is used for access from the client.

2. Create a request to issue the server certificate.

```
> keytool.exe -certreq -alias <Alias> -keystore <Keystore File Name> -file <certreq_file>.csr -storepass changeit
```

3. Have a public certificate authority issue the server certificate.

Contact your provider for how to request the authority to issue the server certificate.

4. Install the certificate of the intermediate certificate authority (CA).


```
> keytool.exe -import -noprompt -trustcacerts -alias <Alias> -file <Intermediate certificate authority (CA)>.pem -keystore <Keystore File Name> -storepass changeit
```

5. Import the server certificate.

```
> keytool.exe -import -v -trustcacerts -alias <Alias> -file <Server certificate>.crt -keystore <Keystore File Name> -storepass changeit
```

10.1.2 Self-Issued, Self-Signed Certificate

The following illustrates the way of creating a self-issued, self-signed certificate using openssl.

1. Create a secret key.

```
> openssl genrsa -aes128 1024 > <Secret key>.key
```

2. Create a request to issue the server certificate.

```
> openssl req -new -key <Secret key>.key > <Request Certificate>.csr
```

Caution

If you want to change the password of the key from changeit, set the same password as that of the key store.

Caution

For Common Name, specify the host name or IP address that is used for access from the client.

3. Create the server certificate.

```
> openssl x509 -in <Request Certificate>.csr -days 365 -req -signkey <Secret key>.key > <Certificate>.crt
```

Caution

This example assumes that the validity period of the certificate is 365 days.
To change the validity period, change the value following the ?days option.

4. Convert the certificate to pkcs12 format.

```
> openssl pkcs12 -export -in <Certificate>.crt -inkey <Secret key>.key -out <Certificate>.p12 -name <Alias>
```

5. Import the server certificate.

```
> keytool.exe -importkeystore -srckeystore <Certificate>.p12 -destkeystore <Keystore File Name> -srcstoretype pkcs12 -deststoretype JKS
```

Chapter 11.

Open Source Software License

Contents

11.1 About commons-codec-1.7.....	67
11.2 About commons-logging-1.1.1	71
11.3 About log4j-1.2.14	75
11.4 About jackson-all-1.8.5	79
11.5 About Apache Tomcat 8.0	83

11.1 About commons-codec-1.7

NEC uses open software "commons-codec-1.7" for this product according to the terms and conditions that are presented by the copyright holder (hereinafter "Apache License, Version 2.0").

■Target file

□ commons-codec-1.7.jar

■Copyright information

Apache Commons Codec

Copyright 2002-2012 The Apache Software Foundation

This product includes software developed by
The Apache Software Foundation (<http://www.apache.org/>).

src/test/org/apache/commons/codec/language/DoubleMetaphoneTest.java
contains
test data from <http://aspell.sourceforge.net/test/batch0.tab>.

Copyright (C) 2002 Kevin Atkinson (kevin@gnu.org). Verbatim copying
and distribution of this entire article is permitted in any medium,
provided this notice is preserved.

■License information

The following terms and conditions apply to the software licensed under
the Apache License, Version 2.0.

Apache License
Version 2.0, January 2004
<http://www.apache.org/licenses/>

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction,
and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by
the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all
other entities that control, are controlled by, or are under common
control with that entity. For the purposes of this definition,

"control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the

Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.
4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:
 - (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
 - (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
 - (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
 - (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.
6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the

same "printed page" as the copyright notice for easier
identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software
distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License.

11.2 About commons-logging-1.1.1

NEC uses open software "commons-logging-1.1.1" for this product according to the terms and conditions that are presented by the copyright holder (hereinafter "Apache License, Version 2.0").

■Target file

□ commons-logging-1.1.1.jar

■Copyright information

```
// -----
// NOTICE file corresponding to the section 4d of The Apache License,
// Version 2.0, in this case for Commons Logging
// -----
```

Commons Logging

Copyright 2001-2007 The Apache Software Foundation

This product includes/uses software(s) developed by 'an unknown
organization'

- Unnamed - avalon-framework:avalon-framework:jar:4.1.3
- Unnamed - log4j:log4j:jar:1.2.12
- Unnamed - logkit:logkit:jar:1.0.1

■License information

The following terms and conditions apply to the software licensed under
the Apache License, Version2.0.

Apache License

Version 2.0, January 2004
<http://www.apache.org/licenses/>

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to

communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.
4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:
 - (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
 - (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
 - (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
 - (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or

documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.
6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only

on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

11.3 About log4j-1.2.14

NEC uses open software "log4j-1.2.14" for this product according to the terms and conditions that are presented by the copyright holder (hereinafter "Apache License, Version 2.0").

■Target file

☐ log4j-1.2.14.jar

■Copyright information

This product includes software developed by
The Apache Software Foundation (<http://www.apache.org/>).

■License information

The following terms and conditions apply to the software licensed under the Apache License, Version 2.0.

Apache License
Version 2.0, January 2004
<http://www.apache.org/licenses/>

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other

modifications

represent, as a whole, an original work of authorship. For the purposes

of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces

of,

the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally

submitted to Licensor for inclusion in the Work by the copyright owner

or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control

systems,

and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.
4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:
 - (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
 - (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
 - (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
 - (d) If the Work includes a "NOTICE" text file as part of its

distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.
6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

11.4 About jackson-all-1.8.5

NEC uses open software "jackson-all-1.8.5" for this product according to the terms and conditions that are presented by the copyright holder (hereinafter "Apache License, Version 2.0").

■Target file

□ jackson-all-1.8.5.jar

■Copyright information

This product currently only contains code developed by authors of specific components, as identified by the source code files; if such notes are missing files have been created by Tatu Saloranta.

For additional credits (generally to people who reported problems) see CREDITS file.

■License information

The following terms and conditions apply to the software licensed under the Apache License, Version 2.0 .

Apache License
Version 2.0, January 2004
<http://www.apache.org/licenses/>

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications

represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.
4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:
 - (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

- (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
- (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
- (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

- 5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.
- 6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
- 7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
- 8. Limitation of Liability. In no event and under no legal theory,

whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

11.5 About Apache Tomcat 8.0

NEC uses open software "Apache Tomcat" for this product according to the terms and conditions that are presented by the copyright holder (hereinafter "Apache License, Version 2.0").

■Copyright information

Apache Tomcat
Copyright 1999-2014 The Apache Software Foundation

This product includes software developed at
The Apache Software Foundation (<http://www.apache.org/>).

The Windows Installer is built with the Nullsoft
Scriptable Install System (NSIS), which is
open source software. The original software and
related information is available at
<http://nsis.sourceforge.net>.

Java compilation software for JSP pages is provided by Eclipse,
which is open source software. The original software and
related information is available at
<http://www.eclipse.org>.

For the bayeux implementation
The org.apache.cometd.bayeux API is derivative work originating at the
Dojo Foundation

- * Copyright 2007-2008 Guy Molinari
- * Copyright 2007-2008 Filip Hanik
- * Copyright 2007 Dojo Foundation
- * Copyright 2007 Mort Bay Consulting Pty. Ltd.

The original XML Schemas for Java EE Deployment Descriptors:

- javaee_5.xsd
- javaee_web_services_1_2.xsd
- javaee_web_services_client_1_2.xsd
- javaee_6.xsd
- javaee_web_services_1_3.xsd
- javaee_web_services_client_1_3.xsd
- jsp_2_2.xsd
- web-app_3_0.xsd
- web-common_3_0.xsd
- web-fragment_3_0.xsd

may be obtained from <http://java.sun.com/xml/ns/javaee/>

■License information

The following terms and conditions apply to the software licensed under
the Apache License, Version 2.0.

Apache License
Version 2.0, January 2004
<http://www.apache.org/licenses/>

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise

designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.
3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.
4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:
 - (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
 - (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
 - (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
 - (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution

notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. **Submission of Contributions.** Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.
6. **Trademarks.** This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.
7. **Disclaimer of Warranty.** Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.
8. **Limitation of Liability.** In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.
9. **Accepting Warranty or Additional Liability.** While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

APPENDIX: How to apply the Apache License to your work.

To apply the Apache License to your work, attach the following boilerplate notice, with the fields enclosed by brackets "[]" replaced with your own identifying information. (Don't include the brackets!) The text should be enclosed in the appropriate comment syntax for the file format. We also recommend that a file or class name and description of purpose be included on the same "printed page" as the copyright notice for easier identification within third-party archives.

Copyright [yyyy] [name of copyright owner]

Licensed under the Apache License, Version 2.0 (the "License");
you may not use this file except in compliance with the License.
You may obtain a copy of the License at

<http://www.apache.org/licenses/LICENSE-2.0>

Unless required by applicable law or agreed to in writing, software distributed under the License is distributed on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied. See the License for the specific language governing permissions and limitations under the License.

**MasterScope Service Governor3.22.0
Service Governor Installation Guide
(Windows)**

March, 2016 1st Edition

NEC Corporation

©NEC Corporation 2012-2016