

# NEC Storage VASA Provider Installation Guide

# Introduction

Thank you for purchasing NEC's product.

This guide provides information on installation of NEC Storage VASA Provider.

## Notes

1. This guide supports NEC Storage VASA Provider version 1.3 or earlier.
2. Unless otherwise explicitly specified, the following description indicates the version of the corresponding disk array storage control software.

Description in this guide	Corresponding product
V7.4	Storage control software 0748 or later

3. Unless otherwise explicitly specified, the following descriptions indicate their corresponding products in the table.

Description in this guide	Corresponding product
VASA Provider	NEC Storage VASA Provider
NEC Storage Manager (external iSM server)	NEC Storage Manager
vCenter Server	VMware (R) vCenter Server, vSphere vCenter Server
ESXi	VMware (R) ESXi Server, vSphere ESXi Server

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5. This product includes the OSSs below. For details on the licenses, refer to Appendix A of this manual.
  - Apache log4j (<http://logging.apache.org/>)
  - Apache Tomcat (<http://tomcat.apache.org/>)
  - Ganymed SSH-2 for Java (<http://www.cleondris.ch/opensource/ssh2/>)

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# Chapter 1 VASA Provider Overview

This chapter provides an overview of VASA Provider.

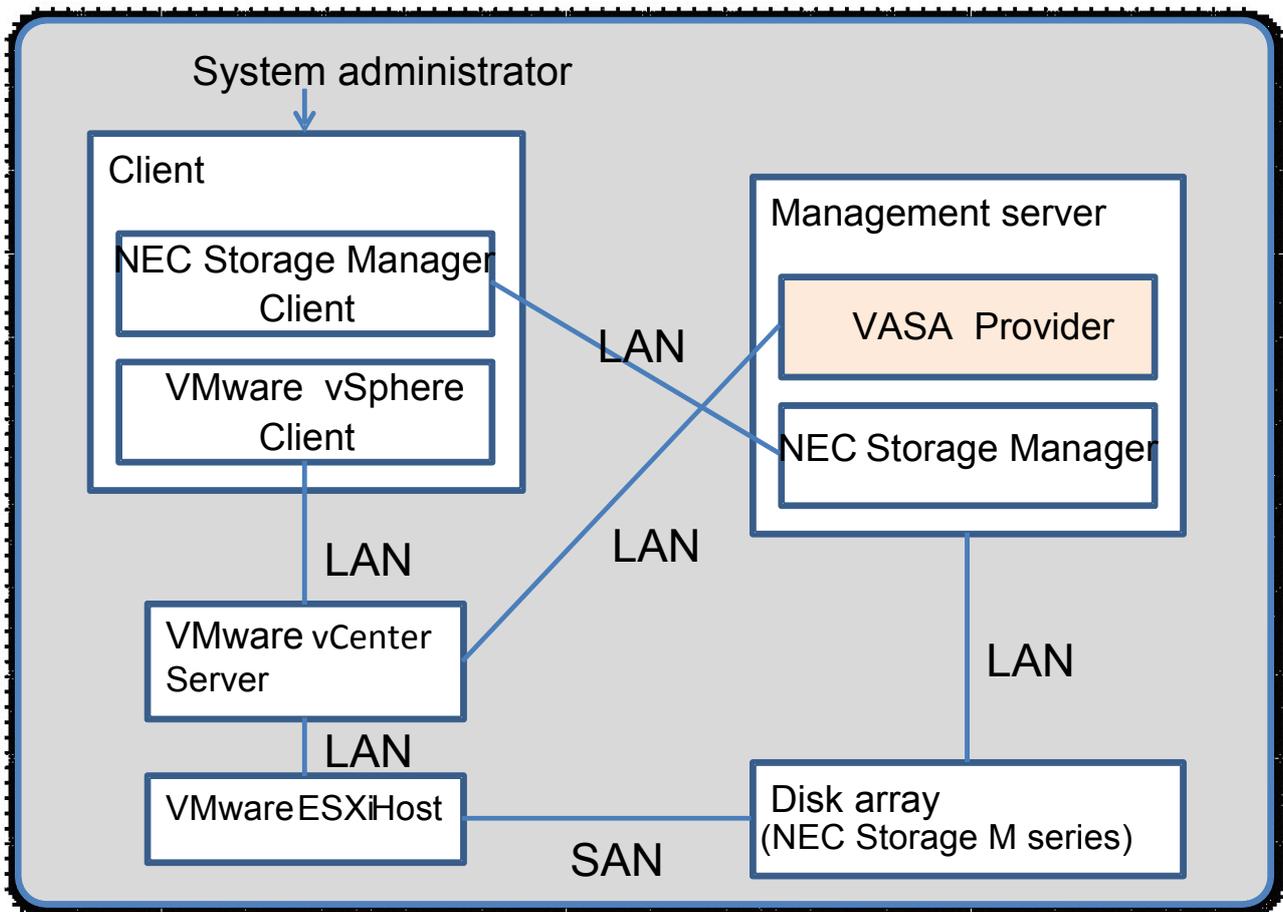
## 1.1 What is VASA Provider?

VASA Provider, which supports VASA (vStorage API for Storage Awareness), a storage management interface of VMware vCenter Server, provides administrators with configuration information of storage such as use of SSD and encryption of data through vCenter Server.

The storage information provided by VASA Provider is managed as configuration information of data store where virtual disks are allocated and allows for data store allocation suitable to your service level of virtual machines.

## 1.2 System Configuration

The following is an example of system configuration using VASA Provider.



## 1.3 Hardware and Software Requirements

### ■ Disk array

NEC Storage M series (M10e, M100, M300, M500, M700, M5000, M11e, M110, M310, M510, and M710) with revision 7.4 or later

### ■ OS

The following OSes are supported.

Windows Server 2008 Standard x64 (SP2)

Windows Server 2008 R2 Standard (without SP or with SP1)

Windows Server 2008 Enterprise x64 (SP2)

Windows Server 2008 R2 Enterprise (without SP or with SP1)

Windows Server 2012 Standard (without SP)

Windows Server 2012 Datacenter (without SP)

Windows Server 2012 R2 Standard (without SP)

Windows Server 2012 R2 Datacenter (without SP)

Windows Server 2016 Standard

Windows Server 2016 Datacenter

### ■ Software

The following software products need to be installed on the management server on which VASA Provider will be installed.

NEC Storage Manager V7.4 or later

Java Runtime Environment 32 bit version\*1 Version 7 Update 5 or later

Version 8 Update 25 or later

\*1: Even if you are using JRE on a 64 bit OS, use 32 bit JRE.

# Chapter 2 Installing VASA Provider

This chapter describes how to install VASA Provider.

## 2.1 Before Installation

Before installing VASA Provider, check the following:

### ■ NEC Storage Manager

VASA Provider runs on a server where NEC Storage Manager is installed. Before you install VASA Provider on a server, make sure NEC Storage Manager has been installed on the server successfully.

Also, check the disk array to be managed by VASA Provider has been correctly registered with NEC Storage Manager.

### ■ Disk array

VASA Provider supports disk arrays of V7.4 or later (NEC Storage M series). If the version of your disk array to be managed is earlier than V7.4, make sure to update it to V7.4.

### ■ JRE

To use VASA Provider, Java Runtime Environment (JRE) 32 bit version, which is not contained in VASA Provider, is required. Make sure to install this JRE in advance.

The path configuration must be set as well for JRE.

Open the command prompt and execute "java" and "keytool" in a directory other than the directory where JRE is installed.

If the following message is shown, it indicates the path configuration is not correctly set for JRE.

```
C:\keytool
'keytool' is not recognized as an internal or external command,
operable program or batch file.
```

If the path configuration is not properly set, follow the steps below to set it correctly.

Select **Control Panel**, **System** and **Change settings** to open the System Properties window.

On the **Advanced** tab, click **Environment Variables** to open the window to configure environment variables. Select **Path** or **PATH** in **System Variables** and click **Edit**. In the Edit System Variable window, check the variable name is either Path or PATH, append ";" (semicolon) at the end of the existing variable, and enter "<directory where JRE is installed>\bin". For example, if the directory where JRE is installed is "C:\Program Files (x86)\Java\jre6", append ";C:\Program Files (x86)\Java\jre6\bin" at the end of the existing variable. Care should be taken not to modify the existing variable. Click **OK** to ensure the addition.

Open the command prompt newly and execute "java" and "keytool".

```
C:\java
```

```
Usage: java [-options] class [args...]
```

```
:
```

```
C:\keytool
```

```
keytool usage
```

```
:
```

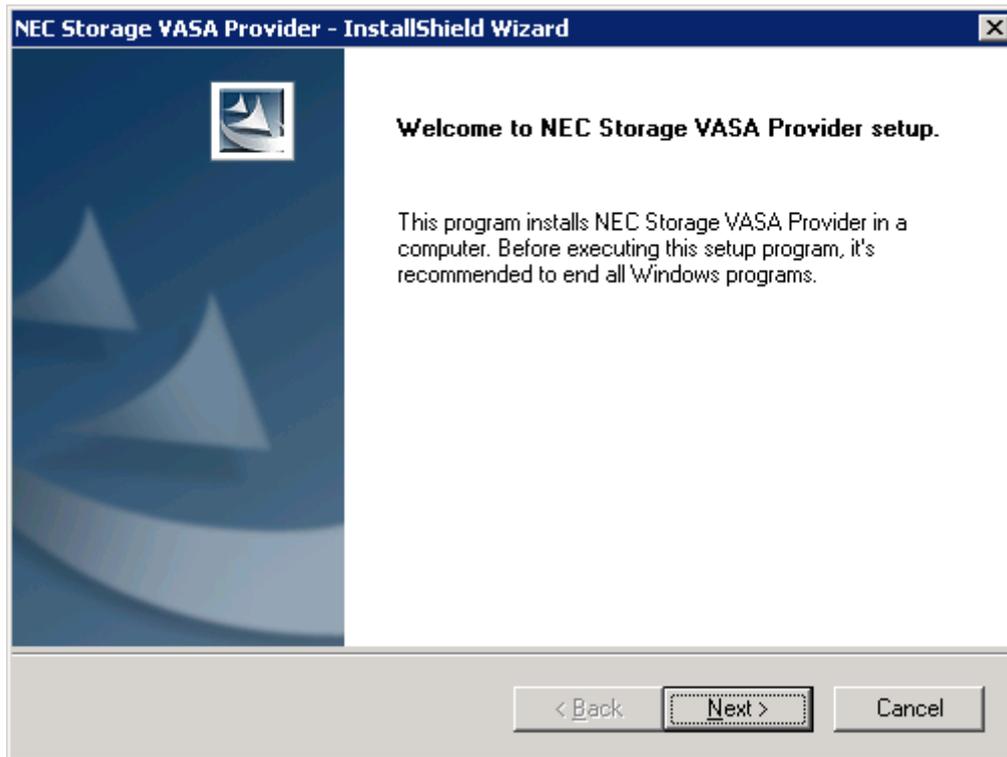
If the message above is shown, it indicates the configuration is set correctly.

## 2.2 Installation

Log on Windows with administrative rights and execute Setup.exe.

If the User Account Control dialog box is shown, click **Continue** or **Yes** to start the setup.

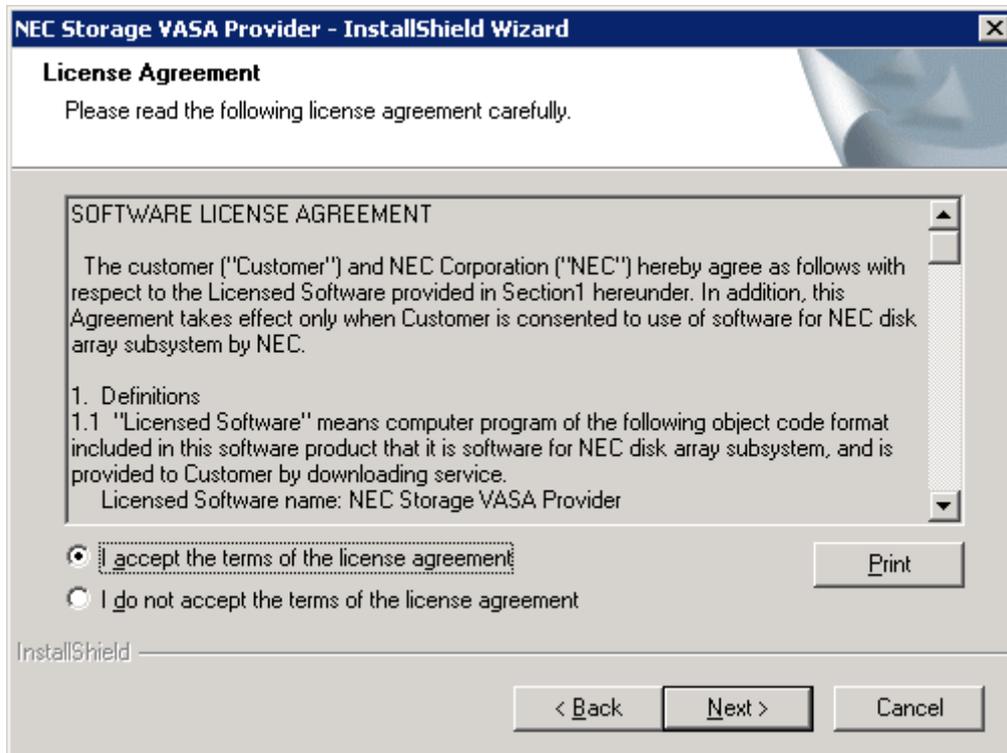
The following page is shown.



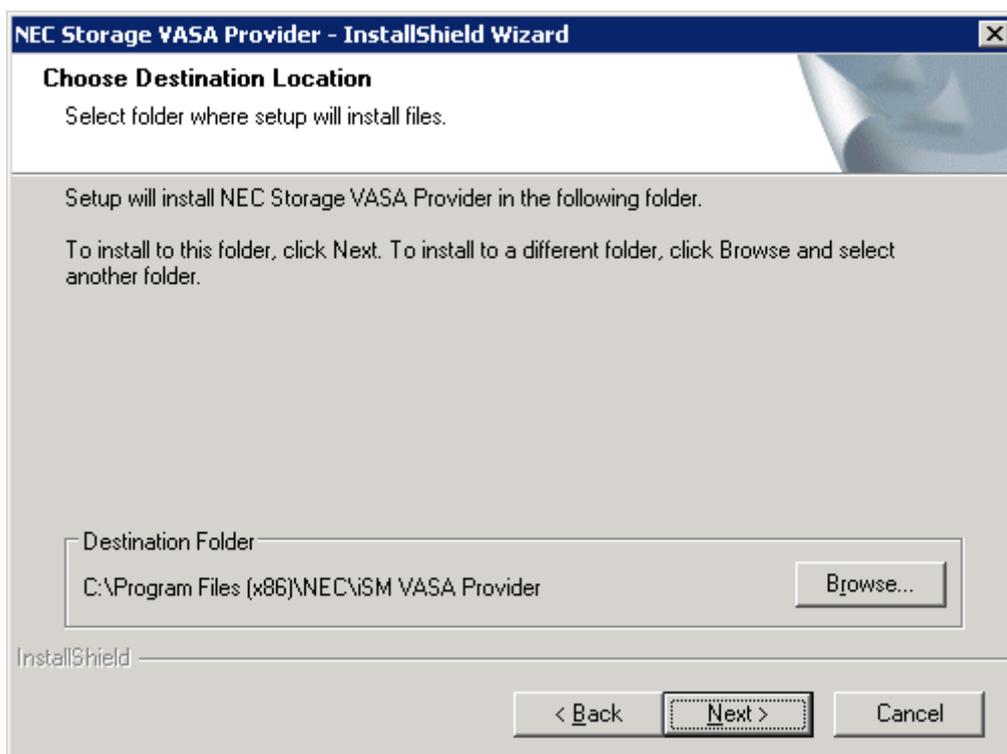
Click **Next**.

The license agreement is shown.

Read all of the license agreement and if you can agree all the terms, select **I accept the terms of the license agreement** and click **Next**.



The page to select the installation directory appears. Click **Next** if you want to use the default directory.



Specify ports VASA Provider uses. Specify four ports in two pages of the wizard. Because Port Number 4 is used to register VASA Provider with vCenter Server, make sure to make a note of it. Click **Next** to proceed.

Port numbers configured here cannot be changed after the installation.

**NEC Storage VASA Provider - InstallShield Wizard**

**Port Number Settings of NEC Storage VASA Provider**

Web service of NEC Storage VASA Provider uses four port numbers.  
For each port number make sure to specify no other application's one.

Please confirm Port Number 1 and Port Number 2.

Port Number 1:

Port Number 2:

InstallShield

< Back   Next >   Cancel

**NEC Storage VASA Provider - InstallShield Wizard**

**Port Number Settings of NEC Storage VASA Provider**

Please confirm Port Number 3 and Port Number 4

Port Number 3:

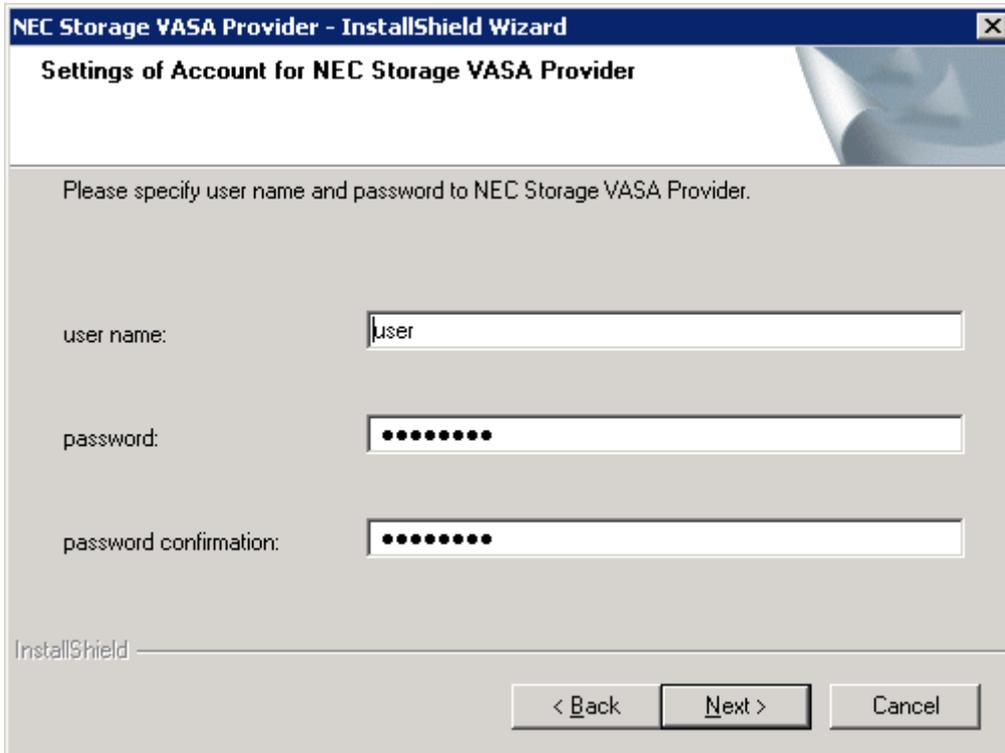
Port Number 4:

InstallShield

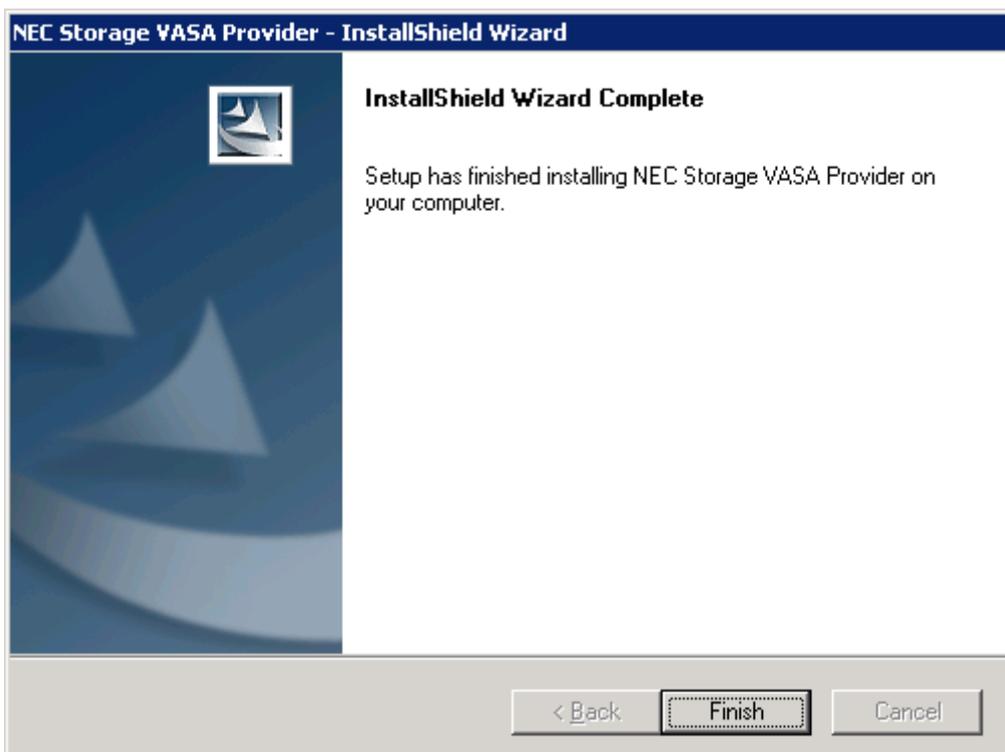
< Back   Next >   Cancel

Enter the user name and password and click **Next**.

Make a note of the user name and password configured here because they will be required to register the VASA Provider with vCenter Server.



Click **Finish** to complete the installation.



## 2.3 Post-install Configuration

This section describes the settings required after installing VASA Provider.

### ■ Disk array registration

Register the disk array to be managed by VASA Provider.

Start the command prompt as administrator.

Navigate to "< VASA Provider installation directory>\bin.

You can register the disk array by executing the SetProviderConf command on the command prompt opened by using administrative rights.

You can register a disk array by executing the SetProviderConf command with the `-a` option. Specify an IP address of the disk array as the argument. It is strongly recommended to use the floating IP address for the IP address. If no floating IP address is set, specify the IP address of either CONT0 or CONT1.

```
C:\Program Files (x86)\NEC\iSM VASA Provider\bin> SetProviderConf -a <IPaddress>  
ADD sucessflly
```

When the disk array is successfully registered, the message "ADD successfully" is shown.

You can see a list of registered IP addresses by executing the SetProviderConf command with the `-l` option.

Use this option after the registration to confirm the registration has completed successfully.

```
C:\Program Files (x86)\NEC\iSM VASA Provider\bin> SetProviderConf -l  
[DISKARRAY]  
<IPaddress>
```

If a wrong IP address is registered by mistake, execute the SetProviderConf command with the `-d` option, which deletes a registered IP address. Specify the IP address you want to delete for the argument.

```
C:\Program Files (x86)\NEC\iSM VASA Provider\bin> SetProviderConf -d <IPaddress>  
Delete sucessflly
```

When deletion is successfully completed, the message "Delete successfully" is shown.

## ■ **NEC Storage Manager restart**

Make sure to restart NEC Storage Manager after installing VASA Provider.

Follow the steps below to restart VASA Provider.

On the Windows **Start** menu, select **Control Panel, Administrative Tools,** and **Services.**

On the Services window, select and right-click “NEC Storage Manager” from the list of services. Select **Restart** from the shortcut menu.

NEC Storage Manager will restart.

## ■ **VASA Provider restart**

Make sure to restart VASA Provider after registering a disk array.

Follow the steps below to restart VASA Provider.

On the Windows **Start** menu, select **Control Panel, Administrative Tools,** and **Services.**

On the Services window, select and right-click NEC Storage VASA Provider 32-bit iSM\_VASA\_Provider from the list of services. Select **Restart** from the shortcut menu.

VASA Provider will restart.

## ■ **Firewall configuration**

Configure firewall settings to allow communication from vCenter Server to Port number 4 of VASA Provider.

Select **Control Panel, Administrative Tools,** and **Windows Firewall with Advanced Security.** On the Windows Firewall with Advanced Security window, click **Inbound Rules** in the left column, **Windows Firewall with Advanced Security on Local Computer,** and **New Rule** in the right column.

On the wizard page for new inbound rule, select **port** for **Rule Type.**

Select **TCP** for **Protocol and Ports,** click **Specific local ports** and type the number assigned to Port number 4, which you have specified in installing VASA Provider.

Select **Allow the connection** for **Action.**

Select all for **Profile.**

Specify a character string you want to use for **Name.**

Click **Finish** to complete the firewall settings.

## ■ **Vendor provider certificate preparation**

The vendor provider certificate is required to register VASA Provider with vCenter Server.

The vendor provider certificate is the ismvasa.cer file in the following directory. Copy the file to the PC where VMware vSphere Client is activated. This file cannot be reissued. DO NOT delete the file.

Directory where the vendor provider certificate is saved: < VASA Provider installation directory >\conf\

## 2.4 Registration with vCenter Server

This section describes how to register VASA Provider with vCenter Server.

For details, see the vSphere5 document provided by VMware.

Start VMware vSphere Client and connect to vCenter Server.

Open the window for VASA Provider registration by selecting **Home**, **Administration**, and **Storage Providers**.

On the Storage Providers window, click **Add** to open the window for registration.

Enter the following information and click **OK**.

Name	Enter a name you want to use.
URL	Enter the following character strings. https://<IP address of the server VASA Provider is installed>:<Number configured for Port number 4 at the installation >/iSMvasa/services/vasaService For example, if the server's IP address is 192.168.1.100 and the port number 4 is 9943: https://192.168.1.100:9943/iSMvasa/services/vasaService
Log in	Enter the user name you used for installation.
Password	Enter the password you used for installation.
Use Vendor Provider Certificate	Select the <b>Use Vendor Provider Certificate</b> option.
Certificate location	Specify the vendor provider certificate file you prepared in 2.3 Post-install configuration.

## Chapter 3 Maintenance of VASA Provider

This chapter provides explanation for maintenance of VASA Provider.

### 3.1 Modification of Settings

You can register or change a user name and password and register or delete registration of a disk array in the settings of VASA Provider. When you modify the settings, you need to restart VASA Provider.

#### ■ User name and password change

The following covers steps to change a user name and password you have set during the installation.

Start the command prompt as administrator.

Navigate to "< VASA Provider installation directory>\bin.

You can register a user name and password by executing SetProviderConf command with -s option at the command prompt you opened with administrator rights.

```
C:\Program Files (x86)\NEC\iSM VASA Provider\bin> SetProviderConf -s <User name> <Password>
Set successfully!
```

When a message "Set successfully!" shows, it indicates that the registration was successful.

Only one set of user name and password can be registered and maintained. When a new set of user name and password is registered, it overrides the previous user name and password.

#### ■ Disk array registration

The following provides steps to register and delete registration of the disk array.

Start the command prompt as administrator.

Navigate to "< VASA Provider installation directory>\bin.

You can register the disk array by executing the SetProviderConf command on the command prompt opened by using administrative rights.

You can register a disk array by executing the SetProviderConf command with the -a option. Specify an IP address of the disk array as the argument. It is strongly recommended to use the floating IP address for the IP address. If no floating IP address is set, specify the IP address of either CONT0 or CONT1.

```
C:\Program Files (x86)\NEC\iSM VASA Provider\bin> SetProviderConf -a <IPaddress>
ADD successflly
```

When the disk array is successfully registered, the message "ADD successfully" is shown.

You can see a list of registered IP addresses by executing the SetProviderConf command with the -l option.

Use this option after the registration to confirm the registration has completed successfully.

```
C:\Program Files (x86)\NEC\iSM VASA Provider\bin> SetProviderConf -l  
[DISKARRAY]  
<IPAddress>
```

If a wrong IP address is registered by mistake, execute the SetProviderConf command with the -d option, which deletes a registered IP address. Specify the IP address you want to delete for the argument.

```
C:\Program Files (x86)\NEC\iSM VASA Provider\bin> SetProviderConf -a <IPaddress>  
Delete sucessflly
```

When deletion is successfully completed, the message "Delete successfully" is shown.

### ■ VASA Provider restart

When a user name and password is registered, or disk array is registered or deleted, make sure to restart VASA Provider. Follow the steps below to restart the VASA Provider.

On the Windows **Start** menu, select **Control Panel**, **Administrative Tools**, and **Services**.

On the Services window, select and right-click NEC Storage VASA Provider 32-bit iSM\_VASA\_Provider from the list of services. Select **Restart** from the shortcut menu.

VASA Provider will restart.

## 3.2 Uninstallation

This section provides explanation for uninstallation of VASA Provider.

### ■ Uninstallation of the program

On Windows, click **Control Panel** and **Programs and Features** to open the Uninstall or change a program window. In the installed programs, right-click NEC Storage VASA Provider and select **Uninstall**.

### ■ NEC Storage Manager settings

After the program is uninstalled, you need to modify the settings on NEC Storage Manager.

On Windows, click **Start, All Programs, Storage Manager Server**, and **Setup Utility** to open the setup utility window on NEC Storage Manager. Select **Event Link** to open the setup utility window for event link function. Among the list of event links, the two settings where the action is defined as below are the settings for event links for VASA Provider.

- < VASA Provider installed directory>\bin\event.bat
- < VASA Provider installed directory >\bin\alarm.bat

Delete these two files.

### ■ Windows Firewall Settings

Remove settings for communication incoming from an external device to the port number 4 that you enabled through "Firewall Configuration" in 2.3 " Post-installation configuration".

Click on **Control Panel, Administrative Tools**, and **Windows Firewall with Advanced Security** to open Windows Firewall with Advanced Security window.

In the left pane, click **Inbound Rules** under **Windows Firewall with Advanced Security on Local Computer**. In the center pane, a list of inbound rules is displayed. From the list, right-click a rule that you added during post-installation configuration. Select **Delete** from the menu. When a pop-up window appears with a message, "Are you sure you want to delete these rules?", click **Yes**.

Uninstallation of VASA Provide is now completes.

### 3.3 Collection of Failure Information

When a failure occurs, collect and provide the following information to the NEC representative for request of investigation.

Log file	<Installation directory>\server\logs\ All files in the directory.
Configuration file	<Installation directory>\conf\ <Installation directory>\server\conf\ All files in the two directories.
NEC Storage Manager logs	<Installation directory of NEC Storage Manager>\etc\log\ iSM_Log.log

# Chapter 4 Information Provided by VASA Provider

## 4.1 Storage Capabilities

VASA Provider provides storage configuration information as storage capabilities to vCenter Server. The storage capability name is formatted as: <physical disk type>-<RAID type>-<Option>.

Type of physical disk	Indicates types of physical disks in the data store (logical disks of disk array). E.g., SSD indicates LDs bound on SSD. SAS (SED) indicates LDs bound on encrypted disks. For details of physical disk types, see <i>NEC Storage Manager User's Manual</i> .
RAID type	Indicates RAID types in the data store (logical disks of disk array). E.g., RAID 5 indicates LDs bound on a RAID 5 pool. RAID 1 indicates LDs bound on a RAID 10 pool. For details of RAID types, see <i>NEC Storage Manager User's Manual</i> .
Option	One or more of the following options may be provided. <ul style="list-style-type: none"> <li>● thinprovisioning</li> <li>● snapshot</li> <li>● replication</li> </ul>
thinprovisioning	Indicates logical disks with thin provisioning function enabled. For details of the thin provisioning function, see <i>NEC Storage Software Thin Provisioning User's Manual (IS044)</i> .
snapshot	Indicates logical disks with snapshot function enabled. For details of the snapshot function, see <i>NEC Storage Software Snapshot User's Manual (Function Guide) (IS030)</i> .
replication	Indicates logical disks with data replication function enabled. For details of the data replication function, see <i>NEC Storage Software Data Replication User's Manual (Function Guide) (IS015)</i> .

# Appendix A Licenses

## A1 Apache log4j, Apache Commons Logging, Apache Tomcat

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Version 2.0, January 2004  
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