

Deploy Hitachi Automation Director on Hitachi Unified Compute Platform 2000

Implementation Guide

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Deploy Hitachi Automation Director on Hitachi Unified Compute Platform 2000

Implementation Guide

Use this implementation guide to deploy Hitachi Automation Director (HAD) for workflow automation on Hitachi Unified Compute Platform 2000 (UCP 2000).

Hitachi Unified Compute Platform speeds time to production, automates operations, and reduces administrative costs by providing integrated systems for servers, storage, and network infrastructure. It adds a virtualization layer for placing enabling and application software.

Unified Compute Platform data protection with Hitachi Automation Director offers pre-configured templates you customize to your specific environment and processes. Create services to automate complex tasks, such as resource provisioning. Automation Director integrates with existing Hitachi Command Suite (HCS) application to automate common infrastructure management tasks by utilizing existing infrastructure. Hitachi Virtual Infrastructure Integrator leverages VMware environments automating VM-level backups and recovery, and it offers more granular recovery possibilities.

Hitachi Automation Director is automation software that provides tools to simplify the end-to-end storage provisioning process. Use preconfigured service templates or customized service templates for storage workflow management to meet the storage needs of specific groups and departments within your company. For unified management, Hitachi Automation Director delivers a broad set of fully integrated capabilities. Self-service storage and server automation can execute automated IT provisioning, saving time and improving productivity.

Additional references:

- Hitachi Unified Compute Platform: [Hitachi Unified Compute Platform 2000](#) (PDF)
- Hitachi Automation Director: [Hitachi Automation Director](#)

Note — Testing of this configuration was in a lab environment. Many things affect production environments beyond prediction or duplication in a lab environment. Follow the recommended practice of conducting proof-of-concept testing for acceptable results in a non-production, isolated test environment that otherwise matches your production environment before your production implementation of this solution.

Architecture

Hardware and Software Components shows the high-level position of the Hitachi Automation Director (HAD) components on Hitachi Unified Compute Platform (UCP) with Hitachi Command Suite (HCS) and Hitachi Virtual Storage Platform (VSP).

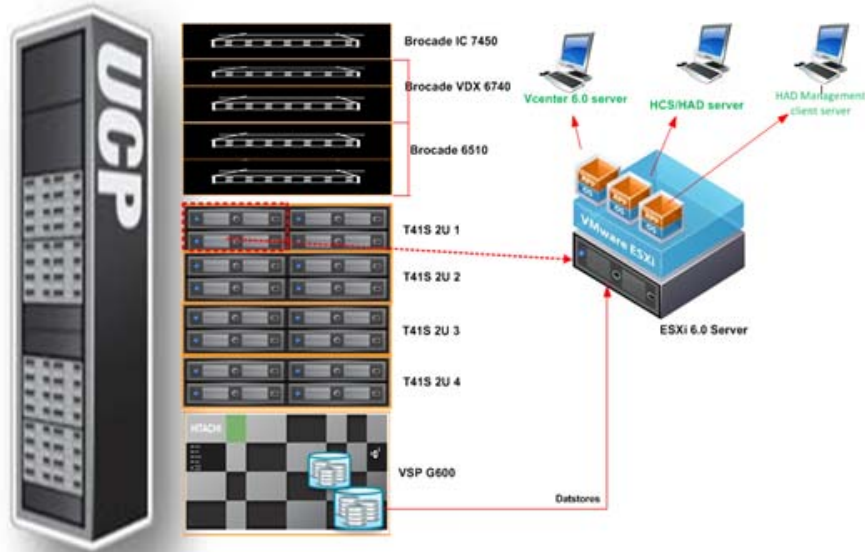


Figure 1

Hardware and Software Components

These are the software components, hardware components, and storage configuration used to deploy Hitachi Automation Director on Hitachi Unified Compute Platform 2000.

Table 1. Hardware Components for Hitachi Unified Compute Platform 2000

Hardware	Description	Version	Quantity
Rack optimized server for solutions, 2U four node	Server Chassis <ul style="list-style-type: none"> 2 power supplies 	Firmware Revision: 3.30.00	1
	Compute node <ul style="list-style-type: none"> 2 Intel Xeon E5-2680 v3 processors, 2.494 GHz 256 GB memory Intel 82599 10GbE OCP dual-port card Emulex LPe12002 dual-port 8 GB HBA card 	BIOS Version: S2S_3A14 Emulex HBA Firmware v2.01A10 Intel driver 3.9.58.9101 Emulex HBA driver v10.4.246.0	1
Hitachi Virtual Storage Platform G600	<ul style="list-style-type: none"> Dual controller 8 × 16 Gb/sec Fibre Channel ports 98 GB cache memory 24 × 1.2 TB 10k RPM SAS disks 12 × 3.2 TB FMD DC2 drives 2 × NAS modules 	83-03-24-40/03	1
Brocade ICX7450 switch	<ul style="list-style-type: none"> 24-port 1 GbE management switch 	08.0.20c	1
Brocade VDX 6740 switch	<ul style="list-style-type: none"> 48-port 10 GbE switch 	5.0.1d	2
Brocade 6510 switch	<ul style="list-style-type: none"> 24-port 8 GB/sec Fibre Channel 	v7.4.1	2

Table 2. Dynamic Provisioning Pools

Pool	RAID Level	Drive Type	Parity Group	Description
UCP SAN_OS_Boot	RAID-6 (6D+2P)	10k RPM SAS	1-1	Pre-allocated for Hitachi Unified Compute Platform 2000 for VMware ESXi boot LUNs
UCP Management_VMs	RAID-6 (6D+2P)	10k RPM SAS	1-2	Pre-allocated for Unified Compute Platform 2000 management virtual machines, including VMware vCenter and data protection management virtual machines, Hitachi Automation Director

Table 3. Hitachi Unified Compute Platform Virtual Volume Layout

Pool	LDEV Name (VVols name)	LDEV Size (VVols)	Host Group	Description
UCP_Management_VMs	MgmtVMData storeVol	2000 GB	C1_B1_HBA1_1	Pre-created and configured as VMFS datastore for Unified Compute Platform 2000

Table 4. Software Components

Software	Version
Hitachi Automation Director (HAD)	8.4.1-02
VMware vSphere	6.0
VMware vCenter Server	6.0
Hitachi Automation Director management client server	Microsoft® Windows Server® 2012 R2
Hitachi Command Suite (HCS)	8.5.0

Table 5. Supported Web Browsers

Web Browser	Version
Microsoft® Internet Explorer®	9.0 or later
Mozilla Firefox	ESR38 or later
Google Chrome	38.0.2125.122 or later

Deployment Prerequisites

To deploy Hitachi Automation Director, you need the following prerequisites:

- Your Hitachi Unified Compute Platform 2000 appliance is fully deployed and configured. Refer to the Unified Compute Platform Deployment Guide.
- All of the server nodes have VMware ESXi server installed.
- Centralized management VMware vCenter server installed and configured.

Hitachi Automation Director Configurations and Prerequisites

Hitachi Automation Director (HAD) can be deployed in two configurations:

- Deploy Hitachi Automation Director in a standalone configuration. This requires a separate virtual system for Hitachi Command Suite (HCS).
- Deploy Hitachi Automation Director with Hitachi Command Suite in one virtual system. This recommended configuration provides simplicity to create one central management system in the Hitachi Unified Compute Platform (UCP) configuration.

Hitachi Automation Director deployment has these prerequisites

- Hitachi Command Suite with Hitachi Device Manager (HDvM) must be installed and configured.
- Hitachi Automation Director components must be installed.
- Hitachi Tuning Manager (HTnM) installed to perform intelligent tasks of the storage pool. This is only required for collecting or monitoring performance data to enable Automation Director,

Configure Virtual System for Hitachi Automation Director and Client

Follow the standard procedures for using a virtual machine (VM) with Hitachi Automation Director (HAD) to create the following:

1. “Create the Virtual Machine System” on page 6
2. “Install the Operating System on the Server Hosting Hitachi Automation Director” on page 9
3. “Install VMware Tools” on page 9
4. “Configure the Network on Hitachi Automation Director Nodes” on page 10
5. “Install Hitachi Automation Director” on page 11
 - (1) “Configure the Hitachi Automation Director License” on page 14
 - (2) “Change the System Account Password” on page 15
 - (3) “Add Hitachi Device Manager” on page 15
 - (4) “Add VMware vCenter” on page 16

Create the Virtual Machine System

The hardware requirements for a virtual machine to host Hitachi Command Suite (HCS) with Hitachi Automation Director (HAD) requires the following:

- CPUs: 4
- Memory: 16 GB
- Hard Disk: 350 GB

Create two virtual systems using the pre-allocated management virtual machine **MgmtVMDataStore** datastore for Hitachi Unified Compute Platform:

- Use one virtual machine for the Hitachi Command Suite instance and the Hitachi Automation Director instance.
- Use the second virtual machine for the Hitachi Automation Director client.

To create a virtual machine, do the following

1. Start to create the new virtual machine.
 - (1) Log on to the VMware ESXi server using the VMware vSphere client.
 - (2) Right-click the VMware ESXi server.
2. Select the destination storage for the virtual machine files.
 - (1) Click **Custom** and then click **Next**.
 - (2) Type a **Name** and then click **Next**.
 - (3) Select the **MgmtVMDatastore** datastore and then click **Next**. See Figure 2 on page 7.

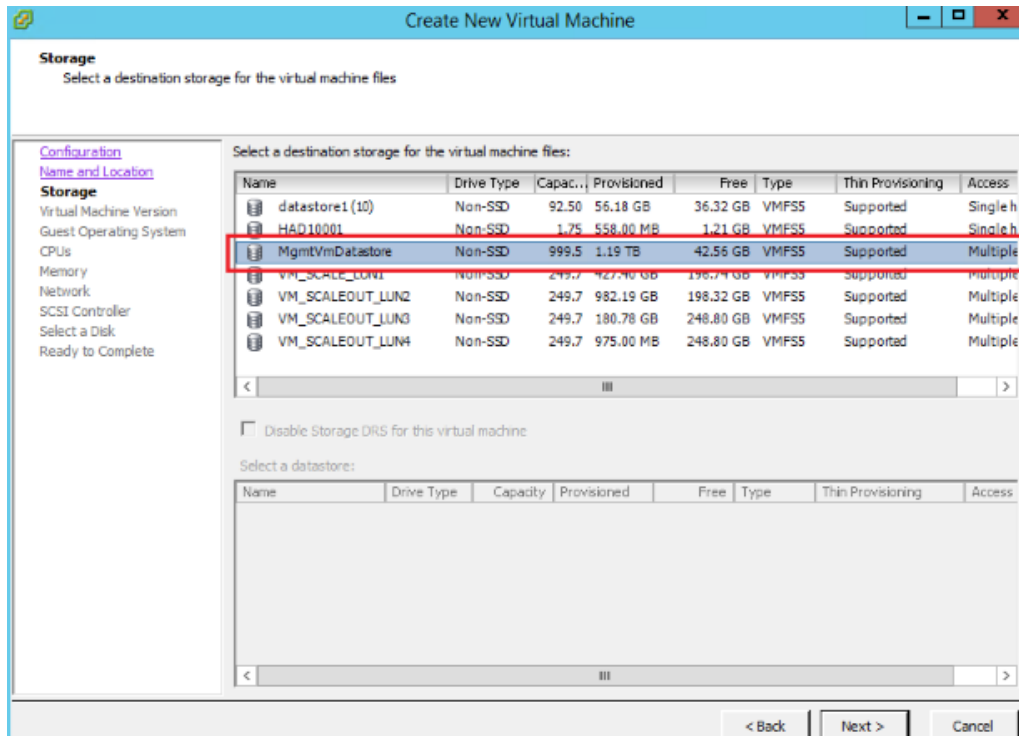


Figure 2

3. Create the new virtual machine.

- (1) Click **Virtual Machine: 11** and then click **Next**.

This configuration uses Microsoft® Windows Server® 2012 (64 bit) for the operating system of the virtual machine.

- (2) Click **Windows**, click **Microsoft Windows Server 2012 (64-bit)**, and then click **Next**.
- (3) To set the number of virtual sockets and number of cores per socket, click **2:2**, and then click **Next**.
- (4) In the **Memory Configuration** area, click **12 GB** memory, and then click **Next**.
- (5) Configure these network settings and then click **Next**. See Figure 3 on page 8.
 - From the **How many NICs do you want to connect** list, click **1**.
 - From the **Network** list, click **VM Network**.
 - From the **Adapter** list, click **E1000E**.
 - Select the **Connect on power on** check box.

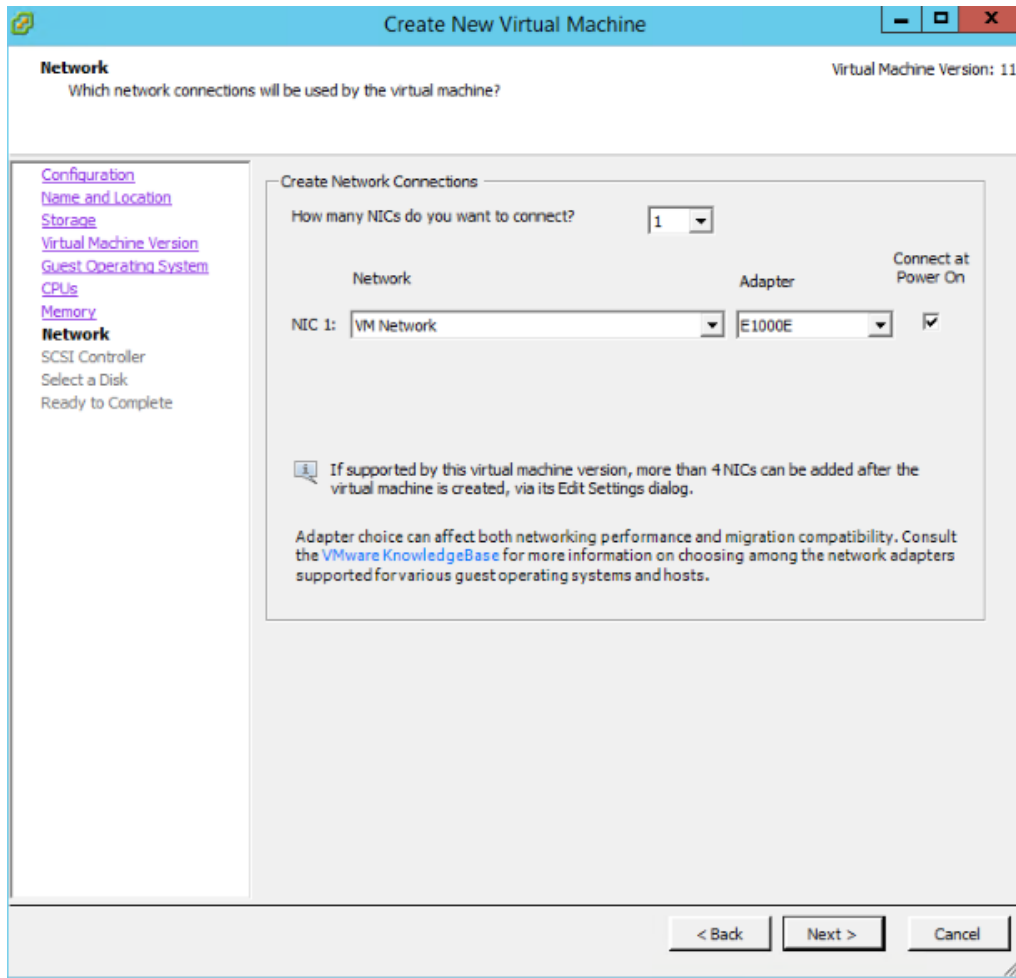


Figure 3

4. Make the storage settings.
 - (1) Click **LSI Logic SAS** and then click **Next**.
 - (2) Click **Create a new virtual disk** and then click **Next**.
 - (3) Configure these disk settings and then click **Next**.
 - For **Disk size**, click **350GB**.
 - For **Disk Provisioning**, click **Thin Provision**.
 - For **Location**, click **Store with the virtual machine**.
 - (4) For **Virtual Device Node**, click **SCSI (0:0)** and then click **Next**.
5. Review the settings, and then click **Finish**.

You can view the virtual machine for the Hitachi Command Suite and Hitachi Automation Director server on the VMware ESXi server user interface (Figure 4 on page 9).

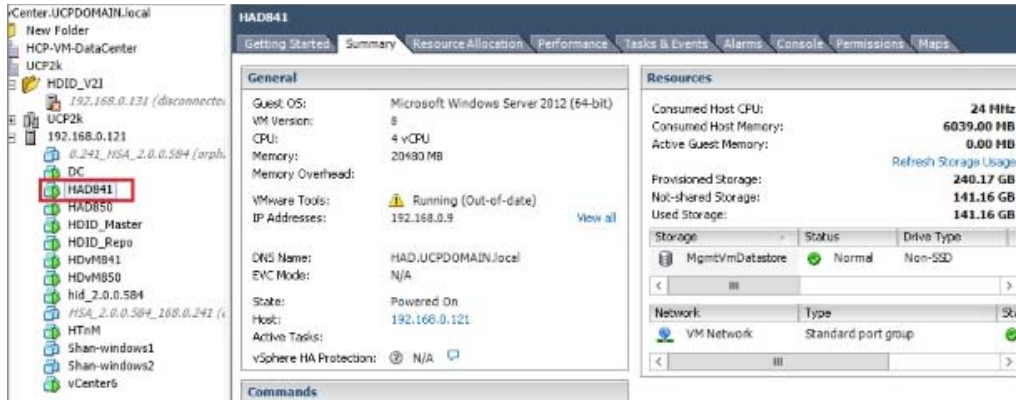


Figure 4

Install the Operating System on the Server Hosting Hitachi Automation Director

Hitachi Automation Director supports the following operating systems:

- Microsoft® Windows Server® 2008 R2 SP1 (64-bit)
- Microsoft Windows Server 2012 R2 (64-bit)
- Red Hat Enterprise Linux 6 x64 (6.1 and newer)
- Red Hat Enterprise Linux 7 x64 (7.1 and newer)

Refer to Hitachi Automation Director user guide for details. This configuration guide uses Microsoft Windows 2012 R2.

To install the operating system on the server hosting Hitachi Automation Director, do the following.

1. Select the virtual machine hosting **Hitachi Automation Director**, and click the **Console** tab.
2. Insert the Microsoft Windows Server 2012 R2 installation media (ISO file). The installation on the virtual machine starts automatically.
3. Follow the Windows Server installation procedures on screen. Refer to Microsoft Windows Server 2012 R2 installation guide for further details.

Install VMware Tools

Once the operating system installation is complete, the next step is to install the VMware tools.

To install the VMware tools, do the following.

1. Turn on the virtual machine hosting Hitachi Automation Director.
2. Log on to verify that the Microsoft® Windows Server® guest operating system is running.
3. When the desktop is loaded, right-click the Hitachi Automation Director node (**HAD841** in Figure 5 on page 10), click **Guest**, click **Install/Upgrade VMware Tools**, and then click **OK**.

VMware tools are bundled with VMware. No installation media is required.

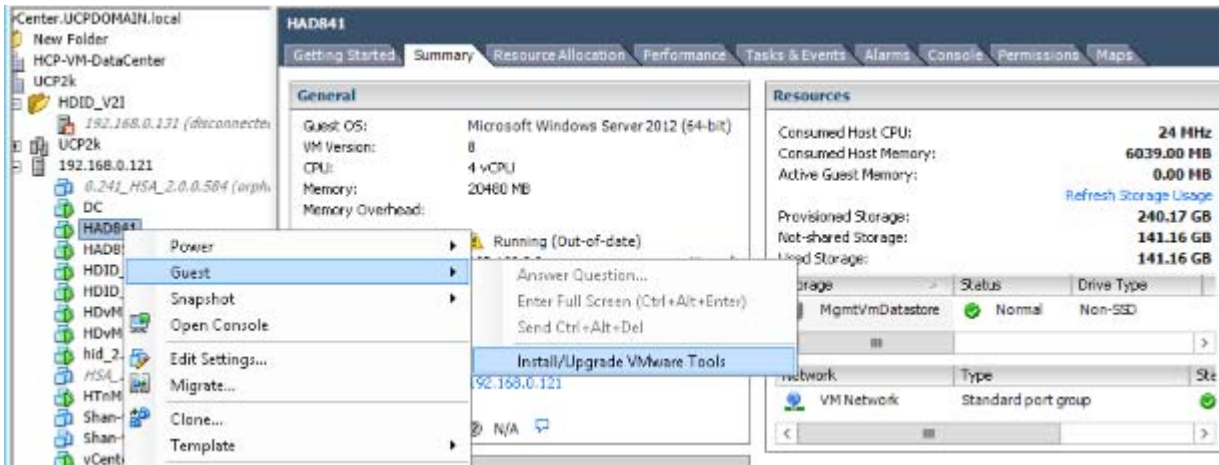


Figure 5

4. Open the VMware tools CD in Microsoft Windows Explorer and double-click **setup.exe** or **setup64.exe** to start the wizard.
5. Follow the instructions in the wizard to complete the VMware tools installation. Use the **Typical** installation option.
6. Once the VMware Tools installation finishes, restart the virtual machine for the changes to take effect.

For details on VMware tools installation, see [Installing VMware Tools in a Windows virtual machine \(1018377\)](#).

Configure the Network on Hitachi Automation Director Nodes

To configure the network for Hitachi Automation Director server, do the following.

1. Log on to the virtual machine hosting Hitachi Automation Director.
2. From the **Control Panel**, click **Network and Internet**, click **Network Sharing Center**, and then click **Change adapter settings**.
3. Right-click the network adapter and then click **Properties**.
4. Click **Internet Protocol Version**, and then click **Properties**. Enter the IP address.

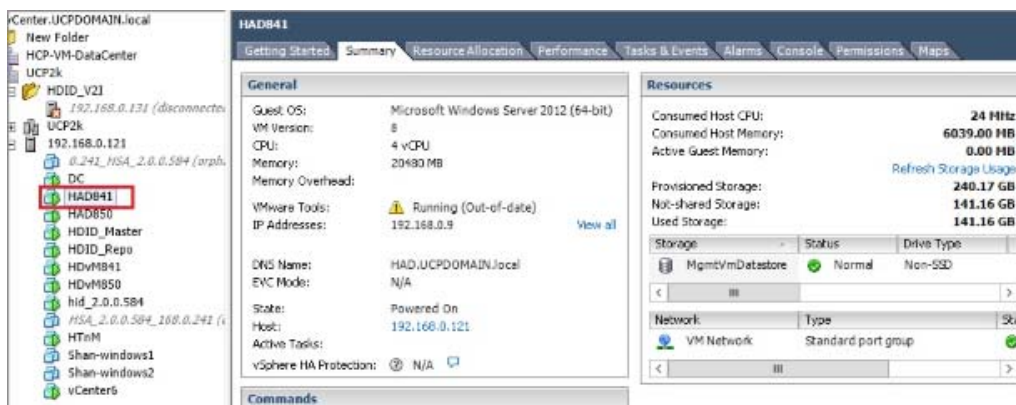


Figure 6

Install Hitachi Automation Director

Hitachi Automation Director (HAD) is packaged in the Hitachi Command Suite (HCS) installer.

To install Hitachi Automation Director, do the following.

1. Connect to the installation file.
 - (1) Right-click the virtual machine hosting Hitachi Automation Director and click **Properties**. The **Virtual Machine Properties** dialog box opens (Figure 7).
 - (2) On the **Hardware** tab, select **CD/DVD drive1**.
 - (3) Under **Device Status**, select the **Connected** check box and the **Connect at power on** check box.
 - (4) Under **Device Type**, click the **Datastore ISO File** option and then click **Browse** select the Hitachi Automation Director installation file location.
 - (5) To close the **Virtual Machine Properties** dialog box, click **OK**.

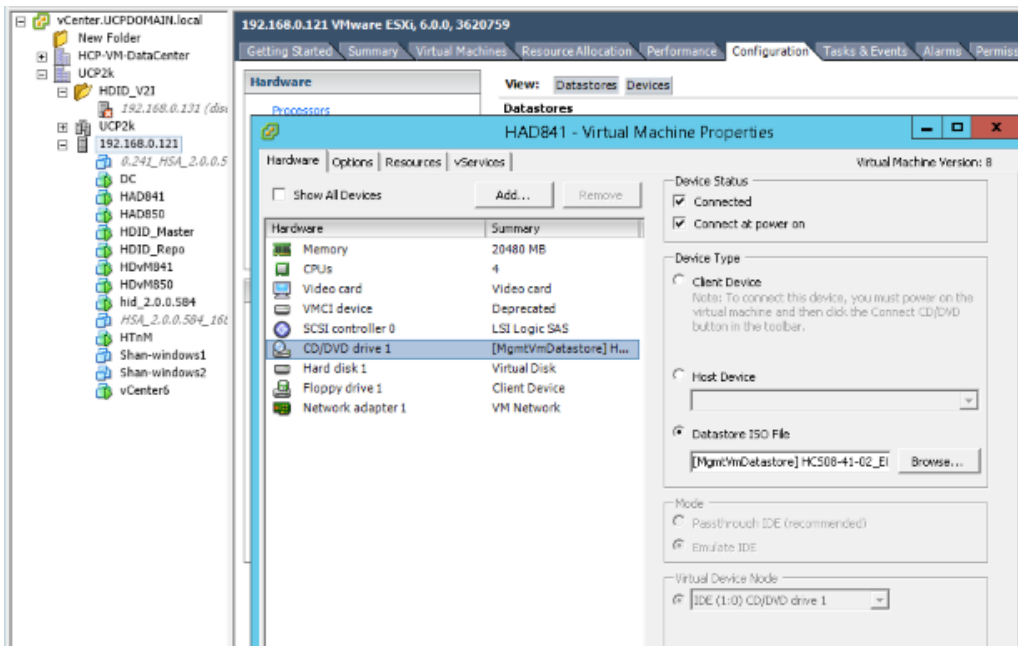


Figure 7

2. Start the installation wizard.
 - (1) Log on to the virtual machine hosting Hitachi Automation Director.
 - (2) Double-click **This PC** icon on the bottom of the window (Figure 8 on page 12).
 - (3) Under **This PC**, double-click **DVD Drive**. This opens Hitachi Command Suite All-in-One Installer.

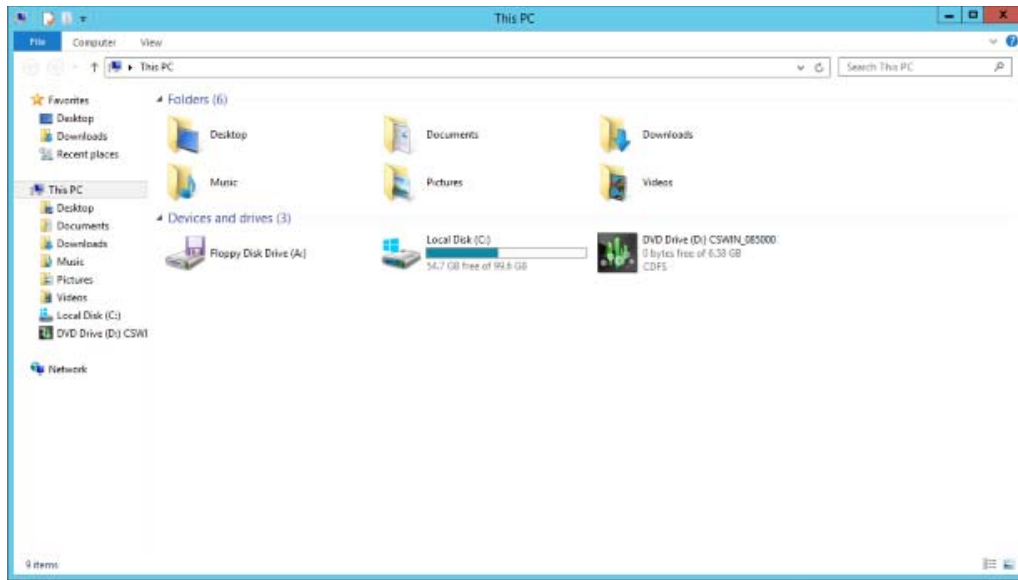


Figure 8

3. Install Hitachi Automation Director.

On the Hitachi Command Suite All-In-One Installer window, there are two installation options (Figure 9):

- To install all the Command Suite products, click **All-In-One Installer**.
- To install an individual product: click the abbreviation for the product, such as **HAD** for Hitachi Automation Director.

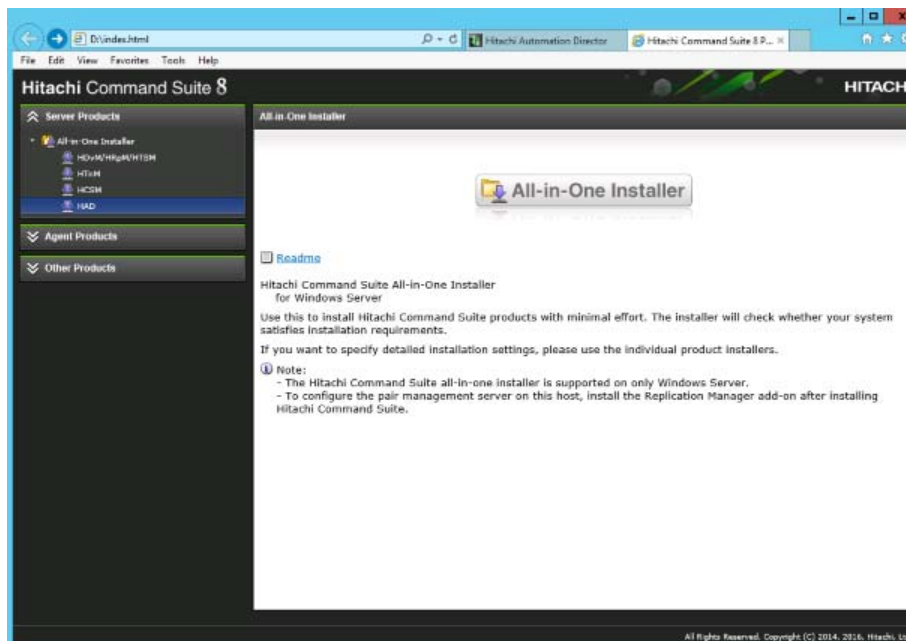


Figure 9

- (1) To install Hitachi Automation Director, click **HAD**, and then **Install** (Figure 10).

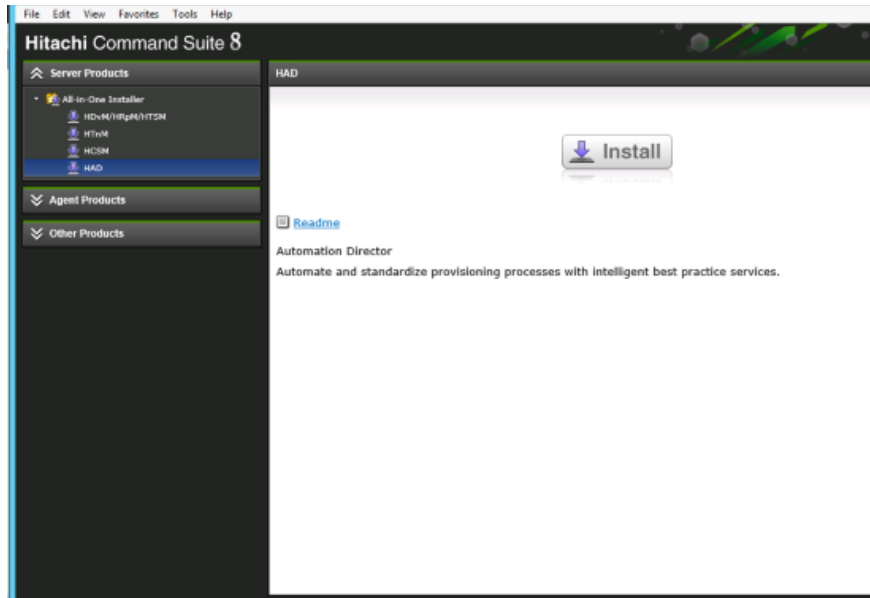


Figure 10

- (2) Click **Next**.
- (3) Specify the installation location and click **Next**. The default installation location is c:\Program Files\HiCommand\.
- (4) Keep the default setting for **Host Name** as **localhost** and **Default Web Service** port as **22015**, and then click **Next** (Figure 11).

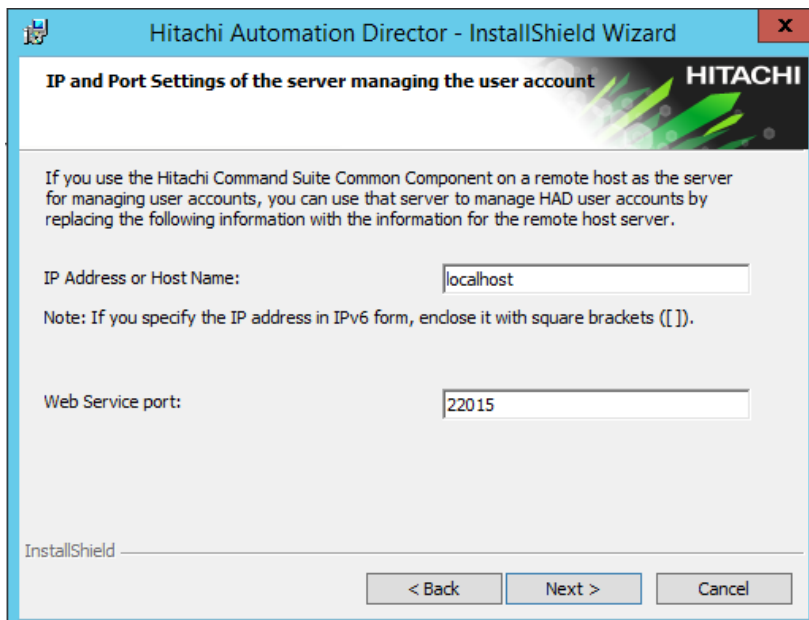


Figure 11

- (5) Click **Next**.
- (6) Click **Install**
- (7) After the installation completes, click **Finish**.

Configure Hitachi Automation Director After Installation

Hitachi Automation Director (HAD) requires a Hitachi Command Suite (HCS) instance. It shares the common Command Suite database to automate and utilize infrastructure management tasks services. Hitachi Automation Director configuration requires the following:

- “Configure the Hitachi Automation Director License” on page 14
- “Change the System Account Password” on page 15
- “Add Hitachi Device Manager” on page 15
- “Add VMware vCenter” on page 16

Configure the Hitachi Automation Director License

To register the Hitachi Automation Director license, do the following.

1. Open Hitachi Automation Director user interface at this address: <http://HAD server address:22015/Automation/>
2. Log on to the Hitachi Automation Director user interface. The default user credentials are the following:
 - User name:** system
 - Password:** manager
3. From the log on window, click **Licenses**.
4. Either type the license key or click **Browse** to open a license file.
5. Click **Save**.

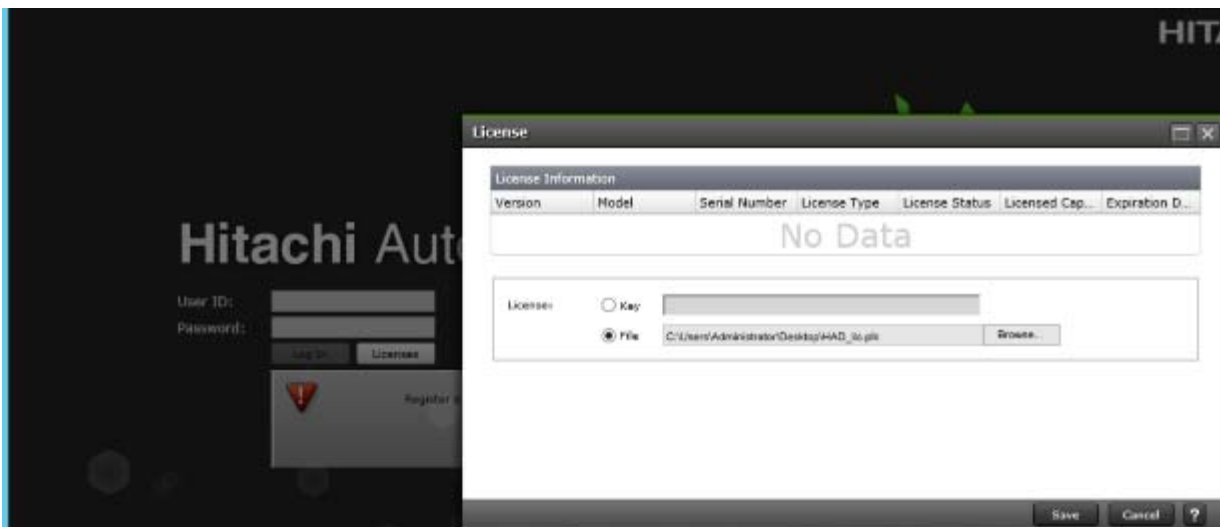


Figure 12

Change the System Account Password

To change the system account password, do the following.

1. Open the Hitachi Automation Director user interface for this address: `http://HAD server address:22015/Automation/`
2. Log on to the Hitachi Automation Director user interface. The default user credentials are the following:

User name: system

Password: manager

3. Click **User Profile**.
4. Click **Change Password** and then type the new password.
5. Click **OK**.

Add Hitachi Device Manager

To connect Hitachi Device Manager (HDvM) from Hitachi Automation Director, do the following.

1. Launch the Hitachi Automation Director user interface from this address: `http://HAD server address:22015/Automation/`
2. Log on to the Hitachi Automation Director user interface. The default user credentials are the following:

User name: system

Password: manager

3. Click the **Administration** tab.
4. In the **Connection Settings** pane, click **Device Manager Connections**.
5. Click **Add**.
6. Enter the following configuration information (Figure 13 on page 16):
 - **Name** — Type a name for the Device Manager instance.
 - **IP Address/Host name** — Type the host name of either the Hitachi Command Suite instance IP address or the Hitachi Command Suite host name.
 - **Protocols** — Click **http** from the list.
 - **Ports** — Type the default port: 22015
 - **User ID** — Type the default user ID: system
 - **Password** — Type the default password: manager

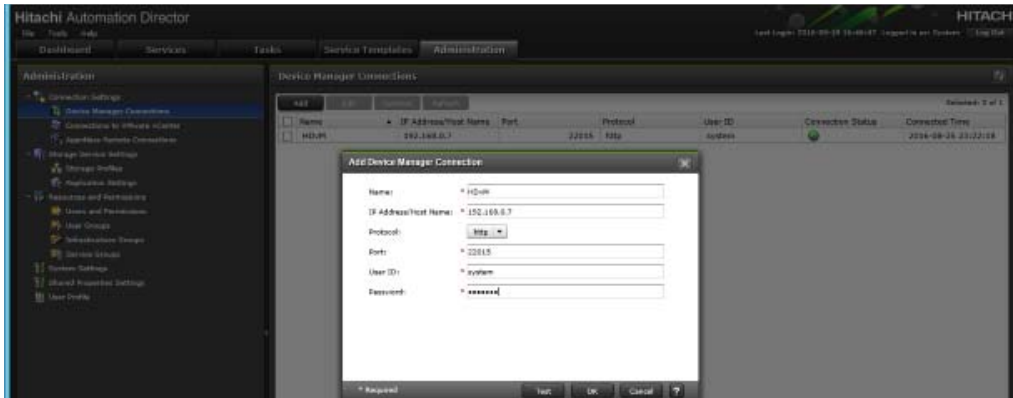


Figure 13

7. Click **OK**.

Add VMware vCenter

To connect to VMware vCenter, do the following.

1. Launch the Hitachi Automation Director user interface from this address: <http://HAD server address:22015/Automation/>
2. Log on to the Hitachi Automation Director user interface. The default user credentials are the following:

User name: system

Password: manager

3. Click the **Administration** tab.
4. In the **Connection Settings** pane, click **Connections to VMware vCenter**.
5. Click **Add**.
6. Enter the following configuration information (Figure 14 on page 17):
 - **Name** — Type a name for the VMware vCenter instance.
 - **IP Address/Host name** — Type the VMware vCenter IP address or the vCenter host name.
 - **Ports** — Type the default port: 443
 - **User ID** — Type the VMware vCenter user ID.
 - **Password** — Type the password for VMware vCenter.

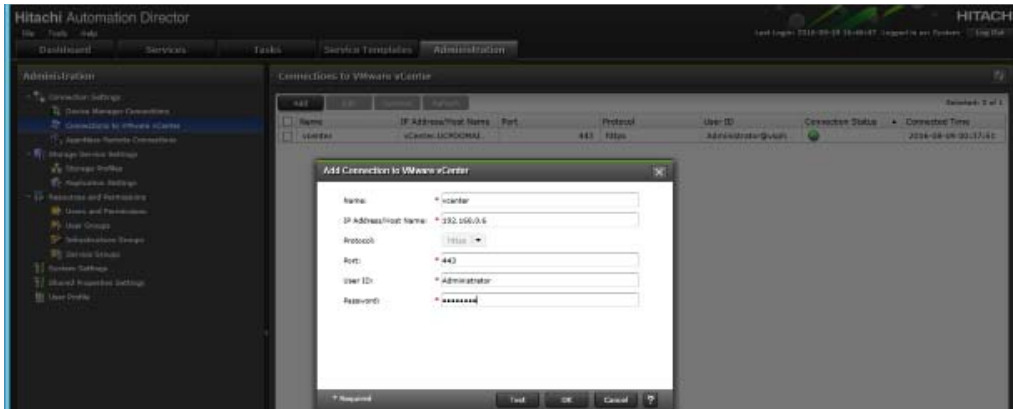


Figure 14

7. Click **OK**.

Once configuring the Hitachi Automation Director server with Hitachi Command Suite, Automation Director allows managing the services and scheduled tasks. Automation Director provisioning supports a block storage system and a file storage system. Automation Director replication supports global-active device and 2DC/3DC replication environments.

For details of how to use Hitachi Automation Director, see the Hitachi Automation Director User Guide.

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