

# Hardware Installation Guide

## Dell EMC Integrated Data Protection Appliance DP4400

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## Installation overview

This guide is designed for personnel who install, configure, and maintain the Integrated Data Protection Appliance DP4400. To use this hardware publication, you should be familiar with digital storage equipment and cabling.

### Before you begin

Gather the required materials and configure your network environment as specified in [Prepare the site and unpack the system](#) on page 3.

### About this task

Use the following sequence of actions as a guide to install the system.

### Procedure

1. [Install](#) and [secure](#) the rails.
2. [Install the system in the cabinet](#) and [attach the bezel](#).
3. [Connect the system to the network](#).
4. [Connect the power cables and power on](#).

### Results

The system is ready for initial configuration. To continue setup, refer to the *Integrated Data Protection Appliance DP4400 Getting Started Guide*. For additional help and resources, review the information in [Additional resources](#) on page 15.

# Prepare the site and unpack the system

## Before you begin

Verify that you have the following components:

- 2U DP4400 system
- Rail kit, including:
  - Two sliding rails
  - Two velcro straps
  - Four screws
  - Four washers
- Two power cables
- Bezel
- Phillips-head screwdriver with magnetic tip (not provided)
- Qualified Ethernet cables:

Type of switch	NIC Type	Speed	Cable Required
10Gb SFP+	SFP+ (optical)	10Gb	LC-to-LC with SR optical GBICs or twinax
1Gb or 10Gb RJ45	SFP+ with 1GbBASE-T GBIC	1Gb	UTP with RJ45 (Cat5e or Cat6)
1Gb or 10Gb RJ45	10GbBASE-T (RJ45)	1Gb or 10Gb (depending on the switch)	UTP/STP with RJ45 (Cat6a or Cat7)

- Anti-static wrist strap and conductive foam pad

You must have a computer at the install location with:

- A power adapter, C13 to NEMA 5–15 (if based in North America or country specific cord in other geographical locations), or a power cord for your laptop power adapter with a C13 plug, to power your laptop from a rack PDU
- An Ethernet port
- Latest version of Google Chrome or Mozilla Firefox

**Note:** Ensure that ICMP (ping) is enabled in the customer environment during IDPA installation.

## About this task

The following steps must be completed before starting initial configuration with the Appliance Configuration Manager:

### Procedure

1. Identify 13 unassigned IP addresses for the IDPA components. To simplify configuration, select a range of 13 contiguous addresses.

Note that all components must run on a single VLAN or subnet with the exception of the iDRAC interface, which can be on a separate subnet or VLAN. For further information about IP addresses, see [Table 1](#) on page 5.

- Note:** The DP4400 installation requires IP addresses strictly from a single subnet having a single gateway.
- Register the 13 IP addresses in DNS with forward and reverse lookup entries for each address. Ensure that the router for the 13 IP addresses can be pinged.
 

**Note:** When you reserve the IP addresses, you must assign the IP addresses to the hostnames in the DNS server. Ensure that the hostnames that are assigned to the point products do not have an underscore (\_). If the hostnames have an underscore (\_), the configuration fails.

**Note:** Ensure that **ICMP** is enabled in your network environment. The deployment of the appliance fails if **ICMP** is disabled.
  - Download the license files for Data Domain Virtual Edition (DDVE), Avamar Virtual Edition (AVE), and Data Protection Advisor (DP Advisor) from the Dell EMC Software Licensing Central.
 

**Note:** For DP4400, only during the initial activation, the license keys are automatically downloaded from the ELMS server if the appliance is connected to the internet.

The contact person mentioned on your sales order should have received the License Authorization Code (LAC) letter through an email during the order fulfillment process. The LAC letter includes the license authorization code associated with your order, instructions for downloading software binaries, and instructions for activating the entitlements online through Dell EMC Software Licensing Central.

Follow the steps mentioned in the LAC letter to activate the software and download the license keys. For additional information, see the Standard Activation Process section in the *License Activation Guide*.

- Note:** The LAC letter has the link <https://licensing.emc.com/deeplink/<LAC>> which directs you to Dell EMC Software Licensing Central. <LAC> is a unique alphanumeric value that is mentioned in your LAC letter.

After the activation is complete, download the license keys that are generated for Data Domain Virtual Edition (DDVE), Avamar Virtual Edition (AVE), and Data Protection Advisor (DP Advisor). Use these license keys during the IDPA configuration.

## IP address breakdown

### About this task

During the initial configuration, IP addresses are assigned to various functional components of IDPA, typically by allocating a range of IP addresses or optionally by assigning discrete IP addresses manually to each functional component. IDPA requires 13 IP addresses for the various components. Using a range is the preferred method as it simplifies the assignment and reduces the chance for errors while entering the IP addresses. When a range of IP addresses is used during the IDPA configuration, the IP addresses are assigned in a standard order. Use the table below to determine which IP address is allocated to a component.

Of the 13 IP addresses, two are required for the initial network configuration - one for the ACM and the other for the ESXi server. After the initial network configuration is successful, the IPs for the other components can be configured using a range of 11 IP addresses. If a range of IPs is not available, you can also set random IPs of the same subnet to the components.

The *IP Range Allocation* (first column in the table) is the value you should add to the first IP address in the range.

**Table 1** IP address range assignments

IP Range Allocation	Example	Component	Assigned Field
+0	192.0.2.1	vCenter	VMware vCenter Server VM
+1	192.0.2.2	Target storage	Management IP 1
+2	192.0.2.3	Target storage	Backup IP 2
+3	192.0.2.4	Target storage	Backup IP 3
+4	192.0.2.5	Backup application	Server IP
+5	192.0.2.6	Backup application	Avamar Proxy VM
+6	192.0.2.7	IDPA System Manager	IDPA System Manager VM
+7	192.0.2.8	Reporting and Analytics	Application Server Host VM
+8	192.0.2.9	Reporting and Analytics	Datastore Server Host VM
+9	192.0.2.10	Search	Index Master Node Host VM
+10	192.0.2.11	DD Cloud DR CDRA (optional)	Data Domain Cloud Disaster Recovery (DD Cloud DR) Cloud DR Add-on (CDRA) virtual appliance

 **Note:** IDPA is compatible with IPv4 enabled networks and does not support pure IPv6 or dual-stack networks.

## Install Network Validation Tool

The Network Validation Tool (NVT) for IDPA runs multiple automated tests to validate the network configuration. You must run the NVT for IDPA from a system on the management network.

Before you install IDPA, network configuration must be completed for the datacenter. After the network configuration is complete, you must install and run the Network Validation Tool to validate the network configuration for a successful deployment of IDPA in the datacenter. To download the NVT, and for more information about NVT, see <https://help.psapps.emc.com/display/HELP/Network+Validation+Tool+for+IDPA>.

## Install the rails

### About this task

The rails are labeled left and right, and cannot be interchanged. The front side of each rail is labeled **Left Front** or **Right Front** when the rail faces the cabinet front.

### Procedure

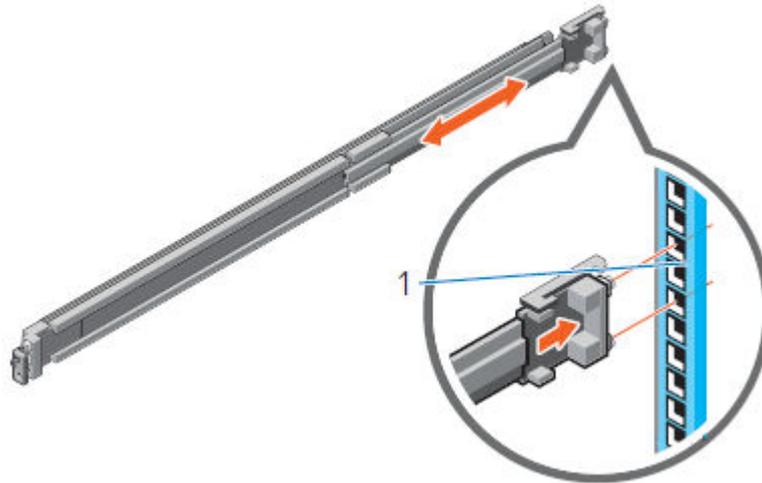
1. Determine where to mount the system, and mark the location at the front and back of the cabinet.

 **Note:** Install the left rail assembly first.

2. Fully extend the rear sliding bracket of the rail.
3. Position the rail end piece labeled **Left Front** facing inward and orient the rear end piece to align with the holes on the rear cabinet flanges.

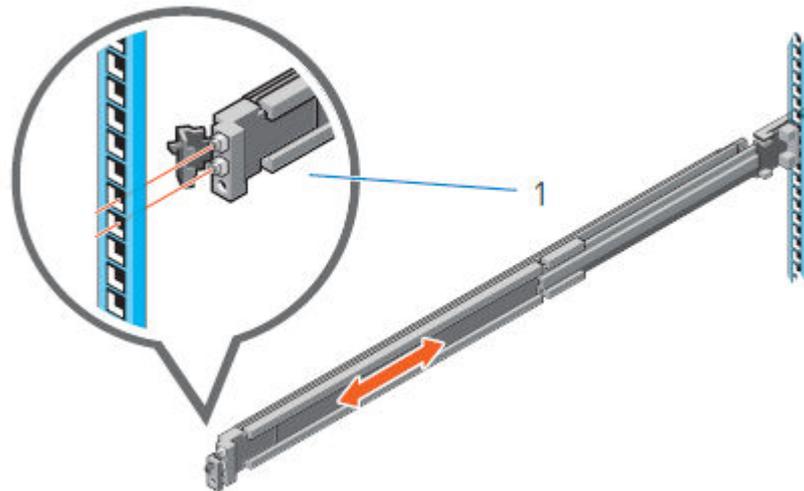
4. Push the rail straight toward the rear of the rack until the latch locks in place.

**Figure 1** Installing the rear end of the rail



5. For the front end piece, rotate the latch outward and pull the rail forward until the pins slide into the flange, and release the latch to secure the rail in place.

**Figure 2** Installing the front end of the rail



6. Repeat the preceding steps to install the right rail assembly.

## Secure the rails to the cabinet

The supplied screws and washers are used to secure the rail assemblies to the front and rear of the cabinet.

### About this task

- Note:** For square hole cabinets, install the supplied conical washer before installing the screw. For unthreaded round hole cabinets, install only the screw without the conical washer.

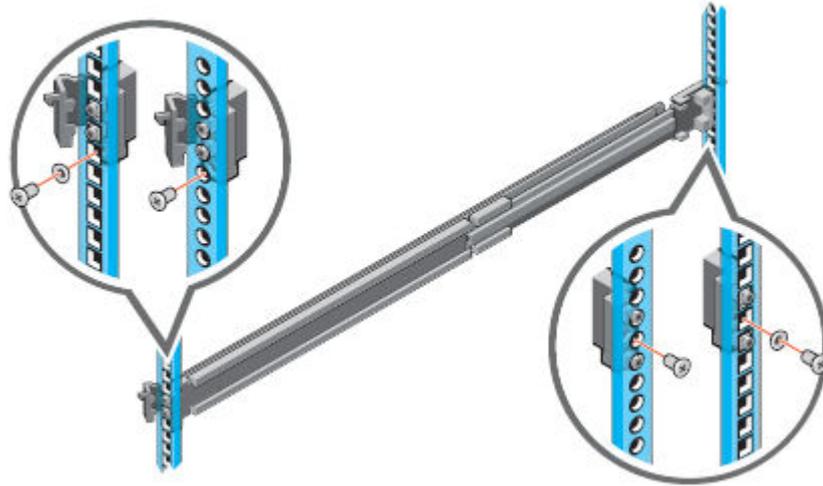
### Procedure

1. Align the screws with the designated U spaces on the front and rear rack flanges.

Ensure that the screw holes on the tab of the system retention bracket are seated on the designated U spaces.

2. Insert and tighten the two screws using the Phillips #2 screwdriver.

**Figure 3** Installing screws



## Install the system in the cabinet

### About this task

**⚠ WARNING** The system is heavy and should be installed in a cabinet by two people. To avoid personal injury and/or damage to the equipment, do not attempt to install the system in a cabinet without a mechanical lift and/or help from another person.

### Procedure

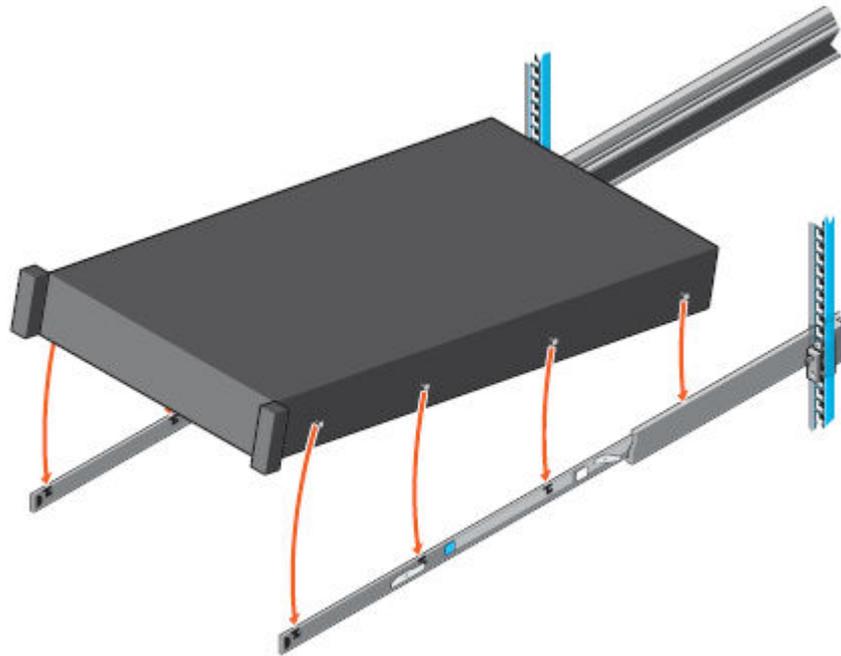
1. At front of the cabinet, pull the inner slide rails out of the cabinet until they lock into place.

**Figure 4** Pull the inner rails out of the cabinet



2. Locate the rear rail standoff on each side of the system. Position the system above the rails and lower the rear rail standoffs into the rear J-slots on the slide assemblies.
3. Rotate the system downward until all the rail standoffs are seated in the J-slots.

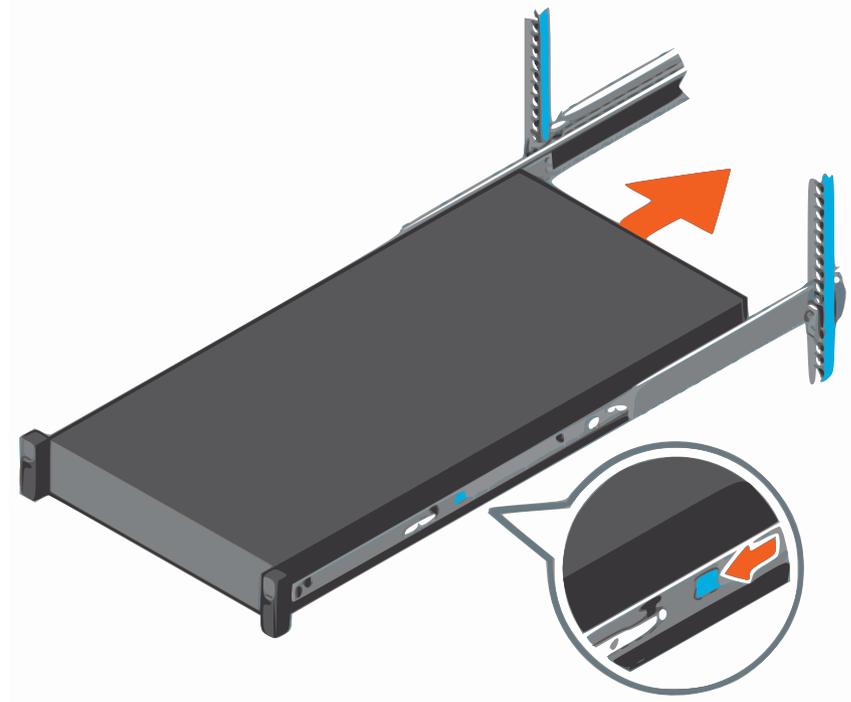
**Figure 5** Install the system in the rails



4. Push the system inward until the lock levers click into place.
5. Pull the blue slide release lock tabs forward on both rails and slide the system into the cabinet. The slam latches will engage to secure the system in the cabinet.

**Note:** Ensure that the inner rail slides completely into the middle rail. The middle rail locks if the inner rail is not fully engaged.

**Figure 6** Slide the system into the cabinet

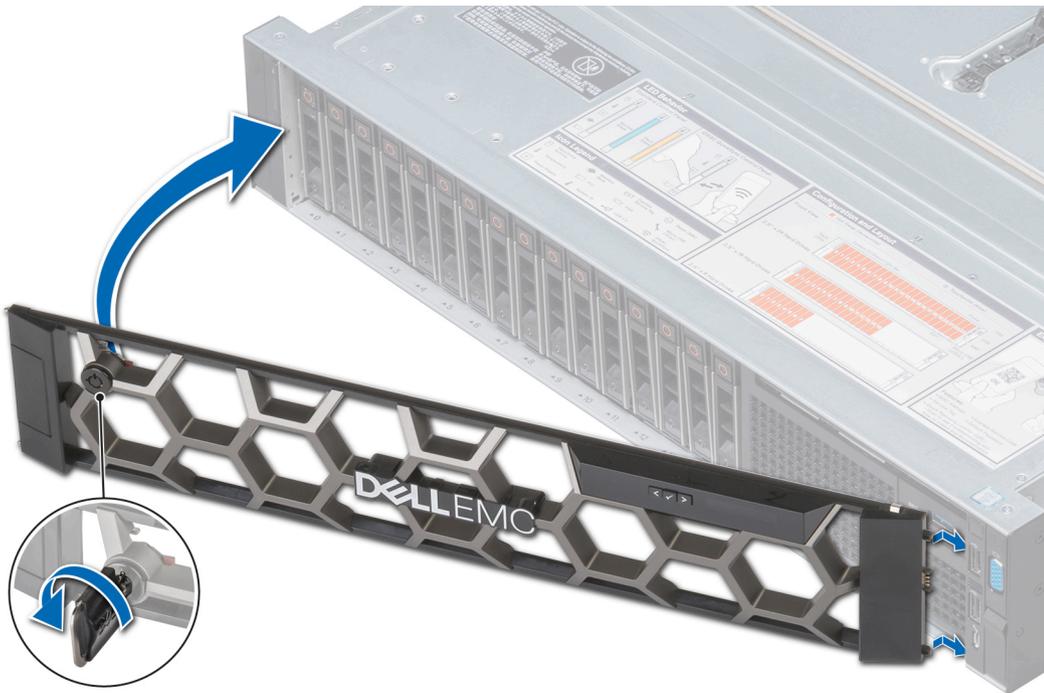


## Install the bezel

### Procedure

1. Align and insert the right end of the bezel onto the system.
2. Press the release button and fit the left end of the bezel onto the system.
3. Lock the bezel by using the key.

**Figure 7** Installing the front bezel

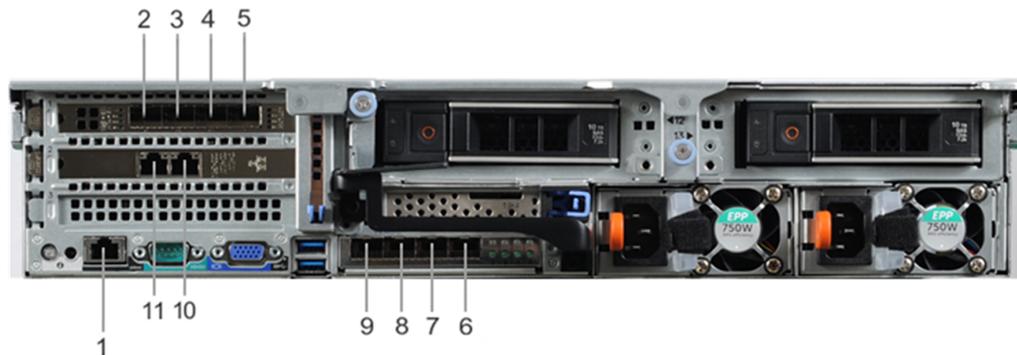


## Connect the system to the network

The following figure shows the location of the DP4400 network ports and iDRAC port.

### About this task

**Figure 8** DP4400 network and iDRAC connections



### Procedure

1. Use a Cat5e or Cat6 UTP copper Ethernet cable to connect a 1 GbE port (10) to the service computer.
2. If the DP4400 contains 10Gb BASE-T network cards, use Cat6a UTP or Cat7 copper cables to connect to the network switch.
3. If the DP4400 contains 10GB SFP network cards, use fiber cables with a 10 Gb optical SFP, 1GBaseT RJ-45 SFP with Cat5e or Cat6 UTP copper Ethernet cables, or direct-attached copper cables to connect the four required 10 GbE ports (2, 3, 8, 9) to access ports on the switch in your network.

- Use a Cat5e or Cat6 copper Ethernet cable to connect the iDRAC port (1) in the lower left of the system chassis to the network.

## DP4400 ports

### About this task

The following table provides the callout number and the type of port for the DP4400 ports in *Figure 1 DP4400 network and iDRAC connections*.

**Table 2** DP4400 port types

Callout number	Port type
1	iDRAC
2	10 GbE (required)
3	10 GbE (required)
4	10 GbE (unused)
5	10 GbE (unused)
6	10 GbE (unused)
7	10 GbE (unused)
8	10 GbE (required)
9	10 GbE (required)
10	1 GbE
11	1 GbE (unused)

- Note:** Ports 2 and 9 are a vSwitch0 network team. Ports 3 and 8 are a vSwitch1 network team and are used during appliance configuration.
- Note:** Ensure that the four required 10 GbE ports (2, 3, 8, and 9) are connected to the access ports on the switch in your network.

## Connect the power cables and power on

### Procedure

- Connect the power supply units to the rack.
  - Note:** Connect each PSU to a redundant AC power source. Redundant power sources allow one AC source to fail or be serviced without impacting system operation. Connect PSU 0 to one AC source, and PSU 1 to the other AC source.

The system may not power on automatically after plugging in the AC power cords. The system identification button located on the rear of the chassis, on the lower left-hand side illuminates blue when power is on.

- If the system does not power on automatically after connecting the power cables, press the power button on the right control panel at the front of the chassis to power on the system .



## Configure iDRAC

The IDPA systems require that the Integrated Dell Remote Access Controller (iDRAC) is configured for system upgrade and maintenance operations. Additionally, the systems support the use of iDRAC to change security settings and enables to remotely power the system on and off.

### Before you begin

Connect to the unit using a VGA monitor with a keyboard or a serial port, power on the appliance, and perform the following steps:

**Note:** Do not use iDRAC to change the storage configuration, system settings, or BIOS settings, as making changes to these will impact the system functionality. Contact Support if changes are required in any of these areas.

### Procedure

1. During the system boot process, press **F2** to access the BIOS menu.
2. In the **System Setup Main Menu** page, click **iDRAC Settings**.  
The iDRAC Settings page is displayed.
3. Click **Network**.  
The Network page is displayed.
4. Under **IPv4 Settings**, specify static IP address details.
5. Press **Esc** to return to the previous menu.
6. Select **User Configuration**.
  - a. Enable the root user.
  - b. Change the root user password.

Note that the default password is *Idpa\_1234*.

## Installing the DataProtection-ACM pre-installation patch

Before you configure the DataProtection-ACM virtual machine, install the latest IDPA pre-installation patch if it is available.

For example:

```
Idpa_pre_update_N.N.N-nnnnnn.tar.gz
```

Where *N.N.N* is the latest pre-installation patch version and *nnnnnn* is the build number.

You can install the pre-installation patch when the DataProtection-ACM is not registered with Secure Remote Services gateway by using SSH.

# Install the IDPA pre-installation patch on the DataProtection-ACM

## Before you begin

Before you configure the DataProtection-ACM virtual machine, install the latest IDPA pre-installation patch if it is available.

For example:

```
Idpa_pre_update_N.N.N.nnnnnn.tar.gz
```

Where:

- *N.N.N* is the latest pre-installation patch version.
- *nnnnnn* is the build number.

You can install the pre-installation patch when the DataProtection-ACM is not registered with ESRS gateway by using SSH.

## Procedure

1. Check [https://support.emc.com/downloads/41849\\_Integrated-Data-Protection-Appliance](https://support.emc.com/downloads/41849_Integrated-Data-Protection-Appliance) to see if a pre-installation patch is available for your version of IDPA. If a pre-installation patch is available, download it to a folder on your laptop.

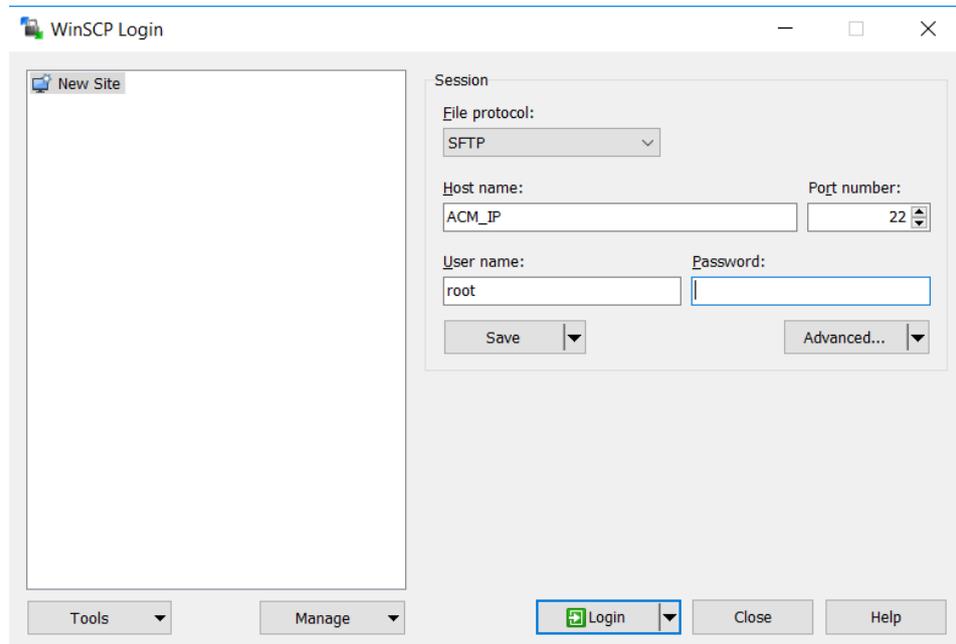
For example:

```
Idpa_pre_update_N.N.N.nnnnnn.tar.gz
```

Where:

- *N.N.N* is the latest pre-installation patch version.
  - *nnnnnn* is the build number.
2. Open the WinSCP or SCP application on the service laptop, and then connect to the DataProtection-ACM by performing the following actions:
    - a. In the **File protocol** field, select **SFTP**.
    - b. In the **Hostname** field, enter `192.168.100.100` as the IP address of the DataProtection-ACM.
    - c. In the **Port number** field, specify the default port number **22**.
    - d. In the **User name** field, enter `root`.
    - e. In the **Password** field, enter `Idpa_1234`.
    - f. Click **Login**.

The following figure shows a sample WinSCP session configuration window.

**Figure 9** WinSCP session configuration window

3. Create a temporary folder `/tmp/patch`.
4. Copy the `Idpa_pre_update_N.N.N.nnnnnn.tar.gz` file to the `/tmp/patch` directory.
5. Determine the DataProtection-ACM version by typing the following command:  

```
rpm -qa | grep dataprotection
```

 Ensure that the DataProtection-ACM version is earlier than `dataprotection-2.0.0-571095.x86_64`.
6. Change to the directory that contains the pre-installation patch file by typing the following command:  

```
cd /tmp/patch
```
7. Extract the contents of the `.tar.gz` file by typing the following command:  

```
tar -xvf Idpa_pre_update_N.N.N.nnnnnn.tar.gz
```

 The contents are extracted to a subdirectory named `Idpa_pre_update_N.N.N.nnnnnn`.
8. Change directory to `Idpa_pre_update_N.N.N.nnnnnn.tar.gz` directory by typing the following command:  

```
cd /tmp/patch/Idpa_pre_update_N.N.N.nnnnnn/
```
9. Change permission of `install.sh` file by typing the following command:  

```
chmod +x install.sh
```
10. Run the installation script file by typing the following command:  

```
./install.sh
```

Messages be displayed on the screen during the installation process. The following message might be displayed, which you can ignore:

```
"warning: file /usr/local/dataprotection/var/configmgr/server_data/config/InfrastructureComponents_Template.xml: remove failed: No such file or directory"
```

```
"warning: file /usr/local/dataprotection/customscripts/  
Config.properties: remove failed: No such file or directory"
```

11. Verify that the pre-installation patch installation completed successfully by typing the following command:

```
rpm -qa | grep dataprotection
```

Ensure that the DataProtection-ACM version is *dataprotection-2.0.0- 571095.x86\_64* or later.

12. Delete the `Idpa_pre_update_N.N.N.nnnnnn.tar.gz` file, and then delete the `/tmp/patch/Idpa_pre_update_N.N.N.nnnnnn` directory.
13. Edit the `/usr/local/dataprotection/server/version/applianceVersion.xml` file and modify value in the `<build>` tag to the latest build for the ACM and IDPA nodes.

The following example highlights the changes that you must make to the `<build>` tag. In this example, the build number is 571095.

```
<applianceVersion>  
  <id>IDPA</id>  
  <version>  
    <major>2</major>  
    <subMajor>0</subMajor>  
    <minor>0</minor>  
    <build>571095</build>  
  </version>  
  <components>  
    <component>  
      <id>ACM</id>  
      <version>  
        <major>1</major>  
        <subMajor>0</subMajor>  
        <minor>0</minor>  
        <build>571095</build>  
      </version>  
    </component>  
  </components>  
</applianceVersion>
```

## Launch the Appliance Configuration Manager

Launch the Appliance Configuration Manager to complete the initial network configuration. The Appliance Configuration Manager (ACM) walks you through the steps to configure network settings, license the IDPA software, and configure the IDPA.

To continue configuring the IDPA with the ACM, refer to the *Integrated Data Protection Appliance DP4400 Getting Started Guide*. This document explains common user tasks such as how to create backup policies and restore from backup.

## Additional resources

### Document references for IDPA

The IDPA documentation set includes the following publications:

- *Integrated Data Protection Appliance DP4400 Installation Guide*  
Instruction for installing the IDPA DP4400 hardware.
- *Integrated Data Protection Appliance Getting Started Guide*

Explains how to perform initial IDPA configuration tasks and how to get started with basic functionality like backup and restore.

- *Integrated Data Protection Appliance Product Guide*  
Provides the overview and administration information about the IDPA system.
- *Integrated Data Protection Appliance Release Notes*  
Product information about the current IDPA release.
- *Integrated Data Protection Appliance DP4400 Service Procedure Guide*  
Procedures for replacing or upgrading hardware components of the IDPA.
- *Integrated Data Protection Appliance Security Configuration Guide*  
Information about the security features that are used to control user and network access, monitor system access and use, and support the transmission of storage data.
- *Integrated Data Protection Appliance Software Compatibility Guide*  
Information about software components and versions that are used in the IDPA product.

## **IDPA training resources**

Video walkthroughs, demonstrations, and explanations of product features are available online.

You can obtain additional IDPA training and information at <https://education.emc.com>.

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