



Choose Your Installation Workflow

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Overview

This chapter outlines the installation workflows for each of the supported deployment options: VMware, KVM, and Single VM.

The workflows give a high-level description of the tasks necessary to install the Crosswork Network Controller and to integrate it with the required components of the solution. Integration with optional components is addressed in [Cisco Crosswork Network Controller 7.1 Administration Guide](#).

These workflow steps should be used as your primary installation guidepost and roadmap for the end to end installation of Crosswork Network Controller. After completing each detailed step, it is recommended that you refer to the workflow chart for the next step to perform.



Note The entire installation can typically take up to a few hours based on the size of your deployment profile and the performance characteristics of your hardware.

Please see the [Release Notes for Crosswork Network Controller 7.1.0](#) to know the NSO and SR-PCE versions compatible with Crosswork Network Controller.

Install Cisco Crosswork Network Controller on VMware vCenter

Before you begin:

- Ensure you have identified the Crosswork components you need and arranged for the resources required to complete the installation. If not, please refer to the guidelines in [Plan Your Deployment](#).

The following table describes the stages to install Crosswork Network Controller on VMware vCenter.

Table 1: Crosswork Installation Workflow

Step	Action
Prepare for installation	
1. Ensure that your VMware environment meets all the requirements.	Refer to the guidelines in Installation Prerequisites for VMware vCenter .
Install the Crosswork cluster	
2. Install the Cisco Crosswork cluster on VMware vCenter.	Install using your preferred method: <ul style="list-style-type: none"> • <i>Using Docker installer tool:</i> Install Cisco Crosswork on VMware vCenter using the Docker installer tool • <i>Manual Installation:</i> Manual Installation of Cisco Crosswork using vCenter vSphere UI
3. Verify if the installation was successful, and log into the Cisco Crosswork UI.	Refer to the guidelines in: <ul style="list-style-type: none"> • Monitor cluster activation • Log into the Cisco Crosswork UI
Install Crosswork Data Gateway	
4. Install one or more Data Gateways on VMware vCenter.	Choose the profile for the Data Gateway VM (Standard or Extended) and install as per your preferred method: <ul style="list-style-type: none"> • <i>Using vSphere:</i> Install Crosswork Data Gateway using vCenter vSphere Client • <i>Using OVF tool:</i> Install Crosswork Data Gateway via the OVF Tool <p>Note If you plan to install multiple Data Gateway VMs due to load or scale requirements, or you wish to leverage Data Gateway High Availability, you are recommended to install all the Data Gateway VMs first and then proceed with adding them to a Data Gateway pool.</p>
5. Verify that the Data Gateway VM or multiple VMs have enrolled successfully with Crosswork Network Controller.	Follow the steps in Crosswork Data Gateway Authentication and Enrollment . After verifying that the Data Gateway VM has enrolled successfully with Cisco Crosswork, set up the Data Gateway for collection by creating a Data Gateway pool. See the <i>Create a Crosswork Data Gateway Pool</i> section in Cisco Crosswork Network Controller 7.1 Administration Guide .
6. Complete the Data Gateway post-installation tasks.	Follow the steps in Crosswork Data Gateway Post-installation Tasks .

Step	Action
Install the Cisco Crosswork Applications	
7. Install the Crosswork Applications	Follow the instructions in Install Crosswork Applications .
Integrate NSO with Crosswork	
8. Do you have Cisco NSO already installed?	<p>If yes, proceed to step 9.</p> <p>If no, please follow the system install instructions in the NSO Installation Guide.</p> <p>Note The NSO requirements for Crosswork integration exceed those specified in the NSO installation document.</p>
9. Add NSO Provider and verify that it is reachable	Follow the instructions in Add Cisco NSO Providers .
10. Install the latest NSO Function Packs	Follow the instructions in Install Cisco NSO Function Pack Bundles from Crosswork UI .
Integrate SR-PCE with Crosswork	
11. Is your SR-PCE installed?	<p>If yes, please proceed to step 12.</p> <p>If no, please choose the type of SR-PCE you wish to use (physical or virtual device) and follow the appropriate instructions to get the device (or virtual device) deployed. For more information, see the Cisco IOS XRv 9000 Router Installation Guide for the XR device you are going to use as your PCE.</p> <p>Note For the rest of the document, we will refer to the physical or virtual device(s) as the SR-PCE(s).</p>
12. Configure SR-PCE	Follow the instructions in Configure SR-PCE .
13. Add SR-PCE Provider and verify that it is reachable.	Follow the instructions in Add Cisco SR-PCE Providers .
14. (Recommended) Create a backup of your Crosswork Network Controller.	Follow the instructions in <i>Manage Backups</i> chapter in Cisco Crosswork Network Controller 7.1 Administration Guide .

After completing the installation, follow the instructions in the *Setup workflow* topic in the [Cisco Crosswork Network Controller 7.1 Administration Guide](#) to carry out the post-installation operations.

Install Cisco Crosswork Network Controller on KVM

Kernel-based Virtual Machine (KVM) is a virtualization solution for Linux on x86 hardware. It uses the hardware virtualization extensions of Intel (VT-x) and AMD (AMD-V) processors to allow multiple operating systems to run simultaneously on a host machine.

This table describes the stages to install Crosswork Network Controller on a KVM-based hypervisor.



Note Ensure you have identified the Crosswork components you need and arranged for the resources required to complete the installation. If not, please refer to the guidelines in [Plan Your Deployment](#).



Attention SR-PCE is not currently supported on KVM. Customers using KVM to host Crosswork Network Controller will need to either enable SR-PCE functions on a physical device or deploy the OVA using VMware.

Table 2: Installation workflow

Step	Action
Prepare for installation	
1. Ensure that your KVM environment meets all the requirements.	Refer to the guidelines in Installation Prerequisites for KVM .
Install the Cisco Crosswork cluster	
2. Install the Crosswork Network Controller cluster on KVM.	Refer to the guidelines in Install Crosswork Cluster on KVM .
Install Crosswork Data Gateway	
3. Install one or more Data Gateway instances on VMware vCenter.	Refer to the guidelines in Install Crosswork Data Gateway on KVM Note If you plan to install multiple Data Gateway VMs due to load or scale requirements, or you wish to leverage Data Gateway High Availability, you are recommended to install all the Data Gateway VMs first and then proceed with adding them to a Data Gateway pool.
Install the Cisco Crosswork Applications	
4. Install the Crosswork Network Controller Applications	Follow the instructions in Install Crosswork Applications .
Integrate NSO with Crosswork Network Controller	
5. Do you have Cisco NSO already installed?	If yes, proceed to step 6. If no, please follow the system install instructions in the NSO Installation Guide . Note The NSO requirements for Crosswork integration exceed those specified in the NSO installation document.

Step	Action
6. Add NSO Provider and verify that it is reachable	Follow the instructions in Add Cisco NSO Providers .
7. Install the latest NSO Function Packs	Follow the instructions in Install Cisco NSO Function Pack Bundles from Crosswork UI .
8. (Recommended) Create a backup of your Crosswork Network Controller.	Follow the instructions in <i>Manage Backups</i> chapter in Cisco Crosswork Network Controller 7.1 Administration Guide .

After completing the installation, follow the instructions in the *Setup workflow* topic in the [Cisco Crosswork Network Controller 7.1 Administration Guide](#) to carry out the post-installation operations.

Install Cisco Crosswork Network Controller on a Single VM

This topic explains the stages to install Crosswork Network Controller on a single VM or node.

Table 3: Installation Workflow

Step	Action
Prepare for installation	
1. Ensure that your environment meets all the requirements for single VM deployment.	Refer to the guidelines in Installation requirements .
Install Crosswork Network Controller	
2. Install the Crosswork Network Controller on a single VM.	Install using your preferred method: <ul style="list-style-type: none"> • VMware vCenter: <ul style="list-style-type: none"> • <i>Manual Installation:</i> Install Crosswork Network Controller using the vCenter vSphere UI • <i>Using the OVF tool:</i> Install Crosswork Network Controller via the OVF Tool • <i>Using Docker installer tool:</i> Install Crosswork Network Controller using the Docker installer tool • KVM: Install Crosswork Network Controller VM using CLI
Integrate SR-PCE with Crosswork	

Step	Action
3. Is your SR-PCE installed?	<p>If yes, please proceed to step 4.</p> <p>If no, please choose the type of SR-PCE you wish to use (physical or virtual device) and follow the appropriate instructions to get the device (or virtual device) deployed. For more information, see the Cisco IOS XRv 9000 Router Installation Guide for the XR device you are going to use as your PCE.</p> <p>Note For the rest of the document, we will refer to the physical or virtual device(s) as the SR-PCE(s).</p>
4. Configure SR-PCE	Follow the instructions in Configure SR-PCE
5. Add SR-PCE Provider and verify that it is reachable.	Follow the instructions in Add Cisco SR-PCE Providers .
6. (Recommended) Create a backup of your Crosswork Network Controller.	Follow the instructions in <i>Manage Backups</i> chapter in Cisco Crosswork Network Controller 7.1 Administration Guide .
(Optional) Install custom NSO Function Packs	
<p>Attention This step applies only when deploying Crosswork Network Controller Advantage tier on a single VM. In this case, the standard NSO Function Packs are installed automatically.</p>	
(Optional) 7. Install custom NSO Function Packs.	<p>Contact the Cisco Customer Experience team for assistance on bundling the custom Function Pack.</p> <p>For installation instructions, see Install Cisco NSO Function Pack Bundles from Crosswork UI.</p>

After completing the installation, follow the instructions in the *Setup workflow* topic in the [Cisco Crosswork Network Controller 7.1 Administration Guide](#) to carry out the post-installation operations.