



## CHAPTER 9

# Using Configuration Delivery Management

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This chapter describes how to use the Configuration Delivery Management feature in Cisco Data Center Network Management (DCNM) Web client.

This chapter includes the following sections:

- [Information About Configuration Delivery Management, page 9-1](#)
- [Licensing Requirements for Configuration Delivery Management, page 9-16](#)
- [Prerequisites for Configuration Delivery Management, page 9-16](#)
- [Guidelines and Limitations for Configuration Delivery Management, page 9-17](#)
- [Platform Support, page 9-17](#)
- [Using Configuration Delivery Management, page 9-17](#)
- [Field Descriptions for Configuration Delivery Management, page 9-29](#)
- [Additional References, page 9-37](#)
- [Feature History for Configuration Delivery Management, page 9-38](#)

## Information About Configuration Delivery Management



### Note

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Beginning with Cisco Release 6.1(1), Cisco DCNM supports the Cisco IOS platform.

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The Configuration Delivery Management feature allows you to configure Cisco IOS and Cisco NX-OS features that Cisco DCNM does not support directly in the Cisco DCNM client user interface. For example, you can use Configuration Delivery Management to configure the Enhanced Interior Gateway Routing Protocol (EIGRP) for Cisco Nexus 7000 Series devices.

With the Configuration Delivery Management feature, you create and schedule configuration delivery jobs. Each job can send device configuration commands to one or more devices.

Beginning with Cisco DCNM Release 6.1(1), this feature supports Cisco Catalyst 6500 Series, Cisco Nexus 1000 Series, Cisco Nexus 1010 Series, Cisco Nexus 3000 Series, Cisco Nexus 4000 Series, Cisco Nexus 5000 Series, Cisco Nexus 7000 Series, Cisco UCS devices, and Cisco MDS 9000 Series devices.

This section includes the following topics:

- [Job Sources, page 9-2](#)
- [Delivery Options, page 9-2](#)

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- [VDC Support, page 9-3](#)
- [Configuration Delivery Templates \(ASCII Text Files\), page 9-3](#)
- [Configuration Delivery Templates and the Cisco DCNM Client, page 9-5](#)
- [Configuration Delivery Template Requirements, page 9-8](#)

## **Job Sources**

Each configuration delivery job is based on a source. This section includes the following topics:

- [Template-Sourced Jobs, page 9-2](#)

## **Template-Sourced Jobs**

You can use templates that you create to configure the Cisco IOS and Cisco NX-OS commands to be sent to destination devices. For configuration delivery jobs based on a template source, you select the desired template and then configure the parameters for each instance of the template that you add to the job.

For each destination device that is included in the job, you can configure only one instance of the template.

**Note**

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Template-sourced jobs do not support **show** commands, interactive commands, or commands that give command progress as output, such as the **copy running-config startup-config** command.

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## **Delivery Options**

For each configuration delivery job, you can specify how Cisco DCNM should respond if a failure occurs during the job. Cisco DCNM can continue the job regardless of errors, stop the job on all devices that are included in the job, or stop the job only on the device where the failure occurred but continue the job on other devices. If a job is delivering the same configuration to many devices, you may want Cisco DCNM to stop delivering the job to all devices if a single failure occurs, rather than risk delivering the same configuration error to all devices.

If the devices included in a job support the rollback feature, Cisco DCNM can use the rollback feature if a failure is encountered during a job. For example, Cisco Nexus 7000 Series devices support the rollback feature. You can specify that Cisco DCNM rolls back to the previous running configuration on the device that had the failure only or on all devices included in the job. You can also specify that Cisco DCNM should roll back to the previous running configuration on the device that had the failure and stop the job.

You can also specify whether Cisco DCNM delivers the configuration to all devices included in the job at the same time (parallel delivery) or if it delivers the configuration to devices one at a time (sequential delivery). While parallel delivery finishes configuring all the devices in a job more quickly, consider using sequential delivery when you would prefer that Cisco DCNM stop the delivery job to all devices if a failure occurs.

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## VDC Support

Cisco DCNM treats each virtual device context (VDC) on a Cisco IOS and Cisco NX-OS device as a separate device; therefore, Configuration Delivery Management allows you to configure VDCs independent of the configuration of other VDCs on the same physical device.

## Configuration Delivery Templates (ASCII Text Files)

Beginning with Cisco DCNM Release 6.1(1), you can create templates for use with template-sourced jobs. These templates are ASCII text files and must comply with the requirements that are described in this section.

This section includes the following topics:

- [Template Format, page 9-3](#)
- [Template Properties Section, page 9-3](#)
- [Template Content Section, page 9-4](#)
- [Example Template, page 9-4](#)

## Template Format

Each template that you create must have a properties section and a content section. [Example 9-1](#) shows the required template format.

### **Example 9-1** Template Format

```
##template properties
name = template_name;
description = template_description;
##
##template content
configuration_commands
##
```

## Template Properties Section

The template properties section must include the following two attribute-value pairs:

- **name**—Name of the template to be displayed in the Cisco DCNM client. The template name must be unique. No other template on the Cisco DCNM server should specify the same template name value. Specify the name in the following format:

```
name = template_name;
```

For example:

```
name = Interface Description Template;
```

- **description**—Description of the template, in the following format:

```
description = template_description;
```

For example:

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```
description = This file specifies the template for setting interface description;
```

Each of the two attribute-value pairs must end in a semicolon (;).

## Template Content Section

The template content section contains the Cisco IOS and the Cisco NX-OS configuration commands and any parameters that you want to include in the template. Commands must not include prompts for answers and must not return progress output, such as the **copy running-config startup-config** command.

Specify the commands that you include as if you were entering them in the global configuration command mode on a Cisco IOS or a Cisco NX-OS device. You must consider the command mode when you include commands. For example, if you want to configure an interface, you must include the applicable **interface** command and the corresponding **exit** command to return to the global configuration mode.

Parameter names have two dollar symbols before and after the parameter name, as follows:

```
$$parameter$$
```



### Note

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Beginning with Cisco DCNM Release 5.2(1), parameter names are not mandatory.

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The following example includes the parameter INTF\_NAME to allow the interface type and number to be user specified in a configuration delivery job:

```
interface $$INTF_NAME$$
```

You can include many commands in the template content section.

## Example Template

**Example 9-2** shows a template that can be used to apply a description to an interface on a Cisco NX-OS device. When you create a template-sourced job with this template, you would specify the INTF\_NAME, DESCRIPTION, and SHUT\_CMD parameters for each instance of the template in the configuration delivery job. The INTF\_NAME parameter allows the template to be applicable to different interfaces types, such as port-channel interfaces versus Ethernet interfaces. The DESCRIPTION parameter allows you to specify an interface description. The SHUT\_CMD parameter allows you to specify the **shutdown** or **no shutdown** command.

### Example 9-2 Example of an Interface Description Template

```
##template properties
name = Interface Description Template;
description = This file specifies the template for setting interface description;
##

##template content
interface $$INTF_NAME$$
  description $$DESCRIPTION$$
  $$SHUT_CMD$$
exit
##
```

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## Configuration Delivery Templates and the Cisco DCNM Client

Beginning with Cisco DCNM Release 6.1(1), you can use the configuration delivery templates feature to configure many complex features in Cisco DCNM using various predefined templates. You can also create custom templates depending on your specific requirements. The predefined and custom templates can be created using template scripts that are defined by Cisco DCNM. With the configuration delivery templates feature, you can configure and deploy multiple devices at a time.

This section includes the following topics:

- [Predefined Templates, page 9-5](#)
- [Custom Templates, page 9-8](#)

### Predefined Templates

This section describes the predefined configuration delivery templates that are available in the Cisco DCNM client. Each template must have a filename that ends with a .template extension, such as port\_security.template.

Cisco DCNM can use templates that are in the templates directory within the archive directory. The archive directory is specified during server installation. The default location for templates on a Microsoft Windows server is the following directory:

```
C:\Program Files\Cisco Systems\dcm\dcnm\data\templates
```

The default location for templates on a RHEL server is the following directory:

```
/usr/local/cisco/dcm/dcnm/data/templates
```

**Note**

All the predefined templates present in DCNM-LAN client can be accessed through the DCNM-Web client, and vice versa.

### Virtual Port Channel Template

To configure a virtual port channel (vPC) template on multiple devices, you must configure peer devices with peer-link port channels, vPC-enabled port channels, and an access switch with one port channel.

Cisco DCNM provides you with a peer-link access port channel template and a peer-link trunk port channel template for configuring vPC global configuration settings, peer-link port channels, and virtual access port channels. You can select one or more devices that you want to configure from the configuration settings and enter the correct values in the respective fields. For more information about the field descriptions, see the [“Configuration Delivery for Templates: Virtual Port Channel Template” section on page 9-35](#).

### FIP Snooping Template

To configure FCoE Initialization Protocol (FIP) snooping on multiple devices, you must configure a VLAN and interfaces that connect to an ENODE and Fibre Channel Forwarder (FCF). You can select one or more devices that you want to configure from the configuration settings for FIP snooping and enter the correct values in the respective fields. For more information about the field descriptions, see the [“Configuration Delivery for Templates: FIP Snooping Template” section on page 9-31](#).

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### **FCoE Template**

To configure Fibre Channel over Ethernet (FCoE) on multiple devices, you must configure a VLAN, a VSAN, a virtual Fibre Channel (VFC), and multiple interfaces. You can select one or more devices that you want to configure from the configuration settings for FCoE and enter the correct values in the respective fields. For more information about the field descriptions, see the [“Configuration Delivery for Templates: FCoE Template”](#) section on page 9-31.

### **OTV Internal Interfaces Template**

To configure OTV internal interfaces on multiple devices, you must configure a Internal IFS, a Site VLANs, and multiple interfaces. You can select one or more devices that you want to configure from the configuration settings for OTV Internal Interfaces, and enter the correct values in the respective fields. For more information about the field descriptions, see the [“Configuration Delivery for Templates: OTV Internal Interfaces Template”](#) section on page 9-31.

### **OTV Multicast Template**

To configure OTV Multicast on multiple devices, you must configure a Site VLAN, a Site ID, an Overlay, a control group, and multiple interfaces. You can select one or more devices that you want to configure from the configuration settings and enter the correct values in the respective fields. For more information about the field descriptions, see the [“Configuration Delivery for Templates: OTV Multicast Template”](#) section on page 9-31.

### **OTV Multicast with HSRP Isolation Template**

To configure OTV Multicast with HSRP Isolation on multiple devices, you must configure a Site VLAN, a Site ID, an Overlay, a control group, and multiple interfaces. You can select one or more devices that you want to configure from the configuration settings and enter the correct values in the respective fields. For more information about the field descriptions, see the [“Configuration Delivery for Templates: OTV Multicast with HSRP Isolation Template”](#) section on page 9-32.

### **OTV Multicast with VRRP Isolation Template**

To configure OTV Multicast with VRRP Isolation on multiple devices, you must configure a Site VLAN, a Site ID, an Overlay, a control group, and multiple interfaces. You can select one or more devices that you want to configure from the configuration settings and enter the correct values in the respective fields. For more information about the field descriptions, see the [“Configuration Delivery for Templates: OTV Multicast with VRRP Isolation Template”](#) section on page 9-32.

### **OTV Unicast with One Adjacency Server Template**

To configure OTV Unicast with one adjacency server on multiple devices, you must configure a Site VLAN, a Site ID, an Overlay, a control group, adjacency server, and multiple interfaces. You can select one or more devices that you want to configure from the configuration settings and enter the correct values in the respective fields. For more information about the field descriptions, see the [“Configuration Delivery for Templates: OTV Unicast with One Adjacency Server Template”](#) section on page 9-33.

### **OTV Unicast with One Adjacency Server and HSRP Isolation Template**

To configure OTV Unicast with one adjacency server on multiple devices, you must configure a Site VLAN, a Site ID, an Overlay, a control group, adjacency server, and multiple interfaces. You can select one or more devices that you want to configure from the configuration settings and enter the correct

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values in the respective fields. For more information about the field descriptions, see the “[Configuration Delivery for Templates: OTV Unicast with One Adjacency Server and HSRP Isolation Template](#)” section on page 9-33.

### **OTV Unicast with One Adjacency Server and VRRP Isolation Template**

To configure OTV Unicast with one adjacency server on multiple devices, you must configure a Site VLAN, a Site ID, an Overlay, a control group, adjacency server, and multiple interfaces. You can select one or more devices that you want to configure from the configuration settings and enter the correct values in the respective fields. For more information about the field descriptions, see the “[Configuration Delivery for Templates: OTV Unicast with One Adjacency Server and VRRP Isolation Template](#)” section on page 9-33.

### **OTV Unicast with Two Adjacency Servers Template**

To configure OTV Unicast with one adjacency server on multiple devices, you must configure a Site VLAN, a Site ID, an Overlay, a control group, the primary and secondary adjacency servers, and multiple interfaces. You can select one or more devices that you want to configure from the configuration settings and enter the correct values in the respective fields. For more information about the field descriptions, see the “[Configuration Delivery for Templates: OTV Unicast with Two Adjacency Servers Template](#)” section on page 9-34.

### **OTV Unicast with Two Adjacency Servers and HSRP Isolation Template**

To configure OTV Unicast with one adjacency server on multiple devices, you must configure a Site VLAN, a Site ID, an Overlay, a control group, the primary and secondary adjacency servers, and multiple interfaces. You can select one or more devices that you want to configure from the configuration settings and enter the correct values in the respective fields. For more information about the field descriptions, see the “[Configuration Delivery for Templates: OTV Unicast with Two Adjacency Servers and HSRP Isolation Template](#)” section on page 9-34.

### **OTV Unicast with Two Adjacency Servers and VRRP Isolation Template**

To configure OTV Unicast with one adjacency server on multiple devices, you must configure a Site VLAN, a Site ID, an Overlay, a control group, the primary and secondary adjacency servers, and multiple interfaces. You can select one or more devices that you want to configure from the configuration settings and enter the correct values in the respective fields. For more information about the field descriptions, see the “[Configuration Delivery for Templates: OTV Unicast with Two Adjacency Servers and VRRP Isolation Template](#)” section on page 9-35.

### **Virtual Port Channel Template**

To configure virtual port channel on multiple devices, you must configure a VPC ID, an Channel number, VLAN account, , and multiple interfaces. You can select one or more devices that you want to configure from the configuration settings and enter the correct values in the respective fields. For more information about the field descriptions, see the “[Configuration Delivery for Templates: Virtual Port Channel Template](#)” section on page 9-35.

### **Zone Template**

To configure virtual port channel on multiple devices, you must configure a hostname, storage, VSAN ID, host , zone set, and multiple interfaces. You can select one or more devices that you want to configure from the configuration settings and enter the correct values in the respective fields. For more information

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about the field descriptions, see the “Configuration Delivery for Templates: Zone Template” section on page 9-37.

## Custom Templates

You can create, edit, and delete custom templates depending on your specific requirements. The user interface for a custom template is created dynamically based on the template. To create a custom template, you need to understand the syntax rules that are defined in the Cisco DCNM template definition file.

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## Configuration Delivery Template Requirements

Beginning with Cisco DCNM Release 6.1(1), you can create configuration delivery templates with the Cisco DCNM client. When you create custom templates or modify existing templates, the template must comply with the requirements that are described in this section.

This section includes the following topics:

- [Template Format, page 9-8](#)
- [Template Properties Section, page 9-9](#)
- [Template Variable Section, page 9-9](#)
- [Template Content Section, page 9-9](#)
- [Example Template, page 9-11](#)
- [Template Data Types, page 9-12](#)

## Template Format

Each template that you create must have a properties section and a content section. [Example 9-3](#) shows the custom template format.



### Note

When creating or changing a template, ensure that the `userDefined` property is set to “true.” If the `userDefined` property is “false” and the template is deployed, then the template becomes permanent and cannot be deleted.

### **Example 9-3 Custom Template Format**

```
##template properties
name = FCOE Template;
description = This file specifies the template configuration for FCOE;
userDefined=true;
##

##template content
feature fcoe
fcoe fcmmap $$FC_MAP$$
vsan database
vsan $$VLAN_ID_RANGE$$
exit
```



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## Template Properties Section

The template properties section must include the name attribute-value pair and the description attribute-value pair. Other attribute-value pairs are optional:

- **name**—Name of the template to be displayed in the Cisco DCNM client. The template name must be unique. No other template on the Cisco DCNM server should specify the same template name value. Specify the name in the following format:

```
name = template name;
```

For example:

```
name = FCoE Template;
```

- **description**—Description of the template, in the following format:

```
description = template description;
```

For example:

```
description = This file specifies the template for setting FCoE
```

- (Optional) **supportedPlatforms**—List of device platforms that are supported. The valid values for this attribute are C6500, N1K, N1010, N3K, N4K, N5K, N5500, or N7K. The values must be specified in a comma-delimited list.

For example:

```
supportedPlatforms = N5K, N7K;
```



---

**Note** If the supportedPlatforms attribute is not specified, the template is applicable for all platforms.

---

- (Optional) **unsupportedPlatforms**—List of device platforms that are not supported. The valid values for this attribute are C6500, N1K, N1010, N3K, N4K, N5K, N7K, or N5500. The values must be specified in a comma-delimited list.

For example:

```
unsupportedPlatforms = N5K, N7K;
```



---

**Note** All specified attribute-value pairs must end in a semicolon (;).

---

## Template Variable Section

The template variable section contains the data type, default values, and valid values conditions for the parameters that are used in the template. The template variable section is optional. If you do not provide this section, Cisco DCNM parses the variables from the template content section. The type of the parsed parameters is a string by default.

## Template Content Section

The template content section contains the Cisco IOS and the Cisco NX-OS configuration commands and any parameters that you want to include in the template. Specify the commands that you include as if you were entering them in the global configuration command mode on a Cisco IOS or a Cisco NX-OS device. You must consider the command mode when you include commands.

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Parameter names have two dollar symbols before and after the parameter name, as follows:

`$$parameter$$`



### Note

Beginning with Cisco DCNM Release 5.2(1), parameter names are not mandatory.

## Implicit Template Variables

Cisco DCNM supports two implicit template variables, `DEVICE_TYPE` and `DEVICE_IMG_VERSION`.

`DEVICE_TYPE` is used to represent a target device platform. The valid values are C6500, N1K, N1010, N3K, N4K, N5K, N7K or N5500.

For example, the `DEVICE_TYPE` variable can be used in an if construct:

```
if ($$DEVICE_TYPE$$ == "N7K" || $$DEVICE_TYPE$$ == "N1010")
```

`DEVICE_IMG_VERSION` is used to represent a target device image version.

## Foreach Loop Construct

The DCNM template engine supports a foreach loop construct. This construct is used for template configurations that are required for a set of interfaces or VLAN IDs.

The syntax for the construct is as follows:

```
foreach <FOR_LOOP_VARIABLE> in $$FOR_LOOP_RANGE$$
{<SET of commands with placeholders for a for loop index variable, such as
@FOR_LOOP_VARIABLE>
```

For example:

```
##template properties
name = FCOE Template;
description = This file specifies the template configuration for FCOE;
userDefined=false;
##
##template variables
integerRange VLAN_ID_RANGE;
integerRange VFC_PORT_NUM_RANGE;
##
##template content
feature fcoe
fcoe fcmap $$FC_MAP$$
vsan database
vsan $$VLAN_ID_RANGE$$
exit

foreach VLAN_ID in $$VLAN_ID_RANGE$$ {
vlan @VLAN_ID
fcoe vsan @VLAN_ID
exit
}
foreach VFC_PORT_NUM in $$VFC_PORT_NUM_RANGE$$ {
interface vfc @VFC_PORT_NUM
bind interface ethernet 1/@VFC_PORT_NUM
no shutdown
exit

foreach VLAN_ID in $$VLAN_ID_RANGE$$ {
```

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```
vsan database
vsan @VLAN_ID interface vfc @VFC_PORT_NUM
exit
}
}
##
```

### If Conditional Construct

The DCNM template engine supports the if | else if | else loop construct. This construct is used for template configurations that need to be applied based on specific conditions.



#### Note

Make sure that the else if and else blocks start on a new line after an if block.

For example:

```
##template properties
name = FCOE Template;
description = This file specifies the template configuration for FCOE;
userDefined=false;
##
##template variables
integerRange VLAN_ID_RANGE;
integerRange VFC_PORT_NUM_RANGE;
##
##template content
feature fcoe
if ($$FC_MAP$$) {
## deliver only if there is a valid value given for FC_MAP
fcoe fcmmap $$FC_MAP$$
}
vsan database
vsan $$VLAN_ID_RANGE$$
exit
if ($$DEVICE_TYPE$$ == "N7K" && $$ DEVICE_IMG_VERSION$$ == "4.2(3)") {
<some commands specific to N7K with image version 4.2(3)>
}
else if ($$DEVICE_TYPE$$ == "N7K") {
<commands specific to N7K with any image other than 4.2(3)>
}
else if ($$DEVICE_TYPE$$ == "N5K") {
<commands specific to N5K device>
}
else {
<commands specific to any device other than N7K and N5K>
}
##
```

### Example Template

[Example 9-4](#) shows a template that can be used to apply a description to configuring FCoE on a Cisco NX-OS device. When you create a template for configuration delivery management with this template, you would specify the NAME, DESCRIPTION, VLAN\_ID\_RANGE, and VFC\_PORT\_NUM\_RANGE parameters for each instance of the template.

#### **Example 9-4 Example of an FCoE Template**

```
##template properties
```

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```

name = FCOE Template;
description = This file specifies the template configuration for FCOE;
userDefined=true;
##
##template variables
integerRange VLAN_ID_RANGE;
integerRange VFC_PORT_NUM_RANGE;
##
##template content
feature fcoe
fcoe fcmap $$FC_MAP$$
vsan database
vsan $$VLAN_ID_RANGE$$
exit

```

Example 9-5 shows a FIP Snooping template.

**Example 9-5 Example of a FIP Snooping Template**

```

##template properties
name = FIP SNOOPING Template;
description = This file specifies the template configuration for FIP Snooping;
userDefined=false;
supportedPlatforms = N4K, N4K;
N4K.supportedImages = 4.1(2)N1(1);
N4K.supportedImages = 4.1(2)N1(1);
##
##template content
feature fip-snooping
vlan $$VLAN_ID$$
fip-snooping enable
fip-snooping fc-map $$FC_MAP$$
exit
interface $$ENODE_INF$$
no fip-snooping port-mode fcf
switchport mode trunk
switchport trunk allowed vlan $$VLAN_ID$$
switchport trunk allowed vlan add $$OLD_VLAN_ID$$
switchport trunk native vlan $$OLD_VLAN_ID$$
spanning-tree port type edge trunk
lldp receive
lldp transmit
exit
interface $$FCF_INF$$
switchport mode trunk
switchport trunk allowed vlan add $$VLAN_ID$$
fip-snooping port-mode fcf
exit
##

```

**Template Data Types**

Template data types are used to build templates. Associated with each data type are certain metadata properties that are used by the template engine to validate the values for the data type.

to show an overview of template data types that are used to build templates, metadata properties, and the association of data types and metadata properties.

**Table 9-1 Overview of Data Types**

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<b>Data Type</b>	<b>Description</b>
boolean	A Boolean value. Example: true
enum	Value that is any one of the string values from a fixed set of strings. Example: [pagp,lacp] or [running-config,startup-config]
float	Value that is a signed real number. Example: 10.08 or -8.08
floatRange	Value that is a range of signed real numbers. Example: 100.08 – 110.08
integer	Value that is a signed number. Example: 100 or -120
integerRange	Value that is a range of signed numbers. Example: -120 - -100 or -120 – 100
interface	Value that is the name of an interface/port. Example: FastEthernet1/10
interfaceRange	Value that is a range of interface/port names. Example: FastEthernet 1/10-18, Gi 2/8, or Gi 3/5-8
ipV4Address	Value that is an IP address version 4. Example: 10.8.8.8
ipV6Address	Value that is an IP address version 6. Example: 10:8:8:10:4:6
ipAddress	Value that is either an IP v4 Address or IP v6 Address.
macAddress	Value that is a MAC address. Example: 02.00.4C.4F.4F.50
string	Value that is a literal string. Example: abc or def

All data types have some metadata properties. The following table shows all the possible metadata properties for all data types.

**Table 9-2 Metadata Properties**

<b>Metadata Property</b>	<b>Description</b>
defaultValue	Default value of the data type. For an integer data type, an example is defaultValue = 8.
validValues	Valid values that are allowed for the data type. For an integer data type, an example is validValues=1,5,8,10-100.

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<b>Metadata Property</b>	<b>Description</b>
decimalLength	<p>Number of digits allowed after the decimal point for a float value.</p> <p>If a value has more digits than the length specified, the template engine truncates the value.</p> <p>For a float value of length 2, an example is decimalLength = 2.</p>
min	<p>Minimum value for the data type.</p> <p>An example is min=1.2345.</p>
max	<p>Maximum value for the data type.</p> <p>An example is max=10.10.</p>
minSlot	<p>Minimum valid slot number.</p> <p>The template engine validates that the given interface name is of a port whose card is placed either in a given slot or in a slot that comes after the minimum slot number.</p> <p>An example is minSlot=2.</p>
maxSlot	<p>Maximum valid value slot number.</p> <p>The template engine validates that the given interface name is of a port whose card is placed either in the given slot or in a slot that comes before the maximum slot number.</p> <p>An example is maxSlot=12.</p>
minPort	<p>Minimum port number.</p> <p>The template engine validates that the port number in the given interface name is less than or equal to that of the minimum port number.</p> <p>This property is applicable for logical port numbers also.</p> <p>An example is minPort=2.</p>
maxPort	<p>Maximum port number.</p> <p>The template engine validates that the port number in the given interface name is greater than or equal to that of the maximum port number.</p> <p>This property is applicable for logical port numbers also.</p> <p>An example is maxPort=8.</p>
minLength	<p>Minimum number of characters in a string value.</p> <p>An example is minLength=5.</p>
maxLength	<p>Maximum number of characters in a string value.</p> <p>An example is maxLength=255.</p>
regularExpr	<p>Regular expression that the template engine matches to a string value.</p> <p>If the string value does not match the given regular expression, the template engine raises an error.</p> <p><b>Note</b> This property expects regular expressions that are in an acceptable format used by Java.</p> <p>An example is regularExpr=.*abc.*.</p>

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The following table shows the association of data types and metadata properties.

**Table 9-3 Association of Data Types and Metadata Properties**

<b>Data Type</b>	<b>Metadata Property</b>
boolean	<ul style="list-style-type: none"> <li>• defaultValue</li> </ul>
enum	<ul style="list-style-type: none"> <li>• defaultValue</li> <li>• validValues Example: validValues= pagp, lacp.</li> </ul>
float	<ul style="list-style-type: none"> <li>• defaultValue</li> <li>• validValues</li> <li>• decimalLength</li> <li>• min</li> <li>• max</li> </ul>
floatRange	<ul style="list-style-type: none"> <li>• defaultValue</li> <li>• validValues</li> <li>• decimalLength</li> <li>• min</li> <li>• max</li> </ul>
integer	<ul style="list-style-type: none"> <li>• defaultValue</li> <li>• validValues</li> <li>• min</li> <li>• max</li> </ul>
integerRange	<ul style="list-style-type: none"> <li>• defaultValue</li> <li>• validValues</li> <li>• min</li> <li>• max</li> </ul>
interface	<ul style="list-style-type: none"> <li>• defaultValue</li> <li>• validValues</li> <li>• minSlot</li> <li>• maxSlot</li> <li>• minPort</li> <li>• maxPort</li> </ul>

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Data Type	Metadata Property
interfaceRange	<ul style="list-style-type: none"> <li>• defaultValue</li> <li>• validValues</li> <li>• minSlot</li> <li>• maxSlot</li> <li>• minPort</li> <li>• maxPort</li> </ul>
ipV4Address	This data type does not support any metadata properties.
ipV6Address	This data type does not support any metadata properties.
ipAddress	This data type does not support any metadata properties.
macAddress	This data type does not support any metadata properties.
string	<ul style="list-style-type: none"> <li>• defaultValue</li> <li>• validValues</li> <li>• minLength</li> <li>• maxLength</li> <li>• regularExpr</li> </ul>
WWN	This data type does not support any metadata properties. Example : 20:01:00:08:02:11:05:03.

## Licensing Requirements for Configuration Delivery Management

The following table shows the licensing requirements for this feature:

Product	License Requirement
Cisco DCNM	Configuration Delivery Management requires no license. Any feature not included in a license package is bundled with Cisco DCNM and is provided at no charge to you. For information about obtaining and installing a Cisco DCNM LAN Enterprise license, see the <i>Cisco DCNM Installation and Licensing Guide, Release 5.x</i> .
Cisco NX-OS	Using the Configuration Delivery Management feature with a Cisco NX-OS device requires no Cisco NX-OS license; however, Cisco NX-OS features that require a license can be configured by Configuration Delivery Management only if the Cisco NX-OS device has the applicable license installed. For an explanation of the Cisco NX-OS licensing scheme for your platform, see the licensing guide for your platform.

## Prerequisites for Configuration Delivery Management

The Configuration Delivery Management feature has the following prerequisites:

- The Configuration Delivery Management feature supports only devices that are managed by Cisco DCNM, which means that Cisco DCNM must have successfully discovered the device.



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- Devices must be reachable by Cisco DCNM when Cisco DCNM attempts to deliver the configuration. A delivery job fails if the device is unreachable by Cisco DCNM.

## Guidelines and Limitations for Configuration Delivery Management

Configuration Delivery Management has the following configuration guidelines and limitations:

- The following types of Cisco IOS and the Cisco NX-OS configuration commands are not supported with Configuration Delivery Management:
  - Interactive configuration commands (that is, any command that includes prompts for user input).
  - Commands that give command progress as output, such as the **copy running-config startup-config** command.
- Rollback is supported for configuration delivery only if the destination device supports the rollback feature. For example, Cisco Nexus 7000 Series devices support rollback, but Cisco Nexus 1000V Series switches do not.

## Platform Support

The following platforms support this feature but might implement it differently. For platform-specific information, including guidelines and limitations, system defaults, and configuration limits, see the corresponding documentation.

Platform	Documentation
Cisco Catalyst 6500 Series switches	<a href="#">Cisco Catalyst 6500 Series Switches Documentation</a>
Cisco Nexus 1000V Series switches	<a href="#">Cisco Nexus 1000V Series Switch Documentation</a>
Cisco Nexus 3000 Series switches	<a href="#">Cisco Nexus 3000 Series Switch Documentation</a>
Cisco Nexus 4000 Series switches	<a href="#">Cisco Nexus 4000 Series Switch Documentation</a>
Cisco Nexus 5000 Series switches	<a href="#">Cisco Nexus 5000 Series Switch Documentation</a>
Cisco Nexus 5500 Series switches	<a href="#">Cisco Nexus 5500 Series Switch Documentation</a>
Cisco Nexus 7000 Series switches	<a href="#">Cisco Nexus 7000 Series Switch Documentation</a>
Cisco MDS 9000 Series switches	<a href="#">Cisco MDS 9000 Series Switch Documentation</a>
Cisco UCS Series switches	<a href="#">Cisco UCS Series Switch Documentation</a>

## Using Configuration Delivery Management

This section includes the following topics:

- [Creating a Configuration Delivery Management Job](#), page 9-18
- [Adding a Configuration Delivery Job](#), page 9-19
- [Adding a Predefined Template \(ASCII Text Files\)D](#), page 9-21

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- [Adding a Custom Template in the Cisco DCNM SAN Client](#), page 9-21
- [Changing a Predefined Template \(ASCII Text Files\)](#), page 9-23
- [Changing a Custom Template in the Cisco DCNM Client](#), page 9-24
- [Removing a Predefined Template \(ASCII Text Files\)](#), page 9-24
- [Removing a Custom Template in the Cisco DCNM Client](#), page 9-25
- [Refreshing Cisco DNCM Servers with Template Updates \(ASCII Text Files\)](#), page 9-25
- [Configuring Job Delivery Options](#), page 9-27
- [Scheduling a Configuration Delivery Job](#), page 9-27
- [Removing a Configuration Delivery Job](#), page 9-28

## **Creating a Configuration Delivery Management Job**

Creating a configuration delivery management job has many steps, which vary depending upon the type of job that you are creating. This procedure summarizes the creation of a configuration delivery job and directs you to more detailed procedures for each of the summarized steps.

- 
- Step 1** Select a Add a configuration delivery job of the type that you need.  
For more information, see the [“Adding a Configuration Delivery Job”](#) section on page 9-19.
- Step 2** Add one or more destination devices for the job.  
For more information, see the [“Adding a Predefined Template \(ASCII Text Files\)D”](#) section on page 9-21.
- Step 3** Configure the Cisco IOS and Cisco NX-OS commands to be delivered to the destination devices by the job. More information for doing so varies depending upon the type of job, as follows:
- For a job with manually entered Cisco IOS or Cisco NX-OS commands, see the [“Adding a Predefined Template \(ASCII Text Files\)D”](#) section on page 9-21.
  - For a job with Cisco IOS or Cisco NX-OS commands retrieved from a source device, see the [“Adding a Predefined Template \(ASCII Text Files\)D”](#) section on page 9-21.
  - For a job with Cisco IOS or Cisco NX-OS commands from a Cisco DCNM template, see the [“Adding a Predefined Template \(ASCII Text Files\)D”](#) section on page 9-21.




---

**Note** Before you can add a template-source job, you must add templates to Cisco DCNM. For more information, see the [“Configuration Delivery Templates and the Cisco DCNM Client”](#) section on page 9-5.

---

- Step 4** (Optional) Configure job delivery options, which determine the following:
- How Cisco DCNM responds if a delivery job results in configuration errors on a device.
  - Whether Cisco DCNM delivers Cisco IOS or Cisco NX-OS commands to all devices in the job at the same time or one device at a time.

For more information, see the [“Configuring Job Delivery Options”](#) section on page 9-27.

- Step 5** Schedule the job.

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For more information, see the “Scheduling a Configuration Delivery Job” section on page 9-27.

---

## Adding a Configuration Delivery Job

You can add a configuration delivery job as required. You can select a template, assign it to the selected device, and define the variables for the template. You can also schedule a job to be run on a particular device at a specific time.

### BEFORE YOU BEGIN

Note that only template based jobs can be created. For more information about job types, see the “Job Sources” section on page 9-2.

### DETAILED STEPS

- 
- Step 1** From the Feature Selector pane, choose **Config > Delivery > Templates..**
- The Summary pane lists the configuration delivery templates that are configured in Cisco DCNM, if any. For more information see [Adding a Predefined Template \(ASCII Text Files\)D](#), page 9-21
- Step 2** Select a template and click on the **Launch Job** button to display the **Config Job Wizard**.
- Step 3** Select the device to which you want to assign the template.
- For more information see [Selecting a Device](#), page 9-19
- Step 4** Define variables for the template.
- For more information see
- Step 5** Preview the configuration in the preview pane. For more information see [Previewing a Configuration](#), page 9-20
- Step 6** Schedule a job. For more information see [Scheduling a Configuration Delivery Job](#), page 9-27.
- Step 7** Click Finish to complete the configuration delivery job creation..



---

**Note** You may be unable to deploy the job until after you have further configured the job.

---

## Selecting a Device

You can select a device to be associated with the template.

### DETAILED STEPS

- 
- Step 1** From the Feature Selector pane, choose **Config > Delivery > Templates..**
- The Summary pane lists the configuration delivery templates that are configured in Cisco DCNM, if any. For more information see [Adding a Predefined Template \(ASCII Text Files\)D](#), page 9-21

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- Step 2** Select a template and click on the Launch Job button to display the **Config Job Wizard**.
  - Step 3** Click on the **Next** button to display the device selection screen.
  - Step 4** Select the **Device Scope** from the drop down list. It lists the all the devices available for selected template.
  - Step 5** You can view the **Device, IP Address, Group, Platform,** and the **Version**. Select the device to which you want to assign the template.
  - Step 6** Click **Next**.
- 

## Defining Variables

You can define variables for the selected device and the corresponding template.

### DETAILED STEPS

- 
- Step 1** From the Feature Selector pane, choose **Config > Delivery > Templates..**  
The Summary pane lists the configuration delivery templates that are configured in Cisco DCNM, if any. For more information see [Adding a Predefined Template \(ASCII Text Files\)D, page 9-21](#)
  - Step 2** Select a template and click on the Launch Job button to display the **Config Job Wizard**.
  - Step 3** Click on the **Next** button to display the device selection screen.
  - Step 4** After selecting the device for the template, set the variables for the device and the template.
  - Step 5** Enter the **VSAN\_ID, SLOT\_NUMBER, PORT\_RANGE,** and the **VFC\_PREFIX**.
  - Step 6** Select the **Edit variables per device** checkbox to set the variables for each individual devices selected for the template.
  - Step 7** You either keep the values global for all the devices in the list, or change the individual values in the respective rows.
  - Step 8** Click **Next**.
- 

## Previewing a Configuration

You can preview the configuration for each device.

### DETAILED STEPS

- 
- Step 1** From the Feature Selector pane, choose **Config > Delivery > Templates..**  
The Summary pane lists the configuration delivery templates that are configured in Cisco DCNM, if any. For more information see [Adding a Predefined Template \(ASCII Text Files\)D, page 9-21](#)
  - Step 2** Select a template and click on the Launch Job button to display the **Config Job Wizard**.
  - Step 3** Click on the **Next** button to display the device selection screen.
  - Step 4** After setting the variables for the selected devices and the templates, you can preview the configuration.

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- Step 5** Select a device from the drop down list to preview the configuration.
  - Step 6** Click **Next**.
- 

## Adding a Predefined Template (ASCII Text Files)

You can create an ASCII text file template for use in a template-sourced configuration delivery job.

### BEFORE YOU BEGIN

Review the [“Configuration Delivery Templates \(ASCII Text Files\)”](#) section on page 9-3.

### DETAILED STEPS

- 
- Step 1** Create the template file, ensuring that it meets the template requirements and includes the configuration commands that you need.
  - Step 2** Place a copy of the template file in the templates directory. The templates directory is in the archive directory that was specified during Cisco DCNM server installation. For Microsoft Windows, the path to the default templates directory is C:\Program Files\Cisco Systems\dcnm\dcnm\data\templates. For RHEL, the default path is /usr/local/cisco/dcm/dcnm/data/templates.
  - Step 3** Refresh the Cisco DCNM server. If you have a clustered-server Cisco DCNM deployment, you must refresh only the master server of the cluster.  
  
For more information, see the [“Refreshing Cisco DNCM Servers with Template Updates \(ASCII Text Files\)”](#) section on page 9-25.  
  
The new template is now available when you create a template-sourced configuration delivery job.
- 

## Adding a Custom Template in the Cisco DCNM SAN Client

With the Cisco DCNM client, you can add custom templates for deploying configuration delivery jobs.

### BEFORE YOU BEGIN

Review the [“Configuration Delivery Template Requirements”](#) section on page 9-8.

### DETAILED STEPS

- 
- Step 1** From the Features Selector pane, choose **Configuration Delivery > Templates** .  
The Summary pane lists the custom templates that are configured in the Cisco DCNM, if any.
  - Step 2** From the menu bar, choose **Create New Config Template**.  
The fields for the new template appears in the **Config Template** pane.

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- Step 3** In the pane for the new template, enter the **Template Name**, **Template Description**, and **Tags** for the template.
  - Step 4** Select the appropriate check boxes for the **Supported Platforms** field.
  - Step 5** Click the **Validate Template Syntax** button to verify that the template does not contain errors.  
If errors exist, the errors in the template are identified with red indicators in the Details pane. Cisco DCNM does not allow you to save a template that contains errors.
  - Step 6** Click **Save** to save the template details.
- 
- 
- 

## Importing a Custom Template in the Cisco DCNM SAN Client

With the Cisco DCNM client, you can import custom templates for deploying configuration delivery jobs.

### BEFORE YOU BEGIN

Review the [“Configuration Delivery Template Requirements”](#) section on page 9-8.

### DETAILED STEPS

- Step 1** From the Features Selector pane, choose **Config Delivery > Templates** .  
The Summary pane lists the custom templates that are configured in the Cisco DCNM, if any.
- Step 2** From the menu bar, choose **Import**. The folder browser option is displayed.
- Step 3** Navigate and select the target folder and the file.
- Step 4** Once the file is selected, click **OK**. The selected template is imported into the DCNM and will be available for scheduling configuration delivery jobs.



**Note** The template will be validated and if there are any errors then a warning message is displayed.

---

- 

---

## Exporting a Custom Template in the Cisco DCNM SAN Client

With the Cisco DCNM client, you can export custom templates for deploying configuration delivery jobs.

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### BEFORE YOU BEGIN

Review the “[Configuration Delivery Template Requirements](#)” section on page 9-8.

### DETAILED STEPS

- 
- Step 1** From the Features Selector pane, choose **Config Delivery > Templates** .  
The Summary pane lists the custom templates that are configured in the Cisco DCNM, if any.
- Step 2** From the menu bar, choose **Export**. The folder browser option is displayed.
- Step 3** Navigate and select the target folder and enter the file name for the template.
- Step 4** Click **OK.**, to export the selected template to the target folder.
- 
- 
- 

## Changing a Predefined Template (ASCII Text Files)

You can change templates (ASCII text files) that are available for use in a configuration delivery job.

### BEFORE YOU BEGIN

Review the “[Configuration Delivery Templates \(ASCII Text Files\)](#)” section on page 9-3.

### DETAILED STEPS

- 
- Step 1** Locate the template file in the templates directory. The templates directory is in the archive directory that was specified during Cisco DCNM server installation. For Microsoft Windows, the path to the default templates directory is C:\Program Files\Cisco Systems\dcm\dcnm\data\templates. For RHEL, the default path is /usr/local/cisco/dcm/dcnm/data/templates.
- Step 2** Open the template file in a text editor and make the required changes.
- Step 3** Save and close the template file.



---

**Note** If you have a clustered-server Cisco DCNM deployment, you must change the template file on each Cisco DCNM server in the cluster.

---

- Step 4** Refresh the Cisco DCNM server. If you have a clustered-server Cisco DCNM deployment, you must refresh each server in the cluster.
- For more information, see the “[Refreshing Cisco DNCM Servers with Template Updates \(ASCII Text Files\)](#)” section on page 9-25.

The changed template is now available when you create a template-sourced configuration delivery job.

---

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## Changing a Custom Template in the Cisco DCNM Client

With the Cisco DCNM client, you can change custom templates created for deploying configuration delivery jobs.

### BEFORE YOU BEGIN

Review the [“Configuration Delivery Template Requirements”](#) section on page 9-8.

### DETAILED STEPS

- 
- Step 1** From the Features Selector pane, choose **Config Delivery > Templates** .
- The Summary pane lists the custom templates that are configured in the Cisco DCNM, if any.
- Step 2** From the list of template, select one and choose **Modify**.
- The fields for the template appears in the **Config Template** pane.
- Step 3** In the pane for the selected template, enter the **Template Name**, **Template Description**, and **Tags** for the template.
- Step 4** Select the appropriate check boxes for the **Supported Platforms** field.
- Step 5** Click the **Validate Template Syntax** button to verify that the template does not contain errors.
- If errors exist, the errors in the template are identified with red indicators in the Details pane. Cisco DCNM does not allow you to save a template that contains errors.
- Step 6** Click **Save** to save the template details.
- 
- 
- 

## Removing a Predefined Template (ASCII Text Files)

You can remove templates (ASCII text files) from Cisco DCNM, which makes them unavailable for use in a configuration delivery job.

### DETAILED STEPS

- 
- Step 1** Locate the template file in the templates directory at the following location:

`INSTALL_DIR\jboss-4.2.2.GA\server\dcnm\cisco\templates`

For Microsoft Windows, the path to the default Cisco DCNM installation directory is C:\Program Files\Cisco Systems. For RHEL, the default path is /usr/local/cisco.

- Step 2** Delete or remove the template file from the templates directory.




---

**Note** If you have a clustered-server Cisco DCNM deployment, you must remove the template file from the templates directory on each Cisco DCNM server in the cluster.

---



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- Step 3** Refresh the Cisco DCNM server. If you have a clustered-server Cisco DCNM deployment, you must only refresh the master server.
- For more information, see the [“Refreshing Cisco DNCM Servers with Template Updates \(ASCII Text Files\)” section on page 9-25](#).
- The removed template is no longer available when you create a template-sourced configuration delivery job.
- 

## **Removing a Custom Template in the Cisco DCNM Client**

With the Cisco DCNM client, you can delete custom templates that were created for deploying configuration delivery jobs.

### **DETAILED STEPS**

- 
- Step 1** From the Features Selector pane, choose **Config Delivery > Templates** .
- The Summary pane lists the custom templates that are configured in the Cisco DCNM, if any.
- Step 2** From the list of template, select one. The fields for the template appears in the **Config Template** pane.
- Step 3** From the menu bar choose **Delete** .
- Step 4** Click **Save** to save the template details.
- 

## **Refreshing Cisco DNCM Servers with Template Updates (ASCII Text Files)**

After you have made updates to templates (ASCII text files), including adding, changing, or removing templates, you must refresh the template list before users can see the updates in the Cisco DCNM client. This procedure allows you to refresh a Cisco DCNM server with updates to templates without requiring a server stop and start. If you stop and start a Cisco DCNM server after updating templates, you do not need to perform this procedure.



---

**Note** When updating templates with the Cisco DCNM client, the Cisco DCNM server is updated automatically. You do not have to manually refresh the Cisco DCNM server.

---

### **BEFORE YOU BEGIN**

Update templates as needed.

If you have a clustered-server deployment, ensure that you know which server is currently operating as the master server. To do so, use the Cluster Administration feature in the Cisco DCNM client. For more information, see the *Cisco DCNM Fundamentals Guide, Release 5.x*.

### **DETAILED STEPS**

- 
- Step 1** On the Cisco DCNM server, access a command prompt.

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**Note** If you have a clustered-server deployment, ensure that you are performing these steps on the master server.

**Step 2** Use the **cd** command to change the directory to the following location:

```
INSTALL_DIR\dcm\jboss-4.2.2.GA\bin
```

For Microsoft Windows, the path to the default Cisco DCNM installation directory is C:\Program Files\Cisco Systems. For RHEL, the default path is /usr/local/cisco.

**Step 3** Enter the following command:

```
set JAVA_HOME=INSTALL_DIR\dcm\java\jre1.6
```

For example, on a Microsoft Windows server with Cisco DCNM installed in the default directory, you would enter the following command:

```
set JAVA_HOME=C:\Program Files\Cisco Systems\dcm\java\jre1.61
```

On a RHEL server with Cisco DCNM installed in the default directory, you would enter the following command:

```
set JAVA_HOME=/usr/local/cisco/dcm/java/jre1.6
```

**Step 4** Enter the following command:

```
twiddle_script -s IP_address:naming_service_port invoke  
"com.cisco.dcbu.dcm:service=ConfigDeliveryService" populateTemplates
```

where the arguments are as follows:

- *twiddle\_script*—Script name depending upon the server operating system, as follows:
  - Microsoft Windows: twiddle.bat
  - RHEL: twiddle.sh
- *IP\_address*—IPv4 address of the Cisco DCNM server. In a clustered-server deployment, this address must be the address of the master server.
- *naming\_service\_port*—Naming Service port that the Cisco DCNM server is configured to use. By default, the Naming Service port is 1099.

For example, on a Microsoft Windows server using the default Naming Service port and the IP address 10.0.0.0, you would enter the following command:

```
twiddle.bat -s 10.0.0.0:1099 invoke "com.cisco.dcbu.dcm:service=ConfigDeliveryService"  
populateTemplates
```

For example, on a RHEL server using the default Naming Service port and the IP address 10.0.0.0, you would enter the following command:

```
twiddle.sh -s 10.0.0.0:1099 invoke "com.cisco.dcbu.dcm:service=ConfigDeliveryService"  
populateTemplates
```

The Cisco DCNM server begins using the updates to the templates.

**Step 5** (Optional) To see the updates to the templates in the Cisco DCNM client, press **F5** to refresh the screen.

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## Configuring Job Delivery Options

You can configure job delivery options for each configuration delivery job. Job delivery options allow you to specify the following:


- How Cisco DCNM responds if a delivery job results in configuration errors on a device.
- Whether Cisco DCNM delivers Cisco IOS or the Cisco NX-OS commands to all devices in the job at the same time or one device at a time.

### BEFORE YOU BEGIN

Ensure that the configuration delivery job exists in Cisco DCNM.

Rollback is supported only if the Cisco IOS or the Cisco NX-OS release on the destination device supports rollbacks. For example, Cisco Nexus 7000 Series devices support rollbacks.

### DETAILED STEPS

- 
- Step 1** From the Feature Selector pane, choose **Config Job Wizard > VLAN Template**.  
The VLAN Template pane with the list of tasks is displayed.
- Step 2** The **Welcome** screen displays the steps involved configuring the job.
- Step 3** Click **Next** to display the **Select Devices** screen.
- Step 4** Select a device from the list to deliver the configuration.
- Step 5** Click **Next** to display the **Define Variables** screen. You can enter the values for the selected template in the **Define Variables** screen.
-  **Note** Select the Edit variables per device check box to set the attributes individually to each device. Else, you can globally configure the attributes to all the devices displayed in the list. Basic validation will be performed for the defined variables and the errors are displayed.
- 
- Step 6** Click **Next** to preview the configuration to be delivered in the **Preview Config** screen.
- Step 7** Click **Next** to display the configuration page, in **Schedule Job** screen. For more details, see [Scheduling a Configuration Delivery Job](#) section.
- 

## Scheduling a Configuration Delivery Job

You can add a date and time that Cisco DCNM should run a configuration delivery job. This feature enables you to set the options if the device went wrong and the system needs to roll back to the set configuration.

### BEFORE YOU BEGIN

Determine when you want Cisco DCNM to run the configuration delivery job.

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## DETAILED STEPS

- 
- Step 1** From the Feature Selector pane, choose **Config Job Wizard > Template**.
  - Step 2** After entering the details in the **Welcome**, **Select Devices**, **Define Variables**, and **Preview Config** screens, click **Next** to display the **Schedule Job** screen.
  - Step 3** Enter the job description , device credentials, time, transaction options, and the delivery options.
  - Step 4** Click **Finish** to finish the configuration.
  - Step 5** Choose **Config Delivery > Jobs** to check on the status of the running configuration delivery jobs. You can also change the scheduled time by editing the value in the **Scheduled At** column.
- 

## Removing a Configuration Delivery Job

You can remove, or delete, a configuration delivery job from Cisco DCNM.

## DETAILED STEPS

- 
- Step 1** From the Feature Selector pane, choose **Config Delivery > Jobs**.  
The Summary pane lists the configuration delivery jobs that are configured in Cisco DCNM.
  - Step 2** Click the configuration delivery job check box that you want to remove.
  - Step 3** From the menu bar, click the **Delete Job** button.
  - Step 4** Click **Yes**.  
Cisco DCNM removes the configuration delivery job. You do not need to save your changes.
-

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## Field Descriptions for Configuration Delivery Management

This section includes the following field descriptions for the Configuration Delivery Management feature:

- [Delivery Job: Details: Configuration Section, page 9-29](#)
- [Delivery Job: Details: Configuration Delivery Options Section, page 9-30](#)
- [Configuration Delivery for Templates: Virtual Port Channel Template, page 9-35](#)
- [Configuration Delivery for Templates: FIP Snooping Template, page 9-31](#)
- [Configuration Delivery for Templates: FCoE Template, page 9-31](#)
- [Configuration Delivery for Templates: OTV Internal Interfaces Template, page 9-31](#)
- [Configuration Delivery for Templates: OTV Multicast Template, page 9-31](#)
- [Configuration Delivery for Templates: OTV Multicast with HSRP Isolation Template, page 9-32](#)
- [Configuration Delivery for Templates: OTV Multicast with VRRP Isolation Template, page 9-32](#)
- [Configuration Delivery for Templates: OTV Unicast with One Adjacency Server Template, page 9-33](#)
- [Configuration Delivery for Templates: OTV Unicast with One Adjacency Server and HSRP Isolation Template, page 9-33](#)
- [Configuration Delivery for Templates: OTV Unicast with One Adjacency Server and VRRP Isolation Template, page 9-33](#)
- [Configuration Delivery for Templates: OTV Unicast with Two Adjacency Servers Template, page 9-34](#)
- [Configuration Delivery for Templates: OTV Unicast with Two Adjacency Servers and HSRP Isolation Template, page 9-34](#)
- [Configuration Delivery for Templates: OTV Unicast with Two Adjacency Servers and VRRP Isolation Template, page 9-35](#)
- [Configuration Delivery for Templates: Virtual Port Channel Template, page 9-35](#)
- [Configuration Delivery for Templates: Zone Template, page 9-37](#)
- [Additional References, page 9-37](#)

### Delivery Job: Details: Configuration Section

**Table 9-4** *Delivery Job: Details: Configuration Section*

Field	Description
Device	Specifies the device name.
VLAN_ID	Specifies the VLAN ID.
FC_MAP	Specifies the FC_MAP.
ENODE_INF	Specifies the ENODE_INF.
OLD_VLAN_ID	Specifies the previous VLAN ID.
FCF_INF	Specifies the FCF information.

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## Delivery Job: Details: Configuration Delivery Options Section

**Table 9-5** *Delivery Job: Details: Configuration Delivery Options Section*

Field	Description
<b>Transaction Options</b>	
Enable Rollback	Specifies whether Cisco DCNM uses the Cisco IOS or the Cisco NX-OS rollback feature to recover from failures on devices during configuration delivery. By default, this check box is unchecked.  <b>Note</b> Cisco DCNM can perform a rollback only on devices that support a configuration rollback, such as Cisco Nexus 7000 Series devices.
Rollback the configuration on the device if there is any failure in that device	Specifies that Cisco DCNM should roll back the running configuration of the device that had the failure to the previous running configuration. If there are other devices in the delivery job, the job continues on devices that did not have a failure.  This field appears when the Enable Rollback check box is checked.
Rollback the configuration in all the selected devices if there is any failure in any device	Specifies that Cisco DCNM should roll back the running configuration of all devices included in the job if a failure occurs on a device. This option is particularly useful if the job is configured for parallel delivery.  This field appears when the Enable Rollback check box is checked.
Rollback the configuration on the device, if there is any failure in that device and stop further configuration delivery to the remaining devices	Specifies that Cisco DCNM should roll back the running configuration of the device that had the failure and should not continue to deliver the job to devices that have not received the configuration yet. This option is particularly useful if the job is configured for sequential delivery.  This field appears when the Enable Rollback check box is checked.
<b>Delivery Order</b>	
Deliver configuration to one device at a time in sequence	Specifies that Cisco DCNM delivers the configuration to devices included in the job in a serial delivery. This option is particularly helpful if you have configured the job to stop after the first failure.
Deliver configuration to all devices in parallel at the same time	Specifies that Cisco DCNM delivers the configuration to all devices included in the job in parallel. This option delivers the configuration to the devices in the job faster than serial delivery.
<b>Post Delivery Options</b>	
Copy run to start	Specifies that Cisco DCNM copy the running configuration to the startup configuration. By default, this checkbox is unchecked.

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## Configuration Delivery for Templates: FCoE Template

**Table 9-6** *FCoE Template*

Field	Description
VLAN_ID	ID for the VLAN
VSAN_ID	ID for the VSAN
FC_MAP	Value of FC mapping
VFC_NUMBER_RANGE	Valid range for the VFC

## Configuration Delivery for Templates: FIP Snooping Template

**Table 9-7** *FIP Snooping Template*

Field	Description
VLAN_RANGE	Valid VLAN range
ENODE_INTERFACE_RANGE	Valid values for the ENODE interface range
FCF_INTERFACE_RANGE	Valid values for the FCF interface range
FC_MAP	Value of FC mapping

## Configuration Delivery for Templates: OTV Internal Interfaces Template

**Table 9-8** *OTV Internal Interfaces Template*

Field	Description
INTERNAL_IFS	Specifies the internal IFS.
SITE_VLAN	Specifies the site vlan.
OTV_VLANS	Specifies the OTV vlan.

## Configuration Delivery for Templates: OTV Multicast Template

**Table 9-9** *OTV Multicast Template*

Field	Description
SITE_VLAN	Specifies the site vlan.
SITE_ID	Specifies the site ID.
OVERLAY_ID	Specifies the overlay ID.
JOIN_INTF	Specifies the interface information.

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**Table 9-9 OTV Multicast Template**

Field	Description
SITE_VLAN	Specifies the site vlan.
SITE_ID	Specifies the site ID.
CONTROL_GROUP_IP	Specifies the IP of the control group for multicast.
DATA_GROUP_NETWORK	Specifies the data group network.
OTV_VLAN	Specifies the OTV vlan ID.

## Configuration Delivery for Templates: OTV Multicast with HSRP Isolation Template

**Table 9-10 OTV Multicast with HSRP Isolation Template**

Field	Description
SITE_VLAN	Specifies the site vlan.
SITE_ID	Specifies the site ID.
OVERLAY_ID	Specifies the overlay ID.
JOIN_INTF	Specifies the interface information.
CONTROL_GROUP_IP	Specifies the IP of the control group for multicast.
DATA_GROUP_NETWORK	Specifies the data group network.
OTV_VLAN	Specifies the OTV vlan ID.

## Configuration Delivery for Templates: OTV Multicast with VRRP Isolation Template

**Table 9-11 OTV Multicast with VRRP Isolation Template**

Field	Description
SITE_VLAN	Specifies the site vlan.
SITE_ID	Specifies the site ID.
OVERLAY_ID	Specifies the overlay ID.
JOIN_INTF	Specifies the interface information.
CONTROL_GROUP_IP	Specifies the IP of the control group for multicast.
DATA_GROUP_NETWORK	Specifies the data group network.
OTV_VLAN	Specifies the OTV vlan ID.



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## Configuration Delivery for Templates: OTV Unicast with One Adjacency Server Template

**Table 9-12** OTV Multicast with One Adjacency Server Template

Field	Description
SITE_VLAN	Specifies the site vlan.
SITE_ID	Specifies the site ID.
OVERLAY_ID	Specifies the overlay ID.
JOIN_INTF	Specifies the interface information.
ADJACENCY_SERVER	Specifies the IP of the adjacency server.
PRIMARY_ADJACENCY_SERVER	Specifies the IP of the primary adjacency server.
OTV_VLAN	Specifies the OTV vlan ID.

## Configuration Delivery for Templates: OTV Unicast with One Adjacency Server and HSRP Isolation Template

**Table 9-13** OTV Unicast with One Adjacency Server and HSRP Isolation Template

Field	Description
SITE_VLAN	Specifies the site vlan.
SITE_ID	Specifies the site ID.
OVERLAY_ID	Specifies the overlay ID.
JOIN_INTF	Specifies the interface information.
IS_ADJACENCY_SERVER	Specifies the IP of the adjacency server.
PRIMARY_ADJACENCY_SERVER	Specifies the IP of the primary adjacency server.
OTV_VLANS	Specifies the OTV vlan ID.

## Configuration Delivery for Templates: OTV Unicast with One Adjacency Server and VRRP Isolation Template

**Table 9-14** OTV Unicast with One Adjacency Server and VRRP Isolation Template

Field	Description
SITE_VLAN	Specifies the site vlan.
SITE_ID	Specifies the site ID.

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**Table 9-14** *OTV Unicast with One Adjacency Server and VRRP Isolation Template*

Field	Description
OVERLAY_ID	Specifies the overlay ID.
JOIN_INTF	Specifies the interface information.
IS_ADJACENCY_SERVER	Specifies the IP of the adjacency server.
PRIMARY_ADJACENCY_SERVER	Specifies the IP of the primary adjacency server.
OTV_VLAN	Specifies the OTV vlan ID.

## Configuration Delivery for Templates: OTV Unicast with Two Adjacency Servers Template

**Table 9-15** *OTV Unicast with Two Adjacency Servers Template*

Field	Description
SITE_VLAN	Specifies the site vlan.
SITE_ID	Specifies the site ID.
OVERLAY_ID	Specifies the overlay ID.
JOIN_INTF	Specifies the interface information.
IS_ADJACENCY_SERVER	Specifies the IP of the adjacency server.
PRIMARY_ADJACENCY_SERVER	Specifies the IP of the primary adjacency server.
SECONDARY_ADJACENCY_SERVER	Specifies the IP of the secondary adjacency server.
OTV_VLAN	Specifies the OTV vlan ID.

## Configuration Delivery for Templates: OTV Unicast with Two Adjacency Servers and HSRP Isolation Template

**Table 9-16** *OTV Unicast with Two Adjacency Servers and HSRP Isolation Template*

Field	Description
SITE_VLAN	Specifies the site vlan.
SITE_ID	Specifies the site ID.
OVERLAY_ID	Specifies the overlay ID.
JOIN_INTF	Specifies the interface information.
IS_ADJACENCY_SERVER	Specifies the IP of the adjacency server.

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**Table 9-16** *OTV Unicast with Two Adjacency Servers and HSRP Isolation Template*

Field	Description
PRIMARY_ADJACENCY_SERVER	Specifies the IP of the primary adjacency server.
SECONDARY_ADJACENCY_SERVER	Specifies the IP of the secondary adjacency server.
OTV_VLAN	Specifies the OTV vlan ID.

## Configuration Delivery for Templates: OTV Unicast with Two Adjacency Servers and VRRP Isolation Template

**Table 9-17** *OTV Unicast with Two Adjacency Servers and VRRP Isolation Template*

Field	Description
SITE_VLAN	Specifies the site vlan.
SITE_ID	Specifies the site ID.
OVERLAY_ID	Specifies the overlay ID.
JOIN_INTF	Specifies the interface information.
IS_ADJACENCY_SERVER	Specifies the IP of the adjacency server.
PRIMARY_ADJACENCY_SERVER	Specifies the IP of the primary adjacency server.
SECONDARY_ADJACENCY_SERVER	Specifies the IP of the secondary adjacency server.
OTV_VLAN	Specifies the OTV vlan ID.

## Configuration Delivery for Templates: Virtual Port Channel Template

**Table 9-18** *Peer-Link Access Port Channel Template*

Field	Description
DOMAIN_ID	vPC Domain ID
ACC_VLAN	Access VLAN ID
PO_NO	Port channel ID
SRC_IP	Peer keepalive source IP address
DEST_IP	Peer keepalive destination IP address
VRF	Name of the VRF

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**Table 9-18** *Peer-Link Access Port Channel Template (continued)*

Field	Description
INTF_MODE	Link Aggregation Protocol mode
INTF_NAME_RANGE	Range of valid member ports of the port channel

**Table 9-19** *Peer-Link Trunk Port Channel Template*

Field	Description
DOMAIN_ID	vPC Domain ID
ALL_VLAN	Range of VLANs that are allowed on the port channel
NAT_VLAN	ID of the native VLAN
PO_NO	Port channel ID
SRC_IP	Peer keepalive source IP address
DEST_IP	Peer keepalive destination IP address
VRF	Name of the VRF
INTF_MODE	Link Aggregation Protocol mode
INTF_NAME_RANGE	Range of valid member ports of the port channel

**Table 9-20** *Virtual Access Port Channel Template*

Field	Description
vPC_ID	vPC ID
PO_NO	IP address of the port channel
ACC_VLAN	Access VLAN ID
INTF_NAME_RANGE	Range of valid port channels of the member ports
INTF_MODE	Link Aggregation Protocol mode

**Table 9-21** *Virtual Trunk Port Channel Template*

Field	Description
vPC_ID	vPC ID
PO_NO	IP address of the port channel
ALL_VLAN	Range of VLAN allowed on the port channel
NAT_VLAN	ID of the native VLAN
INTF_RANGE	Range of valid port channels of the member ports
INTF_MODE	Link Aggregation Protocol mode

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## Configuration Delivery for Templates: Zone Template

**Table 9-22** *FIP Snooping Template*

Field	Description
HOSTNAME	Specifies the host name of the device.
STORAGE	The storage IP.
HOST_PWWN	The post world wide name of the host.
STORAGE_PWWN	The post world wide name of the storage device.
VSAN_ID	Specifies the vsan ID.
FABRIC A	Specifies the name of Fabric A.
FABRIC B	Specifies the name of Fabric A.
HOST_IF	Specifies the host interface.
HOST_MODULE	Specifies the name of the host module.
STORAGE_IF	Specifies the storage interface.
STORAGE_MODULE	Specifies the name of the storage module.
ZONESET	Specifies the name of the zone set.

## Additional References

For additional information related to configuration delivery management, see the following sections:

- [Related Documents, page 9-37](#)
- [Standards, page 9-38](#)

## Related Documents

Related Topic	Document Title
Port profiles	<i>Cisco Nexus 7000 Series NX-OS Interfaces Configuration Guide, Release 5.x</i>
Configuration rollback in Cisco NX-OS	<i>Cisco Nexus 7000 Series NX-OS System Management Configuration Guide, Release 5.x</i>

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## Standards

Standards	Title
No new or modified standards are supported by this feature, and support for existing standards has not been modified by this feature.	—

## Feature History for Configuration Delivery Management

[Table 9-23](#) lists the release history for this feature.

**Table 9-23** *Feature History for Configuration Delivery Management*

Feature Name	Releases	Feature Information
Configuration Delivery Management	6.1(1)	Configuration delivery templates are supported on the Cisco IOS and the Cisco NX-OS platforms.
Configuration Delivery Management	6.1(1)	Configuration delivery templates are supported in the Cisco DCNM SAN client.
Configuration Delivery Management	6.1(1)	This feature was introduced.