

Panduit Collector for Cisco Nexus Dashboard Installation Guide

Version 1.2

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Panduit Data Collector

Panduit's intelligent Power Distribution Units (PDUs) are compatible with Cisco Nexus Dashboard software to enhance its insights related to Energy Savings and Sustainability.

The integration is available by using the Panduit Data Collector that collects and relays power data from the Panduit PDUs back to Nexus Dashboard through validated APIs. This simplifies the support of existing or new Panduit PDUs.



Data Collector Capacity

A single Data Collector is capable of processing data from up to 5,000 PDUs with a 15min polling rate.



Installation Option 1: OVA Image Files for VMware

- 1. Go to Panduit's download site.
- 2. Download the OVA image file.
- 3. Login to vSphere.
- 4. In vSphere, navigate to the folder where the Virtual Machine (VM) needs to be created.
- 5. Right click the folder and choose **Deploy OVF Template**.



6. In **Deploy OVF Template**:

a. Select Local File and click Upload Files.

Deploy OVF Template	Select an OVF template
1. Select as CVE template	Select an CVT template from remote URL or local file system. Enter a URL to download and notal the CVF package from the internet, or browne to a location accessible from your comput
Contract of the second second	auch as a local hard drive, a network share, or a CD/DVD drive.
2 Select a name and Tokler	Oue
3. Spinel a complete second of	
	Cocal file
	second reas
- 5 . Select alterage .	
6. Pauly to complete	
	CANCEL NEAT

- b. In the File dialog select the ova file that was downloaded earlier.
- c. Click Next.

7. In Select a name and folder:

a. Provide virtual machine name: panduit-dc (or any other name)

8. In Select a compute resource:

a. Select a resource as per your setup. Please note that the following screenshot may not match your environment.



Deploy OVF Template	Select a compute resource select the destruction compute resource for this operation.	×
1 Select an DVF template	∀ (B CASLAB DC) C1 DevOps	
2. Select a name and folder	 ✓ ∰ CAS-LAS-CL Ø cas-ball cit anetasi com 	
3 Select a compute resource	Cashada Anti Colosendud com	
A Review Street	C con-lab-byt-Disponent com	
A finited strength		
it. Henry to compress		
	Conservation	
	Compatibility checks succeeded.	
	5	
	CANC	

- b. Click **Next**.
- 9. In the **Review details** page:
 - a. Review the details.

Deploy OVF Template	Review details Verify the template details	s.
1 Select an OVF template	The OVF package c configuration option	ontains advanced configuration options, which might pose a security risk. Review the advanced is below. Click next to accept the advanced configuration options.
2 Select a name and folder	The certificate is no	t trusted.
3 Select a compute resource		
	Publisher	DigiCert Trusted G4 Code Signing RSA4096 SHA384 2021 CA1 (Invalid certificate)
4 Review details	Product	Panduit Collector
5 Select storage	Vendor	Panduit
6 Select networks	Download size	Unknown
7 Customize template	Size on disk	Unknown (thin provisioned) 52.0 GB (thick provisioned)
8 Ready to complete	Extra configuration	nvram = ovf:/file/file3
		CANCEL BACK NEXT

b. To Avoid the "Certificate is not trusted" warning, see Appendix A: Removing the Certificate Warning.

10. In the **Select storage** page:

a. Select your storage as per your environment.

Deploy OVF Template	Select storage	fouration a	nd dick files					×
1 Select an OVF template	Encrypt this virtual machin Select virtual disk format	e (No encry Thin Pro	nd disk nies (ption policies ava ivision	ilable)				
2 Select a name and folder	VM Storage Policy	nis virtual m	achine					
3 Select a compute resource	Name	т	Storage T	Capacity T	Provisioned	T Free	Y Type	т
4 Review details	GE CAS-LAB-Datasto	re-Clust_	Compatibility	145.7 TB	31.83 TB	113.88 TB	1	
5 Select storage	O Cas-lab-hst-011-loc	cal		318.5 GB	217.53 GB	100.97 G	B VMFS	5
6 Select networks								
7 Customize template								
7 Customize template 8 Ready to complete								
7 Customize template 8 Ready to complete								
7 Customize template 8 Ready to complete								
 Customize template Ready to complete 								2 ite
7 Customize template 8 Ready to complete	Compatibility							2 ite
7 Customize template 8 Ready to complete	D Compatibility ~ Compatibility checks suc	ceeded.						2 ite

b. Click Next.

11. In Select networks:

- a. Select your **Destination vlan** as per your environment.
- b. Leave the defaults in IP Allocation Settings. We will change this in the next page.

Deploy OVF Template	Select a destination network for each	source network.				>
1 Select an OVF template	Source Network		Destination Network			
2 Select a name and folder	VLAN202		VLAN202 ~			
3 Select a compute resource						1 in
4 Review details	IP Allocation Settings					
5 Select storage	IP allocation:	Static - Manual	~			
6 Select networks	IP protocol:	IPv4				
7 Customize template						
8 Ready to complete						
						_
				CANCEL	BACK	NEXT

c. Click Next.

12. In the **Customize template** page:

- a. You will see three sections User, Networking and NTP.
- b. User section:
 - i. Provide the admin password and confirm the password for the collector in the User section. This password needs to be stored in a secure place because it will be used in the Nexus Dashboard.
- c. Network Section:

 This section needs to be populated only when a static IP needs to be assigned. If you are using DHCP, then the Network section needs to be empty as shown below.

Select an OVF template Select a name and folder	All properties have valid values Viser	1 settings	
Select a name and folder	∽ User	1 settings	
Select a compute resource	Collector Admin User Password	Password	 θ
Review details		Confirm Password	 ٥
Select storage	✓ Networking	6 settings	
Select networks	Hostname (If Empty then DHCP)		
Customize template	DNS Server		
customize template	lp Address		
Ready to complete	Netmask CIDR or Slash Notation		
	DNS Domain		
	Gateway		
	Y NT₽	1 settings	
	NTP Server		

- ii. For assigning static IP (only), you need to populate the following mandatory fields for the network to come up in the VM:
 - 1. Hostname Any unique hostname Example: **panduit-dc**.
 - 2. DNS Server DNS server information. Example: 10.138.3.11 (for single DNS) or 10.138.3.11,10.64.3.20 (for multiple DNS servers).
 - 3. IP Address IP you wish to assign. Example: 10.136.202.15.
 - 4. Subnet Netmask CIDR in slash notation.
 - For 255.255.255.0 use 24 For 255.255.255.128 use 25 For 255.255.255.192 use 26
 - 5. Gateway Enter Gateway Example: 10.136.202.1.



Deploy OVF Template	Customize the deployment properties of this software solution.					
1 Select an OVF template	All properties have valid values					
2 Select a name and folder	∽ User	1 settings				
3 Select a compute resource	Collector Admin User Password	Password		0		
4 Review details		Confirm Password		0		
5 Select storage	✓ Networking	6 settings				
6 Select networks	Hostname (if Empty then DHCP)	panduit-dc				
7 Customize template	DNS Server	10.138.3.11,10.64.3.20				
	lp Address	10.136.202.15				
8 Ready to complete	Netmask CIDR or Slash Notation	24				
	DNS Domain					
	Gateway	10.136.202.1				
	~ NTP	1 settings				
	NTP Server					
			CANCEL	ACK NEXT		

- iii. DNS Domain is a non-mandatory field.
- d. NTP
 - i. This is a non-mandatory field
 - ii. Provide the NTP server you wish to be part of the time synchronization of the VM. Example: **time.google.com**.
- e. Click Next.

13. In the Ready to complete page:

a. Review and click Finish to start the import process.

Review your selections be	fore finishing the wizard	
\checkmark Select a name and fo		
	lder	
Name	panduit-dc	
Template name	panduit-dc-1.0.0-b5	
Folder	Collectors	
✓ Select a compute res	ource	
Resource	cas-lab-hst-01Lpanduit.com	
~ Review details		
Download size	Unknown	
✓ Select storage		
Size on disk	Unknown	
Storage mapping	1	
All disks	Datastore: CAS-LAB-Datastore-Cluster; Format: Thin provision	
✓ Select networks		
Network mapping	1	
VLAN202	VLAN202	
IP allocation settings		
IP protocol	IPV4	
IP allocation	Static - Manual	
> Customize template		
	Template name Folder Select a compute rei Resource Review details Download size Select storage Size on disk Storage mapping All disks Select networks Network mapping VLAN202 IP allocation settings IP protocol IP allocation Customize template	Tender anduit-dc-10-045 Peder Collects Select storage Collects Store of dik Collects Store of dik Collects Af disks Collects VLAN202 Collects Pariocolino setting Collects Pariocolino State - Manual > customize template Collects

14. Once the import is complete, the new VM based on the OVA file will be created.



- 15. Power on the new VM for the collector to start. You can login to the VM using SSH with username as **panduit** and password as **panduit#1**.
- 16. You will be asked to change the default password during the first-time login via SSH.

Installation Option 2: Linux Installer

The collector can be installed on the Ubuntu Linux server. These are the Linux requirements.

Linux Environment Dependencies

- whiptail (for the whiptail command)
- docker-ce (for the docker command)
- docker-compose-plugin (for the docker compose command)
- Root access
- Docker hub registry access

Minimum Requirements for a Linux (AMD64/X86_64)

- 4 CPU cores
- 8 GB of RAM
- 50 GB of free space in the /opt partition or where the /opt directory resides
- Ubuntu Server LTS 22.04

Minimum Requirements for a Linux (RPI ARM64) Data Collector Device

- Raspberry Pi 4 Model B (8GB)
- 50 GB of free space (note: you must be using an SSD drive)
- Ubuntu Server LTS 22.04

Installation can begin once the pre-requisites are met.

- 1. Download the Linux Installer files from Panduit's download site.
- 2. Copy the installer file, installer signature, and public certificate to the Linux host.
- 3. Extract public key from the downloaded public certificate.

```
ubuntu> openssl x509 -pubkey -noout -in
```

```
panduit_public_cert.pem > panduit_public_key.pem
```

```
4. Verify the Linux Installer.
```

```
ubuntu> openssl dgst -sha256 -verify panduit_public_key.pem -
signature panduit-dc-installer-linux-<version>.tar.gz.sig
panduit-dc-installer-linux-<version>.tar.gz
```

Verified OK

- 5. Check for "Verified OK" message.
- 6. Untar the Linux Installer.
 - a. ubuntu>tar -xvzf panduit-dc-<version>.tz
- 7. Change to panduit-dc directory.

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- a. ubuntu>cd panduit-dc
- 8. List the files in the directory. You will see one file (anduit-dc-install.sh) and one folder (components).
 - a. ubuntu>ls
 - components panduit-dc-install.sh
- 9. Execute the **panduit-dc-install.sh**.
 - a. ubuntu>sudo ./panduit-dc-install.sh
- 10. You will be prompted for admin user password. The password should:
 - a. Have a minimum length of 8 characters
 - b. Have at least one uppercase letter
 - c. Have at least one lowercase letter
 - d. Have at least one digit
- 11. The installer exits if you entered a password that does not match the criteria. You need to run the installer again from step 6 to continue.
- 12. If the password is valid then in the next screen re-confirm the password.
- 13. The installer will download all the appropriate containers to the Linux host and will start the collector.
- 14. If the installer was successful, then you will see an "Installation is done" message.



Upgrading Panduit Collector Software

Follow the instructions below to update the Panduit Collector software after it was installed through an OVA image or a Linux Installer. Note that this method only updates the Panduit collector software stack and not the Linux host or the Virtual Machine. In addition, it also does not affect the application's current state. All the registered devices and their configuration will remain intact after the upgrade.

- 1. Login to Panduit collector host via ssh.
 - a. You can login to the VM using SSH with default credentials for the first time (panduit/ panduit#1)
- 2. Navigate to /opt/panduit/scripts folder.
 - a. panduit@panduit-dc>cd /opt/panduit/scripts
- 3. Execute the upgrade script
 - a. panduit@panduit-dc>sudo ./upgrade.sh
 - b. It checks for connectivity to Docker hub
 - c. Removes current Panduit collector images
 - d. Retrieves the most recent collector images
- 4. Once the process finished you will see "Upgrade Complete" message

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Troubleshooting

Issue 1: Network Issue on OVA based Virtual Machine:

- 1. Login to Panduit collector host via ssh.
 - a. You can login to the VM using SSH with default credentials for the first time (panduit/ panduit#1)
- 2. Open the network configuration file.
- a. panduit@panduit-dc >sudo vi /etc/netplan/00-installer-config.yaml
- 3. Edit this file to suit your environment (DHCP or Static IP)
- 4. For DHCP the configuration should look like:



5. For static IP setting the configuration should like the following:



You need to replace IP (10.136.205.15), netmask (/24), default route (10.136.205.1) and the name server (10.138.3.11) with your network information.

- Apply the netplan configuration once the configuration file is updated and saved a. panduit@panduit-dc >sudo netplan apply
- 7. Verify that your VM's network issue has been fixed



Issue 2: Log Files for Troubleshooting Panduit Collector

- 1. To access the Panduit collector log files, login to Panduit collector host via ssh.
 - a. You can login to the VM using SSH with default credentials for the first time (panduit/panduit#1)
- The log files are located in /opt/panduit/logs directory

 panduit@panduit-dc >cd /opt/panduit/logs
- 3. There are two log files: PanduitNormalizer.log & PanduitCollector.log
- 4. Panduit collector logs error and other information into these two log files which can be helpful in troubleshooting.

Appendix A: Removing the Certificate Warning

To Avoid the "Certificate is not trusted" warning, import the Digi Cert's Root and Intermediate certificate into vSphere.

The Certificates can be downloaded from Digi Cert's web site: https://www.digicert.com/kb/digicert-root-certificates.htm#roots

Note: Search using the specific Serial# listed below for the correct certificates in the Digi Cert's website as there are many Root and Intermediate certificates listed there.

Digi Cert Root Certificate:

 DigiCert Trusted Root G4

 Valid until: 15/Jan/2038

 Serial #: 05:9B:1B:57:9E:8E:21:32:E2:39:07:BD:A7:77:75:5C

 SHA1 Fingerprint: DD:FB:16:CD:49:31:C9:73:A2:03:7D:3F:C8:3A:4D:7D:77:5D:05:E4

 SHA256

 Fingerprint: 55:2F:7B:DC:F1:A7:AF:9E:6C:E6:72:01:7F:4F:12:AB:F7:72:40:C7:8E:76:1A:C2:03:D1:D9:D2:0A:C8:99:88

Digi Cert Intermediate Certificate:

 DigiCert Trusted G4 Code Signing RSA4096 SHA384 2021 CA1

 Issuer: DigiCert Trusted Root G4

 Valid until: 28/Apr/2036

 Serial #: 08:AD:40:B2:60:D2:9C:4C:9F:5E:CD:A9:BD:93:AE:D9

 SHA1 Fingerprint: 7B:0F:36:0B:77:5F:76:C9:4A:12:CA:48:44:5A:A2:D2:A8:75:70:1C

 SHA256

 Fingerprint: 46:01:1E:de:1C:14:7E:B2:BC:73:1A:53:9B:7C:04:7B:7E:E9:3E:48:B9:D3:C3:BA:71:0C:E1:32:BB:DF:AC:6B

Download both the Root and Intermediate certificates into vSphere:

\equiv vSphere Client $$ Q									© 0×	
	< Ce	rtificate Management					PLN-CA	S-VC-7-03.PANDUITLABS	сом ч	
Administration										
Access Control	~	Machine SSL Certificate		VMware Certificate A	utho	ritv	STS Signing	Certificate		
Roles						,				
Global Permissions		MACHINE CERT		VMCA ROOT CERT			STS CERT			
Licensing	~						Co Malia waki Fak	1 2024		
Licenses		S valid difui Peb 6, 2026		S Valid Until Feb 1, 2034			S valid undi Peo	1, 2034		
Solutions	~	Private Key and Certificate chain		VMCA			Certificate			
Client Plugins vCenter Server Extensions		VIEW DETAILS ACTIONS ~		VIEW DETAILS ACTIONS ~			VIEW DETAILS	ACTIONS Y		
Deployment	~									
System Configuration Customer Experience Improvement Program Client Configuration		Trusted Root Certificates ADD	•	_						
Support	~	6837E0EBB63BF85F1186F	1A:	2F98132FF97EFEE3016		ECD7E382D2715D	644CDF2			
Upload File to Service Request		Valid until Apr 28, 2036	a	/alid until Feb 1, 2034		Ø Valid until Jan 15, 20	38			
Single Sign On	~	Cartillente	Cor	ifente		Contificato				
Users and Groups		Centincate	Cer	uncate		Certificate				
Configuration		VIEW DETAILS	VIE	W DETAILS		VIEW DETAILS				
Certificates	~									
Certificate Management		Once Digi Cert	''s Root & Inte	rmediate Certificates are added they will be	visible h	wr:				



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