

JÚC ZPE[®] Cloud User Guide v2.12.0

ZPE Systems, Inc.



Contents

Introduction to ZPE Cloud User Guide	1
Overview	1
Features	2
API Reference	2
Credits	2
Contact us	2
Getting Started	3
Web Page Sign In	3
SSO with Identify Provider	4
Forgot Password?	5
Still need help?	5
Sign Up for a New Account	5
Mobile Apps	7
iOS	7
Android	7
About ZPE Cloud User Interface Views	7
Administrator UI View	7
Operator UI View	8
User UI View	8
Search Function	8
Banner Header	8
Show/Hide Banner Header	8
Notifications Shortcut	9
View Events	9
Account Settings	9
Change Password	10
Account Details	
Company Details	
About	
DASHBOARD Section	
MAP tab	
Site/Device Map Details	
Site/Device Status	
Map Zoom View	14
ACCESS tab	
Filters	
Device Details	
Access a Device	
CELLULAR DATA tab	
SITES Section	
GENERAL tab	
Manage Sites	
DEVICES tab	
Filter Displayed Devices	
Manage Devices on Sites	24

GROUPS Section	24
GENERAL tab	24
Manage Groups	25
DEVICES tab	31
Display Device Details page	32
Manage Group's Devices	32
USERS tab	33
Manage Users	33
DEVICES Section	35
ENROLLED tab	37
Manage Enrollment	38
AVAILABLE tab	42
Manage Available Devices	43
PENDING APPROVAL tab	45
Manage Device Transfer	46
USERS Section	46
GENERAL tab	46
Manage Users	46
PROFILES Section	49
CONFIGURATION tab	49
Manage Configuration/Script	50
Encryption Requirements	55
OS Encryption	55
SOFTWARE tab	56
Software Options	57
BACKUP tab	57
Manage Backups	58
FIRMWARE tab	59
Manage FIrmware	60
OPERATION tab	60
JOBS sub-tab	60
SCHEDULES sub-tab	62
TEMPLATE tab	63
Manage Templates	64
TRACKING Section	65
OPEN SESSIONS tab	65
CLOUD sub-tab	65
LOGS tab	66
CLOUD sub-tab	66
DEVICE sub-tab	68
NOTIFICATIONS tab	70
OPEN sub-tab	70
CLOSED sub-tab	71
SETTINGS Section	73
ENROLLMENT tab	73
CLOUD sub-tab	73
ON-PREMISE sub-tab	75
COMPANY tab	76

Manage Company Details	
SSO tab	
IDENTITY PROVIDERS sub-tab	
Configure SSO Identify Providers	
CERTIFICATE sub-tab	-
NOTIFICATIONS tab	88
EVENTS sub-tab	88
Email sub-tab	
SMS sub-tab	
SUBSCRIPTIONS tab	
Manage Subscriptions	
Request a Subscription Renewal	
APPS Section	
ACTIVE tab	
AVAILABLE tab	
App Descriptions	
Reports App	
SD-WAN app	
Extended Storage app	
Palo Alto Prisma Access app	
Generic Forwarder app	
Nodegrid Data Lake app	108
Appendix A - Nodegrid Manager	108
Install Nodegrid Manager	108
VMware vSphere	108
Deploy Nodegrid Manager	112
VMware Workstation	116
Enroll Nodegrid Manager to ZPE Cloud	118
Appendix B – SD-WAN User Guide	120
Activate SD-WAN App	120
SD-WAN Banner	121
SD-WAN Setup Process	
DASHBOARD :: MAP tab	122
Manage Map Details	122
DASHBOARD :: TRAFFIC tab	125
DEVICES section	126
Manage Devices	127
TOPOLOGIES section	129
Manage Topologies	
PROFILES :: NETWORKS tab	132
Manage Networks	
PROFILES :: LINKS tab	
Manage Links	
JOBS section	138
Manage Jobs	
SUBSCRIPTION section	
Manage Subscriptions	
Appendix C – Nodegrid Data Lake User Guide	140

Use Case Example	. 141
EXPLORER tab	. 142
DEVICES tab	. 151
Manage Devices	. 152
PLUGINS tab	. 153
Manage Plugins	. 153
PROFILES tab	. 154
Manage Profiles	. 154
SUBSCRIPTION tab	. 157
Manage Subscriptions	. 157
CONFIGURATION tab	. 157
SAMPLE DATA sub-tab	. 157
DATA POLICY sub-tab	. 159
Nodegrid Data Lake Plugins	. 159
ConnTrack	. 159
CPU (Usage, State)	. 160
Curl	. 163
Disk	. 165
Exec	. 166
Interface	. 173
Load	. 174
LogFile	. 174
Memory	. 175
Ping	. 177
Process	. 179
Protocols	. 180
Tail	. 181
Tcpconns	. 182
Thermal	. 182
Uptime	. 184
Users	. 185
Create Visualization	. 186
Line Charts	. 188
Other Plugin Graph Representations	. 193



PDF

Introduction to ZPE Cloud User Guide

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If any features/functions cannot be viewed, user does not have necessary privileges.

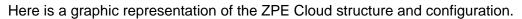
Overview

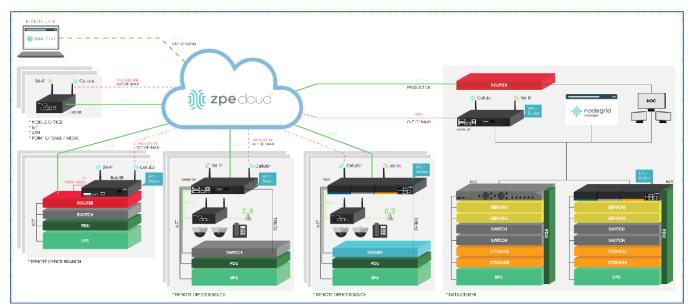
ZPE Cloud is a cloud-based management platform for Nodegrid products. Ongoing management provides a 360° visibility of the entire network deployment, complete with rich analytics. ZPE Cloud integrates all Nodegrid products into a single cloud platform. Branch IT devices are managed with via Serial, USB, IPMI, Power Management, and KVM.

ZPE Cloud ensures IT devices shipped to branch locations do not require staging or pre-configuration. When the device is installed, devices are then configured and integrated into the network. This maintains network security. No risk of shipping a USB thumb drive or third-party hands touching the network. Devices are deployed with consistent, automated provisioning within the ZPE Cloud from the safety of the NOC.

Nodegrid SR devices include failover capabilities via 4G/LTE cellular. Branch reconnection to the NOC is automatic via VPN or IPSec (even when Nodegrid is the first deployed branch device. Networking options can be extended with Guest OS & SDN. Compute power options deploy uCPE on Nodegrid Compute cards. IoT options use deployed Docker and Kubernetes directly on Nodegrid.

All Nodegrid products have a physical "Reset" button that reconnects devices back to the ZPE Cloud - a fast, easy process.





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Features

Primary ZPE Cloud features include:

- Cloud-based configuration & management of Nodegrid devices.
- Secure, fast, and consistent device deployment across all branch locations.
- Single Sign On (SSO) for fast access to all devices.
- ZTP over WAN deployed devices are configured at the branch.
- Deploy configurations across the entire network.
- Direct interaction with branch locations to quickly scale and upload configurations from NOC
- Reset button automatically reconnects the device.
- All managed devices and ports are remotely accessible.

API Reference

For API developers, ZPE Cloud API details are available here: <u>ZPE Cloud API</u>.

Credits

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Getting Started

Web Page Sign In

- 1. In the browser, enter the ZPE Cloud login URL: https://<your_domain>.zpecloud.com/login
- 2. Enter credentials (Email Address and Password), then click SIGN IN.

		j zpecloud
Sign in. Please enter your credentials to	proceed.	Cloud Based Branch IT Device Provisioning and Deployment
EMAIL ADDRESS*	FORGOT PASSWORD?	Secure,
SiGN	™	Fast,
Create a new account okto. SIGN IN WITH OKTA	SIGN IN WITH DUO	and Consistent.
SIGN IN WITH PINGIDENTITY SIGN IN WITH AZURE AD	SIGN IN WITH ADFS	 Eliminate the Opportunity for Backdoors via Device Theft Cloud Based Zero Touch Provisioning
		Scale Quickly, Deploy Branches Faster Quick Reset and Reconnect

NOTE: The ZPE Cloud default language is based on the browser language setting.

Login Failure

1. If incorrect credentials are entered, this is the response.



EMAIL ADDRESS*	
somebody@zpesystems.co	m
PASSWORD*	FORGOT PASSWORD?
	0
SIGN I	I.
	i
Create a new account	
Create a new account	

- 2. On the error message, click the "X" to close.
- 3. Carefully re-enter the credentials to ensure accurate input.

SSO with Identify Provider

If registered with one of these Identify Providers, use those credential channels to log into ZPE Cloud.

1. Click the appropriate Identify Provider,



2. On the Sign-in dialog, enter personal credentials.

Sign in.		
Please enter your credentials to proceed	l.	
EMAIL ADDRESS OR DOMAIN*		
<u></u>	SIGN IN WITH AZURE	
Create a new account		Return



3. On validation, the ZPE Cloud application opens.

Forgot Password?

1. On the Login page, click FORGOT PASSWORD?.

Sign in.			
Please enter your credentials to proceed.			
EMAIL ADDRESS*			
PASSWORD*	FORGOT PASSWORD?		
	Ο		
SIGN IN			
Create a new account			

2. On the Forgot Password dialog, enter the email address associated with the ZPE Cloud account.

Forgot Password
Fill the field below to reset your password
Email *
SEND RESET REQUEST
Close

- 3. Click SEND RESET REQUEST.
- 4. When the email is received, follow the instructions to reset the password.

Still need help?

To contact the ZPE Support team, send an email describing the situation to: support@zpesystems.com

Sign Up for a New Account

For first-time access, a new account is required.

- 1. In the browser, enter: https://zpecloud.com/signup
- 2. Click Create a new account.



Sign in. Please enter your credentials to proceed.	
EMAIL ADDRESS*	
PASSWORD*	FORGOT PASSWORD?
	O
SIGN IN	
Create a new account	

3. On the Sign up dialog, enter details in the required fields (marked with red asterisk *).

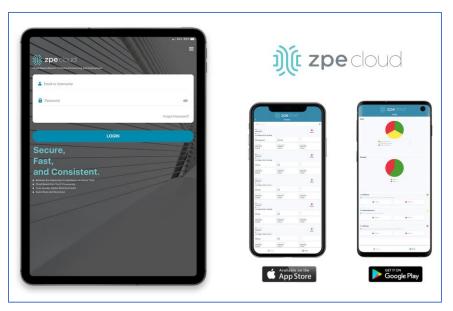
Company details		
BUSINESS NAME *		
ADDRESS *	CONTACT EMAIL *	
User details FIRST NAME *	LAST NAME *	
EMAIL *		
PHONE NUMBER *	PASSWORD*	Θ
I'm not a robot	reCAPTCHA Privacy - Terms	
		Return to login

- 4. Click SIGN UP.
- 5. When the verification email is received, follow the instructions.



Mobile Apps

The ZPE Cloud app is available for both iOS and Android.



iOS

On the iOS device, launch the App Store and search for "ZPE Cloud":

https://apps.apple.com/us/app/zpe-cloud/id1467791371

Android

On the Android device, launch the Play Store and search for ZPE Cloud:

https://play.google.com/store/apps/details?id=com.zpe

About ZPE Cloud User Interface Views

The ZPE Cloud UI has three levels of user access permissions. The user interface (UI) changes, based on the assigned permission level. This document contains all procedures, including those only available to administrators. If any functions are unavailable, it is because of limitations of user credentials.

NOTE: To refresh a page, click on the page's tab.

Administrator UI View

This permission allows full functionality and access to all Cloud functions



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Operator UI View

) (c zpe cloud)
 QA Team Company
 ? Help
 U Logout

 Image: Company
 Image: Company
 C
 C

 DASHBOARD
 DEVICES
 PROFILES
 LOGS

User UI View

Device access is allowed within the assigned group.

All device operations are allowed within the user's assigned Group(s).

))(t zpe cloud	QA Team Company	<mark>ሀ</mark> Logout
DASHBOARD		0

Search Function

All section pages include the **Search** field. To use, start to type the search term. The table listing adjusts according to the entered characters.

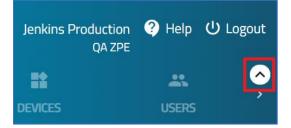
Search:	Search User

Banner Header

This banner header includes several short-cut links.

Show/Hide Banner Header

1. To hide the Header, click the Up Arrow (upper right).



2. To display the Header, click the Down Arrow.

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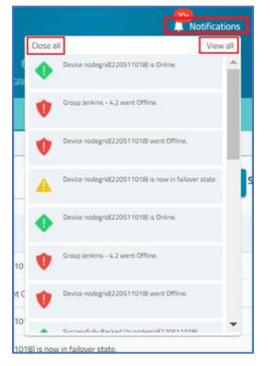


Notifications Shortcut

ZPE Cloud provides notifications of events on enrolled devices. All notifications are available within the application. Warning and Critical Error events can be sent to specific individuals by email and/or SMS. Notifications arrive asynchronously from any enrolled device.

View Events

1. To view recent events, click **Notifications** (upper right).



2. On the Notifications dialog, there are two buttons:

Close all (upper left) to acknowledge awareness of the listed events.

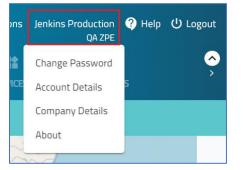
View all (upper right) to open the TRACKING :: NOTIFICATION page of all current notifications.

Account Settings

To change account and company details, click on the account name (top right corner).

1. Click on the Account Name (upper right corner) to display the drop-down menu.





2. Click on the item to be updated.

Change Password

- 1. On the Account Name (upper right) drop-down, click Change Password.
- 2. On the Change Password dialog, enter the required fields:

Change Password	
Fill the fields below to change your password	
Old password *	
	Ø
New password *	Ø
Confirm password *	8
Change Password	

3. Click CHANGE PASSWORD.

Account Details

1. On the Account Name (upper right) drop-down, click Account Details.



Account Details	
Find below your account details	
Firstname	Lastname
Allan	Sand
Email *	- Phone Number
allan.sand@zpesystems.com	1321456789
Session Idle Timeout(seconds) *	
3000	
	CANCEL SAVE

- 2. On the Account Details dialog, update fields, as needed.
- 3. Click SAVE.

Company Details

NOTE: This information can only be edited with Administrator privileges.

- 1. On the Account Name (top right) drop-down, click Company Details.
- 2. On the Company Details dialog, review the fields.

Company Details					
Business Name *					
Address -					
R. 7 de Setembro, 1678 - sala 5 - Centro, Blumenau - SC, 89010-202					
Domain					
production.zpecloud.com					
Close Edit					

3. When done, click Close.

Edit Company Details

Access to Edit button, requires Administrator privileges.

- 1. (if available) Click Edit.
- 2. On the SETTINGS :: COMPANY page, make changes, as needed.

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Company Details	
SAVE	
Find below your company details	
- Business Name *	
QA ZPE	
Address	
R. 7 de Setembro, 1678 - sala 5 - Centro, Blumenau - SC, 89010-202	
Contact Info	
raquel.isensee@zpesystems.com	
Domain	
production	.zpecloud.com
Session Tracking	
Session Tracking Track session based on SSID (Session ID)	
Track session based on SSID (Session ID) Track session based on Source IP address and SSID (Session ID)	
Track session based on SSID (Session ID)	

- 3. To add/change a logo to the user interface, click Upload Logo (must be jpg, jpeg, or png format).
- 4. In the Open dialog, locate and select the image.

The logo is displayed on the Login page and the ZPE Cloud windows (upper left).

5. When done, click **SAVE**.

About

1. On the **Account Name** (top right) drop-down menu, click **About** (displays latest version of ZPE Cloud).



- 2. Click **Release Notes** link to open another browser window that displays current and previous Release Notes. Review as needed and close the browser window.
- 3. On the pop-up dialog, click **CLOSE**. or on any area outside the dialog box.

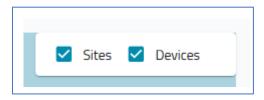
DASHBOARD Section

MAP tab

This page shows device location, relevant statistics, and current status of Sites and Devices.



To toggle Map view of sites and devices, select/unselect the **Sites** checkbox and **Devices** checkbox. (select to display and unselect to hide).



Site/Device Map Details

Hover over a device to display the Host Name:



Hover over a site to display Site details.

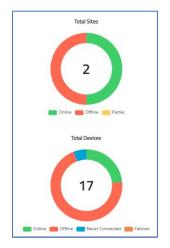






Site/Device Status

Status Panel (right side) provides a summary of Sites and Device status conditions. Hover over the individual colors for more information. Legend provides status conditions



Click the Site circle chart to go to the SITES section. Click the Devices circle chart to go to the *DEVICES* section. These Charts show the total registered sites and devices, and the total proportion for each status. Status conditions are shown in the Site Status and Device Status tables.

Site Status

Status	Description
Online	All devices at that site are online
Offline	All devices at that site are offline
Partial	Some devices at that site are online while others are offline

Device Status

Status	Description
Online	Device is online.
Offline	Device is offline.
Never Connected	Device has never connected to ZPE Cloud.
Failover	Device is not using the primary network interface.

NOTE: Device status is updated at regular intervals.

Map Zoom View

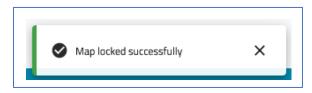
Each user can configure a specific zoomed map view. Once set, the map automatically zooms when the user views the Dashboard Map tab (can be modified any time).



- 1. Go to DASHBOAD :: MAP.
- 2. Use the Zoom plus (+) and minus (-) buttons with drag feature to set the map view.
- 3. When positioned, click the Map Lock button (lower-left).



4. A pop-up dialog confirms the Map is locked.



ACCESS tab

On this page, a remote connection can be launched to a Nodegrid device, one of its ports, or a managed device connected to it.

MAP	ACCESS	CELLULAR DATA					
					Search: Sea	arch Hostname, Serial No, Site Nai	me, Model or Child device
Hostname	Serial Number	Status All 🔹	Model	Site Name	Group Name	Network Interface	Connect
> nodegrid	230040619	Offline	GateSR			ETHO	
> nodegrid	410392020	Offline	NSR	-	-	ETHO	
> nodegrid-test-change-hostname	140743917	Offline	NSC-T48S	-	-	ETHO	
> nodegrid	15195P1017	 Online 	NSC-T96	-	testgroup	ETHO	
> nodegrid	000121631	 Online 	NSC-T48S		testgroup	ETHO	CONSOLE WEB
> nodegrid	000091638	Offline	NSC-T48S		-	ETHO	
wsperpage: 10 ▼ 1-6 of 6	< >						
Application							Connect
Palo Alto Prisma Access	xess https://www.google.com				WEB		
google_test	https://www.google.com2						WEB

Click the **Right-Arrow** button next to a device to review a drop-down dialog. Click the **Down-Arrow** to close the dialog.





Filters

Listing can be filtered by Status, Site Name, or Group Name.

Device Details

To view details on the device, click on a Hostname:

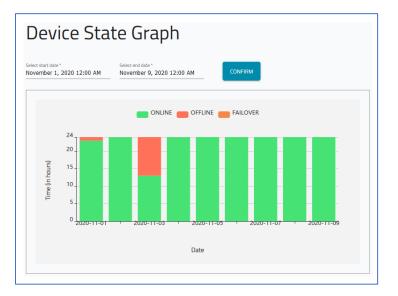
« colsect		
Device details		
	Hardware details	Device information
	Model: NSC-T96	Hostname: nodegrid
	Part number: NSC-T96-UPG1-DAC	Version: v5.2.2 (Jul 28 2021 - 13:19:19)
	Serial number: 15195P1017	BIOS Version: 51228T00
	CPU: Intel(R) Atom(TM) CPU E3845 (a) 1.91GHz	Associate company: QA ZPE
	CPU Bogomips: 3833.33	Uptime: last seen on 07/29/2021 06:36:52
	CPU Cores: 4	Status: Offline
	Number Of PSU: 1	First connection: 05/19/2021 23:52:22
		Last connection: 07/29/2021 06:36:52
		Revision tag: r1
		Current profile: test_script_template
Device State Graph		
Table I der Later * Stade I we dater * August 5, 2021 August 5, 2021 Convertised		
100-		
E 80-		
8 20-		

Major menus include:

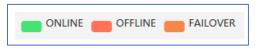
- Device Details
- Device State Graph (state of device by day and hour)
- IMEI Cellular Information
- SIM Card Information
- SIM Status Graphs

Device State Graph

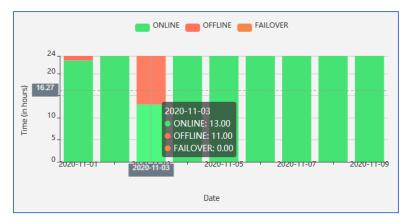
The Device Status Graph menu displays the state of the device on a bar chart.



- 1. To filter data, select a start and end date, then click Confirm.
- 2. Each option can be viewed/hidden by a click on the three categories:



3. For more detailed information, hover the mouse cursor over a particular point on the graph:



Connections

Supported connections are WEB (WebUI), Console (CLI window), KVM, and MKS.

Device Connection Types

Device	Connection
Nodegrid	Web and Console
USB Ports	Console
Serial Ports	Console



Device	Connection
Managed Device	Web, Console, KVM, MKS

(Grayed button indicates Connection function is disabled.)

>	nodegrid	234360320	Online	GateSR	-	Jenkins - 5.0	test_connection	WEB
>	nodegrid	000121631	Offline	NSC-T48S	-	-	ETHO	
>	nodegrid	230040619	Offline	GateSR	-	-	ETHO	
>	nodegrid	220511018	Online	NGB-SR		Jenkins - 4.2	test_connection	WEB

List can be filtered by Site, Group, Device, and Time period.

NOTE: If Remote Access is not enabled on the Nodegrid device, the connection type buttons are disabled (grayed out).

Access a Device

There are two ways to access a listed device.

CONSOLE - on login to the device, opens the CLI command line window.

WEB – on login to the device, open the WebUI of the device.

If these buttons are greyed out, there is no device access.

Log into a Device

- 1. To launch a device's remote connection, in the *Connect* column, click Connect button.
- 2. On the small pop-up dialog, select Console (opens CLI window) or Web (opens device UI).

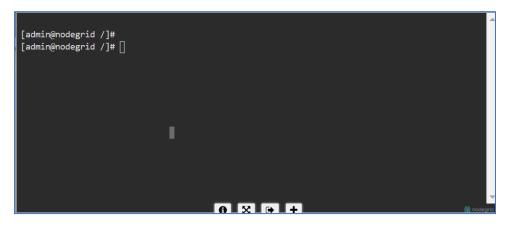


3. On the Login page, enter device credentials and click Login.



4. If **Console** is selected, the CLI window displays.





5. If **Web** is selected, the Nodegrid device user interface displays.

L. Access	8 Tracking	O System	Network	Managed Devices	Cluster	Security	Auditing	ଲାହି Dashboard	
Table	Tree								
Access :: Ta	able							📮 Pin it	C Reload
Search:						Cor	nnected In-Use	Disconnected	Unknown
- Ņį	nodegrid	ionsole Info	File Manager					0	Columns +
Name									Action
📮 te	est_fallback							C	onsole

Enable Remote Access on Device

By default, Nodegrid remote access is disabled. To enable:

- 1. Login to the device's Web connection.
- 2. Go to Security > Services.
- 3. In the ZPE Cloud menu, select Enable Remote Access checkbox, then click Save.

Local Accounts				
Security :: Services				C Reload
Save				
ZPE Cloud				
Enable ZPE Cl	oud			
ZP	E Cloud URL: https://	zpecloud.com		
Enable Remote	te Access			
🗆 Enable File Pr	otection			



CELLULAR DATA tab

This page includes information related to cellular modems and SIM cards. The view can be displayed for a specific time frame.

DASHBOARD	ПП SITES	GROUPS	DEVICES	USERS	PROFILES	i≡ LOGS	¢ Settings	
мар	ACCESS	CELLULAR	АТА					
Select Site	▼ Select Group	s 👻	Select Aggregation None	• Devices		Select period * Current Period	Ť	CONFIRM
	Device Ag	ggregated U	sage				Device A	ggregated Tx and Rx
			157 UBIOU/2020 UBIOU/2020			bBytes 1.00 Bytes 819.20 B 614.40 B 409.60 B 204.80 B 0 B	09/09/2020 10:51:3	7 1909/2020 04:53:37 10/09/2020 10:55:18
	Devices details							
	Hostname		Serial B			Model		
	nodegrid		simulator_d	avice_21406		NSR		

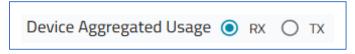
1. To filter results, select one of the following and a designated time range:

Site

Group

Device

2. As appropriate, select RX or TX radio button.



- 3. Below the graphical data, a table provides additional details:
- 4. In the table, click the hostname of any device to display its Device Details page.

On the *Device Details* page (below the cellular modem information), is the accumulated data consumed per SIM card within the selected time window (in MB). With this graph, a review of data usage limits can be checked against the Data Plan Renewal Date.

Data Usage (Gigdytet) Threaded
0.5 0 2801/2020 05:36-46 2801/2020 05:36-46 2801/2020 05:51:46 04:02/2020 06:05:24



The SIM STATS shows the amount of data transfer with a cellular modem connection for a specified time period. Data is separated by each installed SIM card in that cellular modem. Data is split between data transmitted (TX) and data received (RX).

	SIM1	SIM2
500.000 400.000 200.000 100.000 0 27/01/2020 06.45:10	27/01/2020 08:25:10 27/01/2020 10:01:10 27/01/2020 11:41:10	NO DATA

SITES Section

A Site is a logical association of a name and address (or coordinates) and includes multiple devices. Each device in a Site has a status (online, offline). Sites are viewable on the MAP page, with coordinates.

GENERAL tab

This page lists all of the Company's Sites. Sites can be added, deleted, and updated.

gen	ERAL	DEVICES	
+ Add	Edit	Delete	Search: Search Site or Address
	Site Name	Site Address	# Device Assigned
	Raquel's Company	Rue de Rivoli, 75001 Paris, França	1
	regression_test_12	maharashtra	1
Row per page	10 🔻 1-2 of 2	$ \langle \rangle \rangle$	

Manage Sites

Add a new Site

- 1. Go to SITES :: GENERAL.
- 2. Click +Add (displays dialog).



GENERAL	
Add New Site	
« CANCEL SAVE	
Fill the fields below to add a site	
- Name *	Address *
_ Latitude *	Longitude *

- 3. Enter Name (name of site)
- 4. Enter Address (street, city, state, country)
- 5. Enter Latitude and Longitude (use any GPS device)
- 6. Click SAVE.

The Site becomes visible on the MAP tab.

Edit Site Details

- 1. Go to SITES :: GENERAL.
- 2. On the list, identify the site and select the checkbox.
- 3. Click Edit.
- 4. Make changes, as needed.
- 5. Click SAVE.

Delete a Site

- 1. Go to SITES :: GENERAL.
- 2. On the list, locate the site and select the checkbox next to the name.
- 3. Click Delete.
- 4. On the Delete Confirmation dialog, click DELETE.

DEVICES tab

This page lists devices assigned to a site or available to be assigned to a site.



GENERAL	DE	MCES					
Select Site * All	•	+ Add	× Remove From	n Site	Search: Searc	h Hostname, Serial I	No, Site Name or
Hostname	Serial Number	Model	Part Number	Status	Registration Date	Last Connection Date	Site Name
nodegrid	220381018	NGB-SR	BSR-T8-BASE	I Offline	02/03/2021 09:04:05	02/03/2021 12:09:58	-
nodegrid	000121631	NSC-T48S	NSC-T48S- STND-DAC-B	Online	08/17/2021 06:01:41	08/17/2021 06:01:41	-

Filter Displayed Devices

View Devices assigned to a Site

- 1. Go to SITES :: DEVICES.
- 2. ,Click the **Select Site** down arrow.

GENERAL	DEVICES
Select Site *	► + Add

All	-	+ Add
All		
Unassigned		Model
Colud2.10_Test_Fanlu	٩r	
Raquel's Company		

- 3. On the drop-down, select one:
 - All (all devices, regardless of status)

Unassigned (only devices not assigned to a Site)

<name of site> (devices assigned to the Site)

The list updates according to the selection.

Two Ways to View Devices

On the *GENERAL* tab, click the **Site Name**. View changes to the DEVICES tab and lists all devices assigned to that site.

On the DEVICES tab, Select Site drop-down, click the site name.

View Devices Not Assigned to a Site

- 1. Go to SITES :: DEVICES.
- 2. On the Select Site drop down, select Unassigned.
- 3. The list displays all unassigned devices.



Manage Devices on Sites

Remove a Device from a Site

- 1. Go to SITES :: DEVICES.
- 2. On the Select Site drop down, select a site.
- 3. On the table, identify the device and select the checkbox.
- 4. Click Remove From Site.
- 5. The removed device is displayed in the Unassigned Device list.

Move an Unassigned Device to a Site

- 1. Go to SITES :: DEVICES.
- 2. On the Select Site drop down, select Unassigned.
- 3. On the list, identify the device and select the checkbox.
- 4. Click +ADD (displays dialog).

GENERAL	DEVICES	
🗧 Back 🔰 🕂 Add On S	ke	Search: Search Site or Address
Site Name	Site Address	# Device Assigned
Colud2.10_Test_Far	u 46757 Fremont Blvd, Fremont, C	A 94538 -
Raquel's Company	Rue de Rivoli, 75001 Paris, Franç	;a -

- 5. Select checkbox next to device.
- 6. Click +Add On Site.

The device is added to the selected Site.

GROUPS Section

A Group is a logical association of multiple devices and multiple users. The association can use any criteria – location, type, purpose, etc. Each group can have one or more Group Admins who manage one or more groups of devices.

GENERAL tab

Groups are managed on this page. When a group checkbox is selected, available managements are displayed. Any greyed buttons are unavailable functions.(



GENERAL	DEVICES USERS		
⊢ Add Edit	Delete Set As Default	Apply Configuration Software Upgrade	Search: Search Group Backup Cellular Upgrade
Group Name	# Device Assigned	# User Assigned	Permission
Administrator	0	5	Administrator
ZPE Cloud Admin US Dev	0	0	Administrator
Operator	0	0	Operator
Jenkins - 4.2	1	1	Operator
Jenkins - 5.0	0	1	Operator
User [Default]	0 Edit a Group -	4	User

Manage Groups

Add a Group

- 1. Go to GROUPS :: GENERAL.
- 2. Click **+Add** (displays dialog).

Fill the fields below to add a group Name* Permission Administrator - Company management Image: Operator - Device management	Add New Group	SAVE		
Permission O Administrator - Company management O Operator - Device management	Fill the fields below to	add a group		
Administrator - Company management Operator - Device management	— Name * ———			
Operator - Device management	Permission			
		Company management		
User - Access only				

- 3. Enter a **Name** for the new group.
- 4. Select the group's permission level.

Administrator radio button (manages all devices, company credentials, and users within their company)

Operator radio button (performs and creates operations within all devices assigned to their group)

User radio button (can only access devices within the group)

5. Click **SAVE**.

Edit a Group

1. Go to GROUPS :: GENERAL.



- 2. Locate the Group and select the checkbox.
- 3. Click Edit (displays dialog).

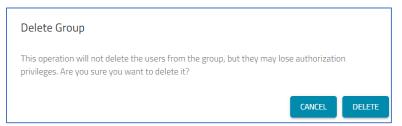
GENERAL	DEVICES	
Edit Group		
CANCEL SAVE		
Fill the fields below to edit a gro	oup	
Name* GroupTest_Fanlu		
Permission		
Administrator - Company r	management	
O Operator - Device manage	ment	
O User - Access only		

- 4. Make changes, as needed.
- 5. Click **SAVE**.

Delete a Group

To delete one (or more) group(s):

- 1. Go to GROUPS :: GENERAL.
- 2. Locate the Group and select the checkbox.
- 3. Click Delete (displays dialog).



4. On the *Delete Group* pop-up dialog, click **DELETE**.

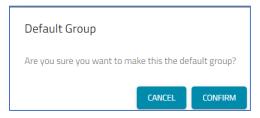
NOTE: Default groups cannot be deleted. Deleting a group does not delete users, but privileges on the group are removed.

Set the Default Group

- 1. Go to GROUPS :: GENERAL.
- 2. Locate group and select the checkbox.



3. Click Set As Default (displays dialog).



4. On the *Default Group* pop-up dialog, click **CONFIRM**.

NOTE: The default group is assigned to all new users logging in with SSO by Domain.

Apply Configuration

- 1. Go to GROUPS :: GENERAL.
- 2. Locate the group and select the checkbox.
- 3. Click Apply Configuration (displays dialog).

«	Configuration CANCEL SAVE a configuration to be applied on enrolled devices				Search: Search Configural
	Name	Description	Туре	Password Protected	Timestamp
	Change Hostname	a	Configuration	Ô	08/17/2021 12:26:00
	Change HostnameClone	Clone	Configuration	-	08/18/2021 03:26:00
	ChangeHostNameUponEnrollment	Apply for enrolled new deivce	Configuration	-	09/01/2021 02:39:00
	Cloud_TC1178	Cloud TestCase-C1178	Script	-	08/05/2021 05:36:00
	configuration_protection	for changing hostanme	Configuration	Ô	09/01/2021 14:11:00
1-5 of 1 Apply No Or Sc	w First Connection				

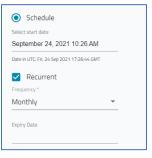
- 4. On the Apply Configuration dialog, select appropriate configuration checkboxes.
- 5. In Apply menu, select when the configuration is applied.

Now radio button (when saved, operation executes immediately)

On First Connection radio button (execute operation the first time the device(s) comes online) **Schedule** radio button (if selected, choose a date/time to execute the operation)

Recurrent (if selected, how often the operation is executed: hourly, daily, weekly, monthly,





6. Click **SAVE**.

Software Upgrade

- 1. Go to GROUPS :: GENERAL.
- 2. Locate the group and select the checkbox.
- 3. Click Software Upgrade (displays Upgrade Device dialog).

Jpgrade Device		
« CANCEL		
Select the device ve	rsion to upgrade it. Only enrolled devices will upgrade	
Available Version *	•	
Apply		
Now		
🔵 On First Conne	ction	
Schedule		

- 4. On the Available version drop-down, select one.
- 5. In *Apply* menu, select when the action is applied.

Now (when saved, execute operation immediately)

On First Connection (execute operation the first time the device(s) comes online)

Schedule (if selected, choose a date to execute the operation)

Schedule
Select start date
September 24, 2021 10:26 AM
Date in UTC: Fri, 24 Sep 2021 17:26:44 GMT

6. Click SAVE.

Backup Group

1. Go to GROUPS :: GENERAL.

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- 2. Locate the group and select the checkbox.
- 3. Click **Backup** (displays dialog).

NOTE: The Backup operation requires Nodegrid version 4.1.9 or higher, and the Cellular Upgrade operation requires version 4.2 or higher.

Backup Group Configur	ation
K CANCEL SAV	ν <mark>Ε</mark>
Select a configuration and ch	oose backup. Only enrolled devices will backup
File Protection 🚯	File Storage 👔
O None	O Temporary
TPM Encrypted	Persistent
O Password Encrypted	
Apply	
Now	
O Schedule	

- 4. In the File Protection menu, select one (None, TPM Encrypted, Password Protected).
- 5. In the File Storage menu, select one (Temporary, Persistent).
- 6. In Apply menu, select when the action is applied.

Now (when saved, execute operation immediately)

Schedule (if selected, choose a date to execute the operation)

Recurrent (if selected, how often the operation is executed: hourly, daily, weekly, monthly,



7. Click **SAVE**.

Cellular Upgrade

- 1. Go to GROUPS :: GENERAL.
- 2. Locate the group and select the checkbox.
- 3. Click Cellular Upgrade (displays dialog).



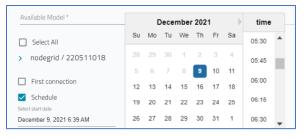
)(t	zpe
-----	-----

Upgrade Cellular Firmware		
« CANCEL SAVE		
Select the device version to upgrade it. Only enrolled devices will upgrade		
Available Model *	Firmware *	Ŧ
Select All		
> nodegrid / 1519SP1017 (No modem available)		
First connection		
Schedule		

- 4. On the Available Model drop-down, select one.
- 5. On the Firmware drop-down, select one.
- 6. Select the Select All checkbox (as appropriate).
- 7. Select a time to apply the upgrade:

First Connection (execute operation the first time the device(s) comes online)

Schedule (if selected, choose a date/time to execute the operation)



8. Click SAVE.

DEVICES tab

	DASHBOARD		GROUPS						
	GENERAL	DEVICES	USERS	PERMISSION					
Select Gr	oup *	► + Add	🙁 Remove Fro	m Group			Se	arch: Search Hostnar	me, Serial No & Model
	Hostname	Serial Number	Model	Part Number	Status	Registration Date	Last Connection Date	Groups	Version
	NSC2-ricardo-testing	000041631	NSC-T48S	NSC-T48S-STND-DAC-B	Offline	03/03/2020 06:59:58	03/04/2020 03:56:26	1	v4.2.0 (Jan 28 2020 - 03:51:15)
	ZPECloudGSR1	230070619fakeserial10	GateSR	GSR-T8-BASE	 Offline 	07/30/2020 03:00:00	08/05/2020 06:29:59	1	v4.2.4 (Aug 5 2020 - 03:16:40)
	nodegrid	-			 Never Connected 	-		0	
	nodegrid	401833918	NSR	NSR-TOP1-DAC	 Never Connected 	-		0	v4.2.1 (Jun 15 2020 - 02:55:03)
	nodegrid	250011120fakeserial	NGH-SR	HSR-N4-BASE	Offline	03/18/2020 02:29:21	03/18/2020 04:24:41	0	v4.1.8 (Mar 16 2020 - 19:47:26)
	nodegrid	210391517	NGB-T6	NGB-T6-BASE	Online	07/25/2020 12:51:10	10/05/2020 07:11:19	0	v4.2.7 (Sep 30 2020 - 11:06:30)
	nodegrid	184871017	NGB-SR	BSR-T8-BASE	Offline	10/23/2019 08:34:10	10/30/2019 03:47:13	0	v4.2.0 (Oct 22 2019 - 04:00:46)
	nodegrid	422603882	NGB-SR	BSR-T8-BASE	Offline	11/12/2019 06:49:25	03/13/2020 06:58:04	0	v4.2.0 (Mar 9 2020 - 04:01:04)
	ZPECloudGSR1	230070619zpefake	GateSR	GSR-T8-BASE	Never Connected	-	-	0	v4.2.0 (Apr 14 2020 - 03:58:45)
	nodegrid	fakeserial110	NSR	NSR-BASE-DAC	Never Connected	-	-	0	v4.2.0 (May 29 2020 - 10:38:00)

This page displays all Nodegrid devices currently registered to ZPE Cloud.

Device Details Table Columns

Column Name	Description
Hostname	The device name.
Serial Number	Serial number of the device.
Model	Device model.
Part Number	Device part number.
Status	Status of the device: Online, Offline, Never Connected.
Registration Date	Date the device was registered.
Last Connection Date	Last date device was connected to ZPE Cloud.
Groups	Number of groups the device is a member.
Version	Version of the device firmware.

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Display Device Details page

≪ colbick		
Device details		
	Hardware details	Device information
	Model: NGB-SR	Hostname: nodegrid
	Part number: BSR-T8-BASE	Version: v5.0.4 (Feb 3 2021 - 05:29:09)
	Serial number: 220381018	BIOS Version: 90910T00
	CPU: Intel(R) Atom(TM) CPU E3827 @ 1.74GHz	Associate company: QA Team Company
. () ==	CPU Bogomips: 3500	Uptime: last seen on 02/03/2021 12:09:58
	CPU Cores: 2	Status: Offline
	Number Of PSU: 1	First connection: 02/03/2021 09:04:05

Click the device Hostname to open the device's details page.

Manage Group's Devices

Add Device(s) to a Group

NOTE: A device can be assigned to one or more groups.

To add a device (or multiple devices) to a group (or groups):

- 1. Go to GROUPS :: DEVICES.
- 2. On the list, identify devices and select checkboxes.
- 3. Click +Add (displays dialog).

← Ba	Add On Group			
			Search: Search Group	
	Group Name	# Device Assigned	User Assigned	
	GroupTest_Fanlu	-	1	
	Test-bug-CLOUD-2650	2	2 1	
	test jago1		1	

- 4. Select the Group(s) checkboxes, then click Add On Group.
- 5. A small pop-up (lower right) confirms the operation is successful.

Remove Devices from Group

To remove devices (one or more) from a group:

- 1. Go to GROUPS :: DEVICES.
- 2. On the **Select Group** drop-down, select the Group with devices to be removed.

		DASHBOARD	SIT
Select Group *		All	
All	Ψ.	Unassigned	
		CroupTact Faply	

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- 3. On the listing, locate devices to be removed and select checkboxes.
- 4. Click Remove From Group.
- 5. A small pop-up (lower right) confirms the operation is successful.

USERS tab

This displays all available users.

		DEVICES	USERS			
All	Ŧ	+ Add	× Remove From Group		Search: Sear	ch Firstname, Lastname
	Email	First Name	Last Name	User Status	Phone Number	Permission
	adriano.souza@zpesystems.com	n Adriano	Souza	Active	5588888888	Administrator
	allan.sand@zpesystems.com	Allan	Sand	Active	1321456789	Administrator
	ayush.bairagi@piri.ai	ayush	bairagi	Active	1111111111	Administrator
	dener.kraus@zpesystems.com	Dener	Kraus	Active	17894565413	Operator
	fanlu1823@gmail.com	Fanlu	Kong	Active	14086169641	Administrator
	fanlu.kong@zpesystems.com	Fanlu	Kong	Active	14086169641	Administrator

User Details Table Columns

Column Name	Description
Email	User's email address
First Name	User's first name
Last Name	User's last name
User Status	User's status: Active, Inactive
Phone Number	User's phone number
Permission	Administrator, Operator, or User

Manage Users

View Users of a Group

1. On the Select drop-down, select one.

All	^	+ Add	🛛 🙁 Remove F	rom Group
GroupTest_Fanlu	•			
Administrator		First Name	Last Name	User Status
Test-bug-CLOUD-2650		Ivanie	Nume	Jatus
test_operator	om	Adriano	Souza	Active
testgroup		Allan	Sand	Active
Operator		ayush	bairagi	Active
dener.kraus@zpesyst	ems.com	Dener	Kraus	Active

2. The list populates users that belong to the selection.

Add Users to Group

To add a user to a one or more groups:

- 1. Go to GROUPS :: USERS.
- 2. Locate the user(s) and select the checkbox(es).

	GENERAL	DEVICES	USERS			
All	•	+ Add	× Remove Fr	rom Group	Search: Se	arch Firstname, Lastna
	Email	First Name	Last Name	User Status	Phone Number	Permission
	adriano.souza@zpesystems.con	n Adriano	Souza	Active	55888888888	Administrator
	allan.sand@zpesystems.com	Allan	Sand	Active	1321456789	Administrator
	ayush.bairagi@piri.ai	ayush	bairagi	Active	11111111111	Administrator
	dener.kraus@zpesystems.com	Dener	Kraus	Active	17894565413	Operator

3. Click +Add. This displays a list of groups.

	GENERAL	DEVICES	USERS	
«	Cancel Save			
		-	Search:	Search Group
	Group Name	# User Assign	ed	Permission
	test_iago1	3		3
	GroupTest_Fanlu	-		3
	Administrator	11		3
	Test-bug-CLOUD-2650	-		3
	test_operator	1		2
	testgroup	-		2
	Operator	6		2

- 4. Select the Group(s) checkboxes to add user(s).
- 5. Click SAVE.



Remove User(s) from Group

- 1. Go to GROUPS :: USERS.
- 2. On the Select drop-down, select the Group.

	GENERAL	DEVICES	USERS			
test_ia	ngo1 👻	+ Add	× Remove Fro	m Group	Search: Se	arch Firstname, Lastna
•	Email	First Name	Last Name	User Status	Phone Number	Permission
	giovanni.tagliaferri@zpesyster	ns.com		Active		Administrator
	iago.faria@zpesystems.com			Active		Administrator
	zpecloudmanualtest@gmail.co	om Lucas	testing	Active	11111111111	Administrator
Rows pe	er page: 10 🔻 1-3 of 3					

- 3. On the list, select checkboxes of user(s) to remove.
- 4. Click **Remove From Group**.

DEVICES Section

This section is used for the management, configuration, and enrollment of all Nodegrid devices that are connected to the ZPE Cloud.

Device details are available on ENROLLED and AVAILABLE tabs.

Click Device Hostname

In the Hostname column, click on the device. This displays extensive information On the *Device details* page.

On the **Enrolled** tab, when a device checkbox is selected, the *Devices Details* table provides current information.

This opens the *Device Details* page with drop-downs that provide more information: *Device details*, *Device Status*, *IMEI*. Click **GO BACK** to return to *AVAILABLE* tab.





Select checkbox(s) on main table

At the bottom of the page, the Device details table is populated with information on selected checkbox(s).

			1519SP1017	NSC-T96	Online		v5.4.1 (No	v 30 2021 - 07:55:37	7)	0 seconds		-	
N713			140234119	NSC-T485	Online		v5.4.1 (No	v 30 2021 - 07:55:37	7)	0 seconds		-	
ws per page: evices detai		. <	>										
Hostname	Serial Number	Status	Last Connection Date	Registration Date	Version	BIOS Version	CPU	CPU Cores	Bogomips	Model	Part Number	Number Of PSU	Last Job Name
o result found													
✓ test			1519SP1017	NSC-T96	 Online 		v5.4.1 (Nov	30 2021 - 07:55:37])	0 seconds		-	
N713			140234119	NSC-T485	Online		v5.4.1 (Nov	30 2021 - 07:55:37))	0 seconds		-	
N713 www.sper.page: Devices.deta		3 <		NSC-T485	 Online 		v5.4.1 (Nov	30 2021 - 07:55:37))	0 seconds		-	
ows per page:		3 < Status		NSC-T485 Registration Date	Online Version	BIOS Version	v5.4.1 (Nov CPU	30 2021 - 07:55:37) CPU Cores) Bogomips	0 seconds Model	Part Number	- Number Of PSU	Last Job Name
wsperpage: evices deta	ils Serial		> Last Connection	Registration		Version		СРИ					Job

Devices details Table

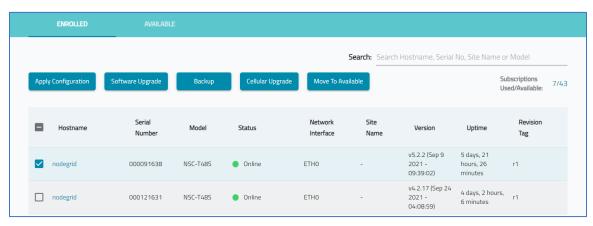
Column Name	Description
Hostname	Hostname of the device.
Serial Number	Device serial number.
Status	Status of device: Online, Offline, Never Connected.
Last Connected Date	Date/time device last connected.
Registration Date	Date device registered on ZPE Cloud.
Version	Device version level.
BIOS Version	Device's current BIOS version.
CPU	CPU type and model.
CPU Cores	Number of CPU cores.
BogoMips	Measurement of CPU speed (rough estimation).
Model	Device model.
Part Number	Device part number.



Column Name	Description
Number of PSU	Number of power supply units.
Last Job Name	Name of the last Job on the device.
Last Job Status	Status of the last Job run on the device.
Last Backup	Date/time of last device backup.

ENROLLED tab

This lists all connected and approved devices as well as information related to hardware details, such as model, CPU, part number. Current software information such as version, uptime, and revision tag are also available. Other details are: first and last connection times, and the network interface connected to ZPE Cloud.



Device List Table

Column Name	Description
Hostname	Hostname of the device
Serial ID Number	Device serial number.
Model	Device model.
Status	Status: Online, Offline, Never Connected.
Network Interface	Device's network interface.
Site Name	Site device is assigned (Black if no site).
Version	Device version level.
Uptime	Current amount of time device is up.



Column Name	Description
Revision Tag	Revision number.
Backup Time	Date/time of last device backup.
Access	If active, lists two options to access the device: Web (WebUI), Console (CLI). If inactive, is grayed out.

In the *Access* column, if the device is configured for remote access, click the **CONNECT** button and select the desired connection method (Web/Console).

The Subscriptions Use/Available (upper right) indicates number of current subscriptions.

Manage Enrollment

Apply Configuration

- 1. Go to DEVICES :: ENROLLED.
- 2. In the table, locate the device and select checkbox.
- 3. Click Apply Configuration (displays dialog).

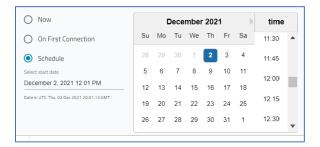
ENROLLED AVAILABLE				
Apply Configuration				
CANCEL SAVE				
Select a configuration and choose Apply configuration	1			
				Search: Search Configuration
Name	Description	Туре	Password Protected	Timestamp
Change Hostname	а	Configuration	â	08/17/2021 12:26:00
Change HostnameClone	Clone	Configuration	-	0B/18/2021 03:26:00
ChangeHostNameUponEnrollment	Apply for enrolled new deivce	Configuration	-	09/01/2021 02:39:00
Cloud_TC1178	Cloud TestCase-C1178	Script	-	08/05/2021 05:36:00
configuration_protection	for changing hostanme	Configuration	â	09/01/2021 14:11:00
1-5 of 19 < >				
Apply				
Now				
O On First Connection				
O Schedule				

- 4. Locate the configuration (one or more) and select checkbox(es).
- 5. In the *Apply* menu, select one:

Now radio button (when saved, operation executes immediately)

On First Connection radio button (execute operation the first time the device(s) comes online) **Schedule** radio button (if selected, choose a date/time to execute the operation)

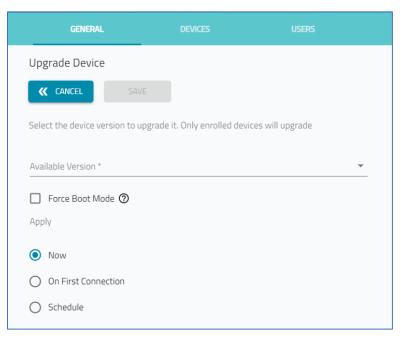
Version 2.12



6. Click SAVE.

Software Upgrade

- 1. Go to DEVICES :: ENROLLED.
- 2. In the table, locate the device and select checkbox.
- 3. Click Software Upgrade (displays dialog).



4. On the Available Versions drop-down, locate and select the version.

nodegrid-genericx86-64-20210528044707_Master-20210527213001.signed.iso
nodegrid-genericx86-64-20210316051251_Master-20210315213002.iso
nodegrid-genericx86-64-20210301050651_Branch-NG_5.0-20210228210001.iso
nodegrid-genericx86-64-20201212054507_Branch-NG_5.0-20201211213001.iso
nodegrid-genericx86-64-20201212054507_Branch-NG_5.0-20201211213001.iso
nodegrid-genericx86-64-20211123060556_Master-20211122213001.signed.iso
1_Rafael_nodegrid-genericx86-64-20211117223709_Branch-NG_5.2-20211117143001.signed.iso
Teste Fox

5. (optional) Select the Force Boot Mode checkbox (hover mouse pointer on ⑦ for information).



6. In the Apply menu, select one:

Now radio button (when saved, operation executes immediately)

On First Connection radio button (execute operation the first time the device(s) comes online) **Schedule** radio button (if selected, choose a date/time to execute the operation)

O Now		C	Dece	mber	202	1	Þ	time	
On First Connection	Su	Mo	Tu	We	Th	Fr	Sa	11:30	
Schedule		29	30	1	2	3	4	11:45	
Select start date	5	6	7	8	9	10	11	12:00	
December 2, 2021 12:01 PM	12	13	14	15	16	17	18		
Date in UTC: Thu, 02 Dec 2021 20:01:13 GMT	19	20	21	22	23	24	25	12:15	
	26	27	28	29	30	31	1	12:30	_

7. Click SAVE.

Backup Device

NOTE: The Backup operation requires Nodegrid version 4.1.9 or higher. The Cellular upgrade operation requires version 4.2 or higher.

- 1. Go to DEVICES :: ENROLLED.
- 2. In the table, locate the device(s) and select checkbox(es).
- 3. Click Backup. (displays dialog).

Backup Device Configurat	ion
« CANCEL SAVE	
Select a configuration and choos	e backup
File Protection	File Storage 🚯
O None	O Temporary
O TPM Encrypted	O Persistent
O Password Encrypted	
Apply	
O Now	
Schedule	
Select start date	
September 28, 2021 9:34 AM Date in UTC: Tue, 28 Sep 2021 16:34:59 GMT	_
Recurrent	
Frequency *	Expiry Date
Daily	 September 30, 2021 12:00 AM

4. On *File Protection* menu, select one:

None radio button (Without encryption – backup file sent to ZPE Cloud without encryption. File can be downloaded and applied to a device through Nodegrid Manager.)



TPM Encrypted radio button (TPM encrypted file (backup file is encrypted and sent to ZPE Cloud. File can only be decrypted with the same hardware that encrypted it.)

Password encrypted radio button (backup file is sent to ZPE Cloud encrypted – saved on Nodegrid device under ZPE CLOUD SETTINGS :: ENABLE FILE PROTECTION with openssl. Password must be known to decrypt the backup file when downloaded from ZPE Cloud.)

5. On the File Storage menu, select one.

NOTE: On ZPE Cloud, each device may have a maximum of five backups. At that limit, one or more backups must be deleted. There are two storage options available:

Temporary radio button (on a new backup request with five backups slots filled, the oldest backup is deleted)

Persistent radio button (not automatically deleted). When backup slots are full, the user must manually select the backup to be deleted.)

6. On the Apply menu:

Apply		
O Now		
Schedule		
Select start date		
September 28, 2021 9:34 AM		
Date in UTC: Tue, 28 Sep 2021 16:34:59 GMT		
Recurrent		
Frequency *		Expiry Date
Daily	*	September 30, 2021 12:00 AM

Now radio button (backup is made immediately)

Schedule radio button (expands for additional conditions)

For **Select start date**, click in date (displays calendar/time) and choose date/time.

To repeat backups on a schedule, select **Recurrent** checkbox.

On the Frequency drop-down men, select one (Hourly, Daily, Weekly, Monthly).

On **Expiry Date**, click in date and choose date/time from the pop-up calendar.

7. Click SAVE.

Cellular Upgrade

- 1. Go to DEVICES :: ENROLLED.
- 2. In the table, locate the device(s) and select checkbox(es).
- 3. Click Cellular Upgrade (displays dialog).



Upgrade Cellular Firmware	
K CANCEL SAVE	
Select the device version to upgrade it	
Available Model *	 Firmware *
Select All	
 nodegrid / 230040619 	
Channel-B / EM7565 / SWI9X50C_01.14.02.0	00
First connection	
Schedule	

- 4. On the Available Model drop-down, select one.
- 5. On the **Firmware** drop-down, select one.
- 6. (as needed) If **Select All** checkbox is selected, all cellular units are upgraded. Alternatively, select one version on the device drop-down.
- 7. If **First connection** checkbox is selected, the upgrade occurs when the device next connects to the Cloud (**Schedule** is disabled).
- 8. If **Schedule** checkbox is selected, select date/time on the pop-up calendar.
- 9. Click **SAVE**.

Move to Available

- 1. Go to DEVICES :: ENROLLED.
- 2. In the table, locate the device(s) and select checkbox(es).
- 3. Click Move to Available.

The selected device is moved to the AVAILABLE tab.

AVAILABLE tab

Devices transferred to a company account need to be approved before they become available for operations. The Device listing and Devices Details tables on this tab are the same as on the *ENROLLED* tab.



	ENROLLED	AVAILABLE					
E	nroll Remove	Add By Ke	ey Add Br	y Claim ID	iearch: Search Hostnam	ie, Serial No, Site Name o	r Model
	Hostname	Serial Number	Model	Status	Version	Uptime	Revision Tag
	ZPECloudBSR-Zatt	220651018	NGB-SR	• Offline	v5.4.1 (Nov 28 2021 - 15:29:50)	last seen on 11-29-2021 10:38:26	-
	nodegrid	220381018	NGB-SR	Offline	v5.0.4 (Feb 3 2021 - 05:29:09)	last seen on 02-03-2021 12:09:58	r1
	nodegrid	fakeserialTP2	NGB-SR	• Offline	v4.2.8 (Nov 30 2020 - 03:24:35)	last seen on 12-11-2020 08:23:00	r1
	NGM-CLOUD-CONSOLE- ACCESS	456C5ABBF090	VMware7,1	Offline	v5.1.0 (Mar 27 2021 - 14:33:28)	last seen on 04-12-2021 08:03:02	r1
	NGM-CLOUD-QA4	8DE9D94391F5	VMware7,1	• Offline	v5.1.0 (Mar 27 2021 - 14:33:28)	last seen on 04-12-2021 08:03:00	r1
	NGM-CLOUD-QA2	8DE9D94391F3	VMware7,1	Offline	v5.1.0 (Mar 27 2021 -	last seen on 04-12-2021	r1

Manage Available Devices

Enroll Device

When a device is moved from **Available** to **Enrolled**, the default scripts and configurations are applied. If a device is Unenrolled and moves to Available, the next time it is enrolled, a prompt asks whether to re-apply the default configuration.

- 1. Go to DEVICES :: AVAILABLE.
- 2. In the table, locate the device(s) and select checkbox(es).
- 3. Click Enroll.

When the enrollment is completed, the device is moved to the *ENROLLED* tab.

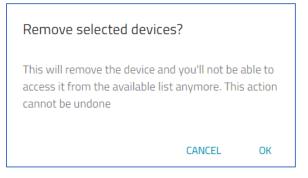
NOTE: Devices in *Available* status do not receive data (cellular, application, connection status, etc.).

Remove Device

WARNING: Perform this procedure only for devices that are malfunctioning or to exclude from availability.

- 1. Go to DEVICES :: AVAILABLE.
- 2. Select checkbox(s) to remove.
- 3. Click **Remove** (displays dialog).





4. Click OK.

Add by Key

When a new device order is sent, the notification email includes this Transfer Key. This key can be used to import the device to ZPE Cloud.

NOTE: Devices already registered block Transfer of Ownership requests. If attempted, this notification is presented: "Failed to transfer ownership. Device already under Company account."

- 1. Go to DEVICES :: AVAILABLE.
- 2. Click Add by Key (displays dialog).

	ON-PREMISES	AVAILABLE	PENDING APPROVAL	
Add Devices by Key				
CANCEL LOAD I	DEVICES			
Add the transfer key to uplo	ad devices			
Transfer key				

- 3. Enter the **Transfer Key**.
- 4. Click LOAD DEVICES (displays dialog with the device list). Confirm the list is correct.

	ON-PREMISES		PENDING APPROVAL
Add Devices by Key			
K CANCEL TRANS	SFER		
Add the transfer key to uploa	d devices		
Transfer key DNe08ZMyRxfH7s6chvXhFM	I3GM9a80D0WM3k6jU7cBn	iqznUy:	
210391517			
			Total of selected devices 1



5. Click TRANSFER.

The devices on the list are added to the AVAILABLE tab.

Add by Claim ID

This option imports devices with the Device's Claim ID. A device can only be claimed once. The device must be on the AVAILABLE page. If needed, contact support@zpesystems.com.

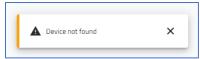
- 1. Go to DEVICES :: AVAILABLE.
- 2. Click Add by Claim ID (displays dialog).

Add by Claim)	
K CANCEL	SAVE	
You can transfer a	device for your company if you have its Claim ID	
Claim ID		

- 3. Enter the Claim ID.
- 4. Click **SAVE** (displays success pop-up dialog).

Device loaded

NOTE: If incorrect, this dialog displays.



PENDING APPROVAL tab

NOTE: This only appears if there is a device in "Transfer-pending approval" state.

When ZPE Systems transfers device ownership between companies, the Company Admin associated with the device must approve the transaction.

ENHOLLED /	ANNA ARE PENDING APPROVAL			Search: Sco	rch By Hostnamo S. Sona' Number
Hostname	Serial Number	From Company	To Company	Requested By	Date
ZPECInod/258-2art	220051018	7PC Systems, Inc.	date id besting	admin-claud@izproystems.com	Dec 2, 2021 1 56 PM

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Manage Device Transfer

Approve a device transfer:

- 1. Go to DEVICES :: PENDING APROVAL.
- 2. In the table, locate the device and select checkbox.

There are two options on the transfer request:

Approve Deny

3. To complete the transfer, click Approve.

USERS Section

Access and connected accounts are managed under the USERS tab. Users can be added, edited, and removed.

GENERAL tab

GENE	RAL						
+ Add	Edit Delete	Lock	Unlock	Make User Local	Searc	h: Search Firstn	ame, Lastname or Email
	Email	First Name	Last Name	User Status	Phone Number	Туре	Permission
	iagosoaressantos@hotmail.com	lago	Santos	Active	11234567897	Local	Operator
	jamie.nhek@zpesystems.com	Jamie	Nhek	Active	1444444444	Local	Administrator
	leonardo.oliveira@zpesystems.com	Leonardo	Oliveira	Active	11234567898	Local	Administrator
	raquel.isensee@zpesystems.com	Raquel	Isensee	Active	5547988030010	Local	Operator
	silvio.andrade@zpesystems.com	Silvio	Andrade	Active	5511987834849	Local	Administrator
	supriya.bashetwar@zpesystems.com	Supriya	Bashetwar	Active	917350065975	Local	Administrator
	tech.writer1@zpesystems.com	tech	writerone	Active	11234567899	Local	Operator
	tech.writer2@zpesystems.com	tech	writertwo	Active	19876543211	Local	User

Manage Users

User Types

There are two types of users:

Local

Users who are created locally on ZPE Cloud and can access the cloud service via a password.

Remote



Users created automatically with the SSO by Domain option (see "Single Sign On (SSO) by Domain"). These users may only login via domain as no local password has been configured.

Permission Levels

There are three permission levels available to users.

Administrator

Manages all devices, company credentials, and users within their company.

Operator

Performs and creates operations within all devices assigned to their group

User

Can only access devices within their group.

Export User Listing

The GENERAL tab User listing can be exported.



- 1. Go to USERS :: GENERAL.
- 2. On the upper right, click the **Cloud** icon.
- 3. On the drop-down listing, select the file format (Export to Excel, Export to CSV).

The file downloads to the default Download location.

Add a User

- 1. Go to USERS :: GENERAL.
- 2. Click +ADD (displays dialog).

Add New User	
K CANCEL SAVE	
Fill the fields below to add a user	
- Email *	Groups
	Administrator [Default] -
- First Name	
- Last Name	
Phone Number	

3. Enter Email.

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- 4. Enter First name.
- 5. Enter Last name.
- 6. Enter Phone number.
- 7. On Groups drop-down, select one.
- 8. Click SAVE.

The new user is sent an email with instructions.

Edit a User

- 1. Go to USERS :: GENERAL.
- 2. In the table, locate the user and select checkbox.
- 3. Click Edit.
- 4. Make changes, as needed.
- 5. Click **SAVE**.

Delete a User

- 1. Go to USERS :: GENERAL.
- 2. In the table, locate the user and select checkbox.
- 3. Click **Delete**.
- 4. To mask logs of the deleted user, select Mask user logs checkbox.
- 5. Click **DELETE**.

Lock a User

This disables the user account.

- 1. Go to USERS :: GENERAL.
- 2. In the table, locate the user and select checkbox.
- 3. Click Lock.

If the account needs to be reactivated, it's only necessary to select it and click the **UNLOCK** button.

Unlock a User

This reactivates the Locked user account.

- 1. Go to USERS :: GENERAL.
- 2. In the table, locate the user and select checkbox.
- 3. Click Unlock.



Convert Remote users to Local users

- 1. Go to USERS :: GENERAL.
- 2. On the listing, select checkboxes of Remote user(s).
- 3. Click Make User Local.

Each user is sent an email that includes a link to create a new ZPE Cloud password.

PROFILES Section

Profiles are managed in this section. This includes configurations, custom scripts, software versions, backup entries, and cellular firmware versions.

CONFIGURATION tab

Device configuration files can be updated in two ways:

Console (CLI) – use save_settings command.

WebUI – go to System > Toolkit > Save Settings.

(CONFIGURATION SOFT	WARE BAC	CKUP	FIRMWARE	OPERATION	TEMPLATE
					Search: Search Cor	nfiguration
+	- Add Add From Template	Clone	Edit	Delete		
	Name	Description	Туре	Password Protected	Timestamp	Download
	Change Hostname	a	Configuration	â	08/17/2021 12:26:00	±
	Change HostnameClone	Clone	Configuration	-	08/18/2021 03:26:00	<u>+</u>
	ChangeHostNameUponEnrollment	Apply for enrolled new deivce	Configuration	-	09/01/2021 02:39:00	<u>+</u>
	Cloud_TC1178	Cloud TestCase-C1178	Script	-	08/05/2021 05:36:00	<u>+</u>
	configuration_protection	for changing hostanme	Configuration	â	09/01/2021 14:11:00	<u>+</u>
	default_script_2	only testing	Script	-	06/16/2021 19:25:00	<u>+</u>
	default script 3	only testing	Script	-	06/16/2021 19:58:00	±

Configuration Table Columns

Column Name	Description
Name	Name of the configuration/script.
Description	Description of the configuration/script.
Туре	File is a configuration or script.



Column Name	Description
Password Protected	Icon indicates if file is locked or unlocked.
Timestamp	Date/time the configuration/script was created.
Download	Downloads the file.

Manage Configuration/Script

Download Configuration/Script

- 1. Go to PROFILES :: CONFIGURATION.
- 2. Locate configuration/script.
- 3. On *Download* column, click **Download** $\stackrel{1}{\stackrel{!}{\scriptstyle\frown}}$ icon.

If password protected, dialog displays, enter **Password** and click **CONFIRM**.

Profile File Download
This file is protected, please provide the password to download it
٥
CANCEL

4. File is saved on the local computer's download location.

Add a new Configuration/Script

- 1. Go to PROFILES :: CONFIGURATION.
- 2. Click +Add (displays dialog).



K CANCEL SAVE	View code as Plain Text	
Fill the fields below to add a configuration	Code	
Name *	Type some code	
- Description *		
Type *		
Configuration	• •	
Import from file		
*Maximum file size 10 MB		
Automatically Apply on Device Enrollment		

3. Enter Name.

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- 4. Enter **Description**.
- 5. On the Configuration drop-down, select one (Configuration, Script);
- 6. (as needed) Click Import from file. and select the file.
- 7. (optional) Select **Automatically apply on device enrollment** checkbox (if selected, configuration is applied when the device is enrolled).
- 8. (optional) Select **Password Protected** checkbox. Enter **Password**.
- 9. (optional) Select **Default** checkbox (applies this profile to all enrolled devices).

(optional) In View Code as textbox, select type of code (Plain Text, Shell, Python, Javascript/Node JS).

In the textbox, paste the lines of code.

10. Click SAVE.

Add Configuration from Template

- 1. Go to PROFILES :: CONFIGURATION.
- 2. Click Add from Template (displays dialog).

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Add From Template	
	View code as
CANCEL SAVE	Plain Text 👻
Fill the fields below to add a configuration	Code
Template *	Type some code…
·	
- Name *	
Description *	
Type *	
Configuration	
Import from file	
"Maximum file size 10 MB	
Automatically Apply on Device Enrollment	

- 3. In Template drop-down, select one.
- 4. Enter Name.
- 5. Enter Description.
- 6. On Type drop-down, select one (Configuration, Script).
- 7. (as needed) Click Import from file. On dialog, locate and select the file.
- 8. (optional) Select Automatically Apply on Device Enrollment checkbox.
- 9. (optional) Select Password Protected checkbox. Enter Password.
- 10. On View Code As drop-down, select one (Plain Text, Shell, Python, Javascript/Node.js).
- 11. In **Code** textbox, review code (modify as needed).
- 12. Click SAVE.

Clone a Configuration

- 1. Go to PROFILES :: CONFIGURATION.
- 2. In the table, locate profile and select checkbox.
- 3. Click **Clone** (displays dialog).

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Add New Configuration	
≪ CANCEL SAVE	View code as Plain Text
Fill the fields below to add a configuration	Code
Name *	<pre>cd /settings/sdwan/link_profile/ show /settings/system_preferences/ idle_timeout</pre>
REFT_THM_EROUT_00003.020-(4269002-4900-4071-) (cob)	
type=APPLY_LINK_PROFILE,device=000091638,job=(a57fb51f-85f0-4599-94ec	
Түре *	
·	
Import from file	
*Maximum file size 10 MB	
Automatically Apply on Device Enrollment	
Password Protected	

- 4. Change Name.
- 5. Make other modifications, as needed.
- 6. Click SAVE.

Edit a Configuration

- 1. Go to PROFILES :: CONFIGURATION.
- 2. In the table, locate profile and select checkbox.
- 3. Click Edit (displays dialog).

Edit configuration	View code as Plain Text
Fill the fields below to edit the configuration	Code
Name* APPLY_LINK_PROFILE-000091638-(43ea80c9-4abb-467f-) Description* type=APPLY_LINK_PROFILE.device=000091638.job=(a57fb51f-85f0-4599-94ec	cd /settings/sdwan/link_profile/ show /settings/system_preferences/ idle_timeout
Type*	
Import from file *Maximum file size 10 MB	
Automatically Apply on Device Enrollment	
Password Protected	

- 4. Make changes, as needed.
- 5. Click **SAVE**.

Delete a Configuration

1. Go to PROFILES :: CONFIGURATION.



- 2. In the table, locate profile and select checkbox.
- 3. Click Delete (displays dialog).

Delete profile		
Are you sure you wa	int to delete t	he profile?
	CANCEL	DELETE

4. On the confirmation dialog, click DELETE.

Enable Password Protection on the Configuration/Script File

If password-protected, the file is only installed on the device(s) configured with the matching password.

- 1. To view, log into the device and go to Security :: Services.
- 2. In the *ZPE Cloud* menu, review the **Enable File Protection** checkbox.
- 3. If selected, must include the **Passcode** and **Confirm Passcode** (must match the password in the *Add New Configuration* dialog).

General Services	Intrusion Preventio	n
Security :: Services ::	General Services	
Save		
ZPE Cloud		
🗹 Enable ZPE Cl	oud	
	ZPE Cloud URL:	https://zpecloud.com
Enable Remot	e Access	
🗹 Enable File Pro	otection	
	Passcode:	
	Confirm Passcode:	•••••

Encrypt Configuration Files

Before upload to ZPE Cloud, configuration/script files can be encrypted. The file can only be installed if the Nodegrid device settings are correctly enabled.

- 1. Log into the Nodegrid device.
- 2. Go to Security :: Services :: ZPE Cloud.
- 3. Select Enable File Protection checkbox and enter Passcode.



- 4. Select Enable File Encryption checkbox.
- 5. Click Save.

Encryption Requirements

To add extra security to the file encryption process, the following openssl features must be enabled:

Cipher: aes-256-cbc

Encoding: base64

Salted: yes

Key Digest Algorithm: sha256

Requirements

Openssl version :: 1.1.0

Before upload to ZPE Cloud; Files (CLI commands, custom scripts and save_config tarball) can be encrypted externally or on the Nodegrid device.

OS Encryption

Nodegrid OS Encryption

Requirements

Nodegrid version >= 4.1

Openssl 1.1.1

To encrypt a file using Nodegrid, enter:

openssl aes-256-cbc -base64 -salt -md sha256 -in <input_file> -out <encrypted_file>

To encrypt the file, openssl asks for the password. Alternatively, instead of entering at the prompts, use -k, followed by the password flag.

Linux OS Encryption

Requirements

Openssl 1.1.0

To install on Ubuntu machines, enter:

sudo apt-get install libssl-dev

To encrypt the file using Linux, enter:

openssl aes-256-cbc -base64 -salt -md sha256 -in <input_file> -out <encrypted_file>

To encrypt the file, openssl asks for the password. Alternatively, instead of entering at the prompts, use $-\mathbf{k}$, followed by the password flag.



Mac OS Encryption

Requirements

Openssl >= 1.1.0

On Mac OS, install Brew. Follow the steps at https://brew.sh/

After Brew is installed, to install openssl, enter:

brew install openssl
brew link --force openssl

To encrypt the file on Mac OS, enter:

openssl aes-256-cbc -base64 -salt -md sha256 -in <input_file> -out <encrypted_file>

To encrypt the file, openssl asks for the password. Alternatively, instead of entering at the prompts, use $-\mathbf{k}$, followed by the password flag.

Windows OS Encryption

Requirements

Openssl >= 1.1.0

Openssl can be installed on Windows via the binary installer. For more information, please see the Openssl Wiki.

To encrypt the file using Windows, use the following command:

openssl aes-256-cbc -base64 -salt -md sha256 -in <input_file> -out <encrypted_file>

To encrypt the file, openssl asks for the password. Alternatively, instead of entering at the prompts, use $-\mathbf{k}$, followed by the password flag.

SOFTWARE tab

This page lists all available software images. The images can be downloaded, as needed. The image's release notes can also be downloaded.

	CONFIGURATION SOFTWARE		NFIGURATION SOFTWARE BACKUP		OPERATION	TEMPLATE
					Search: Searc	h Software Version
	Name		Description	Release Date	Release Notes	Download
	Nodegrid_Platform_v5	.2.2_202109156_RC.iso	v5.2.2 RC		<u>+</u>	±
	Nodegrid_Platform_v5	.2.1_20210528.iso	Cloud 2.10 Regression Test	5/28/2021	<u>*</u>	<u>+</u>
	Nodegrid_Platform_v5	.0.9_20210617.iso	Cloud 2.10 Regression Test	6/17/2021	<u>*</u>	±
	Nodegrid_Platform_v5	.0.8_20210513.iso	Cloud 2.10 Regression Test	5/13/2021	<u>*</u>	±
	Nodegrid_Platform_v5	.0.3_20201212.iso	Raquel test	12/12/2020	<u>*</u>	<u>+</u>
	Nodegrid_Platform_v5	.0.11_20210730.iso	Cloud 2.10 Regression Test	7/30/2021	<u>*</u>	<u>+</u>
	Nodegrid_Platform_v5	.0.0_20201106.iso	Cloud 2.10 Regression Test	11/6/2020	<u>*</u>	<u>+</u>



Software Table Columns

Column Name	Description			
Name	Name of the software image.			
Description	Description of image.			
Release Date	Date of release for this image.			
Release Notes	Link to release notes of the image.			
Download	Link to download of the image.			

Software Options

Download Release Notes

- 1. Go to PROFILES :: SOFTWARE.
- 2. In the table, locate software.
- 3. In the *Release Notes* column, click the **Download** icon.
- 4. The file is downloaded to the local file location.

Download Software

- 1. Go to PROFILES :: SOFTWARE.
- 2. In the table, locate software.
- 3. In the *Download* column, click the **Download** icon.
- 4. The file is downloaded to the local file location.

BACKUP tab

This page displays backup images of devices. Images can be managed, and devices restored. Backups are done on the DEVICES section.

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C	ONFIGURATION	SOFTWARE	BACKUP		FIRMWARE	OPERA	ITION	темріате	
Re	store Persis	tent Delete	•					Search: Search Hostname, Serial Numbe	r or Group
	D	Hostname	Serial Number	Group	Protection	Storage	Registered	Checksum	Download
	691bc3da-9df7- 46d8-9c9f- ec2a7d549be6	nodegrid-test- changeHostnameEnrolled	15195P3003		TPM	Persistent	Sep 29, 2021 1:47 AM	d1fa5e2c236049b6f2a7171feab4ec64f3003b1ccea3f9d58a39d6931d3de048	±
	99ca8d6d-9fcf-498b- 9910-8b73e366a118	nodegrid-test- changeHostnameEnrolled	1519SP3003		TPM	Persistent	Sep 29, 2021 12:47 AM	a8e617eb623828abeb221aadab7fabf85622caf82adb00807b573263a575e4f5	±
	85e1a241-0119- 4cad-bd88- 51b5cb375e3f	nodegrid-test- changeHostnameEnrolled	15195P3003		TPM	Persistent	Sep 28, 2021 11:47 PM	50fcc91731fe31869043a21b9482fb0ed106c7ec29442e9bZed06739be4a54d9	*
	81b1711c-23eb- 4cce-b65f- ed143bdf7fd6	nodegrid-test- changeHostnameEnrolled	1519SP3003		TPM	Persistent	Sep 28, 2021 9:47 PM	8cbd8e9f10b7d46a084f083ee5234216ca60496d8a54aa67327a5b06fe83c8e5	±
	a3e237e8-e53b- 4841-87d2- 76ea079a018c	nodegrid-test- changeHostnameEnrolled	1519SP3003		TPM	Persistent	Sep 28, 2021 8:47 PM	93ed676411c202182575e44d5862d7fc9b67213e5dcaf1fb44404babcc23b597	±
	21e83322-af74- 4e33-a41c- 31b44b503367	nodegrid	000091638		None	Temporary	Sep 28, 2021 5:07 AM	54ff238d51f11688cb8561f4d0df3f63f06142a39883fa36ea987c8b3e7e8aaf	±

NOTE: The BACKUP button is disabled for devices that do not support this feature. If multiple devices are selected and one or more of them does not support this feature, a log message about the failure is displayed.

Column Name	Description			
ID	Name of the software image.			
Hostname	Hostname of the device which was backed up.			
Serial Number	Device serial number			
Group	Assigned to which Group.			
Protection	Type of protection (password, TPE)			
Storage	Type of storage for the backup (Persistent, Temporary) .			
Registered	Date/time of backup.			
Checksum	The checksum calculation.			
Download	Click icon to download the backup file.			

Backup Table Columns

Manage Backups

Restore a Backup

- 1. Go to PROFILES :: BACKUP.
- 2. Locate and select the checkbox of the backup.
- 3. Click Restore.
- 4. Wait for the process to complete.



Change Backup from Temporary to Persistent

- 1. Go to PROFILES :: BACKUP.
- 2. Locate and select the checkbox of the backup in *Temporary* status.
- 3. Click Persistent.

Delete a Backup

- 1. Go to PROFILES :: BACKUP.
- 2. Locate and select the checkbox of the backup.
- 3. Click Delete (displays dialog).



4. On the *Delete Backup* pop-up dialog, click **DELETE**.

Download Backup

- 1. Go to PROFILES :: BACKUP.
- 2. In the table, locate the backup.
- 3. In the *Download* column, click the **Download** icon.
- 4. The file is downloaded to the local file location.

FIRMWARE tab

The FIRMWARE page displays all available cellular modem firmware. The file can be downloaded.

		BACKUP	FIRMWARE		
				Search:	Search Firmware
Name	Model	Carrier	PRI	Dow	nload
Thisisatest	test	test	test	:	ŧ
F2	Μ	С	С	2	ŧ
F1	М	С	С	:	ŧ
Test Firmware	Nokia	Nokia	PIRI	:	<u>+</u>
TEst2.1	Μ	J	к	:	ŧ
Rows per page: 10 🔻	1-5 of 5 < >				



NOTE: For unsupported devices, Cellular Upgrade is disabled. If multiple devices are selected, unsupported devices display a (Not supported) label next to the name.

Column Name	Description				
Name	ame of the firmware				
Model	lodel for the firmware				
Carrier	Carrier of the firmware.				
PRI	.Primary Rate Interface				
Download	wnload Click icon to download the firmware package.				

Firmware Table Columns

Manage Flrmware

Download Firmware

- 1. Go to PROFILES :: FIRMWARE.
- 2. In the table, locate firmware.
- 3. In the *Download* column, click the **Download** icon.
- 4. The file is downloaded to the local file location.

OPERATION tab

Every operation including CONFIGURATION, SCRIPT, UPGRADE, and BACKUP is registered under ZPE Cloud with a unique ID for all cases where they're scheduled or applied right away. On the OPERATION tab, job details are available.

CONFIGURATION		BACKUP	OPERATION	TEMPLATE
JOBS	SCHEDULES			

JOBS sub-tab

This page shows current job operations.

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	JOBS	SCHEDULES							
C	iancel	Clear					Sea	arch: Search ID, Seri	al Number or Name
	ID	Hostname	Serial Number	Model Name	Туре	Name	Status	Registered	Finished
	86344daf-f72d- 4089-b0a6- 34813b23a5be	test	410392020	NSR	Script	test_script	Successful	Sep 29, 2021 3:21 AM	Sep 29, 2021 3:23 AM
	87130085-e395- 4dbb-a0e4- 87ea5dafaf4f	test	000121631	NSC-T48S	Script	test_script	Successful	Sep 29, 2021 3:21 AM	Sep 29, 2021 3:23 AM
	ea40c095-63de- 47a2-b8fb- ba5720b29c4c	test	410392020	NSR	Configuration	failed_config	Failed	Sep 29, 2021 3:08 AM	

Jobs Table Columns

Column Name	Description
ID	Job ID.
Hostname	Hostname of device.
Serial Number	Serial number of device.
Model Name	Model name of device.
Туре	Type of job: Script, Configuration.
Name	Name of script/configuration.
Status	Status of the job: Scheduled, Started, Successful, Failed.
Registered	Date/time job was registered.
Finished	Date/time job was finished.

Cancel Job

- 1. Go to PROFILES :: OPERATION :: JOBS.
- 2. Locate and select the checkbox of the job.
- 3. Click CANCEL.

Clear Job

- 1. Go to PROFILES :: OPERATION :: JOBS.
- 2. Locate and select the checkbox of the job.
- 3. Click **CLEAR**.



SCHEDULES sub-tab

This page shows scheduled jobs.

JOBS		SCHEDULES							
Reso	chedule	Delete				Sear	ch: Search Name, 9	Serial Number or	Model Name
	Name	Hostname	Serial Number	Model Name	Start Date	Schedule	Last Executed	Next Schedule Time	Expiry Date
	Backup configuration	nodegrid-test- changeHostnameEnrolled	1519SP3003	NSC-T48	Sep 29, 2021 8:35 AM	Hourly	Sep 29, 2021 8:35 AM	Sep 29, 2021 10:35 AM	Sep 29, 2021 12:45 PM
	Backup configuration	nodegrid-test- changeHostnameEnrolled	15195P3003	NSC-T48	Sep 28, 2021 8:47 PM	Hourly	Sep 29, 2021 2:47 AM	Sep 29, 2021 10:47 AM	Sep 29, 2021 9:00 AM

Schedules Table Columns

Column Name	Description
Name Name of the job.	
Hostname	Hostname of the device.
Serial Number	Serial number of the device.
Model Name	Model name of the device.
Start Date	Start date/time of job.
Scheduled	How often job is run:
Last Executed	Date/time job was last run.
Next Schedule Time	Date/time of the next start.
Expiry Date	Date the job stops running.

Reschedule Job

- 1. Go to PROFILES :: OPERATION :: SCHEDULES.
- 2. Locate and select the checkbox of the job.
- 3. Click Reschedule (displays dialog).



Reschedule	
Reschedule the profile operation	
Select start date	
September 29, 2021 12:22 PM	
September 29, 2021 12:22 PM	Expiry Date

- 4. On Select Start Date, chose the date/time.
- 5. On Frequency drop-down, select one (Hourly, Daily, Weekly, Monthly).
- 6. On Expiry Date, chose the date/time.
- 7. Click SAVE.

Cancel Job

- 1. Go to PROFILES :: OPERATION :: SCHEDULES.
- 2. Locate and select the checkbox of the job.
- 3. Click Cancel.

TEMPLATE tab

This page lists current templates and can create custom scripts and configurations. Click the **Download** icon to copy the file.

c	CONFIGURATION	SOFTWARE	BACKUP	FIRMWARE	OPERATIO	и т	EMPLATE
+	- Add Edit	Delete			Si	earch: Search Temp	late Name, Descripti
	Name		Description		Template	Туре	Download
	Service Pack #21001 - Fix SV	N upgrade performed via Cloud	Fix required before upgra	ting to v4.2.9 or v5.0.3	Default	SCRIPT	<u>+</u>
	script_template_test		template script		Default	SCRIPT	<u>+</u>
	Hostname_template		template Hostname		Default	CONFIGURATION	<u>*</u>
	qos4g		control traffic		Default	SCRIPT	<u>*</u>

Template Table Columns

Column Name	Description
Name	Name of the template.
Description	Description of the template.



Column Name	Description
Template	Purpose of template (Custom, Default).
Туре	Type of template (Configuration, Script).
Download	Download the template.

Manage Templates

Add a New Template

- 1. Go to PROFILES :: TEMPLATE.
- 2. Click +Add (displays dialog).

Add Custom Template		
Cancel Save		
- Name*	- Code *	
- Description *		
Type *		

- 3. Enter Name.
- 4. Enter **Description**.
- 5. On Type drop-down, select one (Configuration, Script).
- 6. In **Code** text box, enter the needed code.
- 7. Click SAVE.

Edit a Template

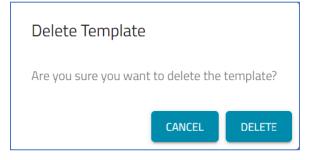
- 1. Go to PROFILES :: TEMPLATE.
- 2. Locate the template and select the checkbox.
- 3. Click Edit.
- 4. Make changes, as needed.
- 5. Click SAVE.

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NOTE: Templates created by a Super Admin may only be viewed, not edited.

Delete a Template

- 1. Go to PROFILES :: TEMPLATE.
- 2. Locate the template and select the checkbox.
- 3. Click Delete (displays dialog).



4. Click DELETE.

TRACKING Section

OPEN SESSIONS tab

CLOUD sub-tab

This displays currently active user sessions. From here, information can be viewed related to each active session.

	CLOUD				
				Sea	arch: Search User
TER	MINATE				C Total Sessions: 2
	User	Source IP	Туре	Session Start	Reference
	allan.sand@zpesystems.com	73.223.89.240	Cloud	08/12/2021 17:02:12	GB7GX61UL7TXK24N
-	iago.faria@zpesystems.com	189.4.94.104	Cloud	08/12/2021 17:10:03	OJJ5JEPNPFA6UK6Q

Cloud Table Columns

Column Name	Description
User	Name of User.
Source IP	User's IP address.



Column Name	Description
Туре	Type of access
Session Start	Date/time session began.
Reference	Session Reference ID.

Terminate Session(s)

- 1. Go to TRACKING :: OPEN SESSIONS :: CLOUD.
- 2. Select the checkbox next to the session(s) to be terminated.
- 3. Click **TERMINATE**.

NOTE: User's own session cannot be terminated.

LOGS tab

All actions within ZPE Cloud are registered and displayed under the LOGS tab. Operations conducted on attached devices are also listed here.

CLOUD sub-tab

This displays logs of connections between Nodegrid devices and ZPE Cloud. User login and logout information is also available on this page.

	OPEN SESSIONS		
CLOUD	CLOUD		
Select start date *		Select end date *	CONFIRM CLEAR DOWNLOAD MASK Search: Search Message, Event ID or Event (
Date	Event ID	Event Category	Message
Sep 30, 2021 9:09 AM	9001	Operation	Operation Created. Operation: 92a73e48-1f3a-47be-b1fa-3d6f3bad1089. Job: Nodegrid_Platform_v5.2.2_202109156_RC.iso, UPGRADE. Device: nodegrid (230040619). Created By: fanlu.kong@zpesystems.com.
Sep 30, 2021 9:05 AM	5005	User	User Authenticated Successfully. User: fanlu.kong@zpesystems.com Authentication method Password. IP address: 73.70.95.5.
Sep 30, 2021 8:56 AM	5005	User	User Authenticated Successfully. User: leonardo.oliveira@zpesystems.com Authentication method Password. IP address: 179.177.202.154.

NOTE: Events can also be viewed on the Nodegrid device. Login to device and go to *Tracking :: Event List*.

Cloud Table Columns

Column Name	Description
Date	Date/time of the event.
Event ID	ID number related to the event.



Column Name	Description
Event Category	Category of the event.
Message	Message of event details.

Filter Events by Date/Time

1. Go to TRACKING :: LOGS :: CLOUD.

OPEN SESSIONS	LOGS	NOTIFICATIO				
CLOUD	DEVICE					
Select start date * August 3, 2021 12:00 A	Select end date * M	21 12:00 AM	CONFIRM	CLEAR SEARCH	DOWNLOAD	MASK

- 2. Click Select Start Date to choose a date/time.
- 3. Click Select End Date to choose a date/time.
- 4. Click CONFIRM.

The list repopulates with the time/date filters.

Restore full listing

- 1. Go to TRACKING :: LOGS :: CLOUD.
- 2. Click CLEAR SEARCH.
- 3. List is populated with all logs.

NOTE: If Search date/times are not applied, the listing does not change.

Download Logs

- 1. Go to TRACKING :: LOGS :: CLOUD.
- 2. Click DOWNLOAD (displays dialog).

Download Logs		
K CANCEL DOW	VNLOAD	
All logs		
Select start date *		
Select end date *		
Select file type *	Ŧ	

3. Select *one* of these options:

For every log, select All logs checkbox.

For a time range, enter date/times for **Select Start Date** and **Select End Date**.

- 4. In the Select file type drop-down, select one (CSV, Excel).
- 5. Click **DOWNLOAD**.

The file is saved to the local download location.

If no logs, a pop-up dialog (lower right), indicates no logs available.

Mask User Logs

Use this to exclude logs of certain users.

- 1. Go to TRACKING :: LOGS :: CLOUD.
- 2. Click MASK (displays Mask logs dialog).

K CANCEL				
Select users for wh	ich you need to ma	isk logs		
Users		-		

- 3. On the Users drop-down, select checkboxes of users to be excluded from logs.
- 4. Click SAVE.

Masking continues until a new Mask filter is created.

NOTE: When a user is deleted, there is the option to mask that user's logs.

DEVICE sub-tab

This listing provides event details on devices.

	DNS LOGS	NOTIF				
CLOUD	DEVICE					
Select device	Select start date *	Select end date *	CONFIRM		Search: Search Operation II), Event ID, Event Category and M
Date	Event ID		Event Category	Operation ID		Message
No result found						



Device Table Columns

Column Name	Description
Date	Date of event.
Event ID	Identification of Event.
Event Category	Category of event.
Operation ID	Identification of device optional.
Message	Message about device event.

Filter the List

- 1. Go to TRACKING :: LOGS :: DEVICE.
- 2. To filter on a specific device, click **Select device** to choose an individual device. (Leave blank for all devices.)

CLOUD	DEVICE						
Select device * nodegrid/000121631 (Select start date * August 2, 2021 12:00 AM	Select end date * August 12, 2021 12:00 AM	CONFIRM	CLEAR SEARCH	DOWNLOAD	Search:	Search Operation ID, Event ID, Event Category and Message

- 3. Click **Select Start Date** to choose a date/time.
- 4. Click Select End Date to choose a date/time.
- 5. Click CONFIRM.

The list populates based on the date/time filters.

Restore full listing

- 1. Go to TRACKING :: LOGS :: DEVICE.
- 2. Click CLEAR SEARCH.
- 3. List is populated with all logs.

NOTE: If Search date/times are not applied, the listing does not change.

Download Device Events

- 1. Go to TRACKING :: LOGS :: DEVICE.
- 2. (as needed) Apply device/date/time filters to the listing.
- 3. Click **DOWNLOAD**.

The file is saved to the local download location.

NOTIFICATIONS tab

This page lists events within two conditions: OPEN and CLOSED.

ZPE Cloud sends emails to selected users when certain events occur on enrolled devices. Specified managers receive email updates on critical conditions. Go to *SETTINGS :: NOTIFICATIONS* to configure email and SMS notifications for designated event types.

There are three notification priority levels.

Notification	Warning	Critical Error
New device enrolled New device available Configuration applied successfully Script applied successfully Successful software upgrade Successful backup Backup restored successfully	Device in failover state License expires in 60, 30, 20, or 10 days	Device in failover state Site went offline Group went offline Failed to apply configuration Software upgrade failed Failed to backup Failed to restore backup License expires in 5, 4, 3, 2, or 1 day(s)

OPEN sub-tab

This page lists open event messages. These messages are not yet acknowledged.

			NOTIFICATIONS	
	OPEN	CLOSED		
Select P	Priority *	Select start date	Select end date	CLOSE
	Priority	Message		
	•	Device nodeş	grid(000121631) is Online.	
	Ŷ	Device nodes	grid(000121631) went Offline.	
	•	Device nodegrid(15195P1017) is Online.		
	Ŷ	Device nodes	grid(1519SP1017) went Offline.	

Open Message Table Columns

Column Name	Description
Priority	This symbol indicates type of event: Notification, Warning, and Critical
Message	Description and details of the event.
Date	Date and time



Filter the List

- 1. Go to TRACKING :: NOTIFICATIONS :: OPEN.
- 2. To filter on a specific notification type, on **Select notification** dropdown, select one (**All**, **Critical**, **Warning**, **Notification**)

The list repopulates, based on the selection.

3. To filter based on date/time:

Click **Select Start Date** to choose a date/time.

Click **Select End Date** to choose a date/time.

The list repopulates, based on the time range.

NOTE: to restore the list, click on the *CLOSED* sub-tab, then click on the *OPEN* sub-tab.

Move Open Notifications to Closed Listing

- 1. Go to TRACKING :: NOTIFICATIONS :: OPEN.
- 2. To filter the table listing:

In the Select Priority drop-down, select one (All, Critical, Warning, Notification).

Click **Select Start Date** to choose a date/time.

Click Select End Date to choose a date/time.

- 3. Select **Event** checkboxes to be closed.
- 4. Click CLOSE.

Notifications are moved to CLOSED sub-tab.

CLOSED sub-tab

This table lists messages marked as closed messages. These event messages are acknowledge as read and resolved.

OPEN SESSIONS	LOGS	NOTIFICATIONS	
OPEN	CLOSED		
Select Priority *	Select start date	Select end date	REOPEN Search: Search Message
Priority	Message		Date
	Device nodeg	rid(000121631) went Offline.	Aug 20, 2021 02:12 am
	Device nodeg	rid(1519SP1017) is Online.	Aug 20, 2021 12:43 am
	Device nodeg	rid(1519SP1017) went Offline.	Aug 20, 2021 12:35 am



Closed Message Table Columns

Column Name	Description
Priority	This symbol indicates type of event: Notification, Warning, and Critical
Message	Description and details of the event.
Date	Date and time

Filter the List

- 1. Go to TRACKING :: NOTIFICATIONS :: CLOSED.
- 2. To filter on a specific notification type, on **Select notification** dropdown, select one (**AII**, **Critical**, **Warning**, **Notification**)

The list repopulates, based on the selection.

3. To filter based on date/time:

Click **Select Start Date** to choose a date/time.

Click **Select End Date** to choose a date/time.

The list repopulates, based on the time range.

NOTE: to restore the list, click on the *OPEN* sub-tab, then click on the *CLOSED* sub-tab.

Move Closed Notifications back to Open Listing

			NOTIFICATIONS	
OPE	EN	CLOSED		
Select Priority	* •	Select start date	Select end date	REOPEN Search: Search Message
Prio	prity	Message		Date
		Device nodeş	grid(000121631) went Offline.	Aug 20, 2021 02:12 am
		Device nodeg	grid(1519SP1017) is Online.	Aug 20, 2021 12:43 am
		Device nodeg	grid(1519SP1017) went Offline.	Aug 20, 2021 12:35 am

- 1. Go to TRACKING :: NOTIFICATIONS :: CLOSED.
- 2. To filter the table listing:

In the Select Priority drop-down, select one (All, Critical, Warning, Notification).

Click Select Start Date to choose a date/time.

Click Select End Date to choose a date/time.

- 3. Select Event checkboxes to be re-opened.
- 4. Click REOPEN.

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Notifications are moved to OPEN sub-tab.

SETTINGS Section

Configurations and actions specific to company specifications and requirements are managed within this section.

ENROLLMENT tab

CLOUD sub-tab

Enrollment of devices can be enabled or disabled (default: disabled).

ENROLLMENT		NOTIFICATION	SUBSCRIPTIONS
CLOUD	ON-PREMISES		
Enable Device Enrolmer	t		
Customer Code			
MAHZQC			
ENROLMENT KEY			
•••••	0		

Enable Enrollment

- 1. Select Enable Device Enrollment checkbox.
- 2. Enter the Enrollment Key.

The Enrollment Key should be a combination of numbers, letters, and special characters.

- 3. Click SAVE.
- 4. A pop-up dialog (lower right) confirms the Enrollment Key is saved.

NOTE: Customer Code is an identifier unique to the company associated with the device. It is used to enroll devices and transfer device ownership.

Enrollment from Device

NOTE: This is only available for Nodegrid devices, version 4.2 or later.

WebUI Procedure

- 1. Login on the device with admin permissions.
- 2. Go to System :: Toolkit :: Cloud Enrollment.
- 3. Enter **ZPE Cloud URL**.

- 4. Enter Customer Code.
- 5. Enter Enrollment Key.
- 6. Click ENROLL.

If the process is successful, a pop-up dialog confirms success.

Device CLI Enrollment (Nodegrid v4.1)

CLI is required to enroll devices with Nodegrid version 4.1.

CLI Procedure

- 1. On CLI window, login with root permissions.
- 2. Execute:

zpe_cloud_enroll

- 3. Enter the **Customer Code**.
- 4. Enter the registered Enrollment Key.
- 5. Use commit command.
- 6. If successful, this message displays:

Enrollment process successful!

Device CLI Enrollment (Nodegrid v4.2)

CLI is required to enroll devices with Nodegrid version 4.2.

CLI Procedure

- 1. On CLI window, login with root permissions.
- 2. Execute:

zpe_cloud_enroll

- 3. Enter the **Customer Code** value.
- 4. Enter the registered Enrollment Key.
- 5. For enrollment into ZPE Cloud or ZPE Cloud On-Premise, enter yes or no.
- 6. If successful, this message displays:

Enrollment process successful!

ON-PREMISE sub-tab

CLOUD	ON-PREMISE	
SAVE		
✓ Enable On-Premise Enr	olment	
URL*	,	
Customer Code *		
H3UM9S		
- ENROLMENT KEY		
		Ś
VALIDATE		

Enable On-Premise Enrollment

1. Go to SETTINGS :: ENROLLMENT :: ON-PREMISE.

ENROLLMENT		NOTIFICATION	SUBSCRIPTIONS
CLOUD	ON-PREMISES		
Enable On-Premises En	rollment		
URL*			
Customer Code *			
ENROLMENT KEY			
•••••		Ś	
VALIDATE			

- 2. Select Enable On-Premise Enrollment checkbox.
- 3. Enter URL.
- 4. Enter Customer Code.
- 5. Enter Enrollment Key.
- 6. Click VALIDATE.





7. On confirmation (below the VALIDATE button), click **SAVE**.

Enroll a New On-Premise Device (including Nodegrid Manager)

- 1. Go to SETTINGS :: ENROLLMENT :: CLOUD.
- 2. Copy the Customer Code and Enrollment Key.
- 3. Login to the new Nodegrid device.
- 4. Go to System > Toolkit > Cloud Enrollment.

Enroll Cancel		
Cloud Enrollment		
Status:	Enrolled at https://zpecloud.com	
URL:	https://zpecloud.com	đ
Customer Code:		
Enrollment Key:		۹

- 5. Enter Customer Code and Enrollment Key.
- 6. Click Enroll.

NOTE: If "Failed to enroll device. TPM is disabled." error displays, log into the device's BIOS and go to *Configuration* > *TPM Configuration* and select **Enable TPM** checkbox.

COMPANY tab

This includes company details used with ZPE Cloud.



Company Details	
SAVE	
Find below your company details	
C Business Name -	
QA Team Company	
- Address	
1313 Disneyland Dr, Anaheim, CA 92802, United States	
- Contact Info	
iago.faria@zpesystems.com	
- Domain	
qateam	.qa.zpecloud.com
Session Tracking	
Track session based on SSID (Session ID)	
O Track session based on Source IP address and SSID (Session ID)	
Upload Logo	
*.jpg,.jpegpng	
3F9-3F-9-3F-9	

Manage Company Details

To update details, administrator privileges are required.

Enter Company Details

- 1. Go to SETTINGS :: COMPANY.
- 2. Enter Business Name.
- 3. Enter Address.
- 4. Enter Contact Info (email).
- 5. Enter Domain.
- 6. On Session Tracking menu, select one:

Track session based on SSID (Session ID) radio button.

Track session based on Source IP address and SSID (Session ID) radio button.

7. Click Upload Logo.

Locate and select the image (must be jpg, jpeg, or png).

8. Click **SAVE**.

NOTE: The logo is displayed on the login page and top-left on the interface.

Edit Company Details

- 1. Go to SETTINGS :: COMPANY.
- 2. Make changes, as needed.
- 3. Click SAVE.



SSO tab

On this tab, identity providers and certificates are managed.

IDENTITY PROVIDERS sub-tab

Identity provider information is managed on this page.

				OTIFICATION	SUBSCRIPTIONS
IDENTIT	PROVIDERS	CERTIFICATE			
+ Add	Edit	Delete Deactivate			
	Status	Name	Description		ACS URL
	ACTIVE	ad	ad		https://api.qa.zpecloud.com/saml/2-0/ad
	INACTIVE	duoTest	SSO duo		https://api.qa.zpecloud.com/saml/2-0/duoTest
	INACTIVE	duo-FR	duo with metadata		https://api.qa.zpecloud.com/saml/2-0/duo-FR
	ACTIVE	OktaQA	Test		https://api.qa.zpecloud.com/saml/2-0/OktaQA
	ACTIVE	duo	SSO Test		https://api.qa.zpecloud.com/saml/2-0/duo

Identity Provider Table Columns

Column Name	Description
Status	Status of identity provider: Active, Inactive.
Name	Name of the identity provider.
Description	Information on the identity provider.
ACS URL	Web address of ACS.

Add a new Identity Provider

- 1. Go to SETTINGS :: SSO :: IDENTITY PROVIDERS.
- 2. Click +Add (displays dialog).

Add New SSO Method				
	LOAD METADATA			
Name *				Enable Single Logout
Description *				LOAD IDENTITY PROVIDER CERTIFICATE FILE *
SSO SAML2		 	•	-
Entity ID *				
]
SSO URL *				
Issuer *				

- 3. Enter Name (name of the SSO method).
- 4. Enter **Description** (information about the provider).
- 5. On SSO Method drop-down, select one.
- 6. Enter Entity ID.
- 7. Enter SSO URL.
- 8. Enter Issuer.
- 9. Click LOAD IDENTITY PROVIDER CERTIFICATE FILE (locate and select a valid certificate).
- 10. Select **Enable Single Logout** checkbox (if there is a valid certificate). If not, leave unselected.
- 11. Click SAVE.

Edit an Identity Provider

- 1. Go to SETTINGS :: SSO :: IDENTITY PROVIDERS.
- 2. In the table, locate identity provider and select checkbox.
- 3. Click Edit (displays dialog).

Version 2.12



ENROLLMENT	COMPANY	550	NOTIFICATION	SUBSCRIPTIONS	
Update SSO Method					
CANCEL SAVE	LOAD METADATA	COPY ACS URL			
Name*					
duoTest					Enable Single Logout
Description *					LOAD IDENTITY PROVIDER CERTIFICATE FILE
550 000					CUAD IDENTITY PROVIDER CENTIFICATE FILE
SSO SAML2				-	
Entity ID *					
ZPECloudQA					
SSO URL *		54-15505			7
https://sso-dag-8820128.test	.zpecloud.com/dag/saml2	/idp/SSOService.php			
https://sso-dag-8820128.test	.zpecloud.com/dag/saml2	/idp/metadata.php			

- 4. Make changes, as needed.
- 5. Click **SAVE**.

Delete an Identity Provider

One or more identity providers can be deleted in a single operation

- 1. Go to SETTINGS :: SSO :: IDENTITY PROVIDERS.
- 2. In the table, locate identity provider(s) and select checkbox(es).
- 3. Click Delete (displays dialog).

Delete S	550	
Are you su	ire want to de	lete SSO ?
	CANCEL	DELETE

4. Click **DELETE** to complete the action.

Deactivate an Identity Provider

One or more identity providers can be deactivated.

- 1. Go to SETTINGS :: SSO :: IDENTITY PROVIDERS.
- 2. In the table, locate identity provider(s) in active state, and select checkbox(es).
- 3. Click **Deactivate**.

The Status changes to **INACTIVE**.

Activate an Inactive Identity Provider

One or more inactive identity providers can be activated.

1. Go to SETTINGS :: SSO :: IDENTITY PROVIDERS.

- 2. In the table, locate identity provider(s) with Inactive state, and select checkbox(es).
- 3. Click Activate.
- 4. The Status of the identity provider changes to ACTIVE.

Configure SSO Identify Providers

Okta Setup

Access to a developer account is required (free trial options are available).

- 1. Access the Okta developer console.
- 2. Change the UI view from *Developer* to *Classical*.

(SAML applications are not shown in Developer view).

- 3. Go to Application :: Add Applications :: Create New App.
- 4. Select Web and SAML 2.0 , then click Create.
- 5. The following fields are required:

Single sign on URL (https://api.zpecloud.com/saml/2-0/<sso_name>)

SP entity ID (ID name for the service)

Name ID format (unspecified)

Application username (email address)

- 6. (optional) To enable SLO, click Show Advances Settings and select Single Logout checkbox.
- 7. Enter details in the required fields:

Single Logout URL (https://api.zpecloud.com/saml/2-0/<sso_name>/logout)

SP Issuer (same as SP entity ID)

Signature Certificate (use the certificate downloaded from ZPE Cloud under *Settings :: SSO :: Certificate*)

8. On the Attribute Statements dialog, add mail to the attribute mapping.

Name	Name format (optional)	Value	
mail	Unspecified v	user.email	•

- 9. Click Save.
- 10. On the **Assignment** tab, select users to have access to SSO.

Okta Cloud Setup

- 1. Login to Okta cloud and go to the Application Configuration page.
- 2. On the Sign On tab, click View Setup Instructions:

Entity ID (SP Entity)

SSO URL (Identity Provider Single Sign-On URL)

Issuer (Identity Provider Issuer)

3. Download the X.509 certificate and upload it to the Cloud.

NOTE: To use the logout function, select the **Single Logout** checkbox, and add the single logout URL from the identity provider. If the XML file is loaded, this is automatic.

Ping Setup

- 1. On the *PingOne* administrator console, go to *Connection :: Applications* and click **Add Application**.
- 2. Under Advanced Configuration, select the option for SAML
- 3. Enter these details:

ACS URL (https://api.zpecloud.com/saml/2-0/<sso_name>)

Entity ID (any meaningful ID for the service)

- 4. Download the signing certificate.
- 5. On the Mapping Attributes tab, add the mail attribute.

PINGONE USER ATTRIBUTE			APPLICATION ATTRIBUTE		
User ID	~	=	saml_subject	~	Required
PINGONE USER ATTRIBUTE			APPLICATION ATTRIBUTE		

6. (optional) To enable SLO, enter:

SLO Endpoint (https://api.zpecloud.com/saml/2-0/<sso_name>/logout)

SLO Binding (HTTP Post)

Verification Certificate (click **Import** and choose the certificate previously downloaded from ZPE Cloud at Settings :: SSO :: Certificate)

7. Click Save.

PingID Cloud Setup

1. On the *PingOne Administrator Console*, access the application.





	CloudDe Client ID: ce	V 8c2b4c-5be4-4441-a	6ce-97398057497f	Avg daily sign-ons:	A Past 7 days No data yet	%		
	Profile	Configuration	Attribute Mappings	Policies				
^		OMETADATA:	Download					
	ISSUER ID:		https://auth.pingone.com/a	10980e3-bfbf-4f0f-a65	4-97b7b5c5052a			
	SINGLE LOG	GOUT SERVICE :	https://auth.pingone.com/a	10980e3-bfbf-4f0f-a65	4-97b7b5c5052a/saml20/i	dp/slo		
	SINGLE SIG	NON SERVICE:	https://auth.pingone.com/a	10980e3-bfbf-4f0f-a65	4-97b7b5c5052a/saml20/i	dp/sso		
	IDP METAD	ATA URL:	https://auth.pingone.com	n/a10980e3-bfbf-4f0f-a	654-97b7b5c5052a/saml2	0/metadata/c	e 🖹	
	INITIATE SIN	GLE SIGN-ON URL:	https://auth.pipgopo.com	1008002 bfbf 4f0f a	654-97b7b5c5052a/saml2	Q/idp/startess	. 8	

2. Enter these configuration details:

Entity ID (Entity ID configured earlier)

SSO URL (Single Sign-On Service web address)

Issuer (Issuer ID)

3. (optional) Download metadata and upload the SSO form.

NOTE: To use the logout function, select the **Single Logout** checkbox, and add the single logout URL from the identity provider. If the XML file is loaded, this is automatic.

Duo

To authenticate, Duo requires the *Duo Access Gateway* (DAG). DAG requires a configuration specific to the selected authentication method. See the <u>DUO website</u> for further information.

To set up the authentication source, refer to Duo Guide (<u>available here</u>). Options include an external IdP, Active Directory and LDAP. After the authentication source is configured, setup the Duo Cloud application. On the *Application* menu, load the JSON to DAG application.

Create Application on Duo Cloud

- 1. Login to the Duo administrator account.
- 2. On the Application menu, click **Protect an Application**.
- 3. Use **Search** to locate the Generic Service Provider for DAG.

evice Insight	Protect an Application		
Policies	generic		
Applications			
Protect an Application	Application	Protection Type	
Single Sign-On			
Users	G Generic Service Provider	2FA with SSO self-hosted	Documentation C Protect
Groups		(Duo Access Gateway)	
Endpoints			
2FA Devices	Generic Service Provider	2FA with SSO hosted by Duo (Single Sign-On)	Documentation 🗗 Protect
Trusted Endpoints			

- 4. Click Protect.
- 5. Enter these details:

Service Provider Name (Name to identify the service)

Entity ID (meaningful ID to identify the service)

Assertion Consumer Service (https://api.zpecloud.com/saml/2-0/<sso_name>)

(optional) Single Logout URL (https://api.zpecloud.com/saml/2-0/<sso_name>/logout)

6. On the SAML Response menu:

On NameID format drop-down, select unspecified

On NameID attribute, enter mail

SAML Response		
NameID format	urn:oasis:names:tc:SAML:1.1:nameid-format:unspecified The format that specifies how the NameID is sent to the service provider.	•
NameID attribute	mail The IdP attribute which identifies the user to the service provider (sent as NameID).	

7. Complete these:

Unselect Sign response checkbox.

On IdP Attribute, enter mail.

On SAML Response Attribute, enter mail.





- 8. Click Save.
- 9. Download the application: **JSON**.
- 10. In the Application menu, upload it to Duo DAG.

Configure SAML Service Provider	Reset Secret Key
To set up this application, install the Duo Access Gateway and then configure your service provider. View service provider configuration instruction Next step: Download your configuration file	15

Duo Cloud Setup

This requires Administrator credentials.

- 1. Login to ZPE Cloud and go to SETTINGS :: SSO.
- 2. Follow the Add a new Identity Provider procedure with the required fields (located within Duo DAG at Application > Metadata):

Entity ID (configured earlier)

SSO URL (same as metadata)

Issuer (Entity ID shown on metadata)

- 3. Download the certificate and upload it to ZPE Cloud.
- 4. (optional) To download the XML metadata and click LOAD METADATA.

Metadata	Ш нестеате Сетппсате
Information for configuring a	applications with Duo Access Gateway. Download XML metadata.
Certificate	/C=US/ST=MI/L=Ann Arbor/O=Duo Security, Inc. · Download certificate
Expiration	2030-07-18 11:42:28
SHA-1 Fingerprint	12:BE:7D:87:1C:C7:ED:9B:5F:E6:C2:9A:45:03:35:08:67:06:89:07
SHA-256 Fingerprint	68:17:20:38:D4:FC:AB:D0:0B:A3:73:47:F1:51:26:AE:0E:9D:06:E1:8B:55:FE:3B:B3:16:DD:76:FA:85:5 0:F5
SSO URL	https://dag-local/dag/saml2/idp/SSOService.php
Logout URL	https://dag-local/dag/saml2/idp/SingleLogoutService.php
Entity ID	https://dag-local/dag/saml2/idp/metadata.php
Error URL	https://dag-local/dag/module.php/duosecurity/duo_error.



To add ZPE Cloud as a relaying party trust:

- 1. On the Server Manager, click **Tools**.
- 2. Select AD FS Management.
- 3. On the new window:

Click Relaying Party Trusts.

Click Add Relaying Party Trust

4. On the Relaying Party Trust Wizard, click Start.

Select Enter data about the relaying party manually checkbox.

Enter Display Name.

Do not configure the certificate.

5. Click Next.

In the Configure URL for SAML 2.0 menu, enter: https://api.zpecloud.com/saml/2-0/<sso name>

Add a relaying party trust identifier (same as Entity ID).

On Access Control Policy drop-down, select Permit Everyone.

- 6. Confirm settings are correct, then click **Finish**.
- 7. To add a claim issuance policy:

For the Claim Rule Template, select Send LDAP Attributes as Claims.

On Claim Rule Name, enter zpe_cloud.

On Attribute Store, select Active Directory.

On LDAP Attributes Mapping drop-down, select REQUIRED: E-Mail Addresses - Name ID.

In sequence, click Finish, Apply, OK.

8. To get AD FS Metadata (optional but recommended):

Go to AD FS :: Service :: Endpoints

In the *Metadata* menu, locate the **Federation Metadata**.

Find the URL and copy into the browser address line.

NOTE: Should be: https://**<yourdomain.com>**/FederationMetadata/2007-06/FederationMetadata.xml.

This automatically downloads the XML file.

9. To download the AD FS Certificate (X.509): (if Metadata was downloaded, skip this step)

Go to AD FS :: Service :: Certificates.

Click Token-decrypting certificate.

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On the **Details** tab, click **Copy to file**.

Select Base-64 encoded X.509 (.CER) checkbox.

Save the file and click **Finish**.

10. To configure AD FS in ZPE Cloud: (if metadata was imported, only enter **Name** and **Description**). Follow the *Add a new Identity Provider* procedure:

Name (name of the SSO)

Description (generic description field)

SSO Method (ADFS)

Entity ID (relaying party trust identifier)

SSO URL (copied from XML file https://<yourdomain.com>/adfs/ls/)

Issuer (copy Entity ID from XML file https://<yourdomain.com>/adfs/services/trust)

Load Identity Provider Certificate (upload the AD FS Certificate)

11. Click Finish.

CERTIFICATE sub-tab

A certificate can be generated on this page.

ENROLLMENT	COMPANY	550	NOTIFICATION	SUBSCRIPTIONS
IDENTITY PROVIDERS	CERTIFICATE			
				Self-Sign Certificate
Email Address *	s com			
ago. ana(@zpesystem				

Generate a Certificate

- 1. Go to SETTINGS :: SSO :: CERTIFICATE.
- 2. Enter these details:

Country Code

State

Locality

©2021 ZPE Systems, Inc.



Organization

Organization Unit

Common Name

Email address

3. Click GENERATE.

Generate a Self-Sign Certificate

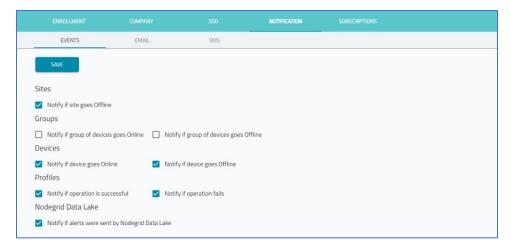
- 1. Go to SETTINGS :: SSO :: CERTIFICATE.
- 2. Select Self-Sign Certificate checkbox.
- 3. In Certificate Validity (days), enter the valid period in days.
- 4. Click GENERATE.
- 5. (optional) Click Download Certificate.

NOTIFICATIONS tab

The notification system is managed on this page. nd SMS notifications for events.

EVENTS sub-tab

This page configures what events triggers an Email or SMS notification.



Configure Notification Events

1. Go to SETTINGS :: NOTIFICATIONS :: EVENTS.

Select/unselect checkbox, as needed.

2. On Sites menu:

Select Notify if site goes Offline checkbox.

3. In Groups menu:

Select Notify if group of devices goes Online checkbox. Select Notify if group of devices goes Offline checkbox.

4. In *Devices* menu:

Select Notify if device goes Online checkbox Select Notify if device goes Offline checkbox

5. In Profile menu:

Select Notify if operation is successful checkbox

Select Notify if operation fails checkbox

6. (if installed) In Nodegrid Data Lake menu:

Select Notify if alerts were sent by Nodegrid Data Lake checkbox

7. Click **SAVE**.

Configure Device to share Events with ZPE Cloud

Nodegrid devices connected to ZPE Cloud do not automatically forward all event categories. Administrator privileges are required to configure.

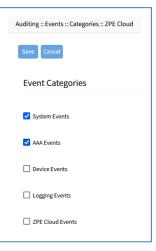
WebUI Procedure

- 1. Login to the Nodegrid device.
- 2. Go to Auditing :: Events :: Categories.

			Network	Cluster		Auditing				
Settings	Events	Destina	tions							
Event List	Categories									
Auditing :: Events	ts :: Categorie	5								C Reloz
Events		Sy	stem Events		AAA Events	5	Device Events	Logging Events	ZPE Cloud Events	
ZPE Cloud										
Email										
File		Yes			Yes		Yes	Yes		
SNMP Trap										
Syslog		Yes			Yes		Yes	Yes		

3. In the *Events* column, click **ZPE Cloud**. (opens dialog).





4. In *Event Categories* menu, select/unselect, as needed.

System Events checkbox

AAA Events checkbox

Device Events checkbox

Logging Events checkbox

ZPE Cloud Events checkbox

5. Click Save.

CLI Procedure

This CLI example selects event categories.

```
[admin@nodegrid /]# cd /settings/auditing/events/
[admin@nodegrid events]# cd
email/ file/ snmp_trap/ syslog/ zpe_cloud/
[admin@nodegrid events]# cd zpe_cloud/
[admin@nodegrid zpe_cloud]# show
system_events = no
aaa_events = no
device_events = no
logging_events = no
zpe_cloud_events = no
[admin@nodegrid zpe_cloud]#
```

Email sub-tab

On this page, emails are configured when triggered by notifications.



			NOTIFICATION	
EVENTS	EMAIL	SMS		
Send notifications via e		ical notifications		
Email server configura	ition			

Configure Email Notification for User

Make checkbox selections, as needed.

- 1. Go to SETTINGS :: NOTIFICATIONS :: EMAIL.
- 2. Select Send notifications via email checkbox.
- 3. Select Send only critical notifications checkbox.
- 4. On Email server configuration drop-down, select one:

If **ZPE Default server**, continue to next step.

If SMTP:

Enter Host, Port, User, Password, Sender Email, Timeout.

(optional) Select **TDS** checkbox.

To validate, click **TEST CONFIGURATION**. If email is received, the settings are correct.

- 5. Click MANAGE USERS (displays dialog).
- 6. On **Users** drop-down, select individuals to receive notifications.

Alert Users	CANCEL SAVE
CANCEL SAVE	Select All/Deselect All
I Concer Sive	Adriano Souza (adriano.souza@zpesystems.com)
Select User that will receive email alerts	Giovanni Tagliaferri (giovanni.tagliaferri@zpesystems.com)
	lago Faria (iago.faria@zpesystems.com)
Users	Jamie Nhek (jamie.nhek@zpesystems.com)

7. Click SAVE.

SMS sub-tab

Configure SMS Notifications

1. Go to SETTINGS :: NOTIFICATIONS :: SMS.



EVENTS	EMAIL IANAGE USER	SMS	
SAVE	ANAGE USER		
Send SMS with the notific	ations 🔲 Only send S	5MS if is critical	
Service Provider			
AWS Simple Notification Service	ce in the second s	•	

2. Select one:

Send SMS with the notifications checkbox

Only send SMS if is critical checkbox

3. Click MANAGE USERS (displays Alert Users dialog).

On Users drop-down, select checkboxes for individuals to receive notifications.

Alert Users	CANCEL SAVE
	Select All/Deselect All
	Adriano Souza (adriano.souza@zpesystems.com)
Select User that will receive email alerts	Giovanni Tagliaferri (giovanni.tagliaferri@zpesystems.com)
	lago Faria (lago.faria@zpesystems.com)
Users -	Jamie Nhek (jamie.nhek@zpesystems.com)

4. Click SAVE.

SUBSCRIPTIONS tab

Subscriptions are managed on this page.

							IPTIONS		
A	ctivate	Request Renew	Request Subscription			Search: Sear	rch Type, Name, Des	cription or Period	
	Туре	Name	Subscription All	Description	Period	Number Of Devices	Subscription Status	Activation Date	Expiration Date
	Subscription	ZPE Cloud	ZPE Cloud	ZPE Cloud - 1 YEAR - Subscription - 50 Nodes	1 Year	50	Active	11/20/2020	11/20/2021
	Subscription	Generic Forwarder	App	ZPE Cloud License - 2 YEAR - Subscription - Forwarder App	2 Years	-	Inactive	Auto	-
	Subscription	Generic Forwarder	Арр	ZPE Cloud License - 1 YEAR - Subscription - Forwarder App	1 Year	-	Active	09/30/2021	09/30/2022



Subscriptions Table Columns

Column Name	Description
Туре	Type of subscription.
Name	Name of subscription,
Subscription drop-down	List is sorted, based on drop-down selection: All, Cloud, App.
Description	Information about the subscription.
Period	Length of time of the subscription.
Number of Devices	Number of devices for the subscription.
Subscription Status	Status of subscription: Active, Inactive.
Activation Date	Date subscription started.
Expiration Date	Date subscription expires.

Manage Subscriptions

Request Subscription

- 1. Go to SETTINGS :: SUBSCRIPTIONS.
- 2. Click Request Subscription (displays Request Subscription dialog).
- 3. On the Select Subscription Type drop-down, select one.

Nodegrid

On Select Subscription Type drop-down, select one. Then, click REQUEST.

Select Subscription Type *	
Nodegrid	*
Select Subscription Type *	
ZPE-CLOUD-SUB1Y-UNL	*

A dialog confirms the Request was submitted.

Арр

Request Subscription		
Select Subscription Type *		
Арр		•
Select App *		•
Select Subscription Type *		*
	_	
	CANCEL	

On Select App drop-down, select one. (selection can display the following drop-down option).

On **Select Subscription Type** drop-down, select one.

4. Click **REQUEST**.

Request Subscription		
Select Subscription Type *		
Арр		*
Select App *		*
	CANCEL	

A dialog confirms the Request was submitted.

Request a Subscription Renewal

- 1. Go to SETTINGS :: SUBSCRIPTIONS.
- 2. Select checkbox next to the subscription (Active or Inactive) to renew.
- 3. Click Request Renew (displays Renew Subscription dialog).

Renew Subscription		
— Type additional message (optional) —		
	CLOSE	REQUEST

- 4. (optional) In Type additional message field, enter needed details.
- 5. Click **REQUEST**.

APPS Section

The apps page displays all active and available apps.



ACTIVE tab

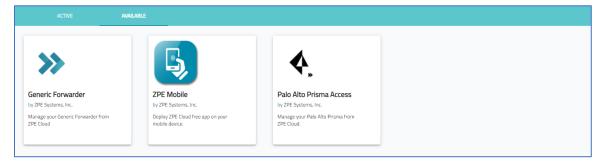
This displays all active apps currently available. Selection depends on customer's configuration.

ACTIVE AVAIL	ABLE		
SDWAN	*		
SD-WAN by ZPE Systems, Inc.	git by ZPE Systems, Inc.	Nodegrid Data Lake	Extended Storage
Manage your WAN, reduce cost, improve application performance and user experience	git lab test	Take a pulse, inspect and visualize your critical infrastructure KPIs	Store, share, and collaborate on files between your devices and ZPE Cloud.
Deactivate	Deactivate	Deactivate	Deactivate
•			
Reports by ZPE Systems, Inc.			
Generate comprehensive and custom reports on demand.			
Deactivate			

NOTE: Apps only work for enrolled devices.

AVAILABLE tab

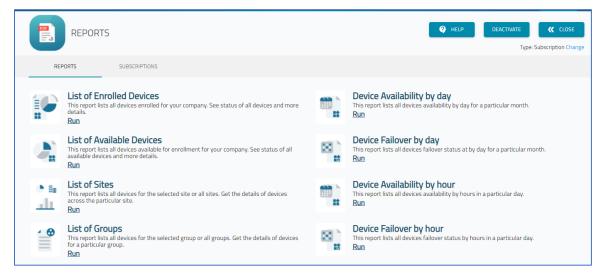
This page displays any available app not yet installed. Check back often to see newly added apps.



App Descriptions

Reports App

This app generates reports (pre-configured and custom).



Run Individual Report

- 1. Go to APPS :: ACTIVE :: REPORTS :: REPORTS.
- 2. In the list, identify the needed report and click Run.



3. The dialog to set parameters displays.

	S / DEVICE AVAILABILITY	' BY DAY	PHELP DE	EACTIVATE CLOSE	
REPORTS	SUBSCRIPTIONS				
Select start date November 14, 2021	Select end date December 13, 2021	RUN REPORT			
Device Availability by da	ay			ē o	
QA Team Company Please Click on Run Report Button to Generate Report					

- 4. Click in Select start date (displays calendar) and select a beginning date.
- 5. Click in Select end date (displays calendar) and select an end date.
- 6. Click Run Report (displays report on page).

📳 REP	PORTS / DEVICE A	AILABILITY	BY DAY										HELP	DE	ACTIVATE	« 0
															Type:	Subscription
REPORTS SUBSCRIPTIONS																
stat date Select end date amber 14, 2021 December 13, 2021 RUM REPORT C BACK evice Availability by day																
ice Availability	by day															ē
						QA T	eam Coi	mpany								
															*Unit in per	centage (
Hostname	Serial Number	Model	14	15	16	17	18	19	20	21	22	23	24	25	*Unit in per 26	centage
Hostname N718DK	Serial Number	Model NSC-T485	14 100	15 100	16	17 100	18	19 100	20 100	21	22 100	23 100	24 100			
														25	26	27
N718DK	150983817	NSC-T485	100	100	100	100	100	100	100	100	100	100	100	25 100	26 100	27
N718DK SD717	150983817 151272818	NSC-T48S NSC-T48S	100 100	100 100	100 100	100 100	100 100	100 100	100 100	100 100	100 100	100 100	100 100	25 100 100	26 100 100	27 100 100 100
N718DK SD717 SD713	150983817 151272818 140234119	NSC-T485 NSC-T485 NSC-T485	100 100 100	100 100 100	100 100 100	100 100 100	100 100 100	100 100 100	100 100 100	100 100 100	100 100 100	100 100 100	100 100 100	25 100 100 100	26 100 100 100	27 100 100
N718DK SD717 SD713 SD738	150983817 151272818 140234119 15195P3003	NSC-T48S NSC-T48S NSC-T48S NSC-T48	100 100 100 100	100 100 100 100	100 100 100 100	100 100 100 100	100 100 100 100	100 100 100 0	100 100 100 95.83	100 100 100 100	100 100 100 100	100 100 100 84.31	100 100 100 100	25 100 100 100 100	26 100 100 100 100	27 100 100 100 99.03
N718DK SD717 SD713 SD738 nodegrid	150983817 151272818 140234119 15195P3003 140561817	NSC-T48S NSC-T48S NSC-T48S NSC-T48 NSC-T48	100 100 100 100 100	100 100 100 100 100	100 100 100 100 100	100 100 100 100 100	100 100 100 100 100	100 100 100 0 100	100 100 100 95.83 100	100 100 100 100 100	100 100 100 100 100	100 100 100 84.31 100	100 100 100 100 100	25 100 100 100 100 100	26 100 100 100 100 100	27 100 100 99.03 100
N718DK SD717 SD713 SD738 nodegrid N744	150983817 151272818 140234119 15195P3003 140561817 230070619	NSC-T48S NSC-T48S NSC-T48S NSC-T48S NSC-T48S GateSR	100 100 100 100 100 100	100 100 100 100 100 100	100 100 100 100 100 100	100 100 100 100 100 100	100 100 100 100 100 100	100 100 100 0 100 100	100 100 100 95.83 100 100	100 100 100 100 100 100	100 100 100 100 100 100	100 100 100 84.31 100 100	100 100 100 100 100 100 100	25 100 100 100 100 100 100	26 100 100 100 100 100 100	27 100 100 99.03 100 100

7. In upper right corner, select an export option:



To print report, click Printer icon



G

To save as a file, click **Download** icon

8. When done, click **BACK**.

Customize Reports

- 1. Go to APPS :: ACTIVE :: REPORTS :: REPORTS
- 2. Click on **Run** (displays dialog).



3. Click **CUSTOMIZE** (displays dialog). (If button is not shown, customization is unavailable.)



4. In the dialog, select appropriate items, then click **APPLY**.

Renew Subscription

- 1. Go to APPS :: ACTIVE :: REPORTS :: SUBSCRIPTIONS.
- 2. Click Request Renew (opens dialog).

Renew Subscription		
Select Subscription *		•
 Type additional message (optional) 		
	CLOSE	REQUEST

- 3. On Select Subscription drop-down, select one.
- 4. (as needed) In Type additional message (optional), add details.
- 5. Click **REQUEST** (displays success dialog).



SD-WAN app

SD-WAN is a ZPE Cloud plugin application that manages Nodegrid SD-WAN configurations and topology. See <u>Appendix B – SD-WAN User Guide</u>.

Extended Storage app

STORAGE tab

This app allows storage on devices to be increased and managed. Files and folders for each available device can be viewed and organized.



		IDED S	STORAGE			•	HELP	DEACTIVATE	« CLOSE
	STORAGE		DEVICES	SUBSCRIPTIONS	SETTINGS				
Search	h Devices	ع	Shared 🗸					ର ∷≣	📰 Sort 🗸
2	Shared			17 August, 13:11 383 KB					
ð	Configurations		FanluTest/	festajunina.jpg	hostname.txt				
ð	Backups								
â	Templates	•							

Extended Storage Functions

- 1. Go to APPS :: ACTIVE :: EXTENDED STORAGE.
- 2. The left panel provides management options:

Shared side-tab:

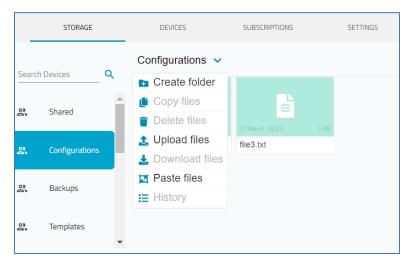
Click **Shared** drop-down and select as needed.

		Shared 🗸	
Searc	h Devices Q	Create folder	
0)	Shared	🕒 Copy files	
8	Shareu	Telete files	
0	Configurations	1 Upload files	m1.conf
	computations	▲ Download files	
2	Backups	Paste files	
	Баскирз	i ≡ History	
90	Templates		
:	Storage		
_	0.00GB of 100GB used		
6	Download		
	0.00TB of 2.5TB used		

Configuration side-tab

Click **Configuration** drop-down and select as needed.





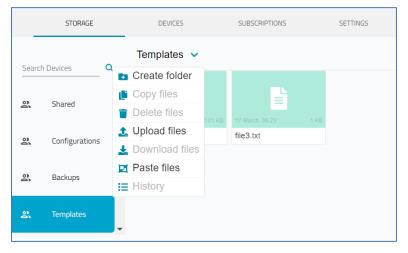
Backups side-tab

On the **Backups** drop-down, select as needed.

	STORAGE		DEVICES		SUBSCRIPTIONS		
C (0	Backups 🐱				
Search	Devices	E (Create folder		INTE		
	Chaved		Copy files				
ð	Shared	i [Delete files	175 KB	28 September, 06:05 509 KB		
		1. l	Jpload files	15Sg3U	070aUx6q68hUA0BKeD niYNE7mR8tAO.tar		
ð	Configurations	± [Download files				
		🗖 F	Paste files		I ⊢		
ŝ	Backups	i≡ I	listory	238 KB	17 September, 06:47 177 KB		
ð	Templates		0CEJWMBZ2GiE y7VHEXubTMcM		0GnQ0A9lsHKzgJRWAtl m3HTNcTbzkQ.tar		
		•					

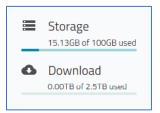
Templates side-tab

On Templates drop-down, select as needed.



Scrolling further down on the side panel shows the available enrolled devices.

Side Panel Status:



Storage shows used and available space.

Download shows amount of downloads and the maximum allowed.

Upgrade a Device with Extended Storage

Devices may be upgraded using a shared image placed within the Extended Storage application as follows: Following are options to manage extended storage.

- 1. Go to APPS :: ACTIVE :: EXTENDED STORAGE.
- 2. In left panel, click **Shared** side-tab (displays available folders.
- 3. On Shared drop-down, click Upload Files and select image and checksum files.
- 4. Go to PROFILES :: TEMPLATE, click +Add (opens dialog).

Add Custom Template	
Cancel Save	
- Name*	Code *
Description*	
Type *	

Enter Name.

Enter Description.

#!/bin/bash

On Type drop-down, select Script.

In the **Code** textbox, paste the following block:

```
# Check if image and checksum exists on Extended storage
if [ -f
/var/local/file_manager/remote_file_system/extended_storage/Shared/nodegrid.iso ] &&
   [ -f
/var/local/file_manager/remote_file_system/extended_storage/Shared/nodegrid.md5 ];
then
    # Files are located on Cloud storage, and it is better to download the files first
instead of use direct
    # inside the mounted folder
    cp /var/local/file manager/remote file system/extended storage/Shared/nodegrid.iso
/var/sw 2>/dev/null
    RET_ISO=$?
    cp /var/local/file_manager/remote_file_system/extended_storage/Shared/nodegrid.md5
/var/sw 2>/dev/null
    RET MD5=$?
    if [ $RET_ISO != "0" ] || [ $RET_MD5 != "0" ]; then
        echo "Failed to copy files"
        exit 1
    fi
    ISO_MD5=$(md5sum /var/sw/nodegrid.iso | cut -d " " -f 1)
    ISO_CHECKSUM=$(cat /var/sw/nodegrid.md5 | cut -d " " -f 1)
```



```
if [ $ISO_MD5 != $ISO_CHECKSUM ]; then
    echo "Failed to verify checksum"
    exit 1
    fi
    echo "Upgrading device..."
    upgrade_software --local /var/sw/nodegrid.iso
else
    echo "Not able to find image or checksum file"
    exit 1
fi
```

- 5. Click Save.
- 6. The script checks for the image and checksum within the shared folder, downloads both files to the target device, confirms the md5 checksum, and starts the upgrade process.

Access Extended Storage Folders (WebUI)

To access the extended storage folders directly on a Nodegrid device via the WebUI:

- 1. Log into the device.
- 2. On the UI, go to System :: Toolkit and click File Manager.
- 3. Open remote_file_system folder.
- 4. Open extended_storage folder.
- 5. Two folders are available in this directory:

Shared – this folder is shared between all company devices.

Nameofdevice – this folder is only accessible by the device itself and the Extended Storage application on ZPE Cloud.

6. Review contents, as needed.

Access Extended Storage Folders (CLI)

The extended storage folder can be access with a terminal session.

- 1. Log into the device with the Console.
- 2. To connect to the target device via ssh with root permission, execute:

cd /var/local/file_manager/remote_file_system/extended_storage

3. The following options are available:

List contents

Read or copy content from extended storage (triggers a download from cloud storage to the device)



Write or copy content from Nodegrid to extended storage (triggers an upload from the device to cloud storage)

4. The mv operation deletes the selected content from extended storage.

DEVICES tab

This tab presents storage details for individual devices.

	DED STORAGE			PHELP	DEACTIVATE 🥊 C	LOSE
STORAGE	DEVICES	SUBSCRIPTIONS	SETTINGS			
Storages Details:						
l Hostname	Serial	Status		Storage Usage	Access	
nodegrid	220061018	 Offline 		O bytes (O%)	STORAGE	
nodegrid	150983817	Offline		0 bytes (0%)	STORAGE	
nodegrid	220511018	Online		0 bytes (0%)	STORAGE	
nodegrid	140561817	Offline		0 bytes (0%)	STORAGE	
SD717	151272818	Offline		O bytes (0%)	STORAGE	

Click **STORAGE** to display device's folders/files (displayed on **STORAGE** tab).

SUBSCRIPTIONS tab

This displays current subscriptions and status details.

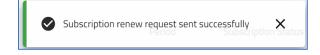
	XTENDED STO	DRAGE			P HELP	DEACTIVATE	« CLOSE
STOR	AGE	DEVICES	SUBSCRIPTIONS	SETTINGS			
RENEW SUBSCRIP Plan Details:	PTION						
Status	Storage Capacity	Activatio	on Date Exp	iration Date	Storage Option	SKU	
Active	100 GB	-	03/	15/2022 05:13:45	Cloud Storage	ZPE-CLOUD-SUB1	IY-ST0100

1. As needed, click **RENEW SUBSCRIPTION** (displays dialog).



Renew Subscription		
Select Subscription *		•
 Type additional message (optional) 		
	CLOSE	REQUEST

- 2. On Select Subscription drop-down, select one.
- 3. In **Type additional message (optional)** textbox, add details.
- 4. Click **REQUEST** (displays success dialog).



SETTINGS tab

This provides configuration options for extended storage.

	D STORAGE			HELP	DEACTIVATE	« CLOSE
STORAGE	DEVICES	SUBSCRIPTIONS	SETTINGS			
SAVE						
Backups						
Enable Save Device Bac	:kup					
Notifications						
Notify when total stora	ge size reach 80% 📿	Notify when total storage size	reach 100%			

To modify settings, make changes, as needed.

1. On Backups menu:

Select Enable Save Device Backup checkbox.

2. On Notifications menu:

Select Notify when total storage size reach 80% checkbox.

Select Notify when total storage size reach 100% checkbox.

3. Click SAVE.

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Palo Alto Prisma Access app

This app allows managing Palo Alto Prisma Access directly from ZPE Cloud.

APP tab

4	Palo Alto P	risma Access	DEACTIVATE	« CLOSE
				Type: Trial Change
	APP	SUBSCRIPTIONS (1)	CONFIGURE	
			Launched Palo Alto Prisma Access in new tab	
			LAUNCH AGAIN	

Palo Alto Prisma Access can now be directly launched from ZPE Cloud.

SUBSCRIPTIONS tab

Prisma Access subscriptions are listed.

					DEACTIVATE CLOSE Subscription Type: Trial Chu
APP	SUBSCRIPTIONS CONFIGURE				
Request Renew					
Туре	Description	Period	Subscription Status	Activation Date	Expiration Date
Trial	ZPE Cloud License - 90-DAY - Trial Subscription - Prisma App	90 Days	Active	11/20/2020 08:04:23	02/18/2021 08:04:23
Row per page 10 👻	1-1 of 1 < < >				

1. As needed, click **RENEW SUBSCRIPTION** (displays dialog).

Renew Subscription		
Select Subscription *		•
 Τγpe additional message (optional) 		
	CLOSE	REQUEST

- 2. On Select Subscription drop-down, select one.
- 3. (as needed) In **Type additional message (optional)**, add details.
- 4. Click **REQUEST** (displays success dialog).



0	Subscription renew request sent successfully	ption Status
---	--	--------------

CONFIGURE tab

Displays configuration settings.

Configure		
K CANCEL	SAVE	
Fill the fields belo	w to configure	
_ URL*		

To modify settings:

- 1. In URL, enter the Prisma access web address.
- 2. Click SAVE.

After configuration, when the app is accessed, the Prisma access page is opened.

NOTE: The app does not function until the Prisma access URL has been configured.

Generic Forwarder app

The generic forwarder app manages generic forwarders from the ZPE Cloud.

App Name * Choose Kon By : ZPE Systems, Inc.	
Type: Subscription Required Fill the fields below to configure:	Generic Forwarder
App Description *	Generic FOI Walder
URL*	
For Security, connect using resolved URL RESOLVE URL	•••
Open in New Tab	
Source IP for Whiteleting 34.66.127.55	
« CANCEL ACTIVATE	

Create New Generic Forwarder

- 1. Go to APPS :: ACTIVE :: GENERIC FORWARDER.
- 2. Enter App Name.

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- 3. To select a custom icon, click Choose Icon. (opens selection menu).
- 4. Enter a **Description**.
- 5. Select For Security, connect using resolved URL checkbox.

Enter URL and click Resolve URL.

- 6. (optional) Select Open in New Tab checkbox.
- 7. Click Activate

NOTE: The source IP is displayed for white-listing purposes. Click the icon next to the IP to copy it.

All created forwarders are available under APPS ::ACTIVE tab.

Nodegrid Data Lake app



The Nodegrid Data Lake application gathers device information from sensors, application stats, network traffic, data logs, system logs, events, bridges to third-party IoT devices. The dashboard presents visual representations of the metrics for quick evaluation of the represented infrastructure.

See <u>Appendix C – Nodegrid Data Lake User Guide</u>.

Appendix A - Nodegrid Manager

Nodegrid Manager simplifies networking jobs. Instead of juggling unique tools and UIs from an array of vendors, Nodegrid Manager puts all solutions under one umbrella. A single intuitive interface controls console servers, routers, PDUs, VMs, and everything on the network.

Install Nodegrid Manager

VMware vSphere

Virtual machine requirements:

EFI firmware

Host requirements:

vCenter Server 6.7 or later

Key Management Server (KMS)



External component requirements:

Computer running Windows with access to PowerCLI to execute commands on vCenter.

Key Management Server

Nodegrid Manager depends on vTPM features from VMware, and requires a Key Management Server installed on VMware's infrastructure. HyTrust is used in this tutorial, but other options can be chosen. The following link lists all the KMS options available for VMware.

https://www.vmware.com/resources/compatibility/search.php?deviceCategory=kms Installing HyTrust KeyControl

NOTE: If a key management server is installed on the VMware infrastructure, skip to *Deploying Nodegrid Manager*.

- 1. Download the OVA package to the local computer and extract its contents.
- 2. Access the vSphere Client.
- 3. On the "Menu" drop-down. select Hosts and Clusters.
- 4. On the Select an OVF template" page:

Select Local file checkbox.

Click Upload Files.

In the Open dialog, locate and select the HyTrust KeyControl OVF file

Click Next.

5. On the Select a name and folder page:

For KMS, enter a name.

Enter the VM location.

Click Next.

6. On the Select a compute resource page:

Select the resource.

Click Next.

7. On the Review details page:

Review the entries.

Click Next.

8. On the *License agreements* page:

Read HyTrust's license agreement.

Select I accept all license agreements. Click Next.

9. On the Configuration page:

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Select the best suited configuration. Click **Next**.

10. On the Select storage page: Choose the best suited storage.

Click Next.

11. On the "Select networks" page: Enter a destination network.

Click Next.

12. On the *Customize template* page:

For Host IP address, enter a static IPv4 address (cannot be changed after node is deployed).

Enter Hostname (alphanumeric & hyphens only) (cannot be changed after node is deployed).

Enter **Domain Name** (alphanumeric & hyphens only).

Enter Netmask (can change later).

Enter Gateway (can change later).

Enter DNS servers (i.e., 8.8.8.8)

Click Next.

13. On the "Ready to complete" page:

Review the displayed information.

Click Finish.

VMware starts the deployment process. This takes time, due to the size of the HyTrust image.

Configure the KeyControl Node

- 1. Access the vSphere Client.
- 2. Power on the HyTrust VM.
- 3. For the KeyControl system's admin account, enter the password ("htadmin").
- 4. Review the confirmation dialog (URL of KeyControl web GUI)

Press Enter to finish the installation.

- 5. On the browser, enter https://<node-ip-address>
- 6. On the HyTrust KeyControl Login page, for username and password, enter secroot.
- 7. Review the EULA, then click I Agree (accepting the license terms).
- 8. On the Welcome to KeyControl page, click Continue as Standalone Node.
- 9. On the Change Password page:



Enter a new **Password**.

Click Update Password.

10. On the "Configure E-Mail and Mail Server Settings" page:

Specify email settings.

Click Continue.

11. On the Download Admin Key page:

Click **Download** (saves the admin key locally).

Click Continue.

12. On the "Automatic Vitals Reporting" page:

As needed, enable/disable Automatic Vitals Reporting.

Click Continue.

- 13. On the top bar, click KMIP.
- 14. On the **Basic**" tab, select:

For State, set to ENABLED.

For Protocol, set to Version 1.1.

Click Apply.

This completes the KeyControl Node configuration.

Configure KMS

- 1. Access the vSphere Client with an account with administrator permissions.
- 2. On the Menu drop-down. select Hosts and Clusters.

In the Host and Clusters list, click the vCenter's machine.

- 3. On the **Configure** tab, in *Security* menu, click **Key Providers**.
- 4. Click Add Standard Key Provider.

In Name, enter name of the key providers.

In KMS, enter the name of the key management server.

Enter the IP address (defined earlier for HyTrust KeyControl).

In Communication Port, enter a value (default: 5696).

Click ADD KEY PROVIDER.

5. Verify displayed details, then click **TRUST**.

Select the Key Provider (created on the first list).

Select the KMS (created on the second list).

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On the Establish Trust drop-down., select Make KMS trust vCenter.

6. In the Choose a method page:

Select New Certificate Signing Request (CSR).

Click Next.

7. Click Submit CSR to KMS.

Click Download.

Click Done.

- 8. To access the HyTrust web GUI, enter the URL: https://<node-ip-address>
- 9. On the top bar, click **KMIP**.

On Client Certificates tab, Actions drop-down, click Create Certificate.

10. On the Create a New Client Certificate" page:

Type a Name for the certificate

Click Load File.

Locate and select the certificate (downloaded earlier on vSphere).

Click Create.

- 11. Select the new certificate.
- 12. On the Actions drop-down, click Download Certificate.

Download and unpack the zip file.

- 13. On the ESTABLISH TRUST drop-down, click Upload Signed CSR Certificate.
- 14. Click **UPLOAD FILE**.

Search for the pem file (extracted with the name given previously).

Click UPLOAD.

After completion, Connection Status of the key provider should show as Connected.

Deploy Nodegrid Manager

Create a New VM

- 1. Access the vSphere Client.
- 2. Upload NGM's iso image to vCenter storage.
- 3. On Menu drop-down., select Hosts and Clusters.

On the Actions drop-down., select New Virtual Machine.

Click Next.

4. On the Select a creation type page:

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Select **Create a new virtual machine**. Click **Next**.

- On the Select a name and folder page: Enter a Name for the VM.
 Select the Location for the new VM.
 Click Next.
- Inside the Select a compute resource page: Select the Destination Compute Resource. Click Next.
- On the Select storage page: Select the Storage Configuration.

```
Click Next.
```

8. Inside the "Select compatibility" page:

On the "Compatible with" drop-down., select "ESXi 6.7 and later"

Click Next.

9. Inside the "Select a guest OS" page:

On the Guest OS Family drop-down, select Linux.

On the Guest OS Version drop-down, select "Other 4.x or later Linux (64-bit)"

Click Next.

10. On the Customize hardware page, Virtual Hardware tab, select:

CPU = 2

Memory = 4GB

New Hard disk:

Size = 32GB

Virtual device node = IDE 0

On New CD/DVD Drive - Datastore ISO File:

Select the uploaded iso image.

Select **Connected at power on** checkbox.

To create a second network adapter, on Add new device, select Network Adapter.

Under *New network*, for both network adapters, enter **Adapter type = E1000E**.

11. On the Customize hardware page, VM Options tab:



Under Boot options select:

Firmware = EFI

Secure boot = disabled

Click Next.

12. On *Ready to complete* page:

Review the VM configuration details.

Click Finish.

This configures the VM.

Configure vTPM

- 1. On a Windows machine, open PowerCLI.
- 2. Install the VMware API.
- 3. Download VMware cmdlet.
- 4. Execute:

save-module -Name VMware.PowerCLI -Path C:\folder\path\

5. To install VMware, execute:

install-module VMware.PowerCLI -Scope CurrentUser

- 6. If the server does not have a certificate, it is possible to disable the certificate validation set-PowerCLIConfiguration -InvalidCertificateAction Ignore -Confirm:\$false
- To connect to vCenter, execute connect-VIServer <vCenter-ip-address>
- 8. Enter the administrator credentials for the VMware API.
- 9. To list all VMs on vCenter, execute:

get-VM

10. To add a TPM device to the VM, execute the following commands:

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```
$VMname = "<VM-name>"
$spec = New-Object VMware.Vim.VirtualMachineConfigSpec
$spec.DeviceChange = New-Object VMware.Vim.VirtualDeviceConfigSpec[] (1)
$spec.DeviceChange[0] = New-Object VMware.Vim.VirtualDeviceConfigSpec
$spec.DeviceChange[0].Device = New-Object VMware.Vim.VirtualTPM
$spec.DeviceChange[0].Device.DeviceInfo = New-Object VMware.Vim.Description
$spec.DeviceChange[0].Device.DeviceInfo.Summary = 'Trusted Platform Module'
$spec.DeviceChange[0].Device.Rey = -1
$spec.DeviceChange[0].Operation = 'add'
$_this = Get-VM $VMname | Get-View
$_this.ReconfigVM_Task($spec)
```

11. Access the vSphere Client. If the task was completed properly, on "Recent Task" list, this action is listed.

Install Nodegrid Manager

- 1. Access the vSphere Client.
- 2. On the Menu drop-down, select Hosts and Clusters.
- 3. On the Hosts and Clusters list, select the Nodegrid Manager VM.
- 4. On the Actions drop-down, click Power.
- 5. Click Power On.
- 6. Click Launch Web Console.
- 7. On Type your choice: enter Accept-efi.
- 8. On Please select an install target or press n to exit, type sda.

Wait for the installation to complete

- 9. When complete, Power off the VM
- 10. On the VM, go to Edit Settings.
- 11. Under CD/DVD Media, unselect Connect At Power On checkbox.
- 12. Power On the VM.

Wait the boot process to finish.

- 13. Login with username **admin** and password **admin**.
- 14. To retrieve the IP address, execute:

show /system/routing_table/

15. To change "admin" password, execute:

```
cd settings/local_accounts/admin/
change_password
```



VMware Workstation

This information creates a Nodegrid Manager VM on VMware Workstation. To secure communication, NGM requires a virtual Trusted Module Platform (vTPM).

NOTE: Nodegrid Manager does not require a physical TPM chip installed on the host computer.

Virtual Machine Requirements:

EFI Firmware

Host Requirements:

VMware Workstation Pro 14.0 or later

Deploy Nodegrid Manager on VMware Workstation

- 1. Open VMware Workstation.
- 2. In the File drop-down menu, click New virtual machine...

This starts the VM wizard.

3. On the dialog:

Select Custom (advanced)

Click Next.

4. On Hardware compatibility page:

Select **Workstation 14.x** (or later releases). Click **Next**.

5. On the dialog:

Select Installer disc image file (iso).

Locate and select the Nodegrid image iso file Click **Next**.

6. On the dialog:

On "Guest operating systems, select Linux.

On Version, select Other linux 4.x kernel 64-bit.

Click Next.

7. On the dialog:

Enter Virtual machine name.

Select the Location.

Click Next.

8. On the dialog:



For Number of Processes, enter 2.

Click Next.

9. On the dialog:

For Memory for this virtual machine, select 4096Mb.

Click Next.

10. On the dialog:

Select Use network address translation (NAT) checkbox.

Click Next.

11. On the dialog:

For I/O Controller Types, select LSI Logic.

Click Next.

12. On the dialog:

For Virtual Disk Type, select SCSI. Click Next.

13. On the dialog:

Select **Create a new virtual disk** checkbox Click **Next**.

14. On the dialog:

For **Maximum Disk size**, select **32Gb** Click **Next**.

- 15. On the dialog (no changes, click Next.
- 16. On the dialog, click **Finish**.
- 17. On Library view, locate the created VM.

Select the VM.

Right click and select **Settings**.

18. On **Options** tab:

On the Advanced menu, for Firmware Type, select UEFI.

On Access control, menu, click Encrypt.

Enter a **Password**.

Click Encrypt.

19. On Hardware tab:



Click Add.

Select Trusted Platform Module checkbox.

Click Finish.

Click Ok.

20. Right-click the VM:

Select Start.

Go to Power.

Go to Start Up Guest.

- 21. Follow the Nodegrid installation wizard.
- 22. On command window, execute:

accept-efi

23. Execute:

sda

Wait the installation to finish

- 24. Power off the VM.
- 25. On the VM settings:

Go to CD/DVD menu.

Disable Connected on power on checkbox.

Click OK.

26. Power up the VM.

Enroll Nodegrid Manager to ZPE Cloud

WebUI/CLI Procedure

- 1. Access ZPE Cloud.
- 2. Enter credentials on the login page.
- 3. To get enrollment information, go to the SETTINGS :: ENROLLMENT:: CLOUD.
- 4. To access the vSphere Client, on the "Menu" drop-down. select "Hosts and Clusters"
- 5. On the list of "Hosts and Clusters", select the Nodegrid Manager VM
- 6. Click on "Launch Web Console"
- 7. Enter admin credentials
- 8. To enable ZPE Cloud
 - cd settings/zpe_cloud



set enable_zpe_cloud=yes

9. To enable the remote access feature:

set enable_remote_access=yes
commit

10. To enroll device

cloud_enrollment
set customer_code=xxxx
set enrollment_key=xxxxxx

11. if enrolling the device in one on-premise instance of ZPE Cloud:

```
set url=https://xxxx
commit
```

Enroll Device on ZPE Cloud

WebUI Procedure

- 1. Log into ZPE Cloud.
- 2. To get enrollment information, go to SETTINGS :: ENROLLMENT :: CLOUD.
- 3. On the device's IP address, open the Nodegrid Manager to access the device WebUI.

Enable ZPE Cloud on Device

WebUI Procedure

- 1. Go to Security :: Services.
- 2. Select Enable ZPE Cloud checkbox.
- 3. To enroll device in a single on=premise instance of ZPE Cloud, select **Enable Remote Access** checkbox.
- 4. Click Save.

Enroll Device in ZPE Cloud

WebUI Procedure

- 1. Go to System :: Toolkit.
- 2. Click Cloud Enrollment.
- 3. Enter Customer Code.
- 4. Enter "Enrollment Key".
- 5. If device is enrolled in one on-premise instance of ZPE Cloud, add the On-premise URL.
- 6. Click Enroll.

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Appendix B – SD-WAN User Guide

SD-WAN is a ZPE Cloud plugin application. Use this to configure device network topologies (mesh or hub-spoke configurations).

Activate SD-WAN App

The SD-WAN application is located in the APPS Section. If not available, contact ZPE Systems Support (<u>support@zpesystems.com</u>) to enable it.

- 1. To activate SD-WAN, go to APPS section.
- 2. Click the SD-WAN icon.



3. This initiates the activation process.



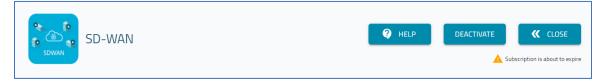
4. When finished, click the **SD-WAN** icon to access the application.



() zpe-cont		<u>.</u>	1	-		•	-	••••••••••••••••••••••••••••••••••••••
		-17						
Security Securi	•	LEDO SARAN P. (19. Series A) On the analysis of the series (Series)	and the second	And Annual Annua				

5. This displays the SD-WAN home page (DASHBOARD :: MAP).

SD-WAN Banner



HELP (opens the SD-WAN User Guide section of the ZPE Cloud user document.

DEACTIVATE (shuts down the SD-WAN app and removes all configurations).

Click **DEACTIVATE**.

On the pop-up confirmation dialog, click **DEACTIVATE**.

CLOSE (closes the SD-WAN app and returns to the APP section root).

SD-WAN Setup Process

This is a general process to configure SD-WAN:.

NOTE: Ensure GPS is enabled on devices. This ensures the location is displayed on the geographical map.

- 1. Enable devices for SD-WAN (APPS :: ACTIVE :: SD-WAN :: DEVICES).
- 2. Create a Topology (APPS :: ACTIVE :: SD-WAN :: TOPOLOGIES).
- 3. Add enabled devices to a Topology (APPS :: ACTIVE :: SD-WAN :: DEVICES) ...
- 4. (optional) Create a Link Profile (APPS :: ACTIVE :: SD-WAN :: PROFILE :: LINKS).
- 5. (optional) Create a Network Profile (APPS :: ACTIVE :: SD-WAN :: PROFILE :: NETWORKS).

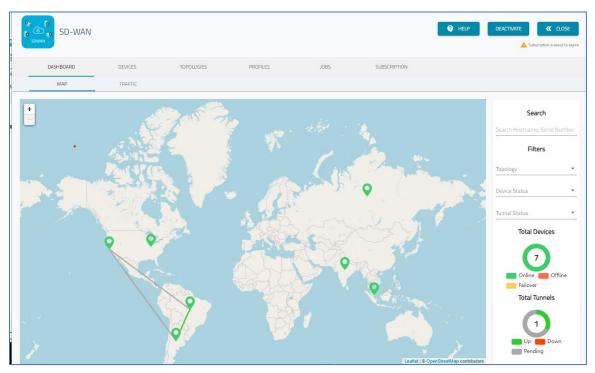
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DASHBOARD :: MAP tab

The Map page presents a geographic representation of the SD-WAN topologies.

A colored pin shows the geographical position of each device based on coordinates. These coordinates are defined by the device's coordinates (set on the device – see *System :: Preferences :: Coordinates*). Pin color: green (online), red (offline), yellow (failover).

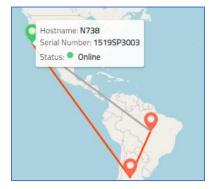
The lines connecting each pin represents tunnels, created when a device is added to a topology. Line color: green (tunnel is up), red (tunnel is down), orange (tunnels in pending state – indicates device has a configuration situation that prevents use).



Manage Map Details

View Location Details on Map

To view details on a location, hover over the marker.



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View Device Details on Map

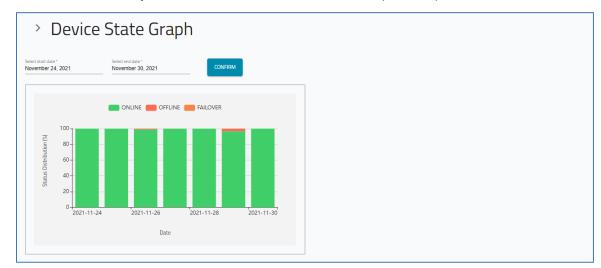
To view device details, click on the marker. To return, click GO BACK.

ACTIVE	NALARLE
< до васк	
~ Device	e details
~ Device	e State Graph
~ IMEI -	

To display **Device details**, click the down arrow (left side).



To view **Device State Graph** information, click the down arrow (left side).



To view IMEI details, click the down arrow (left side).

> IMEI -	
Firmware Version: - UUID Interface: - Carri Model: - Phor Slot: - Subs	A Card 1Sim Card 2D: Not InstalledUUID: Not Installedier: -Carrier: -ne Number: -Phone Number: -scriber ID: -Subscriber ID: -al Strength: -Signal Strength: -
SIM1	SIM2
NO DATA	NO DATA
SIM stats: Select start date Select end date November 29, 2021 12:00 AM November 30, 2021 12:00 AM SIM1	SIM2
NO DATA	NO DATA

Search function

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On the right side of the page is the *Search* function. This identifies devices that match the search conditions.

Search	
Search Hostname, Se	rial Num
Filters	
Тороlоду	-
Device Status	
Offline, Failover	•
Tunnel Status	Ŧ



- 1. Go to APPS :: ACTIVE :: SD-WAN :: DASHBOARD :: MAP.
- 2. In the Search field, enter text.
- 3. In *Filters*: (conditions to apply to the search).

On **Topology** drop-down, select a specific topology.

On **Device Status** drop-down, select one or more items. Options are: **Online**, **Offline**, Failover (click to select, click again to unselect).

On **Tunnel Status** drop-down, select one or more items. Options are: **UP**, **DOWN** (click to select, click again to unselect).

4. The table list adjusts according to the selections.

Status

At lower right of page, is the status indicators: *Total Devices* and *Total Tunnels*. The color legend indicates status.



Total Devices reports the number of enrolled devices with SD-WAN support. Pie chart displays proportion of devices for each status: Online, Offline, Failover.

Total Tunnels identifies number of tunnels for all topologies. Pie chart displays the proportion of tunnels for each status: Up, Down, Pending.

DASHBOARD :: TRAFFIC tab

This tab shows configured topologies.

e e st	SD-WAN						C HELP	DEACTIVATE CLOSE
	DASHBOARD	DEVICES	TOPOLOGIES	PROFILES	JOBS	SUBSCRIPTION		
	MAP	TRAFFIC						
~	Topology tes	t_3918						

On a topology, click the down arrow (left side of name). This displays traffic details for that topology.



> Topology test_3918

Device : N744
Allowed lps : 10.10.0.2/32
Latency : 3.958 ms
Data Sent : 261.44 bytes
Data Received : 253.12 bytes
Endpoint : 192.168.7.44

Device : N738
 Device:
 N/38
 Device:
 Nos

 Allowed ips:
 10.10.0.5/32
 Allowed ips:
 10.10.0.1/32
 Latency : -Data Sent : -Data Received : -Endpoint : 192.168.7.38

Device : N663 Latency : 300.000 ms Data Sent : 252.87 bytes Data Received : 261.67 bytes Endpoint : 192.168.6.63

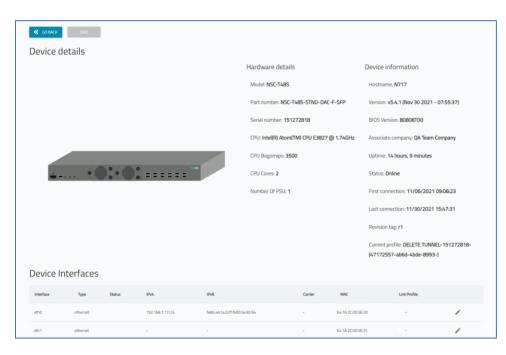
DEVICES section

Page lists devices that support SD-WAN with basic details.

SD	SD-	WAN		е н	ELP DEACTIVATE CLOSE
	DASHBOARD	D DEVICES	TOPOLOGIES	PROFILES JOB	S SUBSCRIPTION
				_	Search: Search Hostname, Serial Number
ENAB	LE SD-WAN	DISABLE SD-WAN ADD TO TOPOLOGY	REMOVE FROM TOPOLOGY		
	Hostname	Serial Number	SD-WAN Status	Status	Uptime
	nodegrid	230070619	DISABLED	 Online 	11/29/2021 20:24:54
	N717	151272818	DISABLED	Online	11/29/2021 17:29:55
	nodegrid	000091638	DISABLED	Online	11/29/2021 18:36:21
	nsc-57	141461817	DISABLED	Never Connected	-
	N738	15195P3003	DISABLED	Online	11/29/2021 17:29:54
	N314	410762020	DISABLED	Online	11/29/2021 18:15:28
	N713	140234119	DISABLED	Online	11/29/2021 17:29:54
	N735	140561817	DISABLED	Online	11/29/2021 17:29:59
Rows pe	er page: 10 🔻	1-8 of 8 < >			

To review device details on a device, click the Hostname:





Manage Devices

Enable SD-WAN

- 1. Go to APPS :: ACTIVE :: SD-WAN :: DEVICES.
- 2. On the list, identify a device (on column *SD-WAN Status*, device listed as *DISABLED*), and select checkbox.
- 3. Click ENABLE SD-WAN (displays dialog).



- 4. (optional) Select Password Protected checkbox. Enter Password.
- 5. Click OK

Disable SD-WAN

- 1. Go to APPS :: ACTIVE :: SD-WAN :: DEVICES.
- 2. On the list, identify a device (on column *SD-WAN Status*, device listed as *ENABLED*), and select checkbox.
- 3. Click **DISABLE SD-WAN** (displays dialog).





- 4. (optional) Select Password Protected checkbox.
- 5. Click YES.

Add to Topology

- 1. Go to APPS :: ACTIVE :: SD-WAN :: DEVICES.
- 2. On the list, identify a device to be associated with a Topology.
- 3. Click ADD TO TOPOLOGY (displays dialog).

K CANCEL SA	VE			
nodegrid				Password Protecter
Name	Туре	Device Count	Color	Description
Vo result found				

- 4. On the table, select checkbox next to Topology.
- 5. (optional) Select Password Protected checkbox. Enter Password.
- 6. Click **SAVE**.

Remove from Topology

- 1. Go to APPS :: SD-WAN :: DEVICES.
- 2. On the list, identify a device to be removed from a Topology.
- 3. Click **REMOVE FROM TOPOLOGY** (displays dialog).



Remove Device Fror	n Topology		Search: Search Host	name, Serial Number, Profile in Use
K CANCEL	REMOVE			
nodegrid				Password Protected
Name	Туре	Device Count	Color	Description
No result found				
Rows per page: 10 💌	0-0 of 0 < >			

- 4. On table, select checkbox next to Topology this is to be removed.
- 5. Click **REMOVE**.

TOPOLOGIES section

This page is used to manage topologies.

* (*) s	SD-WAN				HELP	DEACTIVATE CLOSE
	DASHBOARD	DEVICES	TOPOLOGIES	PROFILES	JOBS	SUBSCRIPTION
	• NEW EDIT	DELETE			Se	earch: Search Name, Color, Description
	Name	Туре	Device Count		Color	Description
	test	HUB-SPOKE	0		008aab	test
Rows p	er page: 10 🔻 1-1 of 1	< >				

Manage Topologies

Create New Topology

- 1. Go to APPS :: ACTIVE :: SD-WAN :: TOPOLOGIES.
- 2. Click +NEW (displays dialog).

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K CANCELNEXTHostnameSerial NumberSD-WAN StatusStatusnsc-57141461817DISABLED• Never ConnectedN7381519SP3003DISABLED• OnlineN314410762020DISABLED• OnlineNG-7191519SP1017DISABLED• Online	
nsc-57 141461817 DISABLED • Never Connected N738 1519SP3003 DISABLED • Online N314 410762020 DISABLED • Online	
N738 1519SP3003 DISABLED Online N314 410762020 DISABLED Online	Online Since
N314 410762020 DISABLED Online	-
	-
NG-719 1519SP1017 DISABLED Online	-
	-
V713 140234119 ENABLED Online	-
N663 000091638 ENABLED Online	-
N717 151272818 ENABLED Online	-
N735 140561817 ENABLED Online	-
N744 230070619 ENABLED Online	-

- 3. Select devices to be added to the new Topology.
- 4. Click **NEXT** (displays dialog).

Create Topology		
K BACK SAVE		Password Protected
Fill the fields below to create a topology		
	Color	
Name	#008aab	
Description		
Topology Type	·	
Network Profile	*	

- 5. (optional) Select Password Protected checkbox. Enter Password.
- 6. Enter Name.
- 7. Enter **Description**.
- 8. In **Color**, click in the field to display the color menu.





Click in the color bar to select a range, then inside the color zone.

Alternatively, to manually enter color values, use Up/down (right side) arrows to select HEX, RGBA, HSLA).

Click outside the dialog to close.

9. On **Topology Type** drop-down, select one.

HUB SPOKE selection:

Topology Type HUB-SPOKE	•	Hub-Device	v
Network Profile	▼		

On Hub Device drop-down, select one.

On Network Profile drop-down, select one.

FULL MESH selection:

*
~

On Network Profile drop-down, select one.

10. Click **SAVE**.

Edit a Topology

1. Go to APPS :: ACTIVE :: SD-WAN :: TOPOLOGIES.



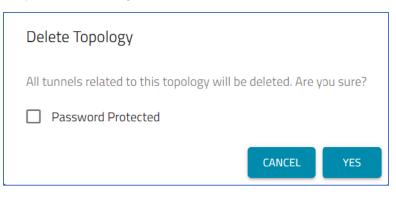
- 2. In table, select checkbox on Topology to edit.
- 3. Click EDIT (displays dialog).

Edit Topology			
K BACK SAVE			Password Protected
N717			
Edit the fields below to modify your topology			
Name	Color		
testtest	#008aab		
- Description			
testtest			
Topology Type	, Hub-Device		
HUB-SPOKE	N717 - 151272818	•	
Network Profile			
·			
	-		

- 4. Make changes, as needed.
- 5. Click SAVE.

Delete a Topology

- 1. Go to APPS :: ACTIVE :: SD-WAN :: TOPOLOGIES.
- 2. In table, select checkbox on item to delete.
- 3. Click DELETE (displays pop-up dialog).



- 4. (optional) Select **Password Protected** checkbox. Enter **Password**.
- 5. Click YES.

PROFILES :: NETWORKS tab

This page manages network profiles.



SD-WAN				💡 HELP	DEACTIVATE CLOSE
DASHBOARD	DEVICES	TOPOLOGIES	PROFILES	JOBS	SUBSCRIPTION
NETWORK	LINKS				
+ NEW EDIT	DELETE	APPLY TO DEVICES		Sea	rch: Search Name, Description
Name	Device Count		Link Count	٥	Description
✓ test	0		1	test	
Rows per page: 10 ▼ 11	of 1 < >				

Manage Networks

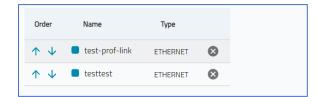
Create New Profile

- 1. Go to APPS :: ACTIVE :: SD-WAN :: PROFILE :: NETWORKS.
- 2. Click +NEW (displays dialog).

Create Network Profile				
CANCEL SAVE Fill the fields below to create a network profile				
Name	Link Precedence	Select link p	profiles	*
Description	Select the des order	ired links and s	set their precede	ence
Monitoring Destination	Order	Name	Туре	
	No result found	i		

- 3. Enter Name.
- 4. Enter Description.
- 5. Enter Monitoring Destination.
- 6. On Link Precedence drop-down, select one or more.

Use Order Up/Down arrows to set precedence.





Version 2.12

7. Click SAVE.

Edit Profile

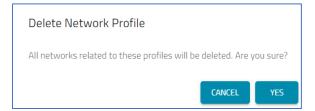
- 1. Go to APPS :: ACTIVE :: SD-WAN :: PROFILE :: NETWORKS.
- 2. In table, select checkbox of Topology.
- 3. Click EDIT (displays dialog).

Link Precedence	Select link profi	les	•
Select the desi	red links and set th	eir precedence (order
Order	Name	Туре	
^ ↓ ■	test-prof-link	ETHERNET	\otimes
↑↓	testtest	ETHERNET	⊗
	Precedence Select the desi Order	Precedence Select link profi Select the desired links and set th Order Name	Precedence Select link profiles Select the desired links and set their precedence of order Name Order Name Type

- 4. Make changes, as needed.
- 5. Click SAVE.

Delete Profile

- 1. Go to APPS :: ACTIVE :: SD-WAN :: PROFILE :: NETWORKS.
- 2. In table, select checkbox on item to delete.
- 3. Click DELETE (displays pop-up dialog).



4. Click YES.

Apply to Devices

- 1. Go to APPS :: ACTIVE :: SD-WAN :: PROFILE :: NETWORKS.
- 2. In table, select checkbox on profile.
- 3. Click APPLY TO DEVICES.

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assword Protected

- 4. On table, select checkboxes to apply the profile.
- 5. Click APPLY.

PROFILES :: LINKS tab

This page manages profile links.

SD-WAN				PHELP	DEACTIVATE CLOSE
DASHBOARD	DEVICES	TOPOLOGIES	PROFILES	JOBS	SUBSCRIPTION
NETWORK	LINKS	_			
				Se	arch: Search Name, Color, Description
+ NEW EDIT	DELETE				
Name	Туре	Color	Monitoring		Description
🗹 test	ANY	008aab	ENABLED		test
Rows per page: 10 🔻 1-	-1 of 1 < >				

Manage Links

Create New Link

- 1. Go to APPS :: ACTIVE :: SD-WAN :: PROFILE :: LINKS.
- 2. Click +NEW (displays dialog).

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Create Link Profile		
CANCEL SAVE Fill the fields below to create a link profile		
Name	C Enable Monitoring	
Description	Probe Metrics	Threshold Metrics
Color	- Number of Probes	Latency Threshold
#008aab	3	300 ms
	- Probe Interval	Jitter Threshold
Interface Type 🔹	60 s	300 ms
Link Utilization	Probe Type PING	
- Max Download		
100 MB/s	Restore Metrics	
Max Upload	- Restore Retries	Failure Retries
10 MB/s	2	2

3. Enter Name.

NOTE: Naming convention restrictions follows this regex:

- -/^[A-Z a-z] [A-Z a-z 0-9] * \$/.
- First character of Name must be a letter (A-Z, a-z) or _ (underscore)
- Following characters can be letters (A-Z, a-z), numbers (0-9), _ (underscore), or (dash).

4. Enter **Description**.

- 5. (optional) Select **Color**.
- 6. On Interface Type drop-down, select one (ANY, ETHERNET, ADSL, GSM, WIFI, PPPOE).
- 7. In Link Utilization menu:

Enter Max Download (default: 100).

Enter Max Upload (default: 10).

8. Select Enable Monitoring checkbox (displays dialog).



Enable Monitoring		
Probe Metrics	Threshold Metrics	
- Number of Probes	- Latency Threshold	
60 s	Jitter Threshold	
Probe Type PING *		
Restore Metrics		
Restore Retries2	Failure Retries	

NOTE: Adjust the values in this dialog according to network needs. If network is slow, the monitoring can be done less frequently (less network noise/less data consumption). If network is fast, monitoring can be done more frequently (allows earlier detection of failure).

In Probe Metrics menu:

Enter Number of Probes (default: 3).

Enter Probe Interval (default: 60).

On Probe Type drop-down, select one (PING, TWAMP).

In Threshold menu:

Enter Latency Threshold (default: 300).

Enter Jitter Threshold (default: 300).

In Restore Metrics menu:

Enter Restore Retries (default: 2).

Enter Failure Retries (default: 2).

9. Click SAVE.

Edit Link

- 1. Go to APPS :: ACTIVE :: SD-WAN :: PROFILE :: LINKS.
- 2. In table, select checkbox to edit.
- 3. Click EDIT (displays dialog).

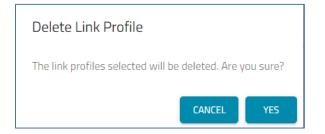
))(t zpe

	profile		
Name	Enable Monitoring		
- Description			
test-prof-link.	Probe Metrics	Threshold Metrics	
alar	- Number of Probes	Latency Threshold	
008aab	3	300	
nterface Type	- Probe Interval	Jitter Threshold	
THERNET	- 60	s 300	
	Probe Type		
ink Utilization	PING	•	
Max Download			
100	MB/s Restore Metrics		
- Max Upload	C Restore Retries	- Failure Retries	

- 4. Make changes, as needed.
- 5. Click SAVE.

Delete Link

- 1. Go to APPS :: ACTIVE :: SD-WAN :: PROFILE :: LINKS.
- 2. In table, select checkbox on which item to delete.
- 3. Click DELETE (displays pop-up dialog).



4. Click **YES**.

JOBS section

An overview of the configuration updates, generated by SD-WAN. Each table entry represents a configuration update.

	DASHBOARD DEVICES		TOPOLOGIES PROF		PROFILES	JOBS	SUBSCRIPTION			
	CAI	NCEL						Search	Search Job ID, Typ	e, State, Hostname,
1	•	Job ID	Туре	State	Hostname	Serial Number	Operation	Password Protected	Registered	Updated
I	~	a4f029d1-8d2e- 4822-a9d4- 9744458fe8d5	APPLY NETWORK PROFILE	SUCCESSFUL	NG-719	1519SP1017	a381e005-c78d-4e05- a82d-36a9325ba26c	-	Dec 01, 2021 01:15 am	Dec 01, 2021 01:16 am
(a51ac371-59d9- 41a0-8714- 01813c3fe696	ENABLE SD- WAN	SUCCESSFUL	N314	410762020	10dd2bf4-9705-4450- b0f6-7c4d5415bc57	-	Nov 30, 2021 07:13 pm	Nov 30, 2021 07:15 pm
(2746278f-ade2-463b- b77f-1dc7b78034db	ENABLE SD- WAN	SUCCESSFUL	N738	15195P3003	aef07997-d591-4cf9- a396-0500a0a011e8	-	Nov 30, 2021 07:13 pm	Nov 30, 2021 07:14 pm
(631823aa-aa12-471f- a4f3-098005c6a32f	ENABLE SD- WAN	SUCCESSFUL	NG-719	15195P1017	525c60b5-6762-4d1e- b70f-de12de70ef0c	-	Nov 30, 2021 07:13 pm	Nov 30, 2021 07:14 pm
(9b4853ce-1500- 471d-a5f3- 57f5998ef7d3	DISABLE SD- WAN	SUCCESSFUL	NG-719	15195P1017	670a6ae5-bf1f-42db- 9e03-d854d4de0e02	-	Nov 30, 2021 07:10 pm	Nov 30, 2021 07:11 pm
(d11187fc-2d31-4c2e- b139-cc97f546f2ab	DISABLE SD- WAN	SUCCESSFUL	N314	410762020	f290e8cc-7e10-4de6- 8d8b-2972963b51b6	-	Nov 30, 2021 07:10 pm	Nov 30, 2021 07:12 pm
	_	634ef174-f04d-43d2-	DISABLE SD-				0a56de3c-da5f-4c4f-		Nov 30 2021 07-10	Nov 30, 2021

Manage Jobs

Cancel a Job

- 1. Go to APPS :: ACTIVE :: SD-WAN :: JOBS.
- 2. On the table, select the job(s) to be canceled.
- 3. Click CANCEL.

SUBSCRIPTION section

This page presents information about current SD-WAN subscriptions.

SDWAN	SD-WAN				9	HELP DEACTIVA	TE CLOSE
D/	ASHBOARD	DEVICES	TOPOLOGIES		PROFILES	JOBS	SUBSCRIPTION
RENEW SUB	SCRIPTION						
Туре	Description			Period	Subscription Status	Activation Date	Expiration Date
Subscription	ZPE Cloud License - 1 YEAI nodes	R - Subscription - Nodeg	rid SDWAN App - 50	1 Year	Active	03/13/2021	03/13/2022

Manage Subscriptions

Renew Subscription

1. Go to APPS :: ACTIVE :: SD-WAN :: SUBSCRIPTIONS.



2. Click RENEW SUBSCRIPTION (displays dialog).

Renew Subscription		
Select Subscription *		•
 Type additional message (optional) 		
	CLOSE	REQUEST

3. On the **Select Subscription** drop-down, select one.

1 Year 5 Nodes
1 Year 10 Nodes
1 Year 50 Nodes
1 Year 100 Nodes
1 Year 500 Nodes
1 Year 1000 Nodes
2 Years 5 Nodes
2 Years 10 Nodes
2 Years 50 Nodes
2 Years 100 Nodes
2 Years 500 Nodes
2 Years 1000 Nodes
3 Years 5 Nodes
3 Years 10 Nodes
3 Years 50 Nodes
3 Years 100 Nodes
3 Years 500 Nodes
3 Years 1000 Nodes

- 4. In the *Type additional message (optional)* textbox, enter details as needed.
- 5. Click REQUEST.

Appendix C – Nodegrid Data Lake User Guide

When available, the Nodegrid Data Lake app is located in the APPS Section.



The Nodegrid Data Lake application gathers device information from sensors, application stats, network traffic, data logs, system logs, events, bridges to third-party IoT devices. The dashboard presents visual representations of the metrics for quick evaluation of the represented infrastructure.

The application uses the Kibana® interface, which is easily configurable and secure. Details are stored on ZPE Cloud.

The application uses the Kibana® interface, which is easily configurable and secure. Details are stored on ZPE Cloud.

Use Case Example

This example creates an interface plugin using the clone process. The new plugin is included in a new Profile to collect metrics from the new interface, memory, and cpu usage plugins.

- 1. Go to APPS ;; ACTIVE ;; NODEGRID DATA LAKE :: PLUGINS.
- 2. Select Interface eth0 checkbox.
- 3. Click CLONE (displays dialog).

Change Name to Interface eth1.

(optional) Edit **Description** (as needed).

In Code textbox, change "eth0" to "eth1".

```
<Plugin interface>
Interface "eth1" <<CHANGE "eth0" to "eth1">>
</Plugin>
```

Click SAVE.

- 4. Go to APPS ;; ACTIVE ;; NODEGRID DATA LAKE :: PROFILES.
- 5. Click +NEW (displays dialog).

Enter Name and Description.

On the Available Plugins panel, select: interface eth1, memory and cpu usage.

In Default interval, enter 5. On Interval drop-down, select minute.

Click SAVE.

 On the PROFILES page, select the new profile. Click APPLY TO DEVICES (displays dialog). Select device checkboxes, then click APPLY.



- 7. On the Banner, go to *PROFILES :: OPERATION*. Look for an operation that indicates the Profile was successfully applied to the selected devices. (To refresh the page, click *OPERATION* tab.)
- 8. To review results, go to: APPS :: ACTIVE :: NODEGRID DATA LAKE :: EXPORER.

Click the **Hamburger** \equiv icon.

On the drop-down dialog, click **Discover** (displays dialog).

The Discover panel provides these options: New, Save, Open, Share, Inspect.

Discover New Save Open Share Inspect

The table lists events on the Profile.

To view more details, click \sum to display Expanded document details.

Discover									New	Save	Open	Share	Inspect
🖹 🗸 Search						KQL		Last 30 days		Sho	w dates	ି Re	efresh
😌 – + Add filter													
monitoring					353,581	l hits							
Q Search field names				Nov 16, 2021 @	08:53:37.702 - Dec 16, 20	21 @ 08:5	3:37.702	Auto 🗸					
Filter by type Selected fields Jource Available fields Popular	00001 0000 0000 0000 0000												
hour_of_day	2021-11-17 0	0:00 2	021-11-21 00:00	2021-11-25 00:00	2021-11-29 00:00	2021-1	-03 00:00	2021-12-07 00:00	2021-12-11	00:00	2021-	12-15 00:00	
t plugin					time per	12 hours							
t plugininstance	Time 🗸	-	_source										
t type	> Dec 15, 2021 @	23:55:18.338	host: nodegrid	time: Dec 15, 2021 0 23	:55:18.338 interval: 66	plugin:	ping ty	ype: ping typeinstance: zpes	ystems.com	datatype:	Absolute		
t typeinstance								c _index: 141361817_monitori					4
t_id													
t_index	> Dec 15, 2021 @							pe: percent typeinstance: ac				4.86210	6
/ _score			serial_number:	41361817 _1d: 2TQ9wn0B	z5BIbSs6BW4S _type: _do	oc _index	: 141361	817_monitoring_2021-12-16 _s	core: - ho	our_of_day	: 4		

Hover over the symbol to display operation options.

€ € E B t index	141361817_monitoring_2021-12- 16
-----------------	-------------------------------------

Hover over these pop-out options for tooltips on functionality (**Filter for value**, **Filter out value**, Toggle column in table, Filter for field present).

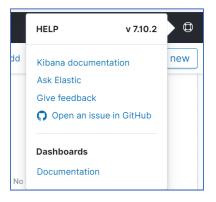
EXPLORER tab

The customizable Kibana® dashboard can be configured to show logs, metrics, events, and more. For more information on how to customize the dashboard, see <u>http://www.elastic.co/guide/index.html</u>.

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		 Preside constrainte Constrainte Constrainte
EXPLORER DEVICES PLUGINS PROFIL	ES SUBSCRIPTION CONFIGURATION	
S Elastic		
Dashboard / [Dashboard] Devices		Full screen Share Clone 🥒 Ed
🗓 🗸 Search		KQL 🛗 🗸 Last 15 minutes Show dates C Refre
🖲 — + Add filter		
Select Device Select. Apply changes Cancel changes Clear form	(Device) Memory	(Device) Thermal 0 - 40 (ACPI) (ACPI) Max. Temperature 0 - 10
Devices[Devic)	0 5451 - rad 0 5451 - rad	LC No results found

On the right side of the Elastic bar, click the icon to display available Help resources.



On Dashboard bar, are these features:



• Click Hamburger icon (left side) to display Kibana dashboard.

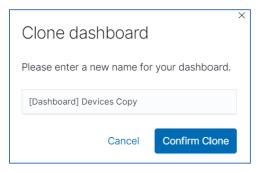


Dashboard / [Dashboard] Devices	
△ Home	
Recently viewed \sim	
[Dashboard] Devices	
Kibana 🗸	
Overview	
Discover	
Dashboard	
Visualize	
Tools ~	
Alerting	
{້ o} Management ∨	
Stack Management	
Dock navigation	

- Click **Full Screen** to hide the Dashboard bar.
- Click Share (displays dialog).

SHARE THIS DASHBOARD	,	< EMBED CODE	< PERMALINK
>_ Embed code	>	Generate the link as Snapshot (?) Saved object (?) 	Generate the link as Snapshot@ Saved object@
		Include Top menu Query Time filter Filter bar Short URL®	Short URL®
		Copy iFrame code	

• Click Clone (displays dialog).



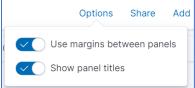
Enter Name for the cloned dashboard.

Click Confirm Clone.

Open and edit cloned dashboard, as needed.

• Click Edit (right side) to display choices.

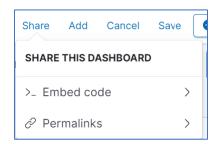




Select/unselect Use margins between panels toggle.

Select/unselect Show panel titles toggle.

Share (displays Share this Dashboard dialog).



Add (displays Add Panels dialog).

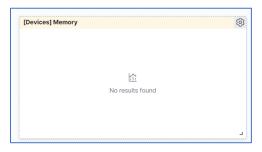




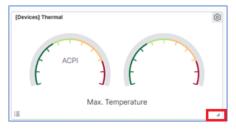
Cancel (closes Edit dialogs).

To manage Panels in Dashboard:

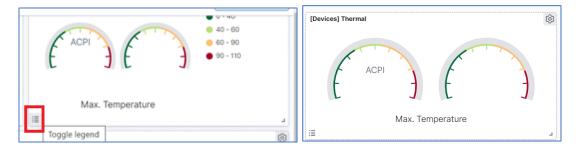
Move panel – click on panel title. Drag and drop panel in new location.



Resize panel - at lower right corner, click on corner symbol. Drag and drop to resize.



Toggle panel legend – at lower left corner, click to enable/disable.



Save (saves the changes).

× Save dashboard	
Save as new dashboard	test <u>test</u>
[Dashboard] Devices 11`	
Description	Store time with dashboard
test test	This changes the time filter to the currently selected time each time this dashboard is loaded.
Cancel Save	Cancel Save

(optional) Select Save as a new dashboard checkbox.



Enter Title.

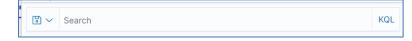
Enter **Description**.

(scroll down)

(optional) Select Store time with dashboard checkbox.

Click Save.

On Search panel:



Enter a **Search** condition.

(optional) Click **Save Query** icon (displays dialog).

			>	
Save query				
Save query text and filte again.	rs that you w	vant to use		
Name				
etho search				
Name is required. Name cannot o Name must be unique.	contain leading o	r trailing whitesp	ace.	
Description				
Include filters				
✓ Include time filter				
	Cancel	Save		

Enter Name.

Enter **Description**.

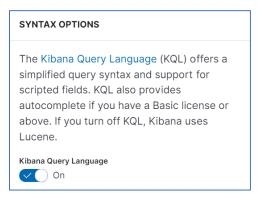
(optional) Enable/disable Include Filters toggle.

(optional) Enable/disable Include time filter toggle.

Click Save.

To use KQL (Kibana Query Language), click link (displays dialog).





Enable/disable Kilbana Query Language toggle.

To close dialog, click outside dialog box.

On Time range panel (click Refresh, as needed).



To select time range, click **Calendar** $\square \square$ icon (displays dialog)

Quick select	< >
Last 🗸 15	minutes ~ Apply
Commonly used	
Today	Last 24 hours
This week	Last 7 days
Last 15 minutes	Last 30 days
Last 30 minutes	Last 90 days
Last 1 hour	Last 1 year
Recently used date ranges	
Last 15 minutes	
Last 30 days	
Last 24 hours	

Click any of the options listed in Commonly used or Recently used data ranges menus.

Alternatively, in Quick Select:

On Time direction drop-down, select one (Last, Future).

Enter a number.

On Time download, select one (seconds, minutes, hours, days, weeks, months).

Click Apply.

Click **Show dates** (modifies details according to the time range selected)

Last 7 days

Show dates



Click within the date/time (displays dialog of three tabs). Make modifications, as needed. If changes to **Absolute** tab or **Now** tab, click **Update**. If changes to **Relative** tab, click **Refresh**.

Absolute Relative No		Now	Absolute Relative Now			Absolute	Relative	Now						
< December 2021 > 10:30 11:00			7		Days ago	~	Setting the time to "now" means that on every refree this time will be set to the time of the refresh.							
SU	MO	TU	WE	ΤН	FR	SA	11:30	X Round to	the day					
28	29	30	1	2	3	4	12:00	Start date Dec	8, 2021 @ 13	3:20:14.468		Set sta	art date and time to	o now
5	6	7	8	9	10	11	12:30							
12	13	14	15	16	17	18	13:00 13:30							
19	20	21	22	23	24	25	14:00							
26	27	28	29	30	31	1	14:30							

On Filters panel:



To manage filters, click **Manage Filter** icon (displays dialog). Select items for control filters, as needed.

💯 Disable all
早 Pin all
早 Unpin all
Invert inclusion
Invert enabled/disabled
宦 Remove all

To include a new filter, click Add Filters (displays dialog)

EDIT FILTER	Edit as Query DSL
Field	Operator
_id	is one of \checkmark
Values	
Select values	\sim
Create custom label?	
с	ancel Save

To create a new Filter:

On Field drop-down, select one.

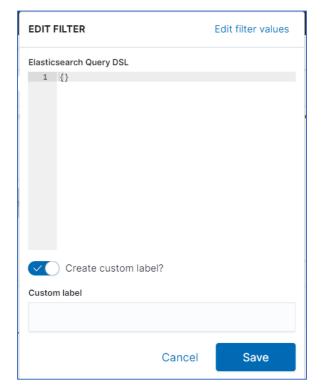
On **Operator** drop-down, select a Boolean expression.

Based on Field selection, Values drop-down changes. Select one.

(optional) Enable/disable Create custom label toggle. If enabled, enter Customer label.

Click Save. (Filter names are displayed on the Filter panel.)

(optional) Click Edit as Query DSL (displays dialog).

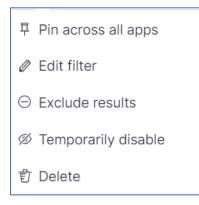




Enter code block.

(optional) Enable/disable Create custom label toggle. If enabled, enter Customer label. Click Save.

To edit an existing Filter, click on the filter name (displays dialog). Select an item as needed.



DEVICES tab

DASHBOARD	DEVICES	PLUGINS	PROFILES	SUBSCRIPTION			
						Search: Search Hostname, Serial Number, Profile in Use	
PLY PROFILE							
] Hostname		Serial Number		Status	Profile in Use	Last Update	
nodegrid		100000000		Never Connected			
nodegrid		22061101Bzpefake		Online			
nodegrid		210171517newzpefake		Offline			
nodegrid		141773917fakeserial15		Offine			
nodegrid		fakeserialJD3		 Offline 			
nodegrid		fakeserialJD3		Offline		· · · · · · · · · · · · · · · · · · ·	

This lists all devices linked to the ZPE Cloud account. For each device, the following information is displayed: Any profile can be applied to one or more devices.

Device Table Columns

Column Name	Description
Hostname	Hostname of the device.
Serial Number	Serial number of the device.
Status	Current status of the device.
Profile in Use	Device's current profile.
Last Update	Last date/time device was updated.



Manage Devices

View Device Details

Click on the device hostname to view the Device Details page.

« co mox		
Device details		
	Hardware details	Device information
	Model: NSC-T96	Hostname: nodegrid
	Part number: NSC-T96-UPG1-DAC	Version: v5.2.2 (Jul 28 2021 - 13:19:19)
	Serial number: 15195P1017	BIOS Version: 51228T00
	CPU: Intel(R) Atom(TM) CPU E3845 (@ 1.91GHz	Associate company: QA ZPE
0.00	CPU Bogomips: 3833.33	Uptime: last seen on 07/29/2021 06:36:52
	CPU Cores: 4	Status: Offline
	Number Of PSU: 1	First connection: 05/19/2021 23:52:22
		Last connection: 07/29/2021 06:36:52
		Revision tag: r1
		Current profile: test_script_template
Device State Graph		
Velet der das "Velet nel das" August 5, 2021 August 11, 2021		

Apply Profile

- 1. Go to APPS :: ACTIVE :: NODEGRID DATA LAKE :: DEVICES.
- 2. On table, locate device(s), and select checkbox(es).
- 3. Click Apply Profile (displays dialog).

Apply SD738	Profile to Devices			Search: Search Plugin, Category, Description	
«	CANCEL APPLY				
	Profile	Interval	Last Update	Updated by	Description
	testing	60 s	Nov 29, 2021 07:07 pm	iago.faria@zpesystems.com	regression test
	test_disk	60 s	Dec 09, 2021 09:54 am	supriya.bashetwar@zpesystems.com	for test
	testing_bug123	60 s	Nov 30, 2021 08:16 am	supriya.bashetwar@zpesystems.com	for test
	test_bug	60 s	Nov 29, 2021 01:43 pm	iago.faria@zpesystems.com	for test

- 4. Select profile checkboxes to apply.
- 5. Click **APPLY**.
- 6. Success dialog displays (lower right corner).





PLUGINS tab

The plugins page manages all plugins.

DASHBOARD	DEVICES	PLUGINS PROFILES	SUBSCRIPTION			
						Search: Search Plugin, Category, Description
+ NEW DELETE	CLONE	DIT				
Plugin	Category		Status	Туре	Description	
Interface	INTERFACE		Not used	Custom	Get interface statistics	
Connectivity	CONNECTIVITY		Not used	Custom	Check network interface up	/down status

Manage Plugins

Create new Plugin

- 1. Go to APPS :: ACTIVE :: NODEGRID DATA LAKE :: PLUGINS.
- 2. Click **NEW** (displays dialog).

New Plugin	
Fill the fields below to create a plugin	Code
« CANCEL SAVE	
Name	
Description	

- 3. Enter Name.
- 4. Enter Description.
- 5. In **Code**, paste code for the plugin.
- 6. Click SAVE.

Delete Plugin

- 1. Go to APPS :: ACTIVE :: NODEGRID DATA LAKE :: PLUGINS.
- 2. On the table, locate and select checkbox.
- 3. Click **DELETE**.



Clone Plugin

- 1. Go to APPS :: ACTIVE :: NODEGRID DATA LAKE :: PLUGINS.
- 2. On the table, locate and select checkbox.
- 3. Click CLONE (displays dialog).
- 4. Make modifications, as needed.
- 5. Click SAVE.

Edit Plugin

- 1. Go to APPS :: ACTIVE :: NODEGRID DATA LAKE :: PLUGINS.
- 2. On the table, locate and select checkbox.
- 3. Click EDIT (displays dialog).
- 4. Make modifications, as needed.
- 5. Click SAVE.

PROFILES tab

This displays available profiles.

	TA LAKE				V HELP	DEACTIVATE CLOSE
EXPLORER	DEVICES	PLUGINS	PROFILES	SUBSCRIPTION	CONFIGURATION	
+ NEW DELETE	APPLY TO DEVICES	EDIT			Search: Search F	Profile, Description
Profile	Status		Interval	Password Protected	Plugins	Description
mytestprofile	Not used		60 s	-	Ping, Disk	test a bug
Rows per page: 10 🔻 1-1 of 1	< >					

Manage Profiles

Create new Profile

- 1. Go to APPS :: ACTIVE :: NODEGRID DATA LAKE :: PROFILES.
- 2. Click NEW (displays dialog).



New Profile Fill the fields below to create a profile CANCEL SAVE					
	Name			Password Protected	
	Description				
	Available Plugins Search		fault Interval 💿	Selected Plugins	=
	Curl - Office365 Interface eth0		60 Seconds 💌		
	Protocols - udp in and out	PROTOCOLS	ADD »»		
	Logged users Conntrack	USERS	I ALMOVE		
	Protocols	PROTOCOLS			
	LogFile				

- 3. Enter Name.
- 4. Enter Description.
- 5. (optional) Select **Password Protected** checkbox. Enter **Password**.



6. In Available Plugins panel:

Select plugin.

Click Add (moves to Selected Plugins panel.

As needed, select one in Selected Plugins and click Remove.

If an item is duplicated, a message displays (lower right). To resolve, remove duplicate.

Plugin type duplicated

7. In **Default Interval** settings:

Enter a number.

On drop-down, select one (Seconds, Minutes, Hours, Days, Weeks, Months)

8. Click **SAVE**.

Delete Profile

- 1. Go to APPS :: ACTIVE :: NODEGRID DATA LAKE :: PROFILES.
- 2. On the table, locate and select checkbox.

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3. Click DELETE.

Apply Profile to Devices

- 1. Go to APPS :: ACTIVE :: NODEGRID DATA LAKE :: PROFILES.
- 2. On the table, locate and select checkbox.
- 3. Click APPLY TO DEVICES (displays dialog).

Apply	Profile to Devices			Search:	Search Hostname, Serial Nun	nber, Profile in Use
« (CANCEL					
	Hostname	Serial Number	Status		Current profile	Last Update
	nodegrid	410762020	 Offline 			-
	nodegrid	140561817	Offline			-
	nodegrid	150983817	Offline			-
	nodegrid	220511018	 Online 			-
	SD717	151272818	Offline			-

- 4. Select checkboxes.
- 5. Click APPLY.

Edit Profile

- 1. Go to APPS :: ACTIVE :: NODEGRID DATA LAKE :: PROFILES.
- 2. On the table, locate and select checkbox.
- 3. Click **EDIT** (displays dialog).

dit Profile III the fields below to create a plugin					
« CANCEL SAVE	Name				
	mytestprofile			Password Protected	
	- Description				
	test a bug				
	Available Plugins	rch Plugin Q	Default Interval ⑦	Selected Plugins	<u>-</u>
	Curl - Office365	CURL	60 Seconds 💌	Ping	PING
	Interface eth0	INTERFACE		Disk	DISK
	Protocols - udp in and out	PROTOCOLS	ADD እ		
	Logged users	USERS	K REMOVE		
	Conntrack	CONNTRACK			
	Protocols	PROTOCOLS			
	LogFile	LOGFILE			

- 4. Make modifications, as needed.
- 5. Click SAVE.



SUBSCRIPTION tab

This displays available subscriptions.

9	NODEGRID DATA L		KE			Q HEL	« CLOSE		
	EXPLORER	R DEVIC	ES PLUGINS	PROFI	LES	SUBSCRIPTION	CONFIGURATION		
	Request Renew							Storage: 100GB	
	Туре	Description			Period	Subscription Status	Activation Date	Expiration Date	
	Subscription	ZPE Cloud License - 1 YEA	R - Subscription - Nodegrid Data Lake	App - 100GB storage	1 Year	Active	11/29/2021 04:48:27	11/29/2022 04:48:27	

Manage Subscriptions

Renew Subscription

- 1. Go to APPS :: ACTIVE :: NODEGRID DATA LAKE :: SUBSCRIPTIONS.
- 2. Click **RENEW SUBSCRIPTION** (displays dialog).

Renew Subscription		
Select Subscription *		•
 Type additional message (optional) 		
	CLOSE	REQUEST

- 3. On Select Subscription drop-down, select one.
- 4. (as needed) In Type additional message (optional), add details.
- 5. Click **REQUEST** (displays success dialog).



CONFIGURATION tab

SAMPLE DATA sub-tab

Sample data is provided to demonstrate visualizations on the dashboard works. It is installed on zpe_monitoring_sample index (to avoid conflicts with your device data).

	RID DATA LAKE	Q	HELP DEACTIVATE	CLOSE		
EXPLORER	DEVICES	PLUGINS	PROFILES	SUBSCRIPTION	CONFIGURATION	
SAMPLE DATA	DATA POLICY					

Remove Sample Data

- 1. Go to APPS :: ACTIVE :: NODEGRID DATA LAKE :: CONFIGURATION :: SAMPLE DATA.
- 2. Click **REMOVE** (displays dialog).

Remove Nodegrid Samp	le Data?	
This will remove existent samp to reinstall it from this menu.	ple data. You'll	be able
	CANCEL	ОК

3. Click **OK** to remove (may take about a minute to be removed).

Install Sample Data

- 1. Go to APPS :: ACTIVE :: NODEGRID DATA LAKE :: CONFIGURATION :: SAMPLE DATA.
- 2. Click +INSTALL (displays dialog).

Warning	
This will install the sample data for Nodegrid Data Lake. This can interfere on index-patterns of the available dashboards and data visualizations.	
CANCEL OK	

3. Click OK.

Refresh Sample Data

- 1. Go to APPS :: ACTIVE :: NODEGRID DATA LAKE :: CONFIGURATION :: SAMPLE DATA.
- 2. Click Refresh
- 3. Updates and REMOVE becomes available..

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DATA POLICY sub-tab

 Image: Nodegrid data lake
 Description
 Image: Configuration

 EXPLORER
 Devices
 PLUGINS
 PROFILES
 SUBSCRIPTION
 CONFIGURATION

 SAMPLE Data
 Data Poblicy
 Onta Poblicy
 Onta Poblicy
 Onta Poblicy
 Onta Poblicy

 Storage
 35.2MB of 1006B used
 Image: Proceeding to 1006B used
 Image: Proceeding to 1006B used
 Image: Proceeding to 1006B used

This configuration deletes data older than the selected amount of months.

Change Data Rotation Policy

- 1. Go to APPS :: ACTIVE :: NODEGRID DATA LAKE :: CONFIGURATION :: DATA POLICY.
- 2. On **Months** drop-down, select one.
- 3. Click **SAVE**.

Nodegrid Data Lake Plugins

For Nodegrid Data Lake, plugins are available that provide live status details, viewed on the Dashboard. Supported plugins are listed on *APPS :: ACTIVE :: NODEGRID DATA LAKE :: PLUGINS*.

NOTE: Additional plugins are available on the <u>collectd website</u>. If not on the PLUGINS table, check with <u>ZPE Support</u> before using other plugins.

A plugin must be included in a defined Profile. When the Profile is applied to the Dashboard, the plugin is displayed.

See <u>Use Case Example</u> for an overview of the process.

The following plugins are currently provide details (graphics, reports) on the Nodegrid Data Lake application.

ConnTrack

This tracks the number of entries in the Linux connection tracking table.

Arguments

None

Example

Collect usage of the entire CPU.

<Plugin conntrack>

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</Plugin>

CPU (Usage, State)

The CPU plugin collects CPU usage metrics. By default, CPU usage is reported as Jiffies, depending on the cpu type. Two aggregations are available:

Sum, per-state (CPUs installed in the system)

Sum, per-CPU (non-idle states of a CPU)

The two aggregations can be combined, leading to collectd only emitting a single "active" metric for the entire system. When an aggregation (or both) is enabled, the cpu plugin reports a percentage, rather than Jiffies. In addition, metric percentages are reported for: individual, per-state, per-CPU.

Arguments

ReportByState <Boolean>

When true (default), reports per-state metrics, i.e., "system", "user" and "idle". When false, aggregates (sums) all non-idle states into one "active" metric.

ReportByCpu <Boolean>

When true (default), reports per-CPU (per-core) metrics. When false, reports only global sum of CPU states.

ValuesPercentage <Boolean>

To be available, ReportByCpu and ReportByState must be true – reports metrics as Jiffies. In the un-aggregated (per-CPU, per-state) mode, percentage values are reported.

ReportNumCpu <Boolean>

When true, reports the number of available CPUs (default: false).

ReportGuestState <Boolean>

When true, reports "guest" and "guest_nice" CPU states (default: false).

SubtractGuestState <Boolean>

Only used if ReportGuestState is true. "guest" and "guest_nice" are included in respectively "user" and "nice". If true, "guest" is subtracted from "user". "guest_nice" is subtracted from "nice" (default: true).

Example 1 – CPU Usage

Collect usage of the entire CPU

```
<Plugin cpu>
ReportByCpu false
ReportByState false
ValuesPercentage false
ReportNumCpu false
ReportGuestState false
```

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SubtractGuestState false
</Plugin>

Create Visualization, Example 1

Graph

Chart Type: Area

Mode: Normal

Filters

Plugin - is - cpu

serial_number - is - <serial-number

Y-Axis

Aggregation: average

Field: value

Label: Jiffies

X-Axis

Sub aggregation: Data histogram

Field: time

Minimum interval: Auto

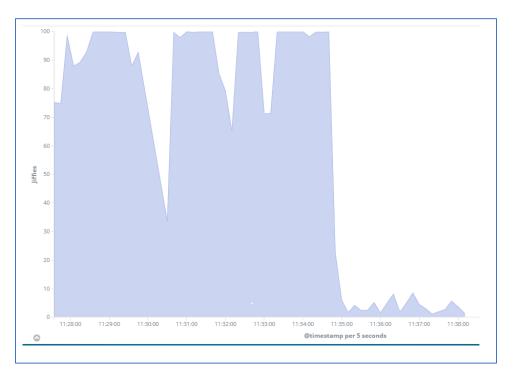
Example 2 CPU usage by state

Visualize CPU usage by state, stacking system, user and idle states.

<Plugin cpu> ReportByCpu true ReportByState true ValuesPercentage true ReportNumCpu false ReportGuestState false SubtractGuestState false </Plugin>







Create Visualization, Example 2

Graph

Chart type: Area

Mode: Stacked

Filters

plugin - is - cpu

serial_number - is - <serial-number>

Y-Axis

Aggregation: average

Field: value

Split series

Aggregation: Filters

Filter 1: typeinstance:idle

Filter 2: typeinstance:user

Filter 3: typeinstance:system

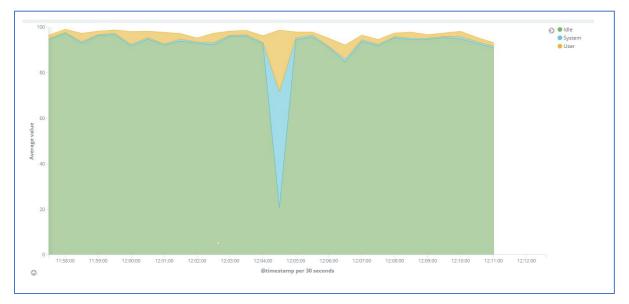
X-Axis

Sub aggregation: Data histogram

Field: time



Minimum interval: Auto



Curl

This plugin uses libcurl to read files and then parses them according to the configuration. The cURL library reads web pages via HTTP. Many protocol handlers are available – reading via SSH or from FTP as well as local access via file://.

Arguments

URL <String>

URL of the web site to retrieve. Since a regular expression is used to extract information from this data, non-binary data is a big plus.

User Name <String>

Username to use if authorization is required to read the page.

Password <String>

Password to use if authorization is required to read the page.

Digest <Boolean>

Enable HTTP digest authentication.

VerifyPeer <Boolean>

Enable or disable peer SSL certificate verification. See <u>http://curl.haxx.se/docs/sslcerts.html</u> for details (default: enabled).

VerifyHost <Boolean>

Enable or disable peer host name verification. If enabled, the plugin checks if the Common Name or a Subject Alternate Name field of the SSL certificate matches the host name provided by the URL option. If this identity check fails, the connection is aborted. Obviously, only works when connecting to an SSL-enabled server. Default: enabled.



File of one or more SSL certificates. To use HTTPS, this is needed. The CA certificates bundled with libcurl and are applied depend on the distribution.

Header <String>

A HTTP header to add to the request. Multiple headers are added if this option is specified more than once.

Post Body <String>

Specifies the HTTP operation should be POST instead of GET. The complete data to be posted is given as the argument. This option needs to be accompanied by a Header option to set an appropriate Content-Type for the post body (i.e., to application/x-www-form-urlencoded).

MeasureResponseTime <Boolean>

Measure response time for the request. If this setting is enabled, Match blocks (see below) are optional (default: disabled).

IMPORTANT: requests are aborted if take too long to complete. Adjust Timeout accordingly expected MeasureResponseTime to report slow requests. This option is similar to enabling the TotalTime statistic but is measured by collect instead of cURL.

MeasureResponseCode <Boolean>

Measure response code for the request. If is enabled, Match blocks (see below) are optional. Default: disabled.

<Statistics>

One Statistics block can be used to specify cURL statistics to be collected for each request to the remote web site. See "cURL Statistics" above for details. If enabled, Match blocks (see below) are optional.

<Match>

One or more Match blocks that define how information is matched in the data returned by libcurl. The cURL plugin uses the same infrastructure as the tail plugin. See the documentation of the tail plugin below on how matches are defined. If the MeasureResponseTime or MeasureResponseCode options are set to true, Match blocks are optional.

Timeout Milliseconds <Integer>

The Timeout option sets the overall timeout for HTTP requests to URL, in milliseconds. By default, the configured Interval is used to set the timeout. Prior to version 5.5.0, there was no timeout and requests could hang indefinitely. To use this legacy behavior, set Timeout = 0.

If Timeout is 0 or bigger than the Interval, each slow network connection stalls one read thread. Adjust the ReadThreads global setting to prevent blocking other plugins.

Example: Curl – Office 365

Check if Office 365 is up and display response code

```
<Plugin curl>
```



```
<Page "office365">
URL "http://office365.com/"
MeasureResponseTime true
MeasureResponseCode true
Timeout 10000 # 10 seconds
</Page>
</Plugin>
```

Disk

The Disk plugin collects performance statistics of hard-disks and partitions.

Arguments

Disk Name <String|Regex>

Select the disk Name. Whether it is collected or ignored depends on the IgnoreSelected setting, see below. As with other plugins that use the daemon's ignorelist functionality, a string that starts and ends with a slash is interpreted as a regular expression.

IgnoreSelected <Boolean>

Sets whether selected disks, i. e. the matches by any of the Disk statements, are ignored or if all other disks are ignored. The behavior (hopefully) is intuitive: If no Disk option is configured, all disks are collected. If at least one Disk option is given and no IgnoreSelected or set to false, only matching disks are collected. If IgnoreSelected = true, all disks are collected except those that match.

UseBSDName <Boolean>

Whether to use the device's "BSD Name", on Mac OS X, instead of the default major/minor numbers. Requires collectd to be built with Apple's IOKitLib support.

UdevNameAttr <String>

Attempt to override disk instance name with the value of a specified udev attribute when built with libudev. If the attribute is not defined for the given device, the default name is used.

Example

Collect statistics for all partitions

```
<Plugin disk>
Disk "/sda[0-9]/"
IgnoreSelected false
</Plugin>
```

Create Visualization

Graph

Chart type: Line

Mode: Normal

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Filters

plugin - is - disk

type.keyword - is - disk_time

Y-Axis

Aggregation: average

Field: value

Custom label: Avg.Time/Operation (ms)

Split series

Aggregation: Terms

Field: plugininstance.keyword

X-Axis

Sub aggregation: Data histogram

Field: time

Minimum interval: Auto



Exec

The Exec plugin executes bash scripts and reads values back that are printed to STDOUT by that program. This allows the daemon to be extended in an easy, flexible way.

Arguments

```
Exec "system-user" "/path/to/script" "arg0" "arg1"
```

Example 1

Collect statistics for all partitions

Version 2.12

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```
<Plugin exec>
Exec "collectd-user" "/home/admin/custom_df.sh"
</Plugin>
```

NOTE: The DF plugin from collectd is not currently installed on NG v5.0, but it is possible to obtain the statistics with the following exec scripts.

Create a file named **custom_df.sh** under the /home/admin/ directory of the device and add the following script:

```
HOSTNAME="${COLLECTD HOSTNAME:-nodegrid}"
INTERVAL="${COLLECTD_INTERVAL:-10}"
# Collectd metric output pattern
# PUTVAL "<hostname>/<plugin-name>-<plugin-instance>/<type>-<type-instance>"
interval=<interval> N:<value>
# Type = [gauge, absolute, derive, counter]
df | awk -v hostname="$HOSTNAME" -v interval="$INTERVAL" '
$0 !~ /\/dev\/sda[0-9]/ { next }
    {split($1, filesystem, "/")}
    {sub(/%/, "", $5)}
    {print "PUTVAL \""hostname"/custom_df-"filesystem[3]"/gauge-total\"
interval="interval" N:"$2}
    {print "PUTVAL \""hostname"/custom_df-"filesystem[3]"/gauge-used\"
interval="interval" N:"$3}
    {print "PUTVAL \""hostname"/custom_df-"filesystem[3]"/gauge-available\"
interval="interval" N:"$4}
    {print "PUTVAL \""hostname"/custom_df-"filesystem[3]"/gauge-percent-used\"
interval="interval" N:"$5}
sleep "$INTERVAL"
```

Create Visualization, Example 1

Graph

Chart type: Line

Mode: Normal

Filters

plugin - is - custom_df

typeinstance.keyword - is - percentage-used

Y-Axis

Aggregation: average

Field: value

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Custom label: % Usage

Split series

Aggregation: Terms

Field: plugininstance.keyword

X-Axis

Sub aggregation: Data histogram

Field: time

Minimum interval: Auto



Example 2

This collect statistics from smartctl

```
<Plugin exec>
Exec "collectd-user" "/home/admin/custom_smartctl.sh"
</Plugin>
```

NOTE: The smartctl plugin from collectd is not installed on NG5.0, but metrics can be collected from smartctl with the following script.

Create a file named custom_smartctl.sh under /home/admin/ directory of the device and add the following script:

```
HOSTNAME="${COLLECTD_HOSTNAME:-nodegrid}"
INTERVAL="${COLLECTD_INTERVAL:-10}"
```

```
# Collectd metric output pattern
```

```
# PUTVAL "<hostname>/<plugin-name>-<plugin-instance>/<type>-<type-instance>"
interval=<interval> N:<value>
# Type = [gauge, absolute, derive, counter]
sudo /usr/sbin/smartctl -f old -H -A /dev/sda -C | awk -v hostname="$HOSTNAME" -v
interval="$INTERVAL" '
{
        if ($0 ~ /^SMART overall-health self-assessment test result/){
                if ($0 ~ /PASSED/){
                        print "PUTVAL \""hostname"/custom_smartctl-sda/gauge-health-
result\" interval="interval" N:1"
                        next
                }
                else{
                        print "PUTVAL \""hostname"/custom_smartctl-sda/gauge-health-
result\" interval="interval" N:0"
                        next
                }
        }
        else{
                if ($3 ~ /^0x/){
                        if ($2 == "Later Bad Block" ||
                            $2 == "Power_On_Hours" ||
                            $2 == "Power_Cycle_Count" ||
                            $2 == "Remaining Lifetime Perc" ||
                            $2 == "Temperature Celsius" ||
                            $2 == "Current_Pending_Sector"){
                            print "PUTVAL \""hostname"/custom smartctl-"$2"/gauge-
value\" interval="interval" N:"$4
                            print "PUTVAL \""hostname"/custom_smartctl-"$2"/gauge-
worst\" interval="interval" N:"$5
                            print "PUTVAL \""hostname"/custom_smartctl-"$2"/gauge-
thresh\" interval="interval" N:"$6
                        }
                }
        }
}
sleep "$INTERVAL"
```

smartctl requires root permission to execute. For security reasons, the Exec plugin (collectd) cannot execute scripts as root. To resolve this, create a user with permissions to use collectd for script executions.

On the device, create a new collectd user.

```
adduser -s /bin/false collectd-user
```

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usermod -aG sudo collectd-user

On the device, go to /etc/sudoers folder and open the sudoers file. Add the following lines to the end of the file (allows collectd-user to execute only the smartclt command as sudo).

```
collectd-user ALL=(ALL) !ALL
collectd-user ALL=(ALL) NOPASSWD: /usr/sbin/smartctl -f old -H -A /dev/sda -C
```

Create Visualization, Example 2

Graph

Chart type: Line

Mode: Normal

Filters

plugin - is - custom_smartctl

typeinstance.keyword - is - Remaining_Lifetime_Perc

Y-Axis

Aggregation: average

Field: value

Custom label: % Remaining Lifetime

Split series

Aggregation: Filters

Filter 1: typeinstance:value

X-Axis

Sub aggregation: Data histogram

Field: time

Minimum interval: Auto

								_
80 -								
60 -								
40 -								
20 -								
0								

Example 3

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Reading air velocity and temperature from USB sensor.

```
<Plugin exec>
Exec "collectd-user" "Exec "admin" "/home/admin/usb_sensor.sh"
</Plugin>
```

This example collects air velocity and air temperature from a sensor connected to an USB port from Nodegrid. Once the USB ports are owned by root, it is necessary to modify permissions to allow the user described on the exec plugin to access the sensor.

The following script must be stored inside the device and the user defined on the configuration must have execution permission:

```
HOSTNAME="${COLLECTD_HOSTNAME:-nodegrid}"
INTERVAL="${COLLECTD_INTERVAL:-10}"
# Collectd metric output pattern
# PUTVAL "<hostname>/<plugin-name>-<plugin-instance>/<type>-<type-instance>"
interval=<interval> N:<value>
# Type = [gauge, absolute, derive, counter]
/usr/bin/python3 - <<EOF
import serial
import os
hostname = os.getenv('HOSTNAME') or 'nodegrid'
interval = os.getenv('INTERVAL') or 10
sensor = "usb sensor"
sensor_port = "usbS3"
try:
        ser = serial.Serial(port='/dev/usbS3', baudrate=19200,
bytesize=serial.EIGHTBITS, parity=serial.PARITY_NONE, stopbits=serial.STOPBITS_ONE)
```

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```
if not ser.is_open:
                print('PUTVAL "{0}/{1}-{2}/gauge-air_temperature_success" interval={3}
N:{4}'.format(hostname, sensor, sensor_port, interval, 0))
                print('PUTVAL "{0}/{1}-{2}/gauge-air_velocity_success" interval={3}
N:{4}'.format(hostname, sensor, sensor_port, interval, 0))
                exit(1)
except:
        print('PUTVAL "{0}/{1}-{2}/gauge-air_temperature_success" interval={3}
N:{4}'.format(hostname, sensor, sensor_port, interval, 0))
        print('PUTVAL "{0}/{1}-{2}/gauge-air_velocity_success" interval={3}
N:{4}'.format(hostname, sensor, sensor_port, interval, 0))
        exit(1)
# Creating read air temperature request
request_msg = bytearray(4)
request_msg[0] = 0X02
                                                  # read air temperature operation
request_msg[1] = 0X00
                                                  # reserved
request msg[2] = 0X00
                                                  # reserved
request_msg[3] = request_msg[0] ^ request_msg[1] ^ request_msg[2]  # XOR checksum
ser.write(request_msg)
# read reply
                                                 # protocol definition
reply_msg_size = 4
reply = ser.read(reply_msg_size)
# reply verification
reply_checksum = reply[0] ^ reply[1] ^ reply[2] # XOR checksum
if reply_checksum == reply[3]:
        # Value convertion to Celsius grades
        temperature = float(0)
        temperature = reply[0] << 8</pre>
                                                 # reply[0] is Most Significant byte
        temperature |= reply[1]
                                                  # reply[1] is Least Significant
byte
        temperature /= 100
                                                  # to Celsius grades conversion
        print('PUTVAL "{0}/{1}-{2}/gauge-air_temperature" interval={3}
N:{4}'.format(hostname, sensor, sensor_port, interval, temperature))
        print('PUTVAL "{0}/{1}-{2}/gauge-air_temperature_success" interval={3}
N:{4}'.format(hostname, sensor, sensor_port, interval, 1))
else:
        print('PUTVAL "{0}/{1}-{2}/gauge-air_temperature_success" interval={3}
N:{4}'.format(hostname, sensor, sensor_port, interval, 0))
```

```
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```

```
# Creating read air velocity request
request msg = bytearray(4)
request_msg[0] = 0X01
                                                    # read air velocity operation
request_msg[1] = 0X00
                                                    # reserved
request_msg[2] = 0X00
                                                    # reserved
request_msg[3] = request_msg[0] ^ request_msg[1] ^ request_msg[2]  # XOR checksum
ser.write(request msg)
# read reply
reply_msg_size = 4
                                                    # protocol definition
reply = ser.read(reply_msg_size)
# reply verification
reply_checksum = reply[0] ^ reply[1] ^ reply[2] # XOR checksum
if reply_checksum == reply[3]:
        # Value convertion to m/s
        velocity = float(0)
        velocity = reply[0] << 8</pre>
                                                # reply[0] is Most Significant byte
        velocity |= reply[1]
                                                # reply[1] is Least Significant byte
        velocity /= 1000
                                                 # to m/s conversion
        print('PUTVAL "{0}/{1}-{2}/gauge-air_velocity" interval={3}
N:{4}'.format(hostname, sensor, sensor port, interval, velocity))
        print('PUTVAL "{0}/{1}-{2}/gauge-air_velocity_success" interval={3}
N:{4}'.format(hostname, sensor, sensor_port, interval, 1))
else:
        print('PUTVAL "{0}/{1}-{2}/gauge-air_velocity_success" interval={3}
N:{4}'.format(hostname, sensor, sensor_port, interval, 0))
EOF
sleep "$INTERVAL"
```

Interface

The Interface plugin collects information about the traffic (octets per second), packets per second and errors of interfaces (of course number of errors during one second).

Arguments

Interface <String>

Select this interface. By default, these interfaces are collected. For a more detailed description see IgnoreSelected below.

IgnoreSelected <Boolean>

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If no configuration is given, the interface-plugin collects data from all interfaces. This may not be practical, especially for loopback- and similar interfaces. Use the Interface-option to pick appropriate interfaces. Sometimes it is easier/preferred to collect all interfaces except a couple excluded interfaces. If IgnoreSelected = true, the effect of Interface is inverted: All selected interfaces are ignored and all other interfaces are collected.

It is possible to use regular expressions to match interface names. If the name is surrounded by /.../ and collectd was compiled with support for regexps. This is useful if there's a need to collect (or ignore) data for a group of interfaces that are similarly named, without the need to explicitly list all of them (especially useful if the list is dynamic).

ReportInactive <Boolean>

When set to false, only interfaces with non-zero traffic is reported. Note that the check is done by looking into whether a package was sent at any time from boot, and the corresponding counter is non-zero. So, if the interface has been sending data in the past since boot, but not during the reported time-interval, it is still reported.

Default = true collects data from all interfaces selected by Interface and IgnoreSelected options.

Example: Interface eth0/eth1

Collect statistics of eth0 and eth1

```
<Plugin interface>
    Interface "eth0"
    Interface "eth1"
    </Plugin>
```

Load

This plugin collects the system load. The numbers give a rough overview over the utilization of a machine. The system load is defined as the number of runnable tasks in the run-queue and is provided by many operating systems at a one, five, or fifteen minute average.

Arguments

ReportRelative <Boolean>

When enabled, system load, divided by number of available CPU cores, is reported for intervals 1 min, 5 min and 15 min. Default: false.

Example: CPU Load

Collect statistics of eth0 and eth1

```
<Plugin load>
</Plugin>
```

LogFile

The LogFile plugin receives log messages from the daemon and writes them to a text file. This plugin can be used to debug the configuration of plugins to make sure collectd is running properly. In order for



other plugins to be able to report errors and warnings during initialization, the LogFile plugin should be loaded as the first plugin (or one of the first) in the configuration file.

Arguments

LogLevel <String> [debug | info | notice | warning | err]

Sets log-level. If, for example, set to notice, then all events with severity notice, warning, or err will be written to the logfile.

Debug is only available if collectd has been compiled with debugging support.

File <String>

Sets the file to write log messages. The special strings "stdout" and "stderr" can be used to write to the standard output and standard error channels, respectively. This makes sense when collectd is running in foreground- or non-daemon-mode.

Timestamp <Boolean>

Prefix all lines with timestamp. Default: true.

PrintSeverity <Boolean>

When enabled, all lines are prefixed by the severity of the log message, for example "warning". Default: false.

Example

Log collectd info messages to a file.

```
<Plugin logfile>
LogLevel info
File "/home/admin/collectd.log"
Timestamp true
PrintSeverity false
</Plugin>
```

Use this example to ensure the created profile is working properly on the device. Collectd creates file in the home directory of admin user and logs information about the loaded plugins. This file can be retrieved with the device's File Manager.

Memory

Collects physical memory utilization follow the categories below:

Usage Buffered Cached Free

slab_recl

slab_unrecl

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Arguments

ValuesAbsolute <Boolean>

Enables or disables reporting of physical memory usage in absolute numbers (i.e., bytes). Default: true.

ValuesPercentage <Boolean>

Enables or disables reporting of physical memory usage in percentages (i.e., percent of physical memory used). Default: false.

This is useful for deploying collectd in a heterogeneous environment in which the sizes of physical memory vary.

Example

Display memory usage with stacked categories:

```
<Plugin memory>
ValuesAbsolute false
ValuesPercentage true
```

</Plugin>

Create visualization

Graph

Chart type: Area

Mode: Stacked

Filters

plugin - is - memory

serial_number - is - <serial-number>

Y-Axis

Aggregation: average

Field: value

Custom label: % of memory usage

Split series

Aggregation: Filters

Filter 1: typeinstance:free

Filter 2: typeinstance:used

Filter 3: typeinstance:buffered

Filter 4: typeinstance:cached

Filter 5: typeinstance:slab_unrecl



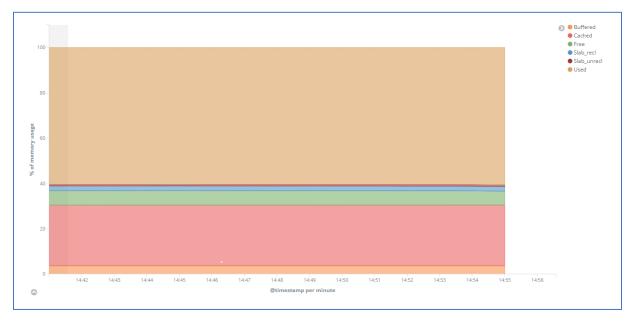
Filter 6: typeinstance:slab_recl

X-Axis

Sub aggregation: Data histogram

Field: time

Minimum interval: Auto



Ping

Measures network latency using ICMP echo requests.

Arguments

Host <String>

Host to ping periodically. This option may be repeated several times to ping multiple hosts.

Interval <Float>

Sets the interval in which to send ICMP echo packets to the configured hosts. This is not the interval in which metrics are read from the plugin but the interval in which the hosts are "pinged". Therefore, the setting here should be smaller than or equal to the global Interval setting. Fractional times, such as "1.24" are allowed.

Default: 1.0

Timeout <Float>

Time to wait for a response from the host to which an ICMP packet had been sent. If a reply was not received after Seconds value, the host is assumed to be down or the packet to be dropped. This setting must be smaller than the Interval setting above for the plugin to work correctly. Fractional arguments are accepted.

Default: 0.9



TTL <Integer> [0-255]

Sets the Time-To-Live of generated ICMP packets.

Size <Integer>

Sets the size of the data payload in ICMP packet to specified size (it will be filled with regular ASCII pattern). If not set, default 56 byte long string is used so that the packet size of an ICMPv4 packet is exactly 64 bytes, similar to the behavior of normal ping(1) command.

SourceAddress <String>

Sets the source address to use. host may either be a numerical network address or a network hostname

Device <String>

Sets the outgoing network device to be used. name has to specify an interface name (e. g. eth0). This might not be supported by all operating systems.

MaxMissed <Integer>

Trigger a DNS resolve after the host has not replied to Packets. This enables the use of dynamic DNS services (like dyndns.org) with the ping plugin.

Default: -1 (disabled)

Example

Display latency for 2 websites

```
<Plugin ping>
Host "zpecloud.com"
Host "zpesystems.com"
Interval 1.0
Timeout 0.9
</Plugin>
```

Create visualization

Filters

plugin - is - ping

type - is - ping

Y-Axis

Aggregation: average

Field: value

Custom label: ms

Split series

Aggregation: Terms

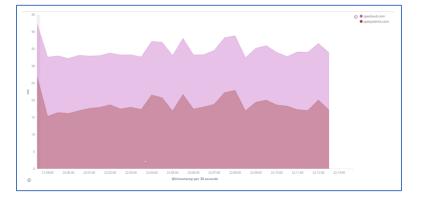


Field: typeinstance.keyword

X-Axis

Sub aggregation: Data histogram

- Field: time
- Minimum interval: Auto



Process

Collects information about processes of local system. By default, with no process matches configured, only general statistics are collected, such as the number of processes in each state and fork rate.

Process matches can be configured by Process and ProcessMatch options. These may also be a block in which further options may be specified.

The statistics collected for matched processes are: - size of the resident segment size (RSS) - userand system-time used - number of processes - number of threads - number of open files (under Linux) number of memory mapped files (under Linux) - io data (where available) - context switches (under Linux) - minor and major page faults.

Arguments

Process <String>

Select more detailed statistics of processes matching this name.

Some platforms have a limit on the length of process names. Name must stay below this limit.

ProcessMatch <String>

Select more detailed statistics of processes matching the specified regex (see regex(7) for details). The statistics of all matching processes are summed up and dispatched to the daemon using the specified name as an identifier. This allows one to "group" several processes together. name must not contain slashes.

CollectContextSwitch <Boolean>

Collect the number of context switches for matched processes. Disabled by default.

CollectFileDescriptor <Boolean>

Collect number of file descriptors of matched processes. Disabled by default.



CollectMemoryMaps <Boolean>

Collect the number of memory mapped files of the process. The limit for this number is configured via /proc/sys/vm/max_map_count in the Linux kernel.

(options) CollectContextSwitch and CollectFileDescriptor can be used inside Process and ProcessMatch blocks (affects corresponding match only). Otherwise, this sets the default value for subsequent matches.

Example

Display processes

```
<Plugin processes>
CollectFileDescriptor false
CollectContextSwitch false
CollectMemoryMaps false
CollectDelayAccounting false
</Plugin>
```

Protocols

Collects information about various network protocols, such as IP, TCP, UDP.

Arguments

Value <Protocol:ValueName|Regex>

Selects whether or not to select a specific value. The string being matched is of the form "Protocol:ValueName", where Protocol will be used as the plugin instance and ValueName will be used as type instance. An example of the string being used would be Tcp:RetransSegs.

Use regular expressions to match a large number of values with just one configuration option. To select all "extended" TCP values, use the following parameters:

Value "/^TcpExt:/"

Whether only matched values are selected or all matched values are ignored depends on the IgnoreSelected. By default, only matched values are selected. If no value is configured at all, all values will be selected.

See /"IGNORELISTS" for details.

IgnoreSelected <Boolean>

If set to true, inverts the selection made by Value, I. e. all matching values will be ignored.

Example 1: ICMP Reachable

Collect statistics about the number of ICMP Destination Unreachable messages received

```
<Plugin protocols>
Value "Icmp:InDestUnreachs"
IgnoreSelected false
</Plugin>
```

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Example 2: UDP in and out

Collect statistics about UDP in and out activity.

```
<Plugin protocols>
Value "Udp:InDatagrams"
Value "Udp:OutDatagrams"
IgnoreSelected false
</Plugin>
```

Tail

Tail plugin follows files, similar to tail command, being able to parse each line and check matches using regular expressions. The matches can be used to increment counters.

Arguments

Regex <Regex>

Sets the regular expression to use for matching against a line.

ExcludeRegex <Regex>

Sets an optional regular expression to use for excluding lines from the match.

Type <Type>

Sets the type used to dispatch this value.

Instance <String>

This optional setting sets the type instance to use.

Example: Tail – Failed login

Count failed attempts to login via ssh or console

```
<Plugin tail>
  <File "/var/log/auth-fail">
    Instance "auth"
    <Match>
      Regex ".*.Event.ID.*[0-9]\..Failed:.*@[0-9\.]{7,15}\."
      DSType "DeriveInc"
      Type "derive"
      Instance "failed_login_ssh"
    </Match>
    <Match>
      Regex ".*.Event.ID.*[0-9]\..Failed:.*.on.'ttyS[0-9]'\."
      DSType "DeriveInc"
      Type "derive"
      Instance "failed_login_console"
    </Match>
  </File>
```



</Plugin>

Tcpconns

The tcpconns plugin counts the number of currently established TCP connections based on the local port and/or the remote port. It collects information from the files:

/proc/net/snmp
/proc/net/netstat

Arguments

ListeningPorts <Boolean>

If this option is set to true, statistics for all local ports for which a listening socket exists are collected. The default depends on LocalPort and RemotePort (see below): If no port at all is specifically selected, the default is to collect listening ports. If specific ports (no matter if local or remote ports) are selected, this option defaults to false, i. e. only the selected ports will be collected unless this option is set to true specifically.

LocalPort <Integer>

Count the connections to a specific local port to see how many connections are handled by a specific daemon (i.e., mailserver). Port must be numeric characters. For the mailserver example, use 25.

RemotePort <Boolean>

Count the connections to a specific remote port to determine how much a remote service is used (i.e., how many connections a mail server or news server has to other mail or news servers, or how many connections a web proxy holds to web servers). Port must be numeric characters only.

AllPortsSummary <Boolean>

(optional) If true, a summary of statistics from all connections are collected (default: false).

Example

Collect information from all ports that are listening

```
<Plugin tcpconns>
ListeningPorts true
</Plugin>
```

Thermal

The thermal plugin reads the ACPI thermal zone.

Arguments

ForceUseProcfs <Boolean>

The Thermal plugin tries to read statistics from the Linux sysfs interface. If not available, the plugin falls back to the procfs interface. If true, the plugin is forced to use the procfs (default: false).



Device <String>

Selects name of the thermal device to collect or ignore (value of the IgnoreSelected option). Can be used multiple times to specify a list of devices.

IgnoreSelected <Boolean>

Invert the selection: If true, all devices except those that match the specified device names (Device option) are collected. By default, only selected devices are collected if a selection is made. If no selection is configured, all devices are selected.

Example: CPU Temperature

Display temperature from ACPI and CPU package

<Plugin thermal> </Plugin>

Create visualization

Graph

Chart type: Gauge

Filters

plugin - is - thermal

Y-Axis

Aggregation: average

Field: value

Custom label: Degrees Celsius

Split group

Aggregation: Filters

Filter 1: plugininstance:thermal_zone0

Filter 2: plugininstance:thermal_zone1

Ranges:

- $0 \rightarrow 40$
- $40 \rightarrow 60$
- 60
 ightarrow 90
- 90
 ightarrow 110





Uptime

The Uptime plugin keeps track of the system uptime.

Arguments

None

Example

Display uptime in seconds

<Plugin uptime> </Plugin>

Create visualization

Graph

Chart type: Metric

Filters

plugin - is - uptime

Metric

Aggregation: Top hit

Field: value

Aggregate with: Concatenate

Size: 1

Sort on: time

Custom label: Uptime (seconds)





Users

The Users plugin counts the number of users currently logged into the system.

Arguments

None

Example: Logged users

Display logged users

<Plugin users> </Plugin>

Create visualization

Graph

Chart type: Line

Mode Normal

Filters

plugin - is - users

Y-Axis

Aggregation: Top Hit

Field: value

Aggregate with: Max

Sort on: Time

Custom label: Logged users

Split series

Aggregation: Terms

Field: serial_number.keyword

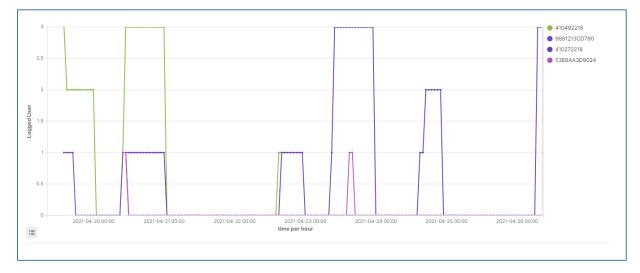


X-Axis

Sub aggregation: Data histogram

Field: time

Minimum interval: Auto



Create Visualization

Visualizations display aggregate data in a variety of options. Following includes examples on setting up some data presentations.

To access visualization functions:

- 1. Go to APPS :: NODEGRID DATA LAKE :: EXPLORER.
- 2. Click the Hamburger icon (left side) to display the drop-down menu.

1		D DATA LAKE				HELP	DEACTIVATE	« CLOSE
	EXPLORER	DEVICES	PLUGINS	PROFILES	SUBSCRIPTION	CONFIGURATION		
	Elastic							Ø
≡	Dashboard / [Dashbo	oard] Devices				Full screen	Share Clone	/ Edit



On the drop-down, click Visualize.

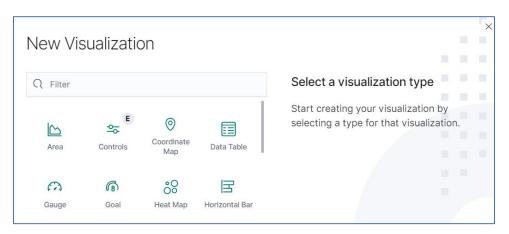
🔗	Elastic	
≡	Dashboard / [Dashboard] Devices	
\bigcirc	Home	
Rec	ently viewed \sim	
[Das	shboard] Devices	
	Kibana 🗸	
Ove	rview	
Disc	over	
Dasl	hboard	
Visu	alize	
Tool	ls ~	
Aler	ting	
÷	Management ~	
Stac	k Management	

3. This displays the *Visualizations* panel (lists table of current visualizations). The **Pencil** icon (right side) opens the *Edit* panel.

Visualizations		① Create vis	ualization
Q Search			
Title	Туре	Description	Actions
Devices] Device selector	≌ Controls		Ø
Devices] Disk	📈 Line	The average amount of time it took to do a read operation.	Ø
[Devices] Markdown overview	[Ī] Markdown		Ø
Devices] Memory	<u>मि</u> Vertical Bar		Ø

To edit an existing visualization, click the **Pencil** icon (Actions column), edit details, and update.

4. To create a new visualization, click Create Visualization (displays dialog).



- 5. Click the visualization to be created. On the dialog, enter specifications and details.
- 6. When done, click **Update**. If there is an error, a red border displays around the error item. Fix the error and click **Update**.
- 7. If needed, click **Discard** to abandon the process.

Line Charts

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Line Charts visualize data points along a line graph.

Create a Single or Multi-Line Chart (Configuration Example)

WebUI Procedure

1. On the Visualization panel, click Create visualization (displays dialog).

Q Filter				Select a visualization type
Area	Controls	Ocoordinate Map	Data Table	Start creating your visualization by selecting a type for that visualization.
Gauge	Goal	eoo Heat Map	Horizontal Bar	
√ Line	[Ţ] Markdown	8 Metric	Pie	
Region Map	₽ TSVB	Tag Cloud	Timelion	

2. Click the Line icon (displays dialog).



New Line / Choose a source		×
Q Search	Sort 🗸	Types 2 🗸
류 *_monitoring_*		

3. On the dialog, click ***_monitoring_*** (displays dialog).

Seastic		¢
Visualize / Create		Inspect Share Share
E ✓ Search	Lucene 🛗 🗸 Last 90 d	days Show dates C Refresh
· ⊕ - + Add filter		
5,000,000	 Count 	*_monitoring_*
4,000,000 -		Data Metrics & axes Panel settings
		Metrics
3.000,000 - ₩		> Y-axis Count
8 2,000,000 -		I
		Buckets
1,000,000		Add
0		
All docs		× Discard D Update

4. To select the data points to visualize, enter a search expression, and click **Update**.

	5 ~	plugin "disk"	Lucene	*	Last 90 days	Show dates	⇔i Update
--	-----	---------------	--------	----------	--------------	------------	-----------

5. In the *Metrics* section, click **Y-Axis** arrow.

logstash-*		0
Data Metrics & Axes Panel Settings	×	
metrics Y-Axis	Count	
Add metrics		

6. On the **Aggregation** drop-down, under *Metric Aggregations* section, select **Average**. In **Field** drop-down, select **value**. Click **Update**.

	mo	nitoring		⇒
	Data	Metrics & axes	Panel settings	
	Met	rics		
	\sim	Y-axis		
1	Agg	regation	Average help	
	Av	erage	~	
	Field	ł		
	va	lue	~	
	Cus	tom label		
	×c	Discard	▷ Updat	е

In *buckets* section, in *Select buckets type* menu, the plug-in selection is entered here.
 For this example, click Add. And select X-Axis

Custom label	ADD BUCKET	
> Advanced	X-axis	
	Split series	
Buckets	Split chart	
	4 Add	



8. On Aggregation drop-down, select Date Histogram. Accept Field and Interval defaults. Click Update.

Buckets	
V X-axis	⊚ ×
Aggregation	Date Histogram help
Date Histogram	~
Field	
time	\sim
Minimum interval	
Auto	S ~
Select an option or create a custom value. Examples: 30s, 20m, 24h, 2d, 1w	r, 1M
Drop partial buckets	
Custom label	
> Advanced	
Add	

9. Example graph is displayed.

😔 Elastic							٥
■ Visualize	e / Create				Ir	spect Share	Save
🗑 🗸 plugin	"disk"	Lucene	≡ ~	Last 9	0 days	Show dates	ී Refresh
🛞 – 🔸 Add filt	er						
1,000,000,000		Average v	alue		"_monitoring_" Data Metrics & axes Panel settings		∋
800,000,000					Metrics ~ Y-axis		
erage value					Aggregation Average		Average help
400,000,000					Field		
					value		~
200,000,000	¥				Custom label		
0	2021/10-10 2021/10-72 2021/10-31 2021/11-07 2021/11-14 2021/11-21 2021/11-28 2021/12-08 2021/12-18 2021/12-18				> Advanced		
	time per day				× Discard		▷ Update



10. To split the values on individual lines, on **Buckets**, click **Add**. On dialog, click **Split series**.

	X-axis	
uckets	Split series	
> X-axis time per day	Split chart	© ×
	Add	

11. On the **sub-aggregation** drop-down, select **Terms**.

Date Range	
Filters	
Histogram	
IPv4 Range	
Range	
Significant Terms	
Terms	

12. On Field drop-down, selectplugininstance.keyword.

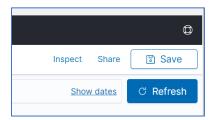
Field	
Select a field	\sim
datatype.keyword	•
host.keyword	
plugin.keyword	
plugininstance.keyword	
serial_number.keyword	
type.keyword	
typeinstance.keyword	-

Click **Update** (graph shows the split aggregation).



Se Elastic		٥
E Visualize / Create	Inspect Share	Save
Ev plugin "disk"	Show dates	ී Refresh
· ⊗ = + Add filter		
	195	© = × © = × Terms help ✓
azerierio zazerierio zazerie		▷ Update

13. On the Toolbar, click Save (upper right corner).



14. On the dialog, enter a **Title** and **Description** for the visualization. Click **Save**.

Save visualization	×
Title	
xxtest	
Description	
testatat	
Cancel	Save

Other Plugin Graph Representations

See the <u>Nodegrid Data Lake Plugins</u> (above) for configuration and setup details.