RPC2™ Communications Module

Command Reference Guide

Technical Support Site

If you encounter any installation or operational issues with your product, check the pertinent section of this manual to see if the issue can be resolved by following outlined procedures. For additional assistance, visit https://www.VertivCo.com/en-us/support/.

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1 COMMAND LINE INTERFACE

The RPC2™ Communications Module can be administered and accessed with the Command Line Interface (CLI) utility.

The CLI uses text-based commands in place of the Web User Interface (UI) to perform module tasks more quickly and offer more control. In some instances, the CLI can be used to configure multiple module settings at once.

As a supplement to the RPC2™ Communications Module User Manual, this guide describes how to access and navigate the CLI utility and how to use it after the module has been installed and assigned an IP address. For information to install or operate your module using the appliance web user interface (UI), see the RPC2™ Communications Module User Manual.

1.1 Accessing the CLI

The CLI can be accessed through a local terminal or a computer that has a terminal emulation program connected to the network port of the module.

-or-

After the module is connected to the network and has an IP address, it can be accessed by one of the following methods:

- With the web UI
- With an SSH or Telnet client on a remote computer (if the SSH or Telnet protocol is enabled in the selected security profile)

To access the CLI from the module web UI:

1. Log in to the web UI of the module.
2. From the sidebar of the *System* tab, click *Settings*.
3. Click the *Open CLI* icon at the top of the screen.

1.2 Navigation

The following table lists the keys used to navigate the CLI.

Table 1.1 CLI Key Descriptions

KEY	DESCRIPTION
Tab	Completes the current command
Delete	Removes one character to the right of the cursor
Backspace	Removes one character to the left of the cursor
Ctrl-A	Moves the cursor to the beginning of the current line
Ctrl-U	Deletes a line
Ctrl-W	Deletes a word
Up Arrow	Scrolls through recent CLI history
Down Arrow	Scrolls through older CLI history
Left Arrow	Moves the cursor to the left of the current command line
Right Arrow	Moves the cursor to the right of the current command line

1.2.1 Auto-completion

The following table describes the keys used to perform auto-completion.

Table 1.2 Auto-completion Key Descriptions

KEY	DESCRIPTION
Enter	Auto completes, checks syntax and then executes the command. If there is a syntax error, the offending part of the command is highlighted

KEY	DESCRIPTION
	and explained.
Space	Auto completes or, if the command has been resolved, inserts a space.
Tab	Auto completes or shows available commands or user parameters.

1.3 Predefined Groups

The RPC2™ Communications Module has four predefined groups with capabilities associated with each group. Predefined groups cannot be deleted, and only users can be added to or deleted from a predefined group. The following table describes each predefined group with its capabilities.

Table 1.3 Predefined Groups Descriptions

GROUP NAME	ROLE CAPABILITIES	NOTES
admin	An admin has the following capabilities: • Manage all the system settings related to the device, for example updating the device firmware on a rack PDU. • Add or delete a user. • Configure the user role (for example, user, poweruser, device-admin or appliance). • Configure the permissions and access. • Provides the same capabilities as a poweruser or user.	The admin user is not a Linux® root.
poweruser	Capability to configure the power management settings at the bank/strip level. For example, set thresholds, view event, data logs and so on.	This group typically consists of personnel responsible for data center management operations.
appliance	Capabilities similar to those of a poweruser.	This group is dedicated for integration with appliances connected via serial port.
user	Capability to manage receptacles assigned to them.	This group typically consists of system administrators who support the IT equipment in a rack and need the ability to turn those devices off and on.

1.4 User-defined Groups

The communications module supports user-defined groups. These groups have the same capabilities as the predefined user group.

1.5 Default Users

The default users are listed in the following table.

NOTE: Default members cannot be deleted.

Table 1.4 Default Users

GROUP	TYPE	DEFAULT LOGIN	DEFAULT PASSWORD
admin	Protected	admin	admin
appliance	Protected	appliance	rpc2k
poweruser	Protected	pwrusr	pwrusr
user	Protected	NA	NA
<custom user>	User-defined	NA	NA

2 COMMANDS

This section lists and describes the commands available in the CLI for the RPC2™ Communications Module.

Each command in this guide has a table. Each level of the table represents an argument level in the CLI. Arguments contained within angle brackets (< >) are user-defined arguments. For example, the following table defines the **user** command.

Table 2.1 Syntax

user
help
add
<user>
<password>
<confirm password>
del
<user>
<user>

The first argument in the command is always **user**.

```
cli->user
```

From there, you can access the context-sensitive help.

```
cli->user help
```

To add a user, you must define the username and password and confirm the password.

```
cli->user add <user> <password> <confirm password>
```

The add and delete arguments are on the same level as the help argument. The <user>, <password> and <confirm password> arguments follow on separate levels.

2.1 Values

For some of the commands, you can set the values for a PDU, branch, receptacle or phase. The following are acceptable values.

PDU: 1-4

Branch: A-G

NOTE: When setting the value for a branch, you must use uppercase letters.

Receptacle: 1-48

Phase: L1-L3, L12, L23, L31 or N for neutral phase

NOTE: Type @ for either a branch or receptacle to set the values for all branches and receptacles.

2.2 help

Type a question mark (?) or help to display the context-sensitive help. The context-sensitive help displays a list of possible commands with summaries or the full syntax with all options for the current command. The context-sensitive help is available for each command of the CLI.

NOTE: For user-defined parameters, a space is required between the parameter and the question mark for help about the next parameter. If the space is not provided, the context remains with the current parameter.

Example

```
cli-> current help
```

```
Synopsis
```

```
-Displays the metered reading of the AC Current at a PDU / Branch / Receptacle / Phase level in a Rack PDU / Rack PDU Array
```

```
-Display / Configure the Threshold Values for current at PDU / Branch / Receptacle / Phase level in a Rack PDU / Rack PDU Array
```

```
-Displays the amount of current increase allowed before the over current alarm occurs at a PDU / Branch / Receptacle / Phase level in a Rack PDU / Rack PDU Array
```

```
-Displays the % of receptacle electrical current utilization relative to the receptacle's current rating at a PDU / Branch / Receptacle / Phase level in a Rack PDU / Rack PDU Array
```

```
Syntax
```

```
current [{PDU}[.{BRN}[.{RECP}]]]
```

```
current {PDU} {PHASE}
```

```
current {cmd_option} [{PDU}[.{BRN}[.{RECP}]]]
```

current {cmd_option} {PDU} {PHASE}

current threshold {PDU}.{BRN}[.{RECP}] {threshold_values}

current threshold {PDU} {PHASE} {threshold_values}

...{cmd_option= threshold, untilalarm, utilization}

...{PDU= 1..4} {PHASE= L1, L2, L3, N, @} {BRN= A..G, @} {RECP= 1..48, @}

...For L1, L2, L3 : {threshold_values = (high_critical=0..100):(high_warn=0..100):(low_critical=0..100)}

...For N : {threshold_values = (high_critical=0..100):(high_warn=0..100)}

2.3 auth

Type auth to display the authentication configuration information of a rack PDU or Rack PDU Array™. An admin can configure the authentication parameters.

Table 2.2 Syntax

auth			
	help		
	type		
		kerberos, kerberos_local, kerberos_down_local, ldap, ldap_local, ldap_down_local, local, local_radius, local_tacacs+, dsview, dsview_local, radius, radius_local, radius_down_local, tacacs+, tacacs+_local, tacacs+_down_local	
	webmode		
		Form-base, Digest	
	remoteserver		
		dsview	
			<ipaddr1>, <ipaddr2>, <ipaddr3>, <ipaddr4>
		radius	
			<firstauthadd>, <firstaccountaddr>, <secondauthaddr>, <secondaccountaddr>, <secret>, <confirmsecret>, <timeout>, <retries>
		tacacs+	
			<firstauthaddr>, <firstaccountaddr>, <secondauthaddr>, <secondaccountaddr>, <service>, <secret>, <confirmsecret>, <timeout>, <retries>, <version>
		ldap_ad	
			<server>, <base>, <secure>, <username>, <password>, <cofirmpassword>, <loginattr>
		kerberos	
			<realmserver>, <realmname>, <domainname>

Examples

To set the authentication type as DSView, enter the following command.

```
cli->auth type dsview
```

To configure the DSView remote server, enter the following command.

```
cli-> auth remoteserver dsview <IPAddress1> <IPAddress2> <IPAddress3> < IPAddress4>
```

2.4 backup_restore

Type backup_restore to display the backup and restore settings for the module. An admin can configure the settings.

Table 2.3 Syntax

backup_restore		
	help	
	restore	

backup
source
<type>
ftp
<ipaddr>
<username>
<passwd>
<filedir>
<filename>

Examples

To restore all configurations, enter the following command.

```
cli->backup_restore restore
```

To back up all configurations, enter the following command.

```
cli->backup_restore backup
```

To configure the file name to be used for the backup and restore file, enter the following command.

```
cli-> backup_restore ftp filename <file name>
```

2.5 breakerstate

Type **breakerstate** to display the status (Open or Close) of the branch overcurrent protection in a rack PDU or Rack PDU Array™. This command is available for an admin, appliance or poweruser.

Table 2.4 Syntax

breakerstate
help
<pdu>
<pdu.branch>

Examples

To view the status of PDU 2, enter the following command.

```
cli->breakerstate 2
```

```
[2] --- (A) Close (B) Close (C) Close
```

To view the status of branch B on PDU 2, enter the following command.

```
cli->breakerstate 2.B
```

```
[2] --- (B) Close
```

2.6 buzzer

Type **buzzer** to facilitate enabling and disabling of the buzzer. This command is available for an admin, appliance or poweruser.

NOTE: This command is supported for the rack PDU array level, but not for an individual rack PDU.

Table 2.5 Syntax

buzzer
help
enable
disable

Example

To enable the buzzer, enter the following command.

```
cli->buzzer enable
```

2.7 crestfactor

Type **crestfactor** to display the AC current crest factor of the receptacles in a rack PDU or Rack PDU Array™. This command is available for an admin, appliance or poweruser.

Table 2.6 Syntax

crestfactor
help
<pdu>
<pdu.branch>
<pdu.branch.receptacle>

Examples

To view the crest factor for PDU 2, enter the following command.

```
cli->crestfactor 2
```

```
[2.A] --- (1) 1.38 (2) 1.40 (3) 1.41 (4) 1.41 (5) 1.39 (6) 1.39
```

[2.B] --- (1) 1.39 (2) 1.40 (3) 0.00 (4) 0.00 (5) 1.39 (6) 1.40

[2.C] --- (1) 1.41 (2) 1.40 (3) 1.39 (4) 0.00 (5) 0.00 (6) 0.00

To view the crest factor of branch A of PDU 2, enter the following command.

cli->crestfactor 2.A

[2.A] --- (1) 1.38 (2) 1.40 (3) 1.41 (4) 1.41 (5) 1.39 (6) 1.39

To view the crest factor of the sixth receptacle of branch C of PDU 2, enter the following command.

cli->crestfactor 2.C.6

[2.C] --- (6) 1.41

2.8 current

Type current to display the following at the input phase, branch and receptacle levels in a rack PDU or Rack PDU Array™.

- The metered reading of the AC current (RMS).
- The configurable threshold values for current.
- The amount of current increase allowed before the overcurrent alarm occurs.
- The percentage of receptacle current utilization relative to the receptacle's current rating.

This command is available for an admin, appliance or poweruser.

Neutral current measurement and threshold settings are possible only at the PDU level for models having a neutral connection. Except for neutral current, threshold values are colon-separated values in the following order: {high_critical}:{high_warn}:{low_critical}.

NOTE: There is no {low_warn} threshold in a Vertiv MPH or MPX™ rack PDU.

If any threshold is not provided, the same has to be denoted with a hyphen "-" for example, {high_critical}:-:{low_critical}. For neutral current, threshold values are colon-separated values in the following order: {high_critical}:{high_warn}. The {low_critical} threshold does not exist for neutral current. Threshold current values are also expressed as a percentage of the rated current value.

NOTE: Threshold values (high critical, high warning and low critical) have ranges of 0-100.

Table 2.7 Syntax

current
help
<pdu>
<phase>

<pdu.branch>

<pdu.branch.receptacle>

threshold

<pdu>

<phase>

<pdu.branch>

<pdu.branch.receptacle>

current threshold

<pdu>

<phase> <threshold_values>

<pdu.branch>

<pdu.branch.receptacle> <threshold_values>

untilalarm

<pdu>

<phase>

utilization

<pdu>

<phase>

<pdu.branch>

<pdu.branch.receptacle>

Examples

To view the current for PDU 2, enter the following command.

```
cli->current 2
```

```
[2] --- (L1) 1.70 A (L2) 1.60 A (L3) 0.00 A (N) 0.10 A
```

```
[2] --- (A) 1.50 A (B) 1.10 A (C) 0.00 A
```

```
[2.A] --- (1) 0.10 A (2) 0.10 A (3) 0.00 A (4) 0.00 A (5) 0.00 A (6) 0.00 A
```

```
[2.B] --- (1) 0.00 A (2) 0.00 A (3) 0.10 A (4) 0.10 A (5) 0.00 A (6) 0.10 A
```

```
[2.C] --- (1) 0.10 A (2) 0.00 A (3) 0.00 A (4) 0.00 A (5) 0.00 A (6) 0.00 A
```

To view the current for the first phase of PDU 2, enter the following command.

```
cli->current 2 L1
```

```
[2] --- (L1) 1.70 A
```

To view the neutral current for PDU 2, enter the following command.

```
cli->current 2 N
```

```
[2] --- (N) 0.10 A
```

To view the current for all lines of PDU 2, enter the following command.

```
cli->current 2 @
```

```
[2] --- (L1) 1.70 A (L2) 1.60 A (L3) 0.00 A (N) 0.10 A
```

To view the current for branch B of PDU 2, enter the following command.

```
cli->current 2.B
```

```
[2] --- (B) 1.10 A
```

To view the current for receptacle 6 of branch C of PDU 2, enter the following command.

```
cli->current 2.C.6
```

```
[2.C] --- (6) 0.00 A
```

To view the current threshold for PDU 2, enter the following command.

```
cli->current threshold 2
```

```
[2] --- (L1) 85 : 80 : 5 (L2) 85 : 80 : 5 (L3) 85 : 80 : 5 (N) 85 : 80: -
```

```
[2] --- (A) 80 : 75 : 5 (B) 80 : 75 : 5 (C) 80 : 75 : 5
```

```
[2.A] --- (1) 75 : 70 : 5 (2) 75 : 70 : 5 (3) 75 : 70 : 5 (4) 75 : 70 : 5 (5) 75 : 70 : 5 (6) 75 : 70 : 5
```

```
[2.B] --- (1) 75 : 70 : 5 (2) 75 : 70 : 5 (3) 75 : 70 : 5 (4) 75 : 70 : 5 (5) 75 : 70 : 5 (6) 75 : 70 : 5
```

```
[2.C] --- (1) 75 : 70 : 5 (2) 75 : 70 : 5 (3) 75 : 70 : 5 (4) 75 : 70 : 5 (5) 75 : 70 : 5 (6) 75 : 70 : 5
```

To configure the threshold value for branch A of PDU 2, enter the following command.

```
cli->current threshold 2.A 80:75:5
```

To view the current untilalarm for branch B of PDU 2, enter the following command:

```
cli->current untilalarm 2.B
```

```
[2] --- (B) 6.00 A
```

To view the current utilization for PDU 2, enter the following command.

```
cli->current utilization 2
```

```
[2] --- (L1) 79.17% (L2) 79.1 % (L3) 75.00%
```

```
[2] --- (A) 77.77% (B) 68.42% (C) 77.77%
```

```
[2.A] --- (1) 85.71% (2) 85.71% (3) 68.00% (4) 71.50% (5) 71.50% (6) 85.71%
```

```
[2.B] --- (1) 85.71% (2) 85.71% (3) 85.71 % (4) 71.50% (5) 68.00% (6) 68.00%
```

```
[2.C] --- (1) 68.00% (2) 71.50% (3) 71.50 % (4) 71.50% (5) 85.71% (6) 85.71%
```

2.9 datalog

Type datalog to enable an admin to log all levels of PDU data to a log file.

Table 2.8 Syntax

datalog		
	help	
	export_ftp	
		ipaddr <value>
		username <value>
		passwd <value>
		filedir <value>
		filename <value>
	export_type	
		<type> (ftp)
	flush	
	interval	
		<value> (5, 15, 30, 60 minutes)
	perform_export	
	<level> (datalog, pdu, branch, receptacle)	
		enable
		disable

Examples

To enable data logging at the PDU level, enter the following command.

```
cli->datalog pdu enable
```

To configure the data log polling interval for 30 minutes, enter the following command.

```
cli->datalog interval 30
```

To configure an FTP server for data logging, enter the following commands.

```
cli->datalog export_ftp ipaddr <ip address>
```

```
cli->datalog export_ftp username <username>
```

```
cli->datalog export_ftp passwd <password>
```

```
cli->datalog export_ftp filedir <file directory>
```

```
cli->datalog export_ftp filename <file name>
```

2.10 delay

Type **delay** to display values and facilitate configuration for poweron, post on and post off time delay at the receptacle level. This command is available for an admin, appliance or poweruser.

Table 2.9 Syntax

delay	
help	
poweron	
	<pdu>
	<pdu.branch>
	<pdu.branch.receptacle>
post_on	
	<pdu>
	<pdu.branch>
	<pdu.branch.receptacle>
post_off	
	<pdu>
	<pdu.branch>
	<pdu.branch.receptacle>

Examples

To view the post-off delay for the sixth receptacle on branch C of PDU 2, enter the following command.

```
cli-> delay post_off 2.C.6
```

```
[2.C] --- (6) 1 s
```

To configure the poweron at 5 seconds and the post on and post off at 1 second each for all of PDU 2, enter the following command.

```
cli-> delay 2 5:1:1
```

2.11 devicechange

Type **devicechange** to acknowledge and display the module change status information for an admin.

Table 2.10 Syntax

devicechange
help
acknowledge
show

Example

To display a device change, enter the following command.

```
cli-> devicechange show

Module Serial Number Module Type Change

---------------------------------- ------------------------------ --------

4037-122 Rack PDU Card Added

DY2013OCT142575-B1 Branch Receptacle Module Added

DY2013OCT142575-B2 Branch Receptacle Module Added

DY2013OCT142575-B3 Branch Receptacle Module Added
```

2.12 energy

Type **energy** to display the values of the accumulated real power energy (kWatt-hr) reading from the energy counter and facilitate resetting the energy counter to zero. This command is available for an admin, appliance or poweruser.

Table 2.11 Syntax

energy	
help	
pdu	
	<pdu>
<pdu.branch>	
<pdu.branch.receptacle>	
reset	
	<pdu>

	<pdu.branch>
	<pdu.branch.receptacle>

Examples

To view the energy for receptacle 4 of branch A of PDU 1, enter the following command.

```
cli->energy 1.A.4
```

```
[1.A] --- (4) 3.70 kWH
```

To reset the energy for receptacle 4 of branch A of PDU 1, enter the following command.

```
cli->energy reset 1.A.4
```

2.13 exit

Type exit to log out of the current session.

2.14 factorydefaults

Type factorydefaults to reset all PDUs to their factory default settings. The admin and appliance users have access to this command.

2.15 fwupdate

Type fwupdate to enable an admin to update the firmware for the module.

Table 2.12 Syntax

fwupdate	
	help
	update
	source
	<source type> (tftp, ftp)
	ftp
	ipaddr <value>
	username <value>
	passwd <value>
	filedir <value>
	filename <value>
	tftp
	ipaddr <value>
	port <value>
	filedir <value>
	filename <value>

Examples

To update the firwmare, enter the following command.

```
cli->fwupdate update
```

```
Initiating …
```

```
Uploading Image ...
```

```
Upload Complete!
```

```
Checking Image ...
```

```
Image Validated!
```

```
Updating Image to Devices …
```

```
Updating Image to RPC2 Card ...
```

```
Firmware Update Success!
```

```
Firmware Update Complete!
```

```
Card is rebooting ...
```

```
CLI will be disconnected, please re-login after some time.
```

NOTE: If the current setting is correct, the firmware is updated . If the current setting is not correct, you are prompted to correct parameters and try again.

To configure the FTP settings where the firmware is stored, enter the following commands.

cli->fwupdate ftp ipaddr <ip address>

cli->fwupdate ftp username <user name>

cli->fwupdate ftp passwd <password>

cli->fwupdate ftp filedir <file directory>

cli->fwupdate ftp filename <file name>

2.16 group

NOTE: A user can only be allocated to one group and must be created before being added to a group. You must delete a user from a group before adding it to a new group. By default all receptacles are in the admin group.

Type group to permit an admin to perform the following tasks:

- Create custom groups
- Delete custom groups
- Add or remove a local or remote user to default or custom groups
- Add or remove receptacles to custom groups
- Display all groups as well as all users and receptacles allocated to each group

Table 2.13 Syntax

```
group
    help
    add
    del
    receptacle
        add
            <group_name>
        del
            <group_name>
    show
        group element
            <group_name>
    user
        add
            <group_name>
            local
```

<user_name>

remote

<user_name>

del

<group_name>

local

<user_name>

remote

<user_name>

Examples

To create a group, enter the following command.

```
cli->group add <group name>
```

To add three local users to a group, enter the following command.

```
cli->group user add <group> local <username>, <username2>, <username3>
```

NOTE: You can add as many as 10 users to a group with one command by entering each of their names.

To add a remote user to a group, enter the following command.

```
cli->group user add <group> remote <username>
```

To add a receptacle to a group, enter the following command.

```
cli->group receptacle add <group> <pdu.branch.receptacle>
```

To display members of a group, enter the following command.

```
cli->group show user poweruser
```

```
group name member name
```

```
========================================
```

```
poweruser pwrusr
```

2.17 label

Type label to display the configurable values of the user-defined label for a PDU, branch or receptacle. This command is available for an admin, appliance or poweruser.

Table 2.14 Syntax

label
help
pdu
<pdu>
<pdu.branch>
<pdu.branch.receptacle>
<label_value>

Examples

To display the values for a receptacle, enter the following command.

```
cli->label <pdu.branch.receptacle>
```

To configure a value for a receptacle, enter the following command.

```
cli->label <pdu.branch.receptacle><new label>
```

2.18 meminfo

Type meminfo to display the RAM availability and current usage for an admin.

Example

```
cli->meminfo
```

```
Total memory size : 256380 kB
```

```
Used memory size : 80068 kB
```

2.19 message

Type message to display and permit the configuration of messaging settings by an admin.

Table 2.15 Syntax

message
help

email

enable

disable

sms

enable

disable

from_address

<type> (email or sms)

<address>

to_address

<type>

<address>

subject_type

<type>

<subject_type>

custom

<type>

<custom_subject>

server_address

<type>

<ipaddress>

server_port

<type>

<port number>

include

<type>

<element> (ip address, event_description, name, contact, location, system_description, weblink_port)

enable

disable

consolidation

<type>

enable

disable

time_limit

<type>

<value> 10 -120

event_limit

<type>

<value> 1- 50

Examples

To enable email messaging, enter the following command.

```
cli-> message email enable
```

To configure the time limit for SMS, enter the following command.

```
cli-> message consolidation time_limit sms <value>
```

2.20 nandinfo

Type **nandinfo** to display the nandflash availability and usage for an admin.

Example

```
cli->nandinfo
```

```
Total nandflash size : 65536 kB
```

```
Used nandflash size : 37732 kB
```

2.21 network

Type **network** to display the configurable network parameters of a rack PDU or Rack PDU Array™ for an admin.

Table 2.16 Syntax

```
network
    help
    dns
        ipv4
            mode
                <value>
            primary
                <ip address>
            secondary
                <ip address>
            resolve
                <value>
        ipv6
            mode
```

```
                                        <value>
                    primary
                                        <ip address>
                    secondary
                                        <ip address>
                    resolve
                                        <interval value>
          test
                    query
                    question
                                        <question_value>
                    type
                                        <type_value>
    domain
          <domain_suffix>
    hostname
          <hostname>
    mac
          primary
          secondary
    ipv4
          enable
          disable
          address
                    <ipv4 address>
          bootmode
                    <ipv4 boot mode>
          gateway
                    <ipv4 address>
          netmask
                    <netmask>
    ipv6
          enable
          disable
          address
                    <ipv6 address>
          bootmode
                    <ipv6 boot mode>
          gateway
                    <ipv6 address>
```

netmask	
	<netmask>
speed	
	<value>

Examples

To display the DNS IPv4 settings, enter the following command.

```
cli-> network dns ipv4
```

```
IPv4 DNS Server Address source------ Automatic
```

```
IPv4 Primary DNS Server---------------- 172.26.29.4
```

```
IPv4 Secondary DNS Server------------ 172.26.29.5
```

```
IPV4 DNS Resolve Interval…….. 1 hour
```

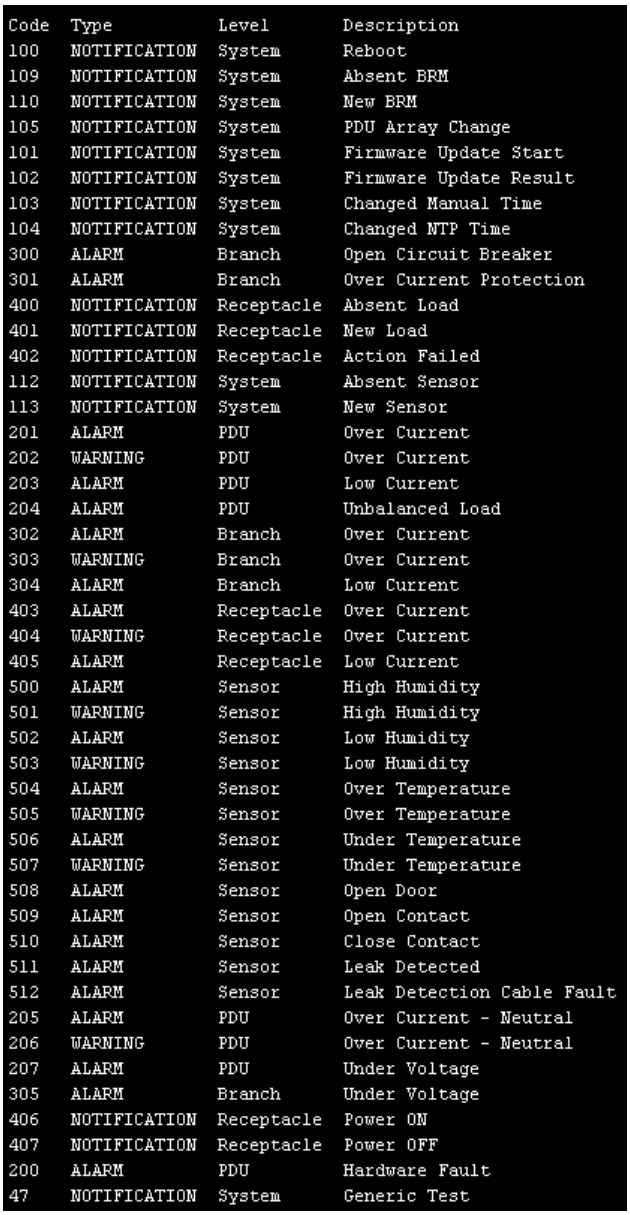
To configure the secondary address for DNS IPv6, enter the following command.

```
cli-> network dns ipv6 secondary <address>
```

2.22 notification

Type **notification** to permit an admin to view and enable or disable event notifications for Email, SMS, SNMP tramp or syslog. The following figure shows the available notifications types.

Figure 2.1 Notification Types



Code	Type	Level	Description
100	NOTIFICATION	System	Reboot
109	NOTIFICATION	System	Absent BRM
110	NOTIFICATION	System	New BRM
105	NOTIFICATION	System	PDU Array Change
101	NOTIFICATION	System	Firmware Update Start
102	NOTIFICATION	System	Firmware Update Result
103	NOTIFICATION	System	Changed Manual Time
104	NOTIFICATION	System	Changed NTP Time
300	ALARM	Branch	Open Circuit Breaker
301	ALARM	Branch	Over Current Protection
400	NOTIFICATION	Receptacle	Absent Load
401	NOTIFICATION	Receptacle	New Load
402	NOTIFICATION	Receptacle	Action Failed
112	NOTIFICATION	System	Absent Sensor
113	NOTIFICATION	System	New Sensor
201	ALARM	PDU	Over Current
202	WARNING	PDU	Over Current
203	ALARM	PDU	Low Current
204	ALARM	PDU	Unbalanced Load
302	ALARM	Branch	Over Current
303	WARNING	Branch	Over Current
304	ALARM	Branch	Low Current
403	ALARM	Receptacle	Over Current
404	WARNING	Receptacle	Over Current
405	ALARM	Receptacle	Low Current
500	ALARM	Sensor	High Humidity
501	WARNING	Sensor	High Humidity
502	ALARM	Sensor	Low Humidity
503	WARNING	Sensor	Low Humidity
504	ALARM	Sensor	Over Temperature
505	WARNING	Sensor	Over Temperature
506	ALARM	Sensor	Under Temperature
507	WARNING	Sensor	Under Temperature
508	ALARM	Sensor	Open Door
509	ALARM	Sensor	Open Contact
510	ALARM	Sensor	Close Contact
511	ALARM	Sensor	Leak Detected
512	ALARM	Sensor	Leak Detection Cable Fault
205	ALARM	PDU	Over Current - Neutral
206	WARNING	PDU	Over Current - Neutral
207	ALARM	PDU	Under Voltage
305	ALARM	Branch	Under Voltage
406	NOTIFICATION	Receptacle	Power ON
407	NOTIFICATION	Receptacle	Power OFF
200	ALARM	PDU	Hardware Fault
47	NOTIFICATION	System	Generic Test

Table 2.17 Syntax

notification	
help	
<code> code number, all	
<type> email, sms, syslog, snmp_trap	
enable	
disable	

Examples

To enable syslog notifications for all events, enter the following command.

```
cli->notification all syslog enable
```

To enable SMS notification for a specific event, enter the following command.

```
cli-> notification <code> sms enable
```

2.23 password

Type password to enable an admin to set and modify the password for all local users. Local users can set and modify their own password.

Table 2.18 Syntax

password
help
reset
<user_name><password>
<confirm_password>
<user name>
<old password>
<new password>
<confirm password>

Example

To change your password, enter the following command.

```
cli->password <your name> <old password> <new password> <confirm password>
```

NOTE: A new password can not be the same as the old password.

2.24 power

Type power to display the real (watts) and apparent (VA) power for an input phase, branch or receptacle in a rack PDU or Rack PDU Array™. This command is available for an admin, appliance or poweruser.

Table 2.19 Syntax

power
help
<pdu>
<phase>
<phasepair>
<pdu.branch>
<pdu.branch.receptacle>

Example

To view power information for the phase L1 of PDU 1, enter the following command.

```
cli->power 1 L12
```

```
1] --- (L2) 0.3 W : 0.4 VA
```

2.25 powerfactor

Type **powerfactor** to display the alternating current power factor (watt/VA) for a PDU, branch or receptacle in a rack PDU or Rack PDU Array™. This command is available for an admin, appliance or poweruser.

Table 2.20 Syntax

powerfactor
help
<pdu>
<phase>
<phasepair>
<pdu.branch>
<pdu.branch.receptacle>

Example

To view powerfactor information for branch A of PDU 2, enter the following command.

```
cli->powerfactor 2.A
```

```
[2] --- (A) 0.85
```

CAUTION: powerupstate

Type **powerupstate** to permit a user to configure the receptacle power states after a power cycle. Setting it to **on** configures all receptacles to be turned on after the power cycle. Setting it to **off** configures all receptacles to remain off after the power cycle. Setting it to **restore** configures all receptacles to return to the state they were at before the power cycle.

NOTE: This feature is only supported for MPH2 PDUs, not MPH or MPX PDUs.

Table 2.21 Syntax

powerupstate
help
<pdu>

<pdu.branch>

<pdu.branch.receptacle>

on, off, restore

Examples

The following examples shows you how to view and change the powerupstate information for branch A of PDU 1.

```
[1.A]---(1) On (2) restore (3) restore (4) restore
```

```
[1.B]---(1) restore (2) restore (3) restore
```

```
cli-> powerupstate 1.B.3 off
```

```
cli-> powerupstate
```

```
[1.A]---(1) On (2) restore (3) restore (4) restore
```

```
[1.B]---(1) restore (2) restore (3) Off (4) restore
```

2.26 reboot

Type **reboot** to enable an admin or appliance user to reboot the module or a specific PDU.

Table 2.22 Syntax

reboot

help

<pdu>

Example

To reboot PDU 2 in an array, enter the following command.

```
cli->reboot 2
```

2.27 receptaclegroup

Type **receptaclegroup** to permit an admin to configure the receptacle group parameters for a rack PDU or Rack PDU Array™.

Table 2.23 Syntax

receptaclegroup
help
delete
<group>
label
<group>
<user_defined receptacle label>
<group>
on, off, lock, unlock, cycle, blinkled
<group>
<comma separated receptacle names>

Examples

To view a receptacle group, enter the following command.

```
cli->receptaclegroup
```

```
[1]
```

```
Id……1
```

```
Label……RecGroup 1
```

```
Receptacles…….1-A-1, 1-B-1,1-C-1,1-D-1,1-E-1,1-F-1
```

```
Powerstate……..Off
```

```
Lockstate……..Unlocked
```

```
[2]
```

```
Id……2
```

```
Label……RecGroup 2

Receptacles…….1-A-2, 1-B-2,1-C-2,1-D-2,1-E-2,1-F-2,1-A-5

Powerstate……..Off

Lockstate……...Unlocked

[3]

Id……3

Label……RecGroup 3

Receptacles…….1-A-6, 1-B-5,1-C-4,1-D-3,1-E-2,1-F-1

Powerstate……..Off

Lockstate……...Unlocked
```

To lock a receptacle group, enter the following command.

```
cli-> receptaclegroup <group> unlock
```

2.28 receptaclestate

Type **receptaclestate** to enable all users to view and configure the state of receptacles, including the power, operate, lock and critical states.

Table 2.24 Syntax

receptaclestate
help
<pdu>, <pdu.branch>, <pdu.branch.receptacle>

<lock_state>	
	lock
	unlock
<power_state>	
	on
	off
<critical_state>	
	critical
	non-critical

Examples

To view the state of all receptacles, enter the following command.

```
cli->receptaclestate
```

To lock a receptacle, enter the following command.

```
cli->receptaclestate <pdu.branch.receptacle> lock
```

To turn on a receptacle, enter the following command.

```
cli->receptaclestate <pdu.branch.receptacle> on
```

To switch a receptacle to a critical state, enter the following command.

```
cli->receptaclestate <pdu.branch.receptacle> critical
```

2.29 sensor

Type sensor to display the following information:

- Sensor reported metered values (temperature, humidity) and state of contacts (door, contact sensors) at the PDU level
- The address of the different sensors connected to a rack PDU or Rack PDU Array™

Additionally it displays the configurable information for the following:

- Alarms for state of contacts (open, close) for sensors (door, contact sensor)
- Threshold values for the metered value sensors (temperature, humidity and pressure)
- Unit of display for temperature sensor in degrees Celsius or Fahrenheit

This command is available for an admin, appliance or poweruser.

Table 2.25 Syntax

sensor

help				
address				
	<pdu>, <pdu.sensor>			
alarm				
	<sensor type> (door, contact)			
		<pdu>, <pdu.sensor>, <pdu.sensor.cnct>		
			<event_type> (open, close)	
			<alarm_type> (none, open_alarm, close_alarm)	
discover				
	<pdu>			
order				
	<pdu>			
		<pdu-sensor> (from)		
			<pdu-sensor> (to)	
threshold				
	<sensor type> (humidity, pressure, temperature)			
		<pdu>, <pdu.sensor>		
			<value> (high_critical, high_warn, low_critical, low_warn)	
unit				
	<unit type> (celsius or fahrenheit)			
<sensor_type>				
	<pdu>			
<pdu.sensor>				
<pdu.sensor.cnct>				

Examples

To view the humidity on PDU 3, enter the following command.

```
cli->sensor humidity 3
```

```
[3] --- (2) 60.0 % (4) 42.8 %
```

To enable the Contact Open alarm for contact 2 of sensor 1 on PDU 3, enter the following command.

```
cli->sensor alarm contact 3.1.2 open alarm
```

2.30 snmp

Type **snmp** to permit an admin to view and configure SNMP settings for a rack PDU or Rack PDU Array™.

Table 2.26 Syntax

```
snmp
    help
    authtraps
        enable, disable
    engineid
    heartbeat
        <time>
    lgpmib
        enable, disable
    mibtraps
        enable, disable
    systemnotify
        enable, disable
    traps
        udpport
            <port>
        snmpv1, snmpv2
    udpport
        <port>
    v1v2
        enable, disable
        access
            <entryID>
            community
                                <entryID>
            mode
                                <entryID> <rw>
            networkname
                                <entryID> <name>
        traps
            <entryID>
                                community
                                        <entryID> <community>
                                heartbeat
                                        <entryID>
                                                enable, disable
                                networkname
                                        <entryID> <name>
                                port
```

			<entryID> <port>
v3			
	enable, disable		
	access		
		<entryID>	
		authsecret	
			<entryID> <secret>
		authtype	
			<entryID> <authType>
		privacy	
			<entryID> <privacyType>
		privacysecret	
			<entryID> <secret>
		source	
			<entryID> <source>
		type	
			<entryID> <accesstype>
		userenable	
			<entryID> enable, disable
		username	
			<entryID> <name>
	traps		
		<entryID>	
		destination	
			<entryID> <dest>
		heartbeat	
			<entryID> enable, disable
		notify	
			<entryID> enable, disable
		port	
			<entryID> <port>
		username	
			<entryID> <name>

Examples

To monitor the v1/v2 status, enter the following command.

```
cli->snmp v1v2
```

```
SNMP V1/V2 .....enabled
```

To configure 162 as the SNMP Traps UPD port, enter the following command.

```
cli->snmp traps udpport 162
```

To configure SNMP traps to SNMPv1, enter the following command.

```
cli->snmp traps SNMPV1
```

To disable SNMPv3 ID2 traps notification, enter the following command.

```
cli->snmp v3 traps notify 2 disable
```

To configure an address as the SNMPv3 ID1 traps destination, enter the following command.

```
cli->snmp v3 traps destination 1 <ip address>
```

2.31 status

Type **status** to display the status of the overcurrent, undercurrent, undervoltage, channel at the PDU, branch or receptacle level in a a rack PDU / Rack PDU Array™.

Table 2.27 Syntax

```
status
    help
    channel
        <pdu>, <pdu.branch>, <pdu.branch.receptacle>
    overcurrent
        <pdu>
                        <phase>
        <pdu.branch>
        <pdu.branch.receptacle>
    undercurrent
        <pdu>
        <pdu.branch>
                        <phase>
        pdu.branch.receptacle>
    undervoltage
        <pdu>
                        <phase>
```

<pdu.branch>

<pdu>

Examples

To view the status of PDU 2, enter the following command.

```
cli-> status 2
```

```
[2]
```

```
Over Current ----------Normal
```

```
Under Current ----------Normal
```

```
Under Voltage----------Normal
```

```
Unbalanced Load----------65
```

```
Channel ----------Normal
```

To view the status of branch B of PDU 2, enter the following command.

```
cli-> status channel 2.B
```

```
[2] --- (B) Normal
```

2.32 swocp

Type **swocp** to enable or disable the software overcurrent protection (SWOCP) at the input or branch level in a rack PDU or Rack PDU Array™. This command is available for an admin, appliance or poweruser.

Table 2.28 Syntax

swocp

help

<pdu>, <pdu.branch>

	enable
	disable

Example

To disable the software overcurrent protection for branch C of PDU 2, enter the following command.

```
cli->swocp 2.C disable
```

2.33 swotp

Type **swotp** to enable or disable the software overtemperature protection (SWOTP) at the PDU or receptacle level in a rack PDU or Rack PDU Array™. This command is available for an admin, appliance or poweruser.

Table 2.29 Syntax

swotp	
	help
	<pdu>, <pdu.branch>
	enable
	disable

Example

To disable the software overtemperature protection for branch C of PDU 2, enter the following command.

```
cli->swotp 2.C disable
```

2.34 sysinfo

Type **sysinfo** to display system information for a PDU, branch or receptacle in a rack PDU / Rack PDU Array™. This command is available for an admin, appliance or poweruser.

Table 2.30 Syntax

sysinfo			
	help		
	arraysize		
	capabilities		
		<pdu>, <pdu.branch>, <pdu.branch.receptacle>	
	count		
		branch	
			<pdu>
		receptacle	
			<pdu>, <pdu.branch>
		sensor	
			<pdu>

model

<pdu>, <pdu.branch>

plug

<pdu>

rating

<parameter> (voltage, current, frequency)

<pdu>

<parameter> <PDU>

receptacle

<pdu>, <pdu.branch>, <pdu.branch.receptacle>

serialnumber

<PDU>, <BRN>

pdu

<pdu>

webcard

<pdu>

source

<pdu>, <pdu.branch>

version

<PDU>, <BRN>

pdu

<pdu>

webcard

<pdu>

wiring_type

<pdu>

Examples

To view the serial number for a PDU, enter the following command.

```
cli->sysinfo serialnumber <pdu>
```

To view voltage information for PDU 2, enter the following command.

```
cli->sysinfo rating pdu voltage 2
```

```
[2] --- 120 V
```

2.35 syslog

Type **syslog** to permit an admin to view and configure the syslog parameters for a rack PDU or Rack PDU Array ™.

Table 2.31 Syntax

syslog				
	help			
	ipv4			
		enable		
		disable		
	ipv6			
		enable		
		disable		

Examples

To view syslog information, enter the following command.

```
cli->syslog
```

To disable the forwarding of syslog messages to IPv4 syslog servers, enter the following command.

```
cli->syslog ipv4 disable
```

2.36 system

Type **system** to permit an admin to view and enable or disable various system interfaces and protocols.

Table 2.32 Syntax

system				
	help			
	agent			
		app_label		
		app_version		
		boot_label		
		boot_version		
		device_id		
		fdm_version		
		gdd_version		
		manufacture_date		
		model		
		serial_number		
	contact			
	description			
	location			
	manufacturer_support			

	max_session
	name
	session_timeout
	snmp_mib_downloads
	<interface> (snmp, webserver, velocity, telnet, ssh)
	enable
	disable

Examples

To view the agent boot version, enter the following command.

```
cli->system agent boot_version
```

To enable snmp, enter the following command.

```
cli->system snmp enable
```

2.37 tag

Type tag to display the configurable values for user-defined asset tags for an input, branch or receptacle levels. This command is available for an admin, appliance or poweruser.

NOTE: There are two sets of tags (Tag#01, Tag#02) in Vertiv MPX™ and Vertiv MPH™ PDUs for every PDU, MPX BRM™ and receptacle.

Table 2.33 Syntax

tag	
	help
	<pdu>, <pdu.branch>, <pdu.branch.receptacle>
	<tag>
	<tagvalue>

Examples

To view the tag information for both tags for a receptacle 6 on branch C of PDU 2, enter the following command.

```
cli->tag 2.C.6 @
```

```
[2-C] --- (6-T1) PDU#2_BRN#C_RECP#6_TAG#01 (6-T2) PDU#2_BRN#C_RECP#6_TAG#02
```

To view just tag 2 for receptacle 6 on branch C of PDU 2, enter the following command.

```
cli->tag 2.c.6 2
```

```
[2-C] --- (6-T2) PDU#2_BRN#C_RECP#6_TAG#02
```

To configure tag 1 of PDU 2 in an array, enter the following command.

```
cli->tag 2 1 PDU#2_NEW_TAG#1
```

2.38 time

Type time to permit an admin to view and configure the time server.

Table 2.34 Syntax

```
time
    help
    source
        <source_type> (local, ntp_server)
    ntp server
        <ip_address>
    ntp rate
        <time_interval>
    local
        <yyyy-mm-dd>
                    <hh:mm:ss>
    format
        <clock type> (12- or 24-hour)
    zone
        <0-92> (use help to get zone list)
```

Examples

To view the current time settings, enter the following command.

```
cli->time
```

```
Source----------Local
```

```
Zone----------(GMT+08:00) Beijing, Chongqing, Hong Kong, Urumqi
```

```
Clock format---------12 - Hour
```

```
Current time---------2000-01-01 08:49:20
```

```
NTP server----------10.158.167.22
```

```
NTP Sync Rate--------24 Hours
```

To configure the IP address of the NTP server, enter the following command.

```
cli->time ntp server <ip address>
```

To configure the local time, enter the following command.

```
cli->time local <yyyy-mm-dd hh:mm:ss>
```

2.39 unbalancedload

Type **unbalancedload** to permit an admin to view and configure the load alarm threshold for three-phase systems.

Table 2.35 Syntax

unbalancedload
help
threshold
<pdu>
<threshold_value>

Examples

To view the threshold for PDU 1, enter the following command.

```
cli->unbalancedload threshold
```

```
[1]---5
```

To configure the threshold for PDU 2 to be at 50 percent, enter the following command.

```
cli->unbalancedload threshold 2 50
```

NOTE: If you try to view or configure a PDU that is not a three-phase system, a No Support message is displayed.

2.40 user

Type user to permit an admin to add or delete a local user. An admin can also view the groups to which a user has been assigned.

Table 2.36 Syntax

user
help
add
<user>
<password>
<confirm password>
del
<user>
<user_name>

Examples

To add a user, enter the following command.

```
cli->user add <username> <password> <confirm password>
```

2.41 voltage

Type voltage to display the metered reading of the AC voltage (RMS) for an input, branch or receptacle in a rack PDU or Rack PDU Array™. This command is available for an admin, appliance or poweruser.

Table 2.37 Syntax

voltage
help
<pdu>
<phase>
<phase pair>
<pdu.branch>
<phase>
<phase pair>
<pdu.branch.receptacle>

Examples

To view the voltage for PDU 2, phase 1, enter the following command.

```
cli->voltage 2 L1
```

```
[2] --- (L1) 120.2 V
```

To view the voltage for PDU 2, branch C, receptacle 6, enter the following command.

```
cli->voltage 2.C.6
```

```
[2.C] --- (6) 120.4 V
```

2.42 whoami

Type whomai to display the username of the logged-in user.

Example

```
cli->whoami
```

```
admin
```

3 APPENDICES

Appendix A: Serial Port Configuration for Appliance Integration

The serial port (ttyS1) on the RPC2™ Communications Module uses the following configuration settings:

- Bits per second: 38400
- Data Bits: 8
- Parity: None
- Stop Bits: 1
- Flow Control: None

Appendix B: Input Power Cord Wiring Type

Table 3.1 Input Power Cord Wiring Type

WIRING TYPE	PERMISSIBLE VOLTAGE PHASE REFERENCE
1 Pole - 3 Wire (L1, N, PE)	L1
2 Pole - 3 Wire (L1, L2, PE)	L12
2 Pole - 4 Wire (L1, L2, N, PE)	L1, L12
3 Pole - 4 Wire (L1, L2, L3, PE)	L12, L23, L31
3 Pole - 5 Wire (L1, L2, L3, N, PE)	L1, L2, L3, L12, L23, L31

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