RShell Reference Manual
version 5.2

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http://www.impinj.com

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1 Introduction

The Command Line Interface (CLI) for the Speedway Revolution Reader and xArray Gateway is called RShell. RShell can be accessed after you log in via a serial, Telnet, or SSH connection. You can use the CLI to configure, maintain, and query the status of an RFID Reader.

2 Document Conventions

In this document, the term "Reader" is used to describe both the Speedway Revolution Reader and the xArray Gateway.

2.1 Syntax

The following markings are used throughout this document:

[] – optional

() – grouping

| - either

<> - placeholder

Literal (reduced size +bold) – a literal term

Syntax example:

```
Usage: command1 [<paramA> (on\|off)]
```

The syntax example indicates that command1 had optional parameters. If paramA is specified, it must be followed by 'on' or 'off'.

2.2 Examples

Code examples are provided throughout this reference manual. To help differentiate from descriptive text, the code is shown in a fixed font or using double quotes.

In addition, the input is shown in bold in the examples. In the following example, "help help" is typed, the remainder is the Reader's response.

> **help help**

```
help - Displays this help message.

Usage: help [<subcommand>]
```

3 Overview

You can navigate to any of the RShell menus simply by entering the menu name at the RShell prompt, as shown below:

> > **show network**
> show network >

For machine execution, all RShell commands can be called from the root menu. For example:

> > **show network**
> show network> **dns**

is equivalent to:

> > **show network dns**

All commands return data in a well-defined format.

> show network > **dns**

```
Status='0,Success'

Domain1Dynamic='impinj.com'

Server1Dynamic='10.10.4.11'

Server2Dynamic='10.0.4.10'
```

For all menus, the **exit** command or simply '**.**' will return you to the previous menu's context. To exit RShell and terminate your session, the **exit** command must be executed from the root menu (the period only will not suffice):

> show network> **exit**
> > **show**
> show > .
> > **.**
> >

3.1 Help

For all menus, the "**help**" command or simply the question mark (**?**) opens a list of all active menu commands available from the, as well as the submenus that can be accessed from the active menu.

> **help**

```
Commands:

reboot - Reboot the reader.

exit - Exit RShell.

help - Display this help message.

? - Display this help message.

Submenus:

config - Submenu of configuration commands.

show - Submenu of elements that may have their configuration or
status shown.
```

Menu navigation and the **help** keyword or question mark (**?**) can be combined on the same line to list all the commands available for that menu. For example:

> **show help**

or

> **show ?**

```
Commands:

exit - Exit this submenu and return to the parent menu.

help - Display this help message.
```

```
. - Exit this submenu and return to the parent menu.

? - Display this help message.

Submenus provide:

gps - GPS status commands.

image - Image status commands.

logging - Logging status commands.

network - Network status commands.

rfid - RFID status commands.

snmp - SNMP status commands.

system - System status commands.

feature - Feature status commands.

anthub - antenna hub status commands
```

For all menus, entering the **help** command or question mark (**?**) prior to a command or menu returns a short description of the command and the syntax for its usage (if any). For example:

> **> ? show**

```
show - Submenu of elements that may have their configuration or
status shown.

Usage: show [<subcommand> ...]
```

or

> **> ? show system platform**

```
platform - Display generic platform statistics.

Usage: show system platform
```

Entering the question mark (**?**) between a menu and sub-menu/command returns the usage for the items following the"**?**" at the lowest level. In the example below, **image** is a menu that contains commands of its own. Entering **show ? image** opens a usage help menu that indicates that subcommands are necessary. If one of those subcommands is entered (**show ? image metafile**), the detailed usage is given.

> **show ? image**

```
image - Submenu of image status commands.

Usage: image [<subcommand> ...]

> show ? image metafile

metafile - Displays information about the current image upgrade
metafile.

Usage: image metafile
```

3.2 Response Format

The first line of every command response has the following format.

Status='errorCode,errorString'

The *errorCode* is a numeric value and *errorString* is a human-readable error code. The error codes are defined in Table 3.1.

Table 3.1 General Status Codes

Error Code	Error String	Description
0	Success	The command completed successfully.
1	Invalid-Command	Command could not be parsed and identified as an interface supported command.

Error Code	Error String	Description
2	Invalid-Command-Parameter	One or more parameter types were unrecognized for this command.
3	Invalid-Parameter-Value	One or more parameter values were illegal or out-of-range for this command.
4	Parameter-Dependency-Error	Parameter value was invalid in combination with other parameters or values.
5	Incomplete-Parameter-List	The parameter list was incompletely specified and the command cannot be executed.
6	System-Resource-Limit	Command could not be executed because of a resource limit in the system. For example: the Reader could not add a fourth trap receiver because the device only supports three.
7	Unsupported-Command	Reserved for Future commands.
8	Permission-Denied	User does not have permission to access this command.
9	Previous-Command-In-Progress	The command was rejected because a previous command is still in progress and the new command could not be processed.
10	Command-Being-Processed	The command cannot be finished right away: It is being processed.
11	Failure	The command failed internally for an unexpected reason.
12	Provider-Unavailable	The process responsible for handling the requested operation is currently unavailable and therefore cannot complete the requested operation.

Error Code	Error String	Description
13	Status-Was-Lost	The command failed internally and produced an invalid result.
14	Success-Reboot-Required	The command completed successfully and the Reader requires a reboot before any changes take effect.
15	Incompatible-With-Enabled-Feature	The feature is not compatible with another feature which is already enabled.

A sample error parameter string shows below with the command deliberately misspelled:

> **config foobar**

```
Status='1,Invalid-Command'
```

When a command action generates results, the results follow the status line, one parameter per line in the following format:

```
ParameterName='value'

ParameterName='value'

...

ParameterName='value'
```

The specific response parameters for each command are detailed in Section 4. Many commands display only a relevant subset of their possible parameters. In these cases, failure to find the parameter would not be a protocol error. Some command responses are transient, meaning that their value will change as an activity progresses.

3.3 Compatibility

The RShell CLI is designed to be both a machine interface as well as a human interface. As such, Impinj strives to maintain backward compatibility within the Speedway Revolution and xArray product lines. For Octane versions 5.x.x, existing command inputs and outputs should be relatively stable. New capabilities will be added with new commands and/or new optional arguments to existing commands.

To ensure future compatibility, applications designed to interpret the CLI responses should ignore unrecognized parameters and should not read any significance into the order of the parameters. This allows for new result parameters to be displayed without forcing a change on the interpreting application.

For example, in firmware version 5.2, the **show network summary** command provides the following response:

> **> show network summary**

```
Status='0,Success'
PrimaryInterface='eth:eth0'
ActiveInterface='eth:eth0'
Hostname='SpeedwayR-10-46-B2'
connectionStatus='Connected'
ipAddressMode='Dynamic'
ipAddress='10.0.11.27'
ipMask='255.255.0.0'
gatewayAddress='10.0.0.20'
broadcastAddress='10.0.255.255'
MACAddress='00:16:25:10:46:B2'
LLAStatus='enabled'
HTTPService='active'
```

4 Command Reference

This section describes all the commands available within the RShell command line interface and the possible responses.

4.1 Reboot Command

The **reboot** command instructs the Reader to reboot. This command would typically be used after a manual upgrade of the Reader's firmware or application software. The **reboot** command is only available from the root menu.

4.2 Config Command

The **config** command has several submenus, shown in Table 4.1, all of which are described in the following sections.

Table 4.1 Config Command Parameters

Command	Description
access	Submenu of access configuration commands.
image	Submenu of image and upgrade configuration commands.
logging	Submenu of logging configuration commands.
network	Submenu of network configuration commands.
rfid	Submenu of RFID configuration commands.
snmp	Submenu of SNMP configuration commands.
system	Submenu of system configuration commands.
feature	Submenu of feature configuration commands.

4.2.1 Config Access Command

The **config access mypasswd** command changes the password for the logged-in user. "Root" is the only user login defined for the Reader. The Reader default password is set to 'impinj'. Other Reader types might use alternative default passwords.

The user account name and password are used to access the command line interface via serial, telnet, and ssh. The **config access** submenu commands are described in Table 4.2 and **config access mypasswd** command arguments are described in Table 4.3.

Table 4.2 Config Access Command Options

Command	Parameters	Description
mypasswd	<old password> <new password>	Change the password of the logged-in user from the old (current) password to a new password.

Table 4.3 Config Access Command Parameters

Argument	Options	Format	Description
mypasswd	<old password> <new password>	string string	Password to set as account's active password (use printable characters only). Passwords up to 20 characters in length have been tested. Passwords entered on the command line are clear text.

Usage: **config access mypasswd <old password> <new password>**

4.2.2 Config Image Command

The **config image** command provides options for image and upgrade configurations. A detailed explanation of how to upgrade images is given in the *Firmware Upgrade Reference Manual*.

Config Image Default Command

The **config image default** command restores the configuration to the default settings. When complete, the command is automatically followed by a reboot. The custom application (if any) is notified after the reboot, so that configuration specific to the custom application (if any) can also be restored to the defaults. This command takes no parameters.

During restoration to the configuration defaults, the **show image summary** command reports the **UpgradeStatus** as 'WaitingForCDR'. When this command is executed, the **metafile retrieve-mode** is set to **manual**, which cancels any previously scheduled periodic upgrade. When the Reader subsequently boots, the Reader will be running default configuration for the same system version as the system from which it performed the configuration default restore.

If the Reader is in the **auto** upgrade mode when the **config image default** command is issued, it is possible that the Reader could be retrieving the metafile or performing an upgrade at the same time. In this case, this command may return "Previous-Command-In-Progress." If this occurs, wait for the metafile to be retrieved or the upgrade to complete before executing this command again. A short wait allows the command in progress to complete.

Usage: **config image default**

Config Image Fallback Command

The **config image fallback** command is used to revert back to the previous image. The successful processing of this command is followed by an automatic reboot. This command accepts no parameters.

If there is no valid previous image available to fall back to, "Permission-Denied" is the command response. In the meantime, the Reader operates normally, except that all of the **config image** commands will be rejected with the reason "Current Image Invalidated." In addition, if **retrieve-mode** is set to **auto**, the fallback command will cancel any previously scheduled periodic upgrades. When the Reader is rebooted, the previous image will be running.

If the Reader is in auto mode during execution of the **config image fallback** command, it is possible that the Reader could be retrieving the metafile or performing an upgrade at the same time. If this is the case, this command might return "Previous-Command-In-Progress."

A fallback uses all the old configuration settings, including the upgrade metafile settings as if the upgrade to the newer image was never performed. This may trigger an immediate upgrade. If the URI of the old metafile is known and an immediate upgrade is not desired, the user should remove or rename the old metafile before performing a fallback.

Config Image RemoveCAP Command

The **config image removecap** command is used to remove the Custom Application Partition (CAP). The successful processing of this command follows with an automatic reboot. This command takes no parameters.

The effect of this command can be reversed. In other words the CAP can be restored by issuing a **config image fallback** command. Performing the **config image removecap** twice ensures that the removed CAP cannot be restored.

If the Reader is in **auto** mode during execution of this command, it is possible that the Reader could be retrieving the metafile or performing an upgrade at the same time. If this is the case, this command might return "Previous-Command-In-Progress."

Config Image Metafile Command

This command takes the Universal Resource Identifier (URI) of the upgrade configuration metafile as its parameter. It commands the Reader to perform upgrades based on the information in the metafile identified by the URI.

Usage: config image metafile <URI>

Upon receiving this command, the Reader updates its local upgrade configuration URI. It then retrieves the (new) upgrade configuration metafile, and performs the upgrade in accordance with the metafile. If the upgrade is successful, the way the new image is activated depends on the

commit-mode specified in the metafile. For more information, see the *Firmware Upgrade Reference Manual*.

If the Reader is in auto mode during the execution of this command, it is possible that the Reader could be retrieving the metafile or performing an upgrade at the same time. If this is the case, this command will return "Previous-Command-In-Progress."

Config Image RetrieveMode Command

This command sets the Reader's **metafile retrieve** mode and can also set the retrieval period if the mode is set to **auto**, as described in Table 4.4. When the retrieve-mode is set to **manual**, the Reader will take no upgrade actions. To perform an upgrade in manual mode the user must issue a **config image upgrade** command, which directly downloads an upgrade image.

Table 4.4 Config Image RetrieveMode Command Parameters

Command	Argument	Format	Description
retrievemode	manual	enum	In manual mode the user must manually specify a new metafile URI or manually command an upgrade.
	Auto <period>	enum integer	In auto mode, the Reader periodically retrieves the metafile from the most recent metafile URI at the rate specified by the <period> in minutes. The retrieve period is used only until the Reader retrieves a valid metafile, at which time the retrieve period contained in the metafile is adopted.

Usage: config image retrievemode manual

Usage: config image retrievemode auto <period>

<period> is the duration between successive retrievals of the metafile (in minutes) from the most recently specified URI.

If this command results in a change from **manual** to **auto**, or a change of **retrieve-period** while the current mode is **auto**, the Reader immediately attempts to download a new upgrade configuration metafile using its current metafile URI.

Config Image Upgrade Command

This command is used to instruct the Reader to directly download an upgrade image file and perform an immediate upgrade. Upgrade image files are stored on a file server and are retrieved by the Reader from the location identified by the URI.

Usage: config image upgrade <URI>

Upon receiving this command, the Reader downloads the image file and, if the file is valid and eligible, performs the upgrade. When this command is used, the upgrade will always be performed, even if the upgrade version matches the current version. If the upgrade is successful, the new image is not activated until the user reboots the system.

If the Reader is in **auto** mode during the execution of this command, it is possible that the Reader could be retrieving the metafile or performing an upgrade at the same time. In this case, the command might return "Previous-Command-In-Progress."

Note: This command does not change the Reader's upgrade configuration URI, but it sets the retrieve-mode to **manual**. This means that the Reader will not periodically retrieve the upgrade configuration metafile until the retrieve-mode is reset to auto.

4.2.3 Config Logging Command

The **config logging** commands provide configuration options for the storage and forwarding of logged events. Logged events are forwarded using the standard Syslog protocol to a remote Syslog server. Internally the logged events are stored in the Reader's file system, accumulating and persisting across reboots. All logged events have an associated severity level. Only events of severity greater than or equal to the user configured level are retained. Logs are classified into management, rfid, and system categories.

The user log severity can be set to one of eight levels in decreasing order from most severe to least severe: emergency, alert, critical, error, warning, notice, info, and debug. For example, if the log level is set to alert, then only logs classified as emergency or alert are processed.

Regardless of how the user configures the log settings, all error (and higher severity) logs in all categories are retained in an error log independent of the user controlled 'application' log.

Figure 4.1 illustrates a configuration where the Reader management category of logs is set to critical (and above), the RFID related logs are set to warning (and above), and the system logs are set to alert (and above).

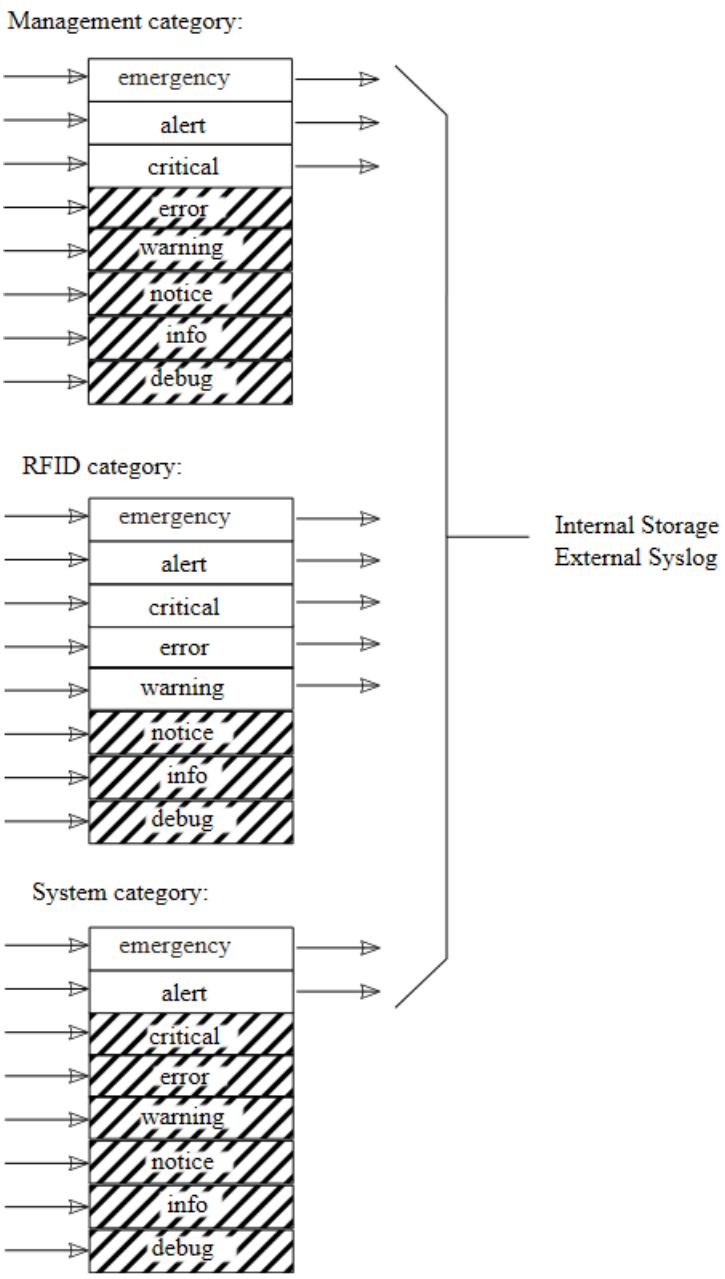

Figure 4.1 Severity Level Logging Categories

The command parameters for the **config logging** command are shown in Table 4.5. The command sets the logging level for a log category to one of a set of pre-defined severity levels.

Table 4.5 Config Logging Command Parameters

Argument	Option	Format	Description
add	<syslog server>	address	Add a new Syslog server with given address or hostname.
clear			Clear the contents of the application log.
del	<syslog server>	address	Delete a Syslog server with given address or hostname.
delall			Delete all listed Syslog servers.
management | rfid | system	emergency | alert | critical | error | notice | info | debug	enum	Configures the level at and above which logs are retained and forwarded. Listed in decreasing order of severity.

These events can be viewed via the **show logging** command.

Usage for the **config logging** command is shown below:

Usage: config logging <category> <level>

<category> is (management|rfid|system)

<level> is (emergency|alert|critical|error|warning|notice|info|debug)

Usage: config logging add <server name>

Usage: config logging clear

Usage: config logging del <server name>

Usage: config logging delall

An example of commands that clear the internal log file, configure RFID logging level to ”warning’ (and above), and add a Syslog server located at 10.0.10.37 are shown below:

> **config logging clear**

Status=’0,Success’

> **config logging rfid warning**

Status=’0,Success’

> **config logging add 10.0.10.37**

Status=’0,Success’

4.2.4 Config Network Command

The **config network** menu allows the user to administer and manually provision the network settings for the Reader. The config network command parameters are shown in Table 4.6.

Table 4.6 Config Network Command Parameters

Command	Description
cell	Submenu for cellular interface configuration commands.
dhcp	Submenu of DHCP-specific configuration commands.
dns	Submenu of DNS-specific configuration commands.
dnssd	Submenu of DNS-SD specific configuration commands.
interface	Submenu of network interface configuration commands.
ip	Submenu of IP address and configuration commands.
ntp	Submenu of NTP-specific configuration commands.
hostname	Set the Reader's network hostname.
lla	Configures the LLA service to either be enabled or disabled.
mdns	Configures the mDNS service to either be enabled or disabled.
wlan	Submenu for WLAN specific configuration commands.
telnet	Submenu for Telnet specific commands
http	Submenu for HTTP specific commands

Config Network Hostname Command

Table 4.7 shows the **config network hostname** parameters.

Table 4.7 Config Network Hostname Command Parameters

Command	Argument	Format	Description
hostname	<host name>	string	Set the Reader hostname. If using DHCP and a hostname is returned from the DHCP server, the hostname returned from DHCP will take precedence.

Example to change the hostname:

> **config network hostname MySpeedwayRevolution**
Status='0,Success'

Config Network Interface Command

Table 4.8 Config Network Interface Command Parameters

Command	Argument	Format	Description
primary	eth | cell | wlan	enum	Configure the primary interface type, i.e., the network interface that is active on bootup. Three types are supported: ethernet, cellular, and wlan (WiFi).
active	eth | cell | wlan	enum	Switch the active interface to the specified type.

Example to change the active interface:

> **config network interface active cell**
Status='0,Success'

If the current active interface is not **cellular**, this command activates the cellular interface and deactivates the current interface. It does not change the primary interface.

Config Network LLA Command

Table 4.9 shows the **config network lla** parameters.

Table 4.9 Config Network LLA Command Parameters

Command	Argument	Format	Description
lla	enable | disable	enum	Configure the current state of the LLA service. LLA, when enabled, is only used if the network IP is set to dynamic and DHCP is unable to obtain an IP address.

Example to change the state of the LLA service:

> **config network lla enable**
Status='0,Success'

Config Network mDNS Command

Table 4.10 shows the **config network mdns** parameters.

Table 4.10 Config Network mDNS Command Parameters

Command	Argument	Format	Description
mdns	enable | disable	enum	Configure the current state of the mDNS service. When enabled, mDNS is always active and can be used to both resolve addresses in the .local domain as well as provide resolution of the Reader within the .local domain.

An example of the command to change the state of the mDNS service:

> **config network mDNS enable**
>
> Status='0,Success'

Config Network DHCP Command

The **config network dhcp** command allows the user to modify the DHCP client configuration. Command parameters are shown in Table 4.11.

Table 4.11 Config Network DHCP Command Parameters

Command	Argument	Format	Description
sendhostname	on | off	enum	Turn 'on' or 'off' the sending of the hostname option in the DHCP client configuration.
userclass		string	Sets the value for the "send user-class" option of the DHCP client configuration. If you issue this command without providing a userclass string, it turns this option 'off.'

The results of issuing this command are:

- If the **sendhostname** DHCP option is currently off and the command turns it on, the network interface is "refreshed." In other words, the DHCP client is restarted and the DHCP request is re-sent in order to get an IP address that includes the hostname.
- If the **userclass** option value is anything but empty, the network interface is "refreshed", similar to **sendhostname**.

Config Network DNS Command

The **config network dns** command allows the user to statically configure DNS servers. These servers are in addition to any provisioned through DHCP. The command parameters are shown in Table 4.12.

Table 4.12 Config Network DNS Command Parameters

Command	Argument	Format	Description
add	<dns server>	<ip address>	Add a statically configured server to the list of current DNS servers. Manually configured DNS servers will be utilized after searching DNS servers returned by DHCP.
del	<dns server>	<ip address>	Delete a statically configured server from the list of current DNS servers. Servers obtained through DHCP are not available for deletion.
delall			Delete all statically configured DNS servers from the current list.

A sample command and response is shown below:

> **config network dns add 1.2.3.4**

Status='0,Success'

Config Network DNS Domain Command

The **config network dns domain** command allows the user to add statically configured DNS domains. These servers are in addition to any provisioned through DHCP. Command parameters are shown in Table 4.13.

Table 4.13 Config Network DNS domain Command Parameters

Command	Argument	Format	Description
add	<domain name>	string	Add a static domain name to the list of domain names.
del	<domain name>	string	Delete a static domain name from the list of domain names.
delall			Delete all static domain names from the list of domain names.

A sample command and response is shown below:

> **config network dns domain add mydomain.com**
>
> Status='0,Success'

Config Network DNSSD Command

The **config network dnssd** command allows the user to configure DNS-SD (Service Discovery) for the two services, LLRP and HTTP. The command parameters are shown in Table 4.14.

Table 4.14 Config Network DNSSD Command Parameters

Command	Argument	Format	Description
http	enable | disable	enum	Configure the current state of the DNS-SD service for HTTP. When enabled DNS-SD will advertise the HTTP service, which can be used to locate the Reader on a local network.
llrp	enable | disable	enum	Configure the current state of the DNS-SD service for LLRP. When enabled DNS-SD will advertise the LLRP service, which can be used to locate the Reader on a local network.

Config Network IP Command

The **config network ip** command allows the user to statically configure IP settings or configure the Reader to use DHCP. The command parameters are shown in Table 4.15.

Table 4.15 Config Network IP Command Parameters

Command	Argument	Format	Description
dynamic			Configure the Reader to use DHCP to obtain IP address parameters.

Command	Argument	Format	Description
static	<ip_address> <netmask> <gateway> <broadcast>		Configure the Reader to use statically configured IP address parameters. The following combinations of parameters are valid: <ip address> <ip address> <gateway> <ip_address> <netmask> <gateway> <broadcast> For parameters not specified, the Reader will use default values derived from the values provided.

Examples of the commands are shown below:

> **config network ip dynamic**

Status='0,Success'

> **show network ip summary**

Status='0,Success'

connectionStatus='Connected'

ipAddressMode='Dynamic'

ipAddress='10.10.10.41'

ipMask='255.255.0.0'

gatewayAddress='10.10.0.1'

broadcastAddress='10.10.255.255'

> **config network ip static 192.168.20.116**

Status='0,Success'

> **show network ip summary**

Status='0,Success'

connectionStatus='Connected'

ipAddressMode='Static'

ipAddress='192.168.20.116'

ipMask='255.255.0.0'

gatewayAddress='192.168.0.1'

broadcastAddress='192.168.255.255'

> **config network ip static 192.168.20.116 255.255.255.0 192.168.20.1 192.168.20.255**

Status='0,Success'

> **show network ip summary**

Status='0,Success'

connectionStatus='Connected'

ipAddressMode='Static'

ipAddress='192.168.20.116'

ipMask='255.255.255.0'

gatewayAddress='192.168.20.1'

broadcastAddress='192.168.20.255'

Config Network NTP Command

The **config network ntp** command allows the user to statically configure NTP servers. These servers are in addition to any provisioned through DHCP. The command parameters are shown in Table 4.16.

Table 4.16 Config Network NTP Command Parameters

Command	Argument	Format	Description
add	<ntp server>	<address>	Add a static server (identified by either an IP address or hostname) to the list of current NTP servers.
del	<ntp server>	<address>	Delete a statically configured server (identified by either an IP address or hostname) from the list of current NTP servers.
delall			Delete all the statically configured NTP servers from the current list.

An example of the command is:

> **config network ntp add myntpserver.com**

Status='0,Success'

Config Network Cell Command

The **config network cell** command allows the user to configure cellular interface parameters. There is only one configurable parameter as shown in Table 4.17.

Table 4.17 Config Network Cell Command Parameters

Command	Argument	Format	Description
modemtype	pinpoinxt | ravenxt	enum	Select the cellular modem type to be used. The allowed values are 'pinpoinxt' and 'ravenxt' for SierraWireless PinpoinXT and RaventXT modems respectively.

An example of the command is:

> **config network cell modemtype ravenxt**

Status='0,Success'

The selection will take effect after the Reader reboots.

Config Network Wlan Command

The **config network wlan** command allows the user to configure WiFi interface parameters. The configurable parameters are shown in Table 4.18.

Table 4.18 Config Network Wlan Command Parameters

Command	Argument	Format	Description
nettype	infra | adhoc	enum	Set the network type to infrastructure or adhoc.
ssid	<ssid>	string	Set the WiFi SSID, up to 32 characters
keymgmt	wpa-psk | wpa-none | none	enum	Set the WiFi key management protocol.
encrypt	none | wpa | wpa2	enum	Set the encryption type for WPA/WPA2 secured connection.

Command	Argument	Format	Description
psk	<preshared-key>	string	Set the preashred key used for WPA/WPA2 secured connection. Must be between 8 and 32 characters inclusive.
update	NA	NA	Save the parameters entered into persistent storage, and then apply them.
commit	NA	NA	Save the parameters entered into persistent storage without applying them.
quit	NA	NA	Discard the paramters entered.

The parameters entered are inter-dependent as shown in Table 4.19 for all supported use cases.

Table 4.19 WLAN Configuration Parameter Dependency

Use case	nettype	keymgmt	encrypt	psk	Description
Infrastructure, No security	infra	none	none	NA	No security, connect to APs without any protection.
Infrastructure, WPA personal	infra	wpa-psk	wpa	<valid psk>	Connect to APs using preshared key and WPA encryption.
Infrastructure, WPA2 personal	infra	wpa-psk	wpa2	<valid psk>	Connect to APs using preshared key and WPA2 encryption.
Adhoc, No security	adhoc	none	none	NA	No security, connect to other WiFi stations without any protection.
Adhoc, WPA	adhoc	wpa-none	wpa	<valid psk>	Connect to other WiFi stations using preshared key and WPA encryption.
Adhoc, WPA2	adhoc	wpa-none	wpa2	<valid psk>	Connect to other WiFi stations using preshared key and WPA2 encryption.

Inconsistent parameters will result in the following error:

Status='4,Parameter-Dependency-Error'

Here is an example of the command sequences for connecting to an infrastructure network with WPA2 security:

> **config network wlan nettype infra**
> **config network wlan ssid "my network"**
> **config network wlan keymgmt wpa-psk**
> **config network wlan encrypt wpa2**
> **config network wlan psk <my-secret>**
> **config network wlan update**

If you want to save the changes, but do not want to update your current connection, type:

> **config network wlan commit**

in which case the parameters are saved to flash memory and applied the next time the WiFi interface is activated.

Config Network Telnet Command

The **config network telnet** command allows the user to configure whether or not the Telnet server is enabled. There are only two configurable parameters as shown in Table 4.20. These settings will persist across reboots.

Table 4.20 Config Network Cell Command Parameters

Command	Description
enable	Enables and starts the telnet server
disable	Disables and stops the telnet server

An example of the command is:

> **config network telnet enable**
Status='0,Success'

Config Network HTTP Menu

The **config network http** menu allows the user to configure whether or not the http (web) server is enabled. There are only two configurable parameters, as shown in Table 4.21. These settings will persist across reboots.

|

Table 4.21 Config Network Cell Command Parameters

Command	Description
enable	Enables and starts the http server
disable	Disables and stops the http server

An example of the command is:

> **config network http enable**

Status='0,Success'

Config Network FTP Command

The **config network ftp** command allows the user to configure whether or not the FTP server is enabled. There are only two configurable parameters as shown in Table 4.22. These settings will persist across reboots.

Table 4.22 Config Network Cell Command Parameters

Command	Description
enable	Enables and starts the ftp server
disable	Disables and stops the ftp server

An example of the command is:

> **config network ftp enable**

Status='0,Success'

Config Network SSH Command

The **config network ssh** command allows the user to configure whether or not the SSH server is enabled. There are only two configurable parameters as shown in Table 4.23. These settings will persist across reboots.

Table 4.23 Config Network Cell Command Parameters

Command	Description
enable	Enables and starts the ssh server
disable	Disables and stops the ssh server

An example of the command is:

> **config network ssh enable**

Status='0,Success'

4.2.5 Config RFID Menu

The **config rfid** menu allows the user to set parameters of the Reader's RFID control interface. The parameters are shown in Table 4.24.

Table 4.24 Config RFID Command Parameters

Command	Description
llrp	Submenu of LLRP-specific configuration commands.
resetstats	Reset the current RFID statistics.

Config RFID ResetStats Command

The **config rfid resetstats** command resets the RFID statistics maintained by the Reader.

An example of the command and response is shown below:

> **config rfid resetstats**

Status='0,Success'

Config RFID LLRP Command

The **config rfid llrp** command allows the user to configure the LLRP implementation. The parameters are shown in Table 4.25.

Table 4.25 Config RFID LLRP Commands

Command	Description
connclose	Initiate a manual close of the current LLRP connection. If no connection exists, a status code of '8-Permission-Denied' will be returned.

Command	Description
factory	Resets the LLRP configuration to its factory defaults. Deletes all configured RO Specs and Access Specs and restores the factory default LLRP configuration. This action resets only in-band configuration, not configuration items controlled by RShell. Note that this command will be rejected with a status code of '8-Permission-Denied' if a LLRP client connection exists
resetstats	Reset the current LLRP specific statistics maintained by the Reader.

Config RFID LLRP Inbound Commands

The **config rfid llrp inbound** command provides a submenu of client-initiated connection configuration commands. Currently only the **tcp** subcommand is supported, which has its own series of subcommands, as described in Table 4.26.

Table 4.26 Config RFID LLRP Inbound TCP Command Parameters

Command	Argument	Format	Description
port	<port number>	integer	Configure the port on which TCP connections are accepted. Default is IANA-assigned port of 5084.
service	on | off	enum	Turn on or off LLRP client-initiated TCP connections to the Reader. Disabling this service will cause all future connection attempts to be refused. Enabling this service will cause the Reader to accept new connections at the port configured using the port subcommand. Current LLRP connections are not affected by this command.

Usage: **config rfid llrp inbound tcp port <port number>**

Usage: **config rfid llrp inbound tcp service <on|off>**

Config RFID LLRP Outbound Commands

The **config rfid llrp outbound** command leads to a submenu of Reader-initiated connection configuration commands, as shown in Table 4.27.

Table 4.27 Config RFID LLRP Outbound Command Parameters

Command	Argument	Format	Description
add	<hostname> [:port]	string [:integer]	Add a new host to which the Reader will attempt Reader-initiated LLRP connections. This host is mandatory, but the port number is optional. If the port number is omitted, the Reader will attempt to connect to the remote host at the default IANA LLRP port of 5084. A maximum of 5 servers can be added. The Reader will attempt to establish a connection to each of the servers in a round-robin manner. After a connection is established, the procedure will stop. If the connection is lost, the procedure will restart with the first configured server.
del	<hostname> [:port]	string [:integer]	Delete a specific remote host to which the Reader attempts Reader-initiated LLRP connections. The host and port combination must be preconfigured for the command to succeed.
delall			Delete all remote hosts to which the Reader attempts Reader-initiated LLRP connections.
open	<hostname> [:port]	string [:integer]	Attempt to open an LLRP connection to the specified remote host. and the host/port combination is not preserved. This command should only be used as a debugging aid. Deployment scenarios using Reader-initiated connections should use the “add” command parameter for this purpose. This command will always return ’10,Command-Being-Processed’, because the disposition of the connection attempt is not immediately available. To determine if the connection was successsful, use the **show rfid llrp summary** command.

Command	Argument	Format	Description
retry	<retry timeout>	integer	Configure the period in seconds at which Reader-initiated connections are attempted. This number represents the minimum time between a failed connection attempt and the next connection attempt by the Reader. The Reader implements a geometric progression back-off timer. For example, if the retry timeout argument is set to 5, the Reader will attempt to connect to the remote host after 5 seconds, 10 seconds, 20 seconds, then 40 seconds, etc. After a successful connection, the retry timer is reset to the minimum value and will repeat if the connection fails.
service	on | off	enum	Turn on/off LLRP Reader-initiated TCP connections. Disabling this service will cause all future connection attempts to be cancelled. Enabling this service will cause the Reader to begin connection attempts to any configured remote hosts. Current LLRP connections are unaffected by this command.
Timeout	<timeout>	integer	Configure the timeout (in seconds) for LLRP Reader-initiated connections before declaring failure. If the TCP handshake has not completed within this timeout period, the next server will be tried, subject to the geometric back-off. For example, for a high-latency WAN, one could tune this variable higher so that the Reader waits longer for the handshake to complete before delaring a failure on the connection attempt. A failed connection will invoke the retry timer. For more information, see the **retry** command entry.

4.2.6 Config SNMP Command

The **config snmp** menu allows the user to configure the SNMP settings for the Reader. The **config snmp** command parameters are shown in Table 4.28.

Table 4.28 Config SNMP Command Parameters

Command	Description
service	Enable/Disable the SNMP service.
access	Submenu of access specific commands.
write	Submenu of write specific commands.
epcg	Submenu of EPCglobal RM MIB specific commands.

Config SNMP Service Command

Table 4.29 shows the **config snmp service** parameters.

Table 4.29 Config SNMP Service Command Parameters

Command	Argument	Format	Description
service	enable | disable	enum	Globally enable/disable the SNMP service. When the service is enabled, it is started, and when it is disabled, it is stopped. If the service is enabled when the system boots, the SNMP service will be started.

Example to enable the service:

> **config snmp service enable**

Status='0,Success'

Config SNMP Access Command

The **config snmp access** command allows the user to configure the SNMP read and write access settings for the Reader. The **config snmp access** command parameters are shown in Table 4.30.

Table 4.30 Config SNMP Access Command Parameters

Command	Argument	Format	Description
rocommunity	<read-only string>	string	Sets the read-only community string for read access to SNMP attributes.
rwcommunity	<read-write string>	string	Sets the read-write community string for read-write access to SNMP attributes. If SNMP writes are disabled this string may still be used to read via SNMP.

Example to set the rocommunity string to “my-read-only-password”:

> **config snmp access rocommunity my-read-only-password**
Status=’0,Success’

Config SNMP Write Command

The **config snmp write** command allows the user to configure whether SNMP writes are allowed (enabled) or not (disabled). The **config snmp write** command parameters are shown in Table 4.31.

Table 4.31 Config SNMP Write Command Parameters

Command	Argument	Format	Description
enable	all	string	Enable SNMP writes on all writeable objects.
disable	all	string	Disable SNMP writes on all writeable objects.

Example to enable SNMP writes:

> **config snmp write enable all**
Status=’0,Success’

Config SNMP EPCG Command

The **config snmp epcg** menu provides control of the EPCglobal RM MIB. There are no direct subcommands and only one submenu, device, for this command.

Config SNMP EPCG Device Command

The **config snmp epcg device** command is used to configure epcg device settings. Currently, the device **role** is the only settings that can be configured. The **config snmp epcg device** command parameters are shown in Table 4.32.

Table 4.32 Config SNMP EPCG Device Command Parameters

Command	Argument	Format	Description
role	<role>	string	The string that should be reported for device role.

Example to configure the epcg device role to “my-reader-role”:

> **config snmp epcg device role my-reader-role**
Status=’0,Success’

4.2.7 Config System Menu

This menu allows configuration of the system operating region, time and identification parameters. See Table 4.33 for a description of the configuration system command parameters.

Warning: By changing the Reader’s operating region, you are changing the Reader’s RF settings. The RF settings must match the country or region of operation to comply with local laws and regulations. You, the user, are responsible to ensure operation with the correct RF settings and are solely responsible for any fines and other damages due to incorrect or non-compliant country/region settings on your Reader.

Table 4.33 Config System Command Parameters

Command	Argument	Format	Description
description	<description string>	string	Configure the system description. Any ASCII characters are allowed, except for single and double quotes. Double and single quotes can only be used as leading and tailing characters if the string has white space.
contact	<contact string>	string	Configure the system contact. Any ASCII characters are allowed, except for single and double quotes. Double and single quotes can only be used as leading and tailing characters if the string has white space.

Command	Argument	Format	Description
name	<name string>	string	ASCII characters are allowed, except for single and double quotes. Double and single quotes can only be used as leading and tailing characters if the string has white space.
location	<location string>	string	ASCII characters are allowed, except for single and double quotes. Double and single quotes can only be used as leading and tailing characters if the string has white space.
region	<region number>	Integer	Certain Reader models permit the end user to select an alternate operating region. Each operating region is encoded as an integer. Alternate regions (if available) can be found by issuing a **show system region** command.
time	<time value>	MMDDhhmmCCYY MM.DD-hh:mm:ss CCYY.MM.DD-hh:mm:ss CCYY.MM.DD-hh:mm hh:mm:ss hh:mm	Configure the system time. Time must be entered in one of the approved formats. See **Note** below.

Note: To use this command to set the system time, you must remove any statically configured NTP server(s) and set the DHCP server configuration to NOT offer the NTP server option to the Reader. Failure to do so will result in a "Permission-Denied" error.

A sample command that sets the system location to "my-reader-location" is shown below:

> **config system location my-reader-location**

Status='0,Success'

A sample command that sets the system time is shown below: (Time is set to April, 27th 1:11:00 p.m. 2012.)

> **config system time 042713112012**

Status='0,Success'

4.2.8 Config Feature Menu

The **config feature** menu allows the user to activate, enable and disable features in the Reader. The command parameters are shown in Table 4.34.

Table 4.34 Config Features Command Parameters

Command	Description
activate	Activates a specified feature.
enable	Enables an active feature.
disable	Disables an active feature.

Config Feature Activate Command

Table 4.35 shows the **config feature activate** parameters.

Table 4.35 Config Feature Activate Command Parameters

Argument	Format	Description
<feature name>	enum	Activates the specified <feature name>, with a valid <key>.
<key>	integer	
[<type>]	enum	Optionally, a feature might need an additional <type> parameter.

Config Feature Enable and Disable Commands

The **config feature enable** command allows the user to enable a feature. The **config feature disable** command allows the user to disable a feature. The parameter for each command is shown in Table 4.36.

Table 4.36 Config Feature Enable and Disable Command Parameters

Command	Argument	Format	Description
enable	<feature name>	enum	Enable <feature name>. See Table 4.37 for the list of supported features.
disable	<feature name>	enum	Disable <feature name>. See Table 4.37 for the list of supported features.

Table 4.37 Supported Enable/Disable Features

Feature	Description
anthub	The Impinj Antenna Hub (availabe on R420 only)

Example to enable and then disable an STP feature that is already activated:

> **config feature enable anthub**

Status='0,Success'

> **config feature disable anthub**

Status='0,Success'

4.3 Show Command

The **show** command has several submenus, as shown in Table 4.38, and described in the following sections.

Table 4.38 Show Command Parameters

Command	Description
gps	Submenu of GPS status commands.
image	Submenu of image status commands.
logging	Submenu of logging status commands.
network	Submenu of network status commands.
rfid	Submenu of RFID status commands.
snmp	Submenu of SNMP status commands.
system	Submenu of system status commands.
feature	Submenu of feature status commands.
anthub	Submenu of anthub status commands.

4.3.1 Show GPS Command

The **show gps summary** command gives the response that is shown in Table 4.39. The **show gps data** command gives the response that is shown Table 4.40.

Table 4.39 Show gps summary response

Argument	Format	Description
DataRetrieval	on |off	Enables GPS data retrieval. When active interface is Ethernet, retrieval is off.
SatelliteCount	integer	The number of GPS satellite fixed on.
FixDateTime	string	The date-time of the fix. For example, Oct 19 22:13:12 UTC 2009
Latitude	string	The GPS latitude of the most recent fix. Example format:'33 42.18333', which is 33 deg, 42.18333 min North.
Longitude	string	The GPS longitude of the most recent fix. Example gormat: '-117 48.15202', which is 117 deg, 48.15202 min West

Table 4.40 Show gps data response

Argument	Format	Description
NmeaGga	string	The data in NMEA GGA sentence.
NmeaRmc	string	The data in NMEA RMC sentence.

4.3.2 Show Image Menu

The **show image** menu contains commands that are shown in Table 4.41.

Table 4.41 Show Image Command Parameters

Command	Description
metafile	Displays information about the current upgrade metafile. If no metafile has ever been successfully downloaded, only a subset of the available fields are shown. See Table 4.42 for command responses.
summary	Displays the Reader's image information. See Table 4.43.
version	Displays all version information for a partition on the current image.

The upgrade command, **UpgradeStatus** can take any of the arguments values shown in Table

4.42. For each abnormal status, a reason parameter is given to indicate the reason for the status. The reason values are also given in Table 4.42.

Table 4.42 Show Image Metafile Response Parameters

Argument	Format	Description
MetafileUri	string	The current upgrade metafile URI.
RetrieveMode	Manual Auto	The current retrieve mode.
RetrievePeriod	integer	The current retrieve period, present only if retrieve mode is **auto**. This period is specified in seconds.
UpgradeMode	auto forced	The upgrade mode in use if the metafile is currently available
CommitMode	immediate scheduled wait-4-cmd	The commit mode if metafile is currently available
CommitTime	string	The scheduled commit time, which is present only if commit mode is set to **scheduled**. The format is <timezone-yyyy-mm-dd-hh-mm-ss>. Currently only GMT is supported.
EarlyActOk	yes no	Indicates whether an early activation of the upgrade image is allowed if the commit mode is **scheduled**. Present only if the metafile has the **early-act-ok** field.
DownloadRetries	integer	Number of times to retry a failed download.
DownloadRetryPeriod	integer	Number of seconds between retry attempts.
ReaderModelName	string	The model name of the Reader. This indicates which model section of the metafile was used to load settings.
ImageType	integer	Firmware image upgrade file type (presently '10').
DownloadMode	immediate fixed-delay <delay> random-delay <delay>	Indicates the current download mode. For **fixed** or **random** delay, the **DownloadDelay** field indicates the corresponding the delay value.
DownloadDelay	integer	For **fixed** delay, this is a constaint offset. For **random** delay, this is the maximum value for a randomly chosen offset.
ImageFileUri	uri	URI from which the file image is retrieved.

Examples of possible **show image summary** command responses are shown in Tables 4.43 and 4.44, along with the corresponding field formats. A code example follows Table 4.44.

Table 4.43 Show Image Summary Response Parameters

Argument	Format	Description
UpgradeStatus		The upgrade status of the last executed upgrade. The following enumerations are possible values for the UpgradeStatus field.
	Ready	Application is ready for additional commands.
	WaitingForMetafileTransfer	Metafile is being transferred from server.
	WaitingForMetafileRetry	Metafile transfer timed out, waiting for subsequent transfer.
	ProcessingMetafile	Metafile was received and is being validated.
	DeterminingNeedForImageFile	Version information is being examined to determine if the image file needs to be retrieved.
	WaitingForImageFileTransfer	Image file is being transferred from server.
	WaitingForImageFileRetry	Image file transfer timed out, waiting for subsequent transfer.
	ProcessingImageFile	Image file is being validated.
	WaitingForCommitImage	Image file is being committed to flash memory.
	SchedulingActivation	Image activation is being scheduled.
	WaitingToActivateImmediate	Image is being activated, and will be followed by immediate reboot.
	WaitingToActivateScheduled	Image is being activated, and reboot is scheduled based on user specified commit time.
	WaitingRandomRebootDelay	System is in the random delay window (provided as part of commit time specification) prior to system reboot.
	WaitingForFallback	A config image fallback command is being processed and preparing to reboot the system.

Argument	Format	Description
	WaitingForCDR	A config image default command is being processed and preparing to reboot the system.
	WaitingForRequestedReboot	Reader is about to be rebooted.
LastOperation		This supplements the UpgradeStatus field to give a reason for the status. This is only displayed or provided in conjunction with the next line (LastOperationStatus). Typically status reasons are provided only when additional information is required, such as under error scenarios or when a system reboot has been scheduled. This generally reports the condition leading up to the current status.
	Unknown Host	Download failed because of an unknown host.
	Unsupported Scheme	Download failed because of unsupported URI scheme (only FTP, HTTP and TFTP are supported).
	Syntax Error	Metafile has a syntax error.
	Timeout	Download timed out.
	File Not Found	Download file not found.
	Access Denied	Download failed because of access denied by server, such as for a bad password.
LastOperationStatus	Not Matching Metafile	Upgrade image did not match the version specified in the metafile.
	Bad File Format	Bad upgrade image file format.
	Bad CRC	Bad image CRC.
	No Matching Hardware Version	Image file does not contain a hardware version that matches the Reader hardware version.
	No Newer Version	Upgrade not needed because no newer version in the metafile or upgrade image.
	File Mismatch	Metafile has mismatched partition image types.

Argument	Format	Description
	No File	Metafile does not contain upgrade file information.
	Missing SOP	Metafile does not contain SOP partition while an SPP is present.
	Duplicated Partition	Upgrade failed because either the metafile or the upgrade file has a duplicated partition in it.
	Incompatible Upgrade/Downgrade Path	Upgrade failed because upgrading/downgrading to the intended SOP version or type is not allowed by current image.
	Flash Programming Failed	Failed to write the flash memory.
	Current Image Invalidated	The current image has been invalidated by a previous "fallback" command.
	No Fallback Image Available	This reason applies to the rejection of multiple commands following a "fallback" command.
	Generic Error	Download error other than those specified above.

Table 4.44 Show Image Summary Response Parameters (continued)

Argument	Format	Description
PrimaryImageType	integer	The image type number for the primary image (10).
PrimaryImageState	enum	The current state of the primary image (this should always be Active). Refer to Table 4.47 for details of image state values. An image state has four possible values, active, pre-active, pending, and obsolete, which are described in Table 4.47.
PrimaryImageSystem-Version	string	The version of the primary image's system OS partition.
PrimaryImageConfig-Version	string	The current version of the primary image's persistent partition. '255.255.255.255' is the default SPP version.
PrimaryImage-CustomApp- Version	string	The version of the primary image's custom application partition. This displays only if CAP is present.

Argument	Format	Description
SecondaryImageType	integer	The image type number for the secondary image (10). If the secondary image is not valid this argument is not shown.
SecondaryImageState	enum	The current state of the secondary image would typically have one of the values from Table 4.47. If the secondary image is not valid this argument is not shown. An image state has four possible values, active, pre-active, pending, and obsolete, which are described in Table 4.47.
SecondaryImageSystem-Version	string	The version of the secondary image's system OS partition. If the secondary image is not valid this argument is not shown.
SecondaryImageConfig-Version	string	The current version of the secondary image's persistent partition. '255.255.255.255' is the default SPP version. If the secondary image is not valid this argument is not shown
SecondaryImageCustom-AppVersion	string	The version of the primary image's custom application partition. This displays only if CAP is present. If the secondary image is not valid this argument is not shown.

An example:

> **show image summary**

Status='0,Success'

UpgradeStatus='Ready'

PrimaryImageType='10'

PrimaryImageState='Active'

PrimaryImageSystemVersion='5.2.0.240'

PrimaryImageConfigVersion='255.255.255.255'

PrimaryImageCustomAppVersion='1.0.0.0'

SecondaryImageType='10'

SecondaryImageState='Active'

SecondaryImageSystemVersion='4.12.0.240'

SecondaryImageConfigVersion='255.255.255.255'

SecondaryImageCustomAppVersion='1.0.0.0'

Image State

An image state has four possible values, active, pre-active, pending, and obsolete, which are described in Table 4.45.

Table 4.45 Image State Values

State Value	Meaning
Active	Image has been previously run and is eligible to fallback to.
Pre-Active	Image has been activated and is ready to become the Primary image on next reboot.
Pending	Image has been committed to flash memory, waiting for commit time to move it to the Pre-Active state.
Obsolete	Image has been invalidated, typically due to a fallback operation

4.3.3 Show Logging Menu

The **show logging** menu displays the logging configuration for the system and for displaying the actual logged information in text form. The commands are described in Table 4.46. Log entries are shown in chronological order, with the most recent entry displayed last.

Response parameters for the **show logging** events are shown in Table 4.47.

Response parameters for the **show logging summary** command are shown in Table 4.48, which displays the summary of response parameters along with severity levels.

Table 4.46 Show Logging Command Parameters

Command	Arguments	Format	Description
events	(err | app) <event count>	enum, integer	Uses the event count number to determine how many of the last internal log entries to display.
summary			Displays the current user logging configuration. Table 4.48 displays the summary of response parameters along with severity levels.

Table 4.47 Show Logging Events Response Parameters

Argument	Format	Description
Event1	string	The string responses from the log events.
Event2	string	
…	…	…
Event<n>	string	

Table 4.48 displays the summary of response parameters along with severity levels.

Table 4.48 Show Logging Summary Response Parameters

Argument	Format	Description
Managementlevel	Emergency | Alert | Critical | Error | Warning | Notice | Info | Debug	Log severity level for Management
RFIDLevel		Log severity level for RFID
SystemLevel		Log severity level for System

Samples of the commands are shown below:

> **show logging summary**

Status='0,Success'

ManagementLevel='Error'

SystemLevel='Error'

RFIDLevel='Error'

> **show logging events app 3**

Status='0,Success'

Event1='Dec 4 00:22:46 (none) sshd[20090]: lastlog_openseek: Couldn't stat /var/log/lastlog: No such file or directory'

Event2='Dec 4 00:22:53 (none) Rshell: User entered "show logging summary" '

Event3='Dec 4 00:22:53 (none) Rshell: ICTL target syslogconf returned status 0 '

4.3.4 Show Network Menu

The **show network** menu contains commands to display networking parameters and statistics. All commands are single word commands and take no arguments. Commands are shown in Table 4.49, while the response parameters are shown in Table 4.50 through Table 4.70.

Table 4.49 Show Network Menu Commands

Command	Description
cell (sub-menu)	Cellular modem configuration submenu
dhcp	Summary of DHCP Client configuration
dns	Summary of DNS settings
dnssd	Summary of DNSSD settings
icmp	ICMP statistics
ip (sub-menu)	IP statistics submenu
mdns	Display current status of mDNS
ntp	Summary of NTP settings
summary	Summary of network settings
tcp	TCP statistics
udp	UDP statistics
wlan (sub-menu)	WiFi adapter configuration submenu
telnet	Telnet server status
http	Http server status
ssh	SSH server status
ftp	FTP server status

Table 4.50 Show Network Cell Summary Response Parameters

Argument	Format	Description
ModemType	ravenxt | pinpointxt	The connected modem type
LocalLinkStatus	AdminUp | Connected | Disconnected | MismatchedModem | Unauthorized	See Table 4.57.
LocalHostIpMode	public | private	Address from the cellular modem for its local PPP link to the modem is a private IP address or public IPaddress.
PeerIpAddress	ip address	The IP address of the modem side of the local PPP link.
AirLinkIpAddress	ip address	The IP address that the cellular modem gets for its air link.

Argument	Format	Description
AirLinkConnection-Status	string	The connection status of the modem's air link. Examples: • Connecting to Network • Network Dormant • Network Ready
AirLinkRSSI	<Integer>dBm	The RSSI of the airlink, eg -60dBm

Table 4.51 Show Network Cell Config Response Parameters

Argument	Format	Description
ModemType	ravenxt | pinpointxt	The modem type that is configured and intended for use.

Table 4.52 Show Network Cell Device Response Parameters

Argument	Format	Description
ModemTypeName	string	The modem type name as presented by the connected modem, such as: 'Raven XT EV-DO' 'PinpointXT GPRS'
Carrier	string	The carrier name. Example: Sprint. AT&T.
ServiceType	string	The device service type provided by the carrier. Example: '1X, EV-DO Rev.A'
PhoneNumber	string	The device phone number.
DeviceID	string	The device's unique ID given by the manufacturer.
IMEI_ESN	string	The IMEI 9for GSM/GPRS) or ESN number (for CDMA) of the device

Table 4.53 Show Network DHCP Response Parameters

Argument	Format	Description
SendHostname	on | off	Indicates the current setting for sending the hostname during DHCP negotiation. This controls whether or not the Reader includes the hostname when communicating with the DHCP server.
UserClass	string	Displays the current setting for the user class DHCP option. If this string is empty, the user class option is not sent via DHCP. Otherwise the value indicates the string that is sent.

Table 4.54 Show Network DNS Response Parameters

Argument	Format	Description
Domain<n>Static	string	Statically configured domain (if configured)
Domain<n>Dynamic	string	DNS domain obtained from DHCP (if available)
Server<n>Static	ip address	Address of the Nth static DNS server
Server<n>Dynamic	ip address	Address of the Nth dynamic DNS server

Table 4.55 Show Network ICMP Response Parameters

Argument	Format	Description
icmpInMsgs	integer	See MIB-2 RFC 1213
icmpInErrors	integer	
icmpInDestUnreachs	integer	
icmpInTimeExcds	integer	
icmpInParmProbs	integer	
icmpInSrcQuenchs	integer	
icmpInRedirects	integer	
icmpInEchos	integer	
icmpInEchoReps	integer	
icmpInTimestamps	integer	
icmpInTimestampReps	integer	
icmpInAddrMasks	integer	
icmpInAddrMaskReps	integer	
icmpOutMsgs	integer	
icmpOutErrors	integer	
icmpOutDestUnreachs	integer	
icmpOutTimeExcds	integer	
icmpOutParmProbs	integer	

Argument	Format	Description
icmpOutSrcQuenchs	integer	
icmpOutRedirects	integer	
icmpOutEchos	integer	
icmpOutEchoReps	integer	
icmpOutTimestamps	integer	
icmpOutTimestampReps	integer	
icmpOutAddrMasks	integer	
icmpOutAddrMaskReps	integer	

Table 4.56 Show Network mDNS Response Parameters

Argument	Format	Description
mDNSStatus	enabled | disabled | NotAvailableOnCurrentInterface	Indicates the current state of the mDNS service. When the active interface is **cellular** and the status is **enabled**, it shows as NotAvailableOnCurrentInterface.

Table 4.57 Show Network DNSSD Response Parameters

Argument	Format	Description
LLRPServiceDiscovery	enabled | disabled	The current status of the LLRP service discovery feature. Service discovery allows the Reader to advertise features it supports for dynamic discovery on a local network. When the active interface is **cellular** and the status is enabled, it shows as NotAvailableOnCurrentInterface.
HTTPServiceDiscovery	enabled | disabled | NotAvailableOnCurrentInterface	The current status of the HTTP service discovery feature. Service discovery allows the Reader to advertise features it supports for dynamic discovery on a local network. When the active interface is **cellular** and the status is enabled, it displays as NotAvailableOnCurrentInterface.

Table 4.58 Show Network Telnet Response Parameters

Argument	Format	Description
ServiceEnabled	True | False	Indicates whether or not the service will be started at boot time.

Argument	Format	Description

Table 4.59 Show Network HTTP Response Parameters

Argument	Format	Description
ServiceEnabled	True | False	Indicates whether or not the service will be started at boot time.

Table 4.60 Show Network SSH Response Parameters

Argument	Format	Description
ServiceEnabled	True | False	Indicates whether or not the service will be started at boot time.

Table 4.61 Show Network FTP Response Parameters

Argument	Format	Description
ServiceEnabled	True | False	Indicates whether or not the service will be started at boot time.

Table 4.62 Show Network NTP Response Parameters

Argument	Format	Description
NtpServerDynamic<n>-Address NtpServerStatic<n>-Address	string | IP Address	Hostname or IP address of the Nth static or dynamic NTP server

Argument	Format	Description
NtpServerDynamic<n>-State NtpServerStatic<n>-State	Synchronized | Polled | SymmetricActive | SymmetricPassive | ReceivingBroadcast | SendingBroadcast	The current state of the first dynamic NTP server. When the Reader is trying to use a server, it will remain in the state **"Polled** until it has successfully communicated with the server eight times. During this process, the *NtpServerDynamic/Static<n>Reach* parameter will generally transition through 1, 3, 7, 17, 37, 77, 177, and 377. When the Reader has selected a server and locked on, the state parameter will become **Synchronized.**
NtpServerDynamic<n>-Stratum NtpServerStatic<n>-Stratum	integer	The current stratum number of the NTP server.
NtpServerDynamic<n>-Reach NtpServerStatic<n>-Reach	integer	The reachability register of the NTP server.

Table 4.63 Show Network Summary Response Parameters

Argument	Format	Description
PrimaryInterface	string	The primary network device enabled at start 'eth:eth0' for ethernet, 'cell:ppp0' for cellular interface.
ActiveInterface	string	The currently active network device, such as 'eth:eth0' for ethernet, or'cell:ppp0' for cellular interface.

Argument	Format	Description
Hostname	string	The current hostname of the Reader.
connectionStatus	AdminUp | Connected | Disconnected | Mismatched-Modem | Unauthorized	The connection status of the current active interface. The value is one of the following: • AdminUp: Interface is started but not yet connected. This state is temporary. • Connected: Interface is up and running. • Disconnected: Interface is down. • MismatchedModem: The active interface is cellular and the connected modem does not match the configured modem. • Unauthorized: The active interface is cellular and the connected modem fails to authenticate.
ipAddressMode	Dynamic | Static	Indicates the current cofiguration of the network interface. Dynamic (using DHCP for IP configuration) or Status (using manual IP configuration).
ipAddress	IP address	Reports the current IP address assigned to the Reader. This value will not be reported if it is not currently assigned or the network is disconnected.
ipMask	IP address	Reports the current IP address mask assigned to the Reader. If not currently assigned or network disconnected, this value will not be reported.
gatewayAddress	IP address	Reports the current network gateway assigned to the Reader. This value will not be reported if it is not currently assigned or the network is disconnected.

Argument	Format	Description
broadcastAddress	IP address	Reports the current IP broadcast address assigned to the Reader. This value will not be reported if it is not currently assigned or the network is disconnected.
LLAStatus	enabled | disabled | NotAvailableOnCurrentInterface	The current status of the LLA (Local Link Addressing) feature. LLA allows the Reader to generate its own IP address when used on a network without DHCP or a statically assigned address. When the active interface is cellular and the status is enabeld, it shows as NotAvailableOnCurrentInterface

Table 4.64 Show Network IP Stat Response Parameters

Argument	Format	Description
ipForwarding	integer	See MIB-2 RFC 1213
ipDefaultTTL	integer	
ipInReceives	integer	
IpInHdrErrors	integer	
ipInAddrErrors	integer	
ipForwDatagrams	integer	
ipInUnknownProtos	integer	
ipInDiscards	integer	
ipInDelivers	integer	
ipOutRequests	integer	
ipOutDiscards	integer	
ipOutNoRoutes	integer	
ipReasmTimeout	Integer	
ipReasmReqds	integer	
IpReasmOKs	integer	
IpReasmFails	integer	
ipFragOKs	integer	
ipFragFails	integer	See MIB-2 RFC 1213
ipFragCreates	integer	
IpRoutingDiscards	integer	

Table 4.65 Show Network IP Summary Response Parameters

Argument	Format	Description
connectionStatus	AdminUp | Connected | Disconnected | MismatchedModem | Unauthorized	Current state of the network interface.
ipAddressMode	Dynamic | Static	If configuration is currently dynamic, the dynamic values returned by DHCP are given. If a value is not currently set (such as the gateway address when LLA is in use,) the argument does not appear.
ipAddress	IP address	
IpMask	IP address	
gatewayAddress	IP address	
broadcastAddress	IP address	
LocalHostname	string	The current hostname for the '.local' domain used by mDNS. This argument is only shown if the local hostname is different than the hostname.

The description for all arguments displayed in Table 4.66 and Table 4.67 are described in MIB-2 RFC 1213.

Table 4.66 Show Network TCP Response Parameters

Argument	Format	Description
tcpRtoAlgorithm	integer	See MIB-2 RFC 1213
tcpRtoMin	integer	
tcpRtoMax	integer	
tcpMaxConn	integer	
tcpActiveOpens	integer	
tcpPassiveOpens	integer	
tcpAttemptFails	integer	
tcpEstabResets	integer	
tcpCurrEstab	integer	
tcpInSegs	integer	
tcpOutSegs	integer	
tcpRetransSegs	integer	
tcpInErrs	integer	

Argument	Format	Description
tcpOutRsts	integer	

Table 4.67 Show Network UDP Response Parameters

Argument	Format	Description
udpInDatagrams	integer	See MIB-2 RFC 1213
udpNoPorts	integer	
udpInErrors	integer	
udpOutDatagrams	integer	

Table 4.68 Show Network Wlan Summary Response Parameters

Argument	Format	Description
NetType	adhoc | infra	The WiFi network type.
FeatureStatus	Disabled | NotSupportedByHW | NotSupportedOnPoE	Present if WLAN is not supported, in which case all other fields are absent. Disabled: Feature is explicitly disabled for whatever reason. Currently not supported. NotSupportedByHw: The hardware does not support WiFi feature. NotSupportedOnPoE: WiFi feature not supported when Reader is powered over Ethernet.
ConnectionStatus	AdminDown | Searching | Disconnected | Connected	See Table 4.57.
DeviceStatus	Absent | Loading | Loaded	Present only when connectionStatus is not **Connected** or **Searching**. Indicates the WiFi device status. Absent: The USB WiFi module is not plugged in. Loading: The WiFi driver is loading. Loaded: The WiFi driver is loaded.
SSID	String	The SSID of the currently connected network.
BSSID	MAC Address	The BSSID of the currently connected AP for infrastructure network. Or the (random) BSSID of the adhoc network initiator.
SignalLevel	<integer>dBm	The signal level of the currently connected AP.
MyMacAddress	MAC Address	The Mac address of the Reader's WiFi card.

Argument	Format	Description
PeerMacAddress<i>	MAC Address	Present on in adhoc network. The MAC address of the i'th station that is connected on the ahoc network.

The **show network wlan config active/persistent** command shows the configuration that is currently active, or that is in persistent storage.

Table 4.69 Show Network Wlan Config Active/Persistent

Argument	Format	Description
NetType	adhoc | infra	The active/persistent network type.
SSID	String	The active/persistent SSID.
Keymgmt	wpa-psk | wpa-none | none|	The active/persistent Key management protocol.
Encrypt	wpa2 | wpa | none	The active/persistent encryption type.
PSK	String	The active/persistent preshared key shown as ****** if set, otherwise empty.

Table 4.70 Show Network Wlan Scanlist Response Parameters

Argument	Format	Description
NetType<i>	adhoc | infra	The i'th BSSID's network type
BSSID<i>	MAC address	The BSSID of the i'th AP
SSID<i>	String	The SSID of the i'th AP.
Security<i>	String	The i'th AP's security settings, e.g. 'WPA2PSK/AES'
Frequency<i>	<integer>Mhz	The i'th AP's channel as repsenetd by the freqneucy in MHz
SignalLevel<i>	<integer>dBm	The i'th AP's signal level.

4.3.5 Show RFID Menu

The **show rfid** menu contains commands to display RFID parameters and statistics. Submenu commands are shown in Table 4.71.

Table 4.71 Show RFID Command Parameters

Command	Description
Stat	Display RFID statistics for the Reader.
Llrp	Leads to submenu of LLRP status statistics.

Show RFID Stat

The **show rfid stat** command displays the RFID statistics for that Reader. See Table 4.72 for the complete stat response parameters.

Table 4.72 Show RFID Stat Response Parameters

Argument	Format	Description
LastStatisticReset	Integer	The elapsed time [in seconds] since the RFID statistics were lat reset.
ReaderOperational-Status	enabled | disabled	Indicates whether RFID applications are running on the Reader.
ReaderAdministrative-Status	enabled	Desired status by adminstration is always enabled.
Antenna<n>-Administrative-Status	enabled	Desired status of antenna by administration—always enabled; <n> is 1–4typical, 1-32 when Antenna Hub enabled.

Argument	Format	Description
Antenna<n>-Operational-Status	enabled | disabled | unknown	Indicates if an antenna is physically connected to the Reader and operating properly. If no RFID operation has been performed, and no in-band LLRP checks of antenna status have been performed, the Reader will report unknown for this statistic. Once an RFID operation has occurred, or an in-band check is performed, the Reader will update this value. Enabled=connected antenna Disabled=disconnected from antenna. Note that accurate reports are only available on in-use antennas. Antennas currently not in use are not checked.
Antenna<n>Last-PowerLevel	Integer	100 times the dBm setting of Antenna <n>; <n> is 1–4, 1-32 when Antenna Hub enabled.
Antenna<n>Last-NoiseLevel	Integer	Always 0.
Antenna<n>-Energized- Time	Integer	Time Antenna <n> has been powered, in milliseconds; <n> is 1–4, 1-32 when Antenna Hub enabled.
Antenna<n>Unique-InventoryCount	Integer	Number of unique tags seen at Antenna <n>; <n> is 1–4, 1-32 when Antenna Hub enabled.
Antenna<n>Total-InventoryCount	Integer	Total Inventory Count for Antenna <n>; <n> is 1–4, 1-32 when Antenna Hub enabled.
Antenna<n>Failed-InventoryCount	Integer	Always 0; <n> is 1–4, 1-32 when Antenna Hub enabled.

Argument	Format	Description
Antenna<n>Read-Count	Integer	Number of tags read at Antenna <n> that matched the configured filters; <n> is 1–4, 1-32 when Antenna Hub enabled.
Antenna<n>Failed-ReadCount	Integer	Number of tags where a read was attempted at Antenna <n> because the tag matched the configured filters, but the read failed; <n> is 1–4, 1-32 when Antenna Hub enabled.
Antenna<n>-WriteCount	Integer	Number of tags written at Antenna <n> that matched the configured filters; <n> is 1–4, 1-32 when Antenna Hub enabled.
Antenna<n>Failed-WriteCount	Integer	Number of tags where a write was attempted at Antenna <n> because the tag matched the configured filters, but the write failed; <n> is 1–4, 1-32 when Antenna Hub enabled.
Antenna<n>-LockCount	Integer	Number of tags locked at Antenna <n> that matched the configured filters; <n> is 1–4, 1-32 when Antenna Hub enabled.
Antenna<n>Failed-LockCount	Integer	Number of tags where a lock was attempted at Antenna <n> because the tag matched the configured filters, but the lock failed; <n> is 1–4, 1-32 when Antenna Hub enabled.
Antenna<n>Kill-Count	Integer	Number of tags killed at Antenna <n> that matched the configured filters; <n> is 1–4, 1-32 when Antenna Hub enabled.
Antenna<n>Failed-KillCount	Integer	Number of tags where a kill was attempted at Antenna <n> because the tag matched the configured filters, but the kill failed; <n> is 1–4, 1-32 when Antenna Hub enabled.
Antenna<n>-EraseCount	Integer	Number of tags erased at Antenna <n> that matched the configured filters; <n> is 1–4, 1-32 when Antenna Hub enabled.

Argument	Format	Description
Antenna<n>Failed-EraseCount	Integer	Number of tags where a erase was attempted at Antenna <n> because the tag matched the configured filters, but the erase failed; <n> is 1–4, 1-32 when Antenna Hub enabled.

Show RFID LLRP Commands

The **show rfid llrp** command provides statistics on the LLRP interface and includes the subcommands listed in Table 4.73.

Table 4.73 Show RFID LLRP Command Parameters

Command	Argument	Format	Description
accessspec	id	integer	Displays the XML text of a specified AccessSpec.
capabilities			Displays the XML text of the LLRP capabilities advertised by this Reader.
config			Displays the XML text of the LLRP configuration.
inbound			Displays information about LLRP client-initiated connections.
outbound			Displays information about LLRP Reader-initiated connections.
region			Displays the LLRP region and Impinj sub-region at which the Reader is currently operating. Also will display sub-regulatory region information when configured by LLRP extensions.
rospec	id	integer	Displays the XML text of a specified ROSpec.
stat			Reports LLRP statistics.
summary			Displays a summary of the LLRP configuration and status.

4.3.6 Show SNMP Menu

The **show snmp** menu displays information about the SNMP configuration. Table 4.74 provides a list of the available **show snmp** subcommands.

Table 4.74 Show SNMP Command Parameters

Command	Description
all	Displays all of the the SNMP settings.
summary	Displays summary of generic SNMP settings.
epcg	Displays EPCG RM MIB specific settings.

The response parameters for **show snmp summary** are shown in Table 4.75, and for **show snmp epcg** are shown in Table 4.76. The response parameters for **show snmp all** is a concatenation of the summary and **epcg** response parameters.

Table 4.75 Show SNMP Summary Response Parameters

Argument	Format	Description
SnmpService	Enabled | Disabled	The status of the SNMP service.
ROCommunity	string	The value of the read-only community string.
RWCommunity	string	The value of the read-write community string.
WriteEnabled	True | False	Indicates whether SNMP writes are enabled or disabled.

Table 4.76 Show SNMP EPCG Response Parameters

Argument	Format	Description
EpcgRmMib-Revision	string	The Epcglobal Reader management MIB revision, example. 200703080000Z.
EpcgRdrDev-Description	string	Reader description: The same value that is reported for SNMP system description.
EpcgRdrDevRole	string	The value of the configured device role.
EpcgNotifChan-Name1	string	The name of notification channel 1. Always the LLRP Client.
EpcgNotifChan-Name2	string	The name of notification channel 2. Always the LLRP Reader.
EpcgRdrDevOper-StateEnable	string	Indicates whether Reader operation state change notifications are enabled. Always **False**.
EpcgRdrDevOperNotif-StateLevel	string	The severity level for Reader operation state change notifications. Always **Error**.

Argument	Format	Description
EpcgReadPointOper-StateNotifyEnable	string	Indicates whether read point operation state notifications are enabled.Always **False**.
EpcgReadPointOper-NotifyStateLevel	string	The severity level for read point operation state change notifications. Always **Error**.
EpcgSrcOper-StatusNotifEnable	string	Indicates whether source state change notifications are enabled. Always **False**.
EpcgSrcOper-StatusNotifyLevel	string	The severity level for source state change notifications.Always **Error**.
EpcgNotifChan-OperNotifEnable	string	Indicates whether notification channel operation state change notifications are enabled. Always **False**.
EpcgNotifChan-OperNotifLevel	string	The severity level for notification channel operation state change notifications. Always **Error**.

4.3.7 Show System Menu

The **show system** menu displays information about the state of the Reader. Table 4.77 provides a list of the available **show system** subcommands. Table 4.78 through Table 4.81 summarize the respective response parameters.

Table 4.77 Show System Command Parameters

Command	Description
summary	Displays a summary of system info
cpu	Displays statistics regarding platform memory usage and available application space
platform	Displays generic platform statistics
region	Displays alternative regions options (if any)

Table 4.78 Show System CPU Response Parameters

Argument	Format	Description
TotalMemory	integer	Total available RAM in bytes
FreeMemory	integer	Total free RAM in bytes
CpuUtilization	integer	CPU utilization in percent
TotalConfiguration-StorageSpace	integer	Total configuration/persistent partition space in bytes
FreeConfiguration-StorageSpace	integer	Free configuration/persistent partition space in bytes

Argument	Format	Description
TotalApplication-StorageSpace	integer	Total application partition space in bytes
FreeApplication-StorageSpace	integer	Free application partition space in bytes

Table 4.79 Show System Platform Response Parameters

Argument	Format	Description
BootEnv-Version	integer	Internal 'Boot Environment' data version.
Hardware-Version IntHardware-Version	string	Returns the hardware version information for the Reader and internal hardware.
SerialNumber IntSerialNumber	string	Returns the Reader's hardware serial number for thr Reader and internal hardware.
MACAddress	string	MAC address of the unit's Ethernet port.
HLAVerison	string	Returns the High Level Assembly (HLA) verison information for the Reader.
RegionsValid	integer[,integer,…]	Indicates the numerical values of the regions allowed on this hardware.
FeaturesValid	integer[,integer,…]	Indicates features enabled on this hardware.
BIOSVersion	string	Returns the version information for the Reader BIOS.
PTN	integer.integer	Product Type Number This is used to differentiate Reader models.
UptimeSeconds	integer	Time since last reboot in seconds.
BootStatus	integer	Bootloader status. This indicates various conditions detected by the boot loader.
BootReason	Cold | Processor | Reboot | External Watchdog | External Watchdog Fallback	The reason for the last reboot. A Cold reset occurs when power is first applied to the Reader. A Processor / Reboot occurs when software initiates a reboot. External Watchdogs are the result of the Reader being reset by the embedded watchdog feature. An External Watchdog Fallback is reported after repeated watchdog resets and an automatic rollback of the image (if available).

Argument	Format	Description
PowerFailTime	integer	Linux time of last power fail expressed in seconds. Only defined for the first boot following a power failure.
ActivePowerSource	PoE | jack	Indicates power source as either Power over Ethernet (PoE) or power jack.

Table 4.80 Show System Summary Response Parameters

Argument	Format	Description
SysDesc	string	The system description. Defaults to model name of the Reader.
SysContact	string	The system contact information. Defaults to 'unknown'.
SysName	string	The system name. Defaults to hostname of the Reader.
SysLocation	string	The system location. Defaults to 'unknown'.
SysTime	string	The current time on the Reader in UTC.

Table 4.81 Show System Region Response Parameters

Argument	Format	Description
Operating-Region	integer	Current operating region number.
Selectable-Regions	integer[,integer,...]	Available operating region numbers.
Selectable-Region<n>	integer,string	List of the available operating region numbers along with a short descriptive string. <n> starts at zero.

4.3.8 Show Feature Menu

The **show feature** menu displays information regarding features enabled on the Reader. Table 4.82 provides a list of the available parameters. Table 4.83 summarizes the respective response parameters for the Antenna Hub feature. The **show feature all** command includes all the feature response parameters defined in this section.

Table 4.82 Show Feature Command Parameters

Command	Description
all	Display information for all defined features.
anthub	Display information for the Antenna Hub feature.

Table 4.83 Show Feature Anthub Response Parameters

Argument	Format	Description
anthubKey Status	Activated | Deactivated	R420 always displays Activated, all other Readers display Deactivated.
anthubStatus	Enabled | Disabled	Operational status of the Antenna Hub feature.

4.3.9 Show Anthub Command

The **show anthub summary** command has a response as shown in Table 4.84.

Table 4.84 Show Anthub Summary Response

Argument	Format	Description
FeatureStatus	Enabled | Disabled	Displays whether anthub mode is configured as enabled or disabled.
AntennaHub[n] Connection-Status	Unknown | Disconnected | Connected	Indicates if an Antenna Hub was detected at boot up. 'Unknown' indicates that the feature was disabled at boot up. Note that this field is not dynamically updated.

Argument	Format	Description
AntennaHub[n] Fault AntennaHub[n] Fault AntennaHub[n] Fault AntennaHub[n] Fault AntennaHub[n] Fault	None | RF power | RF power seen on Hub 1 | RF power seen on Hub 2 | RF power seen on Hub 3 | RF power seen on Hub 4 | Not initialized | Serial	
AntennaHub[n] FWVersion	string	Displays the version of firmware that is running on the Antenna Hub microcontroller.
AntennaHub[n] PCBAVersion	string	Displays the Antenna Hub's hardware version.
AntennaHub[n] SerialNumber	string	Displays the Antenna Hub's serial number.

5 Revision History

Date	Revision	Comments
04/02/2009	1.0	Initial release
04/20/2009	1.1	Updated for first release
08/27/2009	4.2	Added SNMP support Added mDNS and LLA support Updated Upgrade error message for a non-matching hardware version between the image file and the Reader. Clarified LLRP connection management Added comment for "show image summary" that secondary parameters/values are only shown if the secondary image is valid. Corrected strings to match RShell counterparts. Finalized for release
02/24/2010	4.4	Added DNS-SD support Updated status code table with new values
03/05/2010	4.4	Added cellular and GPS support.
03/31/2010	4.4	Added "show network dnssd" to show http/llrp service discovery status
10/27/2010	4.6	Updates for Octane 4.6 release
4/25/2011	4.8	Updates for Octane 4.8 release Added: Config System Region Command Added: Config Image RemoveCAP Command Added: Config Feature Command Added: Show System Region Command Added: Show Feature Command Added: Warning regarding changing region Added: Configuration for wlan Other minor clarifications
5/20/2012	4.10	Updates for Octane 4.10 release Added: Antenna Hub feature
12/16/2014	5.2	Updates for Octane 5.2 release

Notices: