



Remote Command Interface (RCI) Specification



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Scope

This document describes the Remote Command Interface.

1 Terminology

The terminology used in this document follows XML definitions.

- An XML *element* is **dest** in this example: <dest index="23">
- An XML *attribute* is the **index="23"** in this example: <dest index="23">, where **index** is the name of the attribute, and "23" is the value of the attribute. Note the double-quote characters are required.

2 Overview

RCI is a method for remote clients to control, configure, and gather statistics from Digi Connect devices. RCI is a stateless, request/response protocol. RCI uses XML and HTTP to exchange data between clients and Digi devices.

3 The RCI Protocol

The interface is split into three layers: Transport, Command, and Data.

3.1 Transport

The transport layer is a mechanism specified to handle communication between a client and a Digi device. The transport will specify the initialization process, the sending and responding mechanism, the closing mechanism, any error recovery mechanism needed, and security.

3.1.1 RCI over HTTP

The primary transport is HTTP, through the embedded web server. The Web server will provide the initialization, receiving and sending, and security.

RCI requests are sent to the device using an URI of UE/rci. For example, if the Digi Device's IP address is 192.168.1.1, then RCI requests are sent to http://192.168.1.1/UE/rci

RCI over HTTP (continued)

RCI requests are sent as an HTTP POST with the XML request of the form specified in this document. Note, due to space limitations on the device, the largest request that can be processed is 32KB. If a request is larger than this, it must be split into multiple RCI requests. RCI replies from the device are not subject to this limit.

Security is handled in the usual HTTP mechanism. The username and password must be passed to the device in the header of each HTTP request.

See the samples shipped with devices for examples of RCI over HTTP RCI.

Standard HTTP errors will be returned for HTTP related problems. Common HTTP errors that should be handled by clients:

- 413 – Buffer too large. Usually caused by sending a request larger than 32KB in size.

3.1.2 RCI over Serial

RCI requests can be sent over the serial port. This is useful in scenarios where a master processor is connected to the Digi Device through a serial port. This allows the master processor to configure the Digi Device as part of its configuration process, so that a separate manual configuration step for the Digi Device is eliminated.

You must enable 'RCI over Serial' in either the Web Interface or the Command Line Interface before the Digi Device will accept RCI requests and return replies. The RCI over Serial option is available only on the primary port.

RCI over Serial uses the DSR (Data Set Ready) serial signal. Verify that the serial port is not configured for autoconnect, modem emulation, or any other application which is dependent on DSR state changes.

Note: When the Digi Device sees its DSR raised, it will set the serial port settings to 9600 baud, 8 data bits, no parity, and 1 stop bit. When DSR is lowered, the Digi Device will restore the previous serial settings.

- **Configure using the Command Line Interface (CLI):**
 1. Access the CLI using telnet or rlogin and the module's IP address. Ex:

```
telnet 192.168.1.2      -or-  
rlogin 192.168.1.2
```
 2. At the command prompt type:

```
#> set rciserial state=on
```

Configure using the web user interface:

1. Access the web interface by entering the module's IP address in a browser's URL window.
2. Choose **Serial Ports** from the **Configuration** menu.
3. If the device has more than one port, select **Port 1**.
4. If a port profile has not been selected, select **Custom** and click **Apply**.
5. Select **Advanced Serial Settings**.
6. Select **Enable RCI over Serial (DSR)** and click **Apply**.

3.2 RCI Request/Reply

An RCI XML document is identified by the XML elements `rci_request` and `rci_reply`.

An RCI request specifies the XML element "rci_request" optionally with a version number. The version should match the version of RCI the client expects. The current RCI version is 1.1. If a version is not specified, the RCI version of the device is used to form the reply. Not specifying a version can cause problems when communicating with devices at different RCI versions, if the client code is not written in a version independent way. Therefore, it is highly recommended to always supply the version of RCI in requests, unless the client code has been designed to be version independent.

Example of a request element:

```
<rci_request version="1.1">
```

The device will respond to requests with the element "rci_reply" along with the version number as an attribute.

Example reply: `<rci_reply version="1.1">`

3.2.1 <rci_reply> Errors

Errors that occur at the request level will result in an error element as a sub-element of the `<rci_reply>`. Errors and warnings are explained below

`<rci_reply>` errors:

Error ID	Description
1	Request not valid XML
2	Request not recognized
3	Unknown command

3.3 Command

The command section of the protocol indicates the action requested (or action performed in replies).

Command (continued)

Commands are specified as sub-elements to <rci_request> and <rci_reply>.

This example requests all configuration settings:

```
<rci_request version="1.1"> <!--Identifies the protocol and whether this is a request or a response -->
  <query_setting/>          <!-- request config of device -->
</rci_request>
```

This example requests the configuration information for just boot settings and serial settings.

```
<rci_request version="1.1">
  <query_setting>
    <boot/>
    <serial/>
  </query_setting>
</rci_request>
```

Supported commands:

COMMAND	REQUEST DESCRIPTION	RESPONSE DESC
query_setting	Request for device settings. May contain setting group elements to subset query (only setting group subset supported. Subsetting below this level not supported).	Returns requested config settings. Requests specifying no settings groups (eg. <query_setting/>) return all settings.
set_setting	Set settings specified in setting element. Settings data required.	Empty setting groups in reply indicate success. Errors returned as specified below.
query_state	Request current device state such as statistics and status. Sub-element may be supplied to subset results.	Returns requested state. Requests specifying no groups (eg. <query_state/> return all state.
set_factory_default	Sets device settings to factory defaults. Same semantics as set_setting.	Same semantics as set_setting.
reboot	Reboots device immediately.	

3.4 Data

Data elements are elements used to exchange information about settings and state.

Data elements are typically of the form:

```
<data_group>
```

Data (continued)

```
<field>value</field>
</data_group>
```

Where “data_group” is a grouping of related fields, such as “serial” for serial settings. “field” are names of individual settings, such as “baud”. “value” is the value associated with the field.

Data is expressed in XML. Data is of two types:

setting: used for settings and control. Setting data may be read/write, read-only, or write-only (typically only used for passwords).

state: used to retrieve statistics and other info. State data is read-only.

Many data elements are scoped to a serial port (eg. a 4 serial port device will have 4 serial_setting elements). The port is identified as an attribute on the element of the form index="num". When a data element is specified without an explicit port attribute, the default is used. The default is "1".

Example showing baud rate on serial port 2:

```
<serial index="2">
  <baud>300</baud>
</serial>
```

3.5 Errors and Warnings

Response documents may contain an element as a child of the command or data element that indicates the result of the request. More than one error or warnings may be present.

Error and Warning elements

error	An error occurred.
warning	Command executed, but a warning was issued.

<error>

Attributes:

id A numeric id specified by the parent element (the command or the data element). An error element id="0" is equivalent to no error.

Child Elements:

<desc>

Optional. Text description of the error.

<hint>

Optional. Used to indicate to the client the source of the error. This will typically be set to the field name that the error.

Errors and Warnings (continued)

Example:

```
<serial_setting>
  <error id="3">
    <hint>baud</hint>
    <desc>Value out of valid range.</desc>
  </error>
</serial_setting>
```

Errors are required to have an id. <hint> and <desc> are optional and more than one are allowed.

3.6 Notes

3.6.1 RCI XML must be well-formed XML

The device parses incoming RCI requests in a sequential manner. Each XML element is parsed and acted upon as it arrives. This is not ideal behavior, but is necessary because of the inherent resource limitations of a device. Ideally, the entire XML request would be read into memory, validated, parsed and acted upon only after validation.

XML structure errors may be found after actions have been taken. For instance:

```
<rci_request version="1.0">
  <set_factory_default/>
</rci_requestBADENDTAG>
```

This request will result in an XML parse error, but since the parse error occurs after the set_factory_defaults, the device will be set to factory defaults.

Therefore, it is highly recommended that RCI requests be validated with an XML parser before being sent to the device. Using any standard parsers, such as the XML parsing in the Java SDK, to form RCI requests accomplishes this.

3.6.2 XML structure characters must not be sent as character data

Care must be taken to avoid accidental badly formed XML in RCI requests because of including XML structure characters, such as "<", as user entered data. Any field that accepts character data must be checked to ensure that "<" and ">" are not present (fields such as the email body of an alarm are common places this can happen).

XML structure characters must not be sent as character data (continued)

It is recommended that all instances of “<” and “>” in character data be converted to “<” and “>”, which is the standard XML representation of these characters.

4 RCI Data Elements

Boot Setting Group RCI name: "boot" Valid with: query_setting, set_setting, set_factory_default No attributes supported. A reboot is required for changes to take effect for boot settings.				
Description	RCI element	r/rw	Values	Comments
DCHP (enable/disable)	dhcp	rw	on, off	Used as an IP assignment method. Multiple methods may exist until IP found
IP Address	ip	rw	valid ip address	Reboot required
Subnet Mask	subnet	rw	valid ip address	Reboot required
Default Gateway	gateway	rw	valid ip address	Reboot required
Ethernet Speed	eth_speed	rw	auto, 10, 100	
Ethernet Duplex	eth_duplex	rw	auto, half, full	
Auto IP (enable/disable)	autoip	rw	on, off	Used as an IP assignment method. Multiple methods may exist until IP found
ADDP (enable/disable)	addp	code says write only	on, off	Used as an IP assignment method. Multiple methods may exist until IP found
Static IP (enable/disable)	static	rw	on, off	Used as an IP assignment method. Multiple methods may exist until IP found
Wireless Channel	channel	rw	0-14	Specify 0 for auto-scan.
Wireless Encryption (WEP)	wep_type	rw	64bit, 128bit, none	
Wireless Encryption (WEP) Transmit Key	wepkey_index	rw	1-4	

WEP Encryption Key	wepkey1	w		Write only. The values are strings made up of hexadecimal characters that represent the WEP key. When wep_mode is 64bit the key should be 10 characters long. When wep_mode is 128bit the key should be 26 characters long. Example of 64bit wepkey: <wepkey1> ab01ef02d8 </wepkey1>.
WEP Encryption Key	wepkey2	w		
WEP Encryption Key	wepkey3	w		
WEP Encryption Key	wepkey4	w		
Wireless Protocol Mode	protocol_mode	rw	bss_join, ibss_join, ibss_join_create, any	bss_join – Infrastructure (Access Points), ibss_join – Peer to Peer (Ad Hoc)
Wireless Network Name (SSID)	ssid	rw	0-32 characters	Empty string denotes automatically connect to any available network
Wireless RTS Threshold	rts_threshold	rw	0-2347	
Wireless Fragment Threshold	fragment_threshold	rw	256-2346	
Wireless Max Transmit Rate	max_txrate	rw	1MB, 2MB, 5_5MB, 11MB	
Wireless Country Code	country_code	rw	name of country not case sensitive	for example: United States Canada
Wireless Authentication	authentication	rw	open sharedkey wep_auth wpa_psk wpa_auth leap	Specify multiple types by using comma separated list with no spaces.
Wireless Encryption	encrypt	rw	open wep tkip ccmp	Specify multiple types by using a comma separated list with no spaces

Wireless outer/inner EAP	eap	rw	leap peap tls ttls gtc md5 mschapv2 otp ttls-chap ttls-mschap ttls-mschapv2 ttls-pap	Specify multiple types by using a comma separated list with no spaces
Wireless Options	options	rw	diversity shortpreamble verifycert	Specify multiple types by using a comma separated list with no spaces. diversity valid only on devices with multiple antennae
User Name	wpa_username	w	Up to 32 characters	The username that will be used when wpa-auth is being established.
Password	wpa_password	w	Up to 32 characters	The password that will be used when wpa-auth is being established.
Pre-shared Key	wpa_psk	w	8-64 characters	A pass phrase that gets converted into a pre-shared key. Setting this value requires a lengthy calculation that can take over 30 seconds.

Errors and Warnings

E/W	ID	Description
E	1	Internal error (load failed)
E	2	Internal error (save failed)
E	3	Insufficient permissions
E	4	Field specified does not exist
E	5	Invalid ethernet speed
E	6	Invalid ethernet duplex
E	7	Invalid DHCP setting
E	8	Invalid IP address

E	9	Invalid subnet mask
E	10	Invalid gateway address
E	14	ip address cannot start with 224-239 (class D network)
E	15	ip address cannot start with 240-255 (class E network)
E	16	Address cannot be the broadcast address
E	17	Invalid network configuration (network or host portion is invalid)
E	18	Invalid network configuration (no route from host to gateway)
E	19	Invalid Auto IP setting
E	20	Invalid RARP setting
E	21	Invalid Ping
E	22	Invalid ADDP setting
E	23	Invalid Static IP setting
E	24	Invalid wireless channel
E	25	Invalid wireless security (WEP)
E	26	Invalid wireless transmit key index
E	27	Invalid wireless protocol mode
E	28	Invalid wireless SSID
E	29	Invalid WEP key
E	30	Invalid wireless RTS threshold
E	31	Invalid wireless fragmentation threshold
E	32	Invalid wireless max transmit rate
E	33	Invalid wireless country
E	34	Invalid wireless authentication types
E	35	Invalid wireless encryption types
E	36	Invalid outer/inner EAP type
E	37	Invalid wireless user name
E	38	Invalid wireless password
E	39	Invalid wireless PSK
E	40	Invalid wireless options

Serial Setting Group

RCI name: "serial"

Valid with: query_setting, set_setting, set_factory_default

Attribute "index" specifies the serial port. Default is 1.

Description	RCI element	r/rw	Values	Comments
Baud Rate	baud	rw	50, 75, 110, 134, 150, 200, 300, 600, 1200, 1800, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600, 115200, 230400	
Data Bits	databits	rw	5, 6, 7, 8	
Stop Bits	stopbits	rw	1, 2	
Parity	parity	rw	none, odd, even, mark, space	
Flow Control	flowcontrol	rw	none, software, hardware	
Port description	desc	rw	max 32 characters	
RTS Toggle	rtsflow	rw	on, off, toggle	
RTS Toggle Pre-Delay	predelay	rw	0-5000 (ms)	
RTS Toggle Post-Delay	postdelay	rw	0-5000 (ms)	
RCI over Serial	rciserial	rw	on, off	Setting only valid on first serial port

Errors and Warnings

E/W	ID	Description
E	1	Internal error (load failed)
E	2	Internal error (save failed)
E	3	Insufficient permissions
E	4	Field specified does not exist
E	5	Invalid baud rate
E	6	Invalid databits
E	7	Invalid stopbits
E	8	Invalid parity

E	9	Invalid flow control
E	11	Invalid description
E	12	Invalid RTS toggle delay (pre-delay or post-delay)
E	13	Invalid RCI over serial setting

GPIO Mode Setting Group

RCI name: "gpio_mode"

Valid with: query_setting, set_setting, set_factory_default

No attributes.

Description	RCI element	r/rw	Values	Comments
GPIO Pin Mode	pin<x>	rw	serial, in, out, invalid	x is 1 to 5. Invalid returned on internal error. Pin cannot be set to "invalid". Ex: <pin1>in</pin1>

Errors and Warnings

E/W	ID	Description
E	1	Internal error (load failed)
E	2	Internal error (save failed)
E	3	Insufficient permissions
E	4	Invalid pin
E	5	Invalid mode

Alarms Setting Group

RCI name: "gpio_alarm"

Valid with: query_setting, set_setting, set_factory_default

There are 10 configurable alarms which are independently configured below as indicated by the alarm element.

Description	RCI element	r/rw	Values	Comments
SMTP mail server used to send email	smtp_server	rw	valid ip address	
From: originator of email	from	rw	Max 64 characters	
GPIO Alarm Service (enabled/disabled)	state	rw	on, off	

Alarms 1 to 32	alarm	n/a	n/a	Use attribute index to specify which alarm, 1 to 32.
Alarms Up to 32 alarms may be configured. Use elements of the form <alarm index="xx"> to configure alarms 1 through 32. The following elements are sub-elements of alarm.				
Description	RCI element	r/rw	Values	Comments
Turns on/off this alarm	state	rw	on, off	
Trigger on (transition/state)	trigger_on_state	rw	on, off	
Alarm Interval Time	alarm_interval	rw		Seconds. If state trigger, this is the interval to wait between sending alarms if trigger state achieved and is constant.
Alarm Throttle Time	alarm_throttle	rw		Seconds, Alarms caused by transitions can be sent only once every alarm_throttle
GPIO Monitor Mask	gpio_monitor_mask	rw	4 byte hex mask: ex: 0x00000000	Identifies the GPIO pins that will be monitored for this trigger. This is a bit mask field, with the least significant 5 bits representing the GPIO lines. GPIO pin 1 is the least significant bit. The rest of the mask must be set to zero.
GPIO State Mask	gpio_state_mask	rw	4 byte hex mask: ex: 0x00000000	Identifies the GPIO state (asserted/unasserted) to trigger on. This is a bit mask field, and the state bits correspond to the monitor mask.
Priority	priority	rw	normal, high	
Subject in email	subject	rw		
to: in email	to	rw	Max 64 characters	
cc: in email	cc	rw	Max 64 characters	

Serial data match string	match_string	rw		valid when trigger_mode is pattern_match
Trigger on gpio line or serial pattern match	trigger_mode	rw	gpio, pattern_match	
Type of alarm to generate	alarm_type	rw	email, snmptrap, all	
Serial Port to match strings	port	rw	index of serial port	valid for multi port devices only

Errors and Warnings

E/W	ID	Description
E	1	Internal error (load failed)
E	2	Internal error (save failed)
E	3	Insufficient permissions
E	4	Field specified does not exist
E	5	Invalid alarm index
E	6	Invalid global alarm state
E	7	Recipient too long
E	8	Invalid recipient
E	9	CC too long
E	10	Invalid CC
E	11	Sender too long
E	12	Invalid sender
E	13	Subject too long
E	14	Invalid subject
E	25	Invalid priority
E	16	Invalid smtp address
E	17	Invalid alarm interval
E	18	Invalid throttle interval
E	19	Invalid monitor mask
E	20	Invalid state mask
E	21	Invalid match string
E	22	Match string too long
E	23	Invalid trigger mode
E	24	Invalid serial port for serial pattern matching (valid on multi-port devices only)

E	25	Invalid alarm type
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Autoconnect Setting Group
RCI name: "autoconnect"
Valid with: query_setting, set_setting, set_factory_default
Attribute "index" specifies the serial port. Default is 1.
Autoconnect specifies the behavior of the Digi device when the Digi device initiates a TCP connection to a TCP server.

Description	RCI element	r/rw	Values	Comments
Autoconnect service (enable/disable)	state	rw	on, off	
Connect trigger	trigger	rw	always, data, dsr, dcd, string	
Connection type	service	rw	raw, ssl, telnet, rlogin	
Description	desc	rw	Max 32 characters	
Destination to connect to	address	rw	valid IP address	
Socket on destination to connect to	port	rw	0-65535 (TCP network port)	
Strip connect pattern from data sent	strip_pattern	rw	on, off	Not used unless trigger = string
Connect when this pattern is detected on the serial port	pattern	rw	0-32 characters that may include characters such as \r, \n, etc	Not used unless trigger = string
TCP keepalive setting	keepalive	rw	on, off	
TCP nodelay setting	nodelay	rw	on, off	

Errors				
E/W	ID	Description		
E	1	Internal error (load failed)		
E	2	Internal error (save failed)		
E	3	Insufficient permissions		
E	4	Field specified does not exist		
E	5	Read only field		
E	6	Invalid state		
E	7	Invalid connect trigger		
E	8	Invalid connect service		
E	9	Invalid destination description		
E	10	Invalid destination address		
E	11	Invalid destination port		
E	12	Invalid connect string		
E	13	Invalid keepalive		
E	14	Invalid nodelay		
UDP Serial Setting Group				
RCI name: "udp_serial"				
Valid with: query_setting, set_setting, set_factory_default				
Attribute "index" specifies the serial port. Default is 1.				
There may be up to 10 UDP destinations.				
Description	RCI element	r/rw	Values	Comments
UDP client service (enable/disable)	state	rw	on, off	
Send when pattern matched	trigger_on_pattern	rw	on, off	
Strip pattern string before sending	strip_pattern	rw	on, off	
Send after idle timeout	trigger_on_timeout	rw	on, off	
Idle timeout	timeout	rw	0-65535 ms	Milliseconds
Send data threshold	count	rw	0-4096 (in bytes)	
Trigger pattern	pattern	rw	Max 16 characters	

Include socket id on send	socketid_state	rw	on, off	
Socket id text to be included with data sent	socketid_string	rw	0-256 characters	0-32 characters
Close Time	closetime	rw	0-65535 ms	

UDP Destinations

Destinations 1 through 64 may be configured using the RCI element:

<dest index="xx"> where xx is 1 through 64.

The following elements are configured as sub-elements of <dest>

Description	RCI element	r/rw	Values	Comments
UDP Destination (enable/disable)	state	rw	on, off	
UDP Destination IP address	address	rw	valid IP address	
UDP Destination socket to connect to	port	rw	0-65535 (UDP network port)	
UDP Destination description	desc	rw	0-32 characters	

Errors and Warnings

E/W	ID	Description
E	1	Internal error (load failed)
E	2	Internal error (save failed)
E	3	Insufficient permissions
E	4	Field specified does not exist
E	5	Field is read only
E	6	Invalid state
E	7	Invalid trigger on pattern state
E	8	Invalid pattern length
E	9	Invalid trigger on timeout state
E	10	Invalid timeout value
E	11	Invalid close time
E	13	Invalid count
E	14	Invalid destination state
E	15	Invalid destination description
E	16	Invalid destination address
E	17	Invalid destination network port

E	18	Invalid socket ID
E	19	Invalid pattern

Inbound Network Services

A collection of settings groups that allow network services state(enabled/disabled) and port to be configured.
Valid with: query_setting, set_setting, set_factory_default

No attributes defined.

All of the following settings groups support the following fields: state, port, desc, keepalive, and nodelay.

state may be on or off.

port may be any valid network port not currently assigned to another service. Note, a port may be assigned to one UDP service and one TCP service.

desc is a description of the service and is read-only

keepalive may be on or off

nodelay may be on or off.

Service Description	RCI Setting Group	Default port	Comments
Encrypted RealPort	secure_realport	1027	
Telnet Server	telnet_server	2001	
TCP Server	tcp_server	2101	
Serial/UDP Server	udp_server	2101	
Secure Socket (SSL)	securesocket	2601	
RealPort	realport	771	
Telnet Service	telnet	23	
Line Printer Daemon	lpd	515	
Pseudo-Modem Pool	pmodem_pool	50000	
Pseudo-Modem server	pmodem_service	50001	
SNMP	snmp_service	161	
ADDP	addp	2362	
Remote Login (Rlogin)	rlogin	513	
Remote Shell (RSH)	rsh	514	
TCP Echo	tcp_echo	7	
UDP Echo	udp_echo	7	
Secure Shell (SSH)	ssh	22	
Secure HTTP	https	443	
Secure Shell (SSH) server	ssh_server	2501	
HTTP	http	80	

Errors and Warnings		
E/W	ID	Description
E	1	Internal error (load failed)
E	2	Internal error (save failed)
E	3	Insufficient permissions
E	4	Field specified does not exist
E	5	Field is read-only
E	8	Invalid state
E	9	Invalid port
E	11	Invalid description
E	12	Invalid keepalive
E	13	Invalid nodelay

Simple Password Setting Group
 RCI name: "simple_password"
 Valid with: set_setting, set_factory_default, query_setting (passwords are saved encrypted through RCI. Only the encrypted password can be returned in queries. Only the encrypted password should be uploaded.)
 No attributes defined.

Description	RCI element	r/rw	Values	Comments
User name	username	rw	Max 16 characters	
User password	password	w	Max 16 characters	If the password is lost, the device must be reset to factory defaults.
Security mode	password_mode	rw	always_reject, always_accept, test_password	always_reject disables this username always_accept disables password checking test_password checks for correct password
SNMP public community name	public_comm	N/A	N/A	Field deprecated for "SNMP Setting Group"
SNMP private community name	private_comm	N/A	N/A	Field deprecated for "SNMP Setting Group"
SSH public key	public_key	rw	Max 511 characters	

Errors and Warnings		
E/W	ID	Description
E	1	Internal error (load failed)
E	2	Internal error (save failed)
E	3	Field specified does not exist

E	4	Invalid username
E	5	Invalid password
E	6	Invalid mode
E	7	Invalid SSH public key

TCP Serial Setting Group

RCI name: "tcp_serial"

Valid with: query_setting, set_setting, set_factory_default

No attributes defined.

Description	RCI element	r/rw	Values	Comments
Send socket id	socketid_state	rw	on, off	
Socket id to send	socketid_string	rw	0-256 characters	
Drop TCP connection when DCD goes low	hangup_dcd	rw	on, off	
Drop TCP connection when DSR goes low	hangup_dsr	rw	on, off	
Drop TCP connection on timeout	idle_timeout	rw	0-65535 (ms)	
Forward Serial Data	fwd_buffered	rw	on, off	
Forward on Bytes	fwd_count	rw	0-65535 (bytes)	
Forward on Timeout	fwd_trigger_on_timeout	rw	on, off	
Forwarding Timeout	fwd_timeout	rw	0-65535 (ms)	
Forward on Pattern	fwd_trigger_on_pattern	rw	on, off	
Forwarding Pattern	fwd_pattern	rw	1-16 chars	
Strip Pattern	fwd_strip_pattern	rw	on, off	

Errors and Warnings				
E/W	ID	Description		
E	1	Internal error (load failed)		
E	2	Internal error (save failed)		
E	3	Insufficient permissions		
E	4	Field specified does not exist		
E	5	Invalid state		
E	6	Invalid socket ID		
E	7	Invalid timeout		
E	8	Invalid forward buffer		
E	9	Invalid forward count		
E	10	Invalid trigger on timeout		
E	11	Invalid forward timeout		
E	12	Invalid trigger on pattern		
E	13	Invalid pattern length		
E	14	Invalid strip pattern		
E	15	Invalid pattern		
Pseudo Modem Setting Group				
RCI name: pmodem				
Valid with: query_setting, set_setting, set_factory_default				
Attribute "index" specifies the serial port. Default is 1.				
Description	RCI Element	R/W	Values	Comments
Pmodem state (enable/disable)	state	rw	on, off	
Telnet state	telnet_state	rw	on, off	
Errors and Warnings				
E/W	ID	Description		
E	1	Internal error (load failed)		
E	2	Internal error (save failed)		
E	3	Insufficient permissions		
E	4	Field specified does not exist		
E	5	Invalid pmodem state		
E	6	Invalid telnet state		

Port Buffering Setting Group

RCI name: portbuffer

Valid with: query_setting, set_setting, set_factory_default

Attribute "index" specifies the serial port. Default is 1.

Description	RCI Element	R/W	Values	Comments
Buffer State	state	rw	on, off, pause	
Buffer Size	size	rw	1-1024 (KB)	
Clear Buffer Data	clear	write-only	none	Write-only command (value is ignored)

Errors and Warnings

E/W	ID	Description
E	1	Internal error (load failed)
E	2	Internal error (save failed)
E	3	Insufficient permissions
E	4	Field specified does not exist
E	5	Invalid buffer size
E	6	Internal error (unable to set size)
E	7	Invalid buffer state
E	8	Internal error (unable to set state)

Serial Profile Setting Group

RCI name: profile

Valid with: query_setting, set_setting, set_factory_default

Attribute "index" specifies the serial port. Default is 1.

Description	RCI Element	R/W	Values	Comments
Serial Profile	profile_type	rw	unassigned, console_management, industrial_automation, modem_emulation, modem, power_management, printer, tcp_sockets, terminal, udp_sockets, realport, tunneling, custom, local_config	

Errors and Warnings

E/W	ID	Description
E	1	Internal error (load failed)
E	2	Internal error (save failed)
E	3	Insufficient permissions

E	4	Field specified does not exist
E	5	Invalid profile type
E	6	Unsupported profile

SNMP Setting Group

RCI name: snmp

Valid with: query_setting, set_setting, set_factory_default

No attributes.

Description	RCI Element	R/W	Values	Comments
Public Community name	public_community	rw	1-64 chars	default is 'public'
Private Community name	private_community	rw	1-64 chars	default is 'private'
Allow SNMP "set" commands	snmp_sets_enabled	rw	on, off	
Trap Destination	trap_dest	rw	valid ip address	
Send Failed Authorization Traps	auth_trap	rw	on, off	
Send Cold Start Traps	cold_start_trap	rw	on, off	
Send Link Up Traps	link_up_trap	rw	on, off	
Send Login Traps	login_trap	rw	on, off	

Errors and Warnings

E/W	ID	Description
E	1	Internal error (load failed)
E	2	Internal error (save failed)
E	3	Insufficient permissions
E	4	Field specified does not exist
E	5	Invalid trap destination ip address
E	6	Invalid public community length
E	7	Invalid private community length
E	8	Invalid SNMP sets setting
E	9	Invalid cold start traps setting
E	10	Invalid link up traps setting
E	11	Invalid auth fail traps settings
E	12	Invalid login traps setting

System Setting Group				
RCI name: system				
Valid with: query_setting, set_setting, set_factory_default				
No attributes.				
Description	RCI Element	R/W	Values	Comments
Contact Name	contact	rw	1-64 chars	
Location Name	location	rw	1-64 chars	
Description	description	rw	1-64 chars	
Errors and Warnings				
E/W	ID	Description		
E	1	Internal error (load failed)		
E	2	Internal error (save failed)		
E	3	Insufficient permissions		
E	4	Field specified does not exist		
E	5	Invalid contact name		
E	6	Invalid location name		
E	7	Invalid description		

GPIO Setting Group				
RCI name: gpio				
Valid with: query_setting, set_setting, set_factory_default				
No attributes.				
Description	RCI Element	R/W	Values	Comments
Pin State	pin<n>	rw	asserted, uasserted, unknown	n is 1 to 5. Ex. <pin1>asserted</pin1> Unknown will only be returned if an internal error occurred
Errors and Warnings				
E/W	ID	Description		
E	1	Insufficient permissions		
E	2	Invalid pin		
E	3	Invalid state		
E	4	GPIO set failed (internal error)		
E	5	Set not allowed (GPIO pin not in out mode)		

Access Control Setting Group				
RCI name: accesscontrol				
Valid with: query_setting, set_setting, set_factory_default				
No attributes.				
Description	RCI Element	R/W	Values	Comments
Access Control Service	enabled	rw	on, off	
Auto Add Subnets and Subnet Masks	autoAddSubnets	rw	on, off	
IP Addresses 1 to 64	addressArray	n/a	See the following description – Address Array	Use attribute index ...
Subnet IP Address Subnet Mask Pairs 1 to 32	subnetArray	n/a	See the following description – Subnet Array	Use attribute index ...
Address Array				
Up to 64 IP addresses may be configured				
Use elements of the form <addressArray index="xx"> to configure up to 64 IP addresses that are allowed to access this device.				
The following elements are sub-elements of addressArray.				
Description	RCI Element	R/W	Values	Comments
IP Address	ipAddress	rw	valid ip address	
Subnet Array				
Up to 32 subnet IP address and subnet mask pairs may be configured				
Use elements of the form <subnetArray index="xx"> to configure up to 32 IP/subnet pairs that are allowed to access this device.				
The following elements are sub-elements of subnetArray.				
Description	RCI Element	R/W	Values	Comments
Subnet IP Address	subnetIpAddress	rw	valid subnet address	
Subnet Mask	subnetMask	rw	valid subnet mask	
Errors and Warnings				
E/W	ID	Description		
E	1	Internal error (load failed)		
E	2	Internal error (save failed)		
E	3	Field specified does not exist		
E	4	Invalid Access Control Enable		
E	5	Invalid Auto Add Subnets and Subnet Masks		
E	6	Invalid Address Array index		
E	7	Invalid Address Array IP address		
E	8	Invalid Subnet Array index		
E	9	Invalid Subnet Address		

E	10	Invalid Subnet Mask
E	11	Insufficient permissions

User Setting Group

RCI name: user

Valid with: query_setting, set_setting, set_factory_default

Attribute "index" specifies the User ID. Default is 1

Description	RCI Element	R/W	Values	Comments
User is defined	defined	rw	on, off	
User name	name	rw		Maximum of 16 characters
User password	password	rw		32 hexadecimal digits preceded by 0x
Associated group	associate	rw		Valid only if groups supported. Group ID 1 to maximum group. This field may be specified two times
Group access	group_access	rw	on, off	Valid only if groups supported.
Access group	access_group	rw	none, group ID	Valid only if groups supported. Used only if group_access is on. Must match one of the associated groups.
Command line access	commandline_access	rw	on, off	
Menu access	menu_access	rw	on, off	Valid only if menus supported.
Custom menu	custom_menu	rw	none, menu ID	Valid only if menus supported. Used only if menu_access is on. Must match a defined menu.
Default access	default_access	rw	none, commandline, group, menu	Group valid only if groups supported. Menu valid only if menus supported.
SSH public key	public_key	w		Maximum of 511 characters

Errors and Warnings		
E/W	ID	Description
E	1	Internal error (load failed)
E	2	Internal error (save failed)
E	3	Insufficient permissions
E	4	Field specified does not exist
E	5	Invalid name
E	6	Invalid password
E	7	Invalid group ID
E	8	Associated group list full
E	9	Specified group not associated with this user
E	10	Invalid RCI defined
E	11	Invalid RCI group ID
E	12	Invalid group access
E	13	Access group not specified when group access is enabled
E	14	Invalid access group or group not associated with user
E	15	Invalid command line access
E	16	Invalid custom menu access
E	17	Custom menu not specified when custom menu access is enabled
E	18	Invalid custom menu or custom menu does not exist
E	19	Invalid default access
E	20	Default access service is disabled and required to be enabled
E	21	Invalid public key
E	22	Groups not supported

Group Setting Group				
RCI name: group				
Valid only if groups supported				
Valid with: query_setting, set_setting, set_factory_default				
Attribute "index" specifies the group ID. Default is 1				
Description	RCI Element	R/W	Values	Comments
Group is defined	defined	rw	on, off	
Group name	name	rw		Maximum of 16 characters
Command line access	commandline_access	rw	on, off	
Menu access	menu_access	rw	on, off	Valid only if menus supported

Custom menu	custom_menu	rw	none, menu ID	Valid only if menus supported. Used only if menu access is on. Must match a defined menu
Default access	default_access	rw	none, commandline, menu	Menu valid only if menus supported.

Errors and Warnings

E/W	ID	Description
E	1	Internal error (load failed)
E	2	Internal error (save failed)
E	3	Insufficient permissions
E	4	Field specified does not exist
E	5	Invalid name
E	10	Invalid RCI defined
E	15	Invalid command line access
E	16	Invalid custom menu access
E	17	Custom menu not specified when custom menu access is enabled
E	18	Invalid custom menu or custom menu does not exist
E	19	Invalid default access
E	20	Default access service is disabled and required to be enabled
E	21	Invalid public key
E	22	Groups not supported

Device Security Setting Group

RCI name: devicesecurity

Valid only if MicroClient supported

Valid with: query_setting, set_setting, set_factory_default

No attributes.

Description	RCI Element	R/W	Values	Comments
Type of server authentication	identityVerificationForm	rw	simple, crypto	
Encryption methods used during discovery	discoveryCodingScheme	rw	noneNone, aesMd5, noneMd5	
Encryption methods used during message passing	messagePassingScheme	rw	noneNone, aesMd5, noneMd5	

Key size for AES encryption	clientKeySize	rw	default, 128Bit, 192Bit,256Bit	
Key encrypting key	keyEncryptingKey	rw		64 hexadecimal digits preceded by 0x
Key generating key	keyGeneratingKey	rw		64 hexadecimal digits preceded by 0x
Key seed	keySeed	rw		32 hexadecimal digits preceded by 0x

Errors and Warnings

E/W	ID	Description
E	1	Internal error (load failed)
E	2	Internal error (save failed)
E	3	Field specified does not exist
E	4	Invalid Identity Verification Form
E	5	Invalid discovery coding scheme
E	6	Invalid message passing scheme
E	7	Invalid client key size
E	8	Invalid key encrypting key
E	9	Invalid key generation key
E	10	Invalid key seed
E	11	Insufficient Permissions

Forwarding Setting Group

RCI name: forwarding

Valid with: query_setting, set_setting, set_factory_default

No attributes.

Description	RCI Element	R/W	Values	Comments
Forwarding state	state	rw	disabled, passive, active	

Errors and Warnings

E/W	ID	Description
E	1	Internal error (load failed)
E	2	Internal error (save failed)
E	3	Field specified does not exist
E	5	Invalid state
E	6	Insufficient permissions

Host Setting Group				
RCI name: host				
Valid only if DHCP option 12 supported				
Valid with: query_setting, set_setting, set_factory_default				
No attributes.				
Description	RCI Element	R/W	Values	Comments
Host name	name	rw		Maximum of 31 characters that cannot contain "@" or "."
Errors and Warnings				
E/W	ID	Description		
E	1	Internal error (load failed)		
E	2	Internal error (save failed)		
E	3	Field specified does not exist		
E	4	Invalid host name		
E	5	Insufficient permissions		
Menu Setting Group				
RCI name: menu				
Valid with: query_setting, set_setting, set_factory_default				
No attributes.				
Description	RCI Element	R/W	Values	Comments
		rw		
Errors and Warnings				
E/W	ID	Description		
E	1	Internal error (load failed)		
E	2	Internal error (save failed)		
E	3	Insufficient permissions		
E	4	Field specified does not exist		
E	5			
Management Global Setting Group				
RCI name: mgmtglobal				
Valid with: query_setting, set_setting, set_factory_default				
No attributes.				
Description	RCI Element	R/W	Values	Comments
Device ID	deviceid	rw		32 hexadecimal digits preceded by 0x
Errors and Warnings				
E/W	ID	Description		
E	1	Internal error (load failed)		

E	2	Internal error (save failed)
E	3	Field specified does not exist
E	4	Invalid device ID
E	5	Insufficient permissions

Management Network Setting Group

RCI name: mgmtnetwork

Valid with: query_setting, set_setting, set_factory_default

Attribute "index" specifies the type of network for this instance. 1 => modem PPP, 2 => ethernet, 3 => 802.11. This index must match the networkType RCI element. Default is 1.

Description	RCI Element	R/W	Values	Comments
Network type	networkType	rw	modemPPP, ethernet, 802.11	
Firewall traversal method	connectMethod	rw	auto, none, mt, mdh, proxy	
Proxy host address	proxyAddress	rw		Maximum of 63 characters
Proxy host port	proxyPort	rw	0-65535 (TCP network port)	
Proxy login string	proxyLogin	rw		Maximum of 31 characters
Proxy password string	proxyPassword	rw		Maximum of 31 characters
Proxy persistent connection	proxyPersistentConnection	rw	on, off	
MT transmit keep alive time	mtRxKeepAlive	rw	5-65535	
MT receive keep alive time	mtTxKeepAlive	rw	5-65535	
MT wait count	mtWaitCount	rw	2-64	
MDH transmit keep alive time	mdhRxKeepAlive	rw	30-65535	
MDH receive keep alive time	mdhTxKeepAlive	rw	30-65535	
MDH wait count	mdhWaitCount	rw	2-64	

Errors and Warnings		
E/W	ID	Description
E	1	Internal error (load failed)
E	2	Internal error (save failed)
E	3	Field specified does not exist
E	4	Invalid network type
E	5	Invalid connect method
E	6	Invalid proxy address length
E	7	Invalid proxy port
E	8	Invalid proxy login length
E	9	Invalid proxy password length
E	10	Invalid proxy persistent connection
E	11	Invalid MT receive keep alive
E	12	Invalid MT transmit keep alive
E	13	Invalid MT wait count
E	14	Invalid MDH receive keep alive
E	15	Invalid MDH transmit keep alive
E	16	Invalid MDH wait count
E	17	Insufficient permissions

Management Connection Setting Group

RCI name: mgmtconnection
Valid with: query_setting, set_setting, set_factory_default
Attribute "index" specifies the type of connection for this instance. 1 => client, 2 => timed, 3 => server initiated. This index must match the connectionType RCI element. Default is 1.

Description	RCI Element	R/W	Values	Comments
Connection type	connectionType	rw	client, timed, serverInitiated	
Connection enabled	connectionEnabled	rw	on,off	
Timed Connection Period	timedConnectionPeriod	rw		
Timed connection offset	timedConnectionOffset	rw	immediate, onePeriod, randomTime	
Last know address update enabled	lastKnownAddressUpdateEnabled	rw	on, off	
Client connection reconnect timeout	clientConnectionReconnectTimeout	rw	-32768, 0-32767	

Server Address Table				
Address tables 1 through 8 may be configured using the RCI element: <serverArray index="x" where x is 1 through 8. The following elements are configured as sub-elements of <serverArray>				
Description	RCI Element	R/W	Values	Comments
Server address	serverAddress	rw	Maximum of 255 characters	
Security setting index	securitySettingsIndex	rw		
Errors and Warnings				
E/W	ID	Description		
E	1	Internal error (load failed)		
E	2	Internal error (save failed)		
E	3	Field specified does not exist		
E	4	Invalid server address length		
E	5	Invalid server address index		
E	6	Invalid security settings index		
E	7	Invalid security settings index index		
E	8	Invalid connection type		
E	9	Invalid connection enabled		
E	10	Invalid timed connection period		
E	11	Invalid timed connection offset		
E	12	Invalid last known address update enabled		
E	13	Invalid client connection reconnect timeout		
E	14	Insufficient permissions		
Mobile Setting Group				
RCI name: mobile Valid with: query_setting, set_setting, set_factory_default No attributes.				
Description	RCI Element	R/W	Values	Comments
Mobile provider	mobile_provider	rw	cingular_blue, cingular_orange, sprint_pcs, verizon, custom	
Errors and Warnings				
E/W	ID	Description		
E	1	Internal error (load failed)		
E	2	Internal error (save failed)		
E	3	Field specified does not exist		

E	5	Insufficient permissions
E	6	Invalid provider

PPP Setting Group

RCI name: ppp

Valid with: query_setting, set_setting, set_factory_default

Attribute "index" specifies the inbound or outbound serial port. Index 1 through maximum port specifies the inbound ppp settings for ports 1 through maximum port. Index maximum port plus 1 through 2 times maximum port specifies the outbound ppp settings for ports 1 through maximum port. Default is 1.

Description	RCI Element	R/W	Values	Comments
PPP enabled	enabled	rw	disabled, enabled	
Authentication method	auth_method_local	rw	none, PAP, CHAP, PAPCHAP	
Passive or active	passive	rw	active, passive	
Remote IP address	address_remote	rw	valid ip address	
Local IP address	address_local	rw	valid ip address	
Subnet mask	address_mask	rw	valid subnet mask	
Default gateway	default_gateway	rw	yes, no	PPP outbound only
Protocol compression	compression_protocol	rw	on, off	
Address compression	compression_address	rw	on, off	
Header compression	compression_header	rw	on, off	
Asynchronous control character map	asynctmap	rw	hexadecimal string 0 through FFFFFFFF	
Maximum received unit	mru	rw	0-2048	
Maximum transmission unit	mtu	rw	0-2048	
Initialization script	init_script	rw	0-104 characters	
Dial script	dial_script	rw	0-104 characters	PPP outbound only
Login script	login_script	rw	0-104 characters	PPP outbound only
CHAP ID	chap_id	rw	0-33 characters	PPP outbound only
CHAP key	chap_key	rw	0-16 characters	PPP outbound only

PAP ID	pap_id	rw	0-33 characters	PPP outbound only
PAP password	pap_password	rw	0-16 characters	PPP outbound only
Phone number	n1	rw	0-20 digits	PPP outbound only
Phone number	n2	rw	0-20 digits	PPP outbound only
Phone number	n3	rw	0-20 digits	PPP outbound only
Phone number	n4	rw	0-20 digits	PPP outbound only
Redial attempts	redial_attempts	rw		PPP outbound only
Redial delay	redial_delay	rw	1-64000	PPP outbound only
Receive idle time	idle_timer_rx	rw	0-86400	PPP outbound only
Transmit idle time	idle_timer_tx	rw	0-86400	PPP outbound only

Errors and Warnings

E/W	ID	Description
E	1	Internal error (load failed)
E	2	Internal error (save failed)
E	3	Field specified does not exist
E	5	Invalid enabled
E	6	Invalid authentication method
E	7	Invalid passive
E	8	Invalid remote address
E	9	Invalid local address
E	10	Invalid address mask
E	11	Invalid protocol compression
E	12	Invalid address compression
E	13	Invalid header compression
E	14	Invalid asynchronous map
E	15	Invalid MRU
E	16	Invalid MTU
E	17	Invalid initialization script
E	18	Invalid dial script
E	19	Invalid login script
E	20	Invalid CHAP ID
E	21	Invalid CHAP key
E	22	Invalid PAP ID
E	23	Invalid PAP password
E	24	Invalid default gateway
E	25	Invalid phone number
E	26	Invalid redial attempts
E	27	Invalid redial delay
E	28	Invalid idle timer
E	29	Insufficient permissions

Router Setting Group				
RCI name: router				
Valid with: query_setting, set_setting, set_factory_default				
No attributes.				
Description	RCI Element	R/W	Values	Comments
IP forwarding enabled	ipForwardingEnabled	rw	on,off	
Network address translation enabled	natEnabled	rw	on, off	
Protocol Translation Array				
Protocol translation entries 1 through 4 may be configured using the RCI element <protoXlateArray index="x" where x is 1 through 4.				
The following elements are configured as sub-elements of <protoXlateArray>				
Description	RCI Element	R/W	Values	Comments
Protocol translation enabled	protoXlateEnabled	rw	on, off	
Protocol number	protoXlateNumber	rw	gre	
Protocol type	protoXlateType	rw		
IP address	protoXlateIpAddress	rw	valid ip address	
Port Translation Array				
Port translation entries 1 through 64 may be configured using the RCI element <portXlateArray index="x" where x is 1 through 64.				
The following elements are configured as sub-elements of <portXlateArray>				
Description	RCI Element	R/W	Values	Comments
Port translation enabled	portXlateEnabled	rw	on, off	
Protocol	portXlateProto	rw	tcp, udp	
External port	portXlateExternalPort	rw	0-65535	
Internal port	portXlateInternalPort	rw	0-65535	
Internal IP address	portXlateInternalIpAddress	rw	valid ip address	
Errors and Warnings				
E/W	ID	Description		
E	1	Internal error (load failed)		
E	2	Internal error (save failed)		
E	3	Field specified does not exist		
E	4	Invalid IP forwarding enabled		
E	5	Invalid NAT enabled		

E	6	Invalid protocol translation index
E	7	Invalid protocol translation enabled
E	8	Invalid protocol translation number
E	9	Invalid protocol translation type
E	10	Invalid protocol translation IP address
E	11	Invalid port translation index
E	12	Invalid port translation enabled
E	13	Invalid port translation protocol
E	14	Invalid port translation external port
E	15	Invalid port translation internal port
E	16	Invalid port translation IP address
E	17	Insufficient permissions

Serial Terminal Setting Group

RCI name: term

Valid with: query_setting, set_setting, set_factory_default

Attribute "index" specifies the serial port. Default is 1.

Description	RCI Element	R/W	Values	Comments
Serial terminal state	state	rw	on, off	

Errors and Warnings

E/W	ID	Description
E	1	Internal error (load failed)
E	2	Internal error (save failed)
E	3	Insufficient permissions
E	4	Field specified does not exist
E	5	Invalid state

TCP Keepalive Setting Group

RCI name: tcpkeepalive

Valid with: query_setting, set_setting, set_factory_default

No attributes.

Description	RCI Element	R/W	Values	Comments
Garbage byte	garbage_byte	rw	on, off	
Override DHCP	override_dhcp	rw	on, off	
Probe count	probe_count	rw	5-30	
Probe interval	probe_interval	rw	10-75	
Idle	idle	rw	10-86400	

Errors and Warnings

E/W	ID	Description
E	1	Internal error (load failed)

E	2	Internal error (save failed)
E	3	Insufficient permissions
E	4	Field specified does not exist
E	6	Invalid garbage byte
E	7	Invalid override DHCP
E	8	Invalid probe count
E	9	Invalid probe interval
E	10	Invalid idle

Permissions Setting Group

RCI name: permissions

Valid with: query_setting, set_setting, set_factory_default

Attribute "index" specifies the permissions instance. This value is displayed in human readable form with the <instance> RCI element. Default is 1.

Note on masks: The eight masks listed below indicate which users and groups have the specified permission. The rightmost bit of the mask (0x00000001) is for user/group ID 1, the next bit (0x00000002) is for user/group ID 2, etc., up to the maximum number of supported users/groups.

Description	RCI Element	R/W	Values	Comments
Permissions instance text	instance	r	string	Use this text to match instance numbers with CLI or Web UI instance text. Ignored if write is attempted.
User read self permission	userRSelf	rw	8 digit hexadecimal mask preceded by 0x	
Group read self permission	groupRSelf	rw	8 digit hexadecimal mask preceded by 0x	Valid only if groups supported
User read all permission	userRead	rw	8 digit hexadecimal mask preceded by 0x 8 digit hexadecimal mask preceded by 0x	
Group read all permission	groupRead	rw	8 digit hexadecimal mask preceded by 0x	Valid only if groups supported

User write self permission	userWSelf	rw	8 digit hexadecimal mask preceded by 0x	
Group write self permission	groupWSelf	rw	8 digit hexadecimal mask preceded by 0x	Valid only if groups supported
User write all permission	userWrite	rw	8 digit hexadecimal mask preceded by 0x	
Group write all permission	groupWrite	rw	8 digit hexadecimal mask preceded by 0x	Valid only if groups supported
Errors and Warnings				
E/W	ID	Description		
E	1	Internal error (load failed)		
E	2	Internal error (save failed)		
E	3	Insufficient permissions		
E	4	Field specified does not exist		
E	9	Invalid permission mask		

The following table is READ ONLY

State – Read only classes

Device Information

RCI element "device_info"

No attributes defined

RCI Element	Description	Values	Comments
mac	MAC Address		Mac address in the form of aa:bb:cc:dd:ee:ff
product	Model (aka:Product Name)		Ex. Digi Connect ME
company	Manufacturer		Ex. Digi International Inc.
vendorid	Vendor ID		Ex. 44494749
boot	BOOT Version		Ex. Release_82000869_A
post	POST Version		Ex. Release_82000867_A
firmware	Firmware Version		Ex. Version 8200869_A 07/31/2003 16:45:34 CD
bootsoftrevstr			
postsoftrevstr			
firmwaresoftrevstr			
bootsoftrev			
postsoftrev			
firmwaresoftrev			

Serial Statistics

RCI element "serial_stats"

Attribute "index" specifies the serial port. Default is "1".

RCI Element	Description	Values	Comments
overrun_err	Overrun errors		
overflow_err	Overflow errors		
frame_err	Frame errors		
parity_err	Parity errors		
breaks	Breaks		
rx	Receive bytes		
tx	Transmit bytes		
dtr	Current state	on, off	
rts	Current state	on, off	
cts	Current state	on, off	
dsr	Current state	on, off	
dcd	Current state	on, off	

Network Statistics

RCI element "net_stats"

No attributes defined.

These values correspond to values returned by the SNMP network MIB defined in rfc 1213, which should be consulted for the definition of these values.

RCI Element	Description	Values	Comments
ifmtu			
ifspeed			
ifoperstatus			
ifinocets			
ifinucastpkts			
ifinmcastpkts			
ifindiscards			
ifinerrors			
ifinunknownprotos			
ifoutocets			
ifoutucastpkts			
ifoutmcastpkts			
ifoutdiscards			
ifouterrors			
ifoutqlen			
ipforwarding			
ipdefaultttl			
ipinreceives			
ipinhdrrerrors			
ipinaddrerrors			
ipforwdatagrams			
ipinunknownprotos			
ipindiscards			
ipoutdiscards			
ipoutnoroutes			
ipreasmtimeout			
ipreasmreqds			
ipreasmoks			
ipreasmfails			
ipfragoks			
ipfragfails			
ipfragcreates			

iproutingdiscards			
ipaclenables			
ipaclexamines			
ipacldiscards			
ipaclaccepts			
ipnatprivtopub			
ipnatpubtopriv			
icmpinmsgs			
icmpinerrors			
icmpindestunreachs			
icmpoutmsgs			
icmpoutdestunreachs			
tcptoalgorithm			
tcptomin			
tcptomax			
tcpmaxconn			
tcpactiveopens			
tcp passiveopens			
tcpattemptfails			
tcpestabresets			
tcpcurrentstab			
tcpinsegs			
tcpoutsegs			
tcpretranssegs			
tcpinerrs			
tcpoutrsts			
udpindatagrams			
udpnoports			
udperrors			
udpoutdatagrams			

Device Statistics

RCI element "device_stats"
No attributes defined

RCI Element	Description	Values	Comments
cpu	CPU utilization		percent
uptime	Up time		Seconds
totalmem	Memory total		Bytes

usedmem	Memory used		Bytes
freemem	Memory free		Bytes
Boot Statistics RCI element "boot_stats" No attributes defined			
RCI Element	Description	Values	Comments
dhcp	DHCP (enabled/disabled)	on, off	
ip	IP Address		
subnet	Subnet Mask		
gateway	Default Gateway		
autoip	Auto IP (enabled/disabled)	on, off	
rarp	RARP (enabled/disabled)	on, off	
arping	ARP PING (enabled/disabled)	on, off	
static	Static IP address (enabled/disabled)	on, off	
eth_speed	Ethernet speed	auto, 10, 100	
eth_duplex	Ethernet duplex	half, auto, full	
Wireless Statistics RCI element "wireless_stats" No attributes defined			
RCI Element	Description	Values	Comments
state	Wireless state	stopped, scanning, associated, authenticated, joined_ad_hoc, started_ad_hoc	
ssid	Associated SSID	SSID string	
bssid	Associated BSSID	BSSID in the form xx:xx:xx:xx:xx:xx	
tx_rate	Transmit rate	1, 2, 5.5, 11	
rx_signal	Receive signal strength	1 - 100	
Mobile Statistics RCI element "mobile_stats" No attributes defined			
RCI Element	Description	Values	Comments
modemtype	Modem type		
rssi	RSSI		
quality	RSSI Quality		

rstat	Registration status		
cid	Cell ID		GSM only
lac	Location area code		GSM only
imsi	IMSI		GSM only
manuf	Manufacturer ID		
model	Model ID		
sn	Serial number		
rev	Revision		
phnum	Phone number		CDMA only
sid	Service ID		CDMA only
nid	Network ID		CDMA only
pilotbase	Pilot base		CDMA only
dropreason	Call drop reason		CDMA only

Variable Information

Variable information 1 through n is displayed using the RCI element:

<varinfo index="x"> where x is a number 1 through n.

The following elements are sub-elements of <varinfo>

RCI Element	Description	Values	Comments
desc	Description	String	
data	Data	String	

PPP Statistics

RCI element "ppp_stats"

Attribute "index" specifies the inbound or outbound serial port. Index 1 through maximum port specifies the inbound ppp statistics for ports 1 through maximum port. Index maximum port plus 1 through 2 times maximum port specifies the outbound ppp statistics for ports 1 through maximum port.

RCI Element	Description	Values	Comments
state	State	inactive,active	
ip_address	IP address		
dns_address_primary	Primary DNS address		
dns_address_secondary	Secondary DNS address		
idle_timer_rx	Receive idle timer		
idle_timer_tx	Transmit idle timer		
idle_resets	Number of idle resets		
carrier_resets	Number of carrier resets		
service_resets	Number of service resets		
administrative_resets	Number of administrative resets		
non_administrative_resets	number of non-administrative resets		
rx_data	Total received data		
tx_data	Total received data		

rx_data_session	Received data this session		
tx_data_session	Transmitted data this session		
last_start	Last start		
last_time_rx	Last time receive		
last_time_tx	Last time transmit		

Device Registry
RCI element "device_registry"
No attributes defined

RCI Element	Description	Values	Comments
ethernet	Ethernet supported	on	
wireless	Wireless supported	on	
cellular	Cellular supported	on	
dhcp	DHCP supported	on	
addp	ADDP supported	on	
autoip	Auto-IP supported	on	
rarp	RARP supported	on	
arping	ARP-ping supported	on	
tls	TLS supported	on	
ssl	SSL supported	on	
lpd	LPD supported	on	
radius	Radius supported	on	
tcpserver	TCP server supported	on	
tcpecho	TCP echo supported	on	
udpecho	UDP echo supported	on	
pmodem	Pmodem supported	on	
smtp	SMTP supported	on	
realport	RealPort supported	on	
secure_realport	Secure RealPort supported	on	
telnet	Telnet supported	on	
rsh	RSH supported	on	
rlogin	Rlogin supported	on	
ssh	SSH supported	on	
reverse_ssh	Revers SSH supported	on	
snmp	SNMP supported	on	
http	HTTP supported	on	
https	HTTPS supported	on	
rlogin_c	Rlogin client supported	on	
rsh_c	RSH client supported	on	
telnet_c	Telnet client supported	on	

acl	Access control supported	on
acl_addresses	ACL addresses	max number of acl addresses
acl_subnets	ACL subnets	max number of acl subnets
router	Router supported	on
router_ports	Port translation	max number of port translate entries
router_protocols	Protocol translation	max number of protocol translate entries
mobile_cingular	Cingular supported	on
mobile_sprint	Verizon supported	on
mobile_verizon	Custom mobile supported	on
mobile_custom	Mobile GSM supported	on
mobile_gsm	Mobile CDMA supported	on
mobile_cdma	SNMP traps supported	on
snmp_traps	Menus supported	on
menu	PPP supported	on
ppp	Users supported	on
user	Commandline supported	on
commandline	Connect port supported	on
connect_port	Port buffering supported	on
portbuffering	Power management supported	on
power_management	Connectware supported	on
connectware	GPIO supported	on
gpio	GPIO pins	max number of gpio pins
gpio_pins	Alarms supported	max number of alarms
alarm_count	Serial ports supported	max number of serial ports
serial_ports	RTS toggle supported	on
rts_toggle	Socket ID supported	on
socketid	UDP serial supported	on
udp_serial	UDP serial count	max number of udp serial ports
udp_serial_count	RCI over serial supported	on
rciserial	TCP keep alive supported	on
tcp_keepalive	Serial teminal supported	on
serial_term	Autoconnect supported	on
autoconnect	Industrial automation supported	on
ia		

df1	DF1 IA supported	on
ab_ethernet	Allen-Bradley ethernet IA supported	on
ethernetip	Ethernet IP IA supported	on
Modbus	Modbus IA supported	on
omron	Omron IA supported	on
ia_generic	Generic IA supported	on