



TransPort LR User Guide

User Guide

TransPort LR User Guide

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TransPort LR Family User Guide

The TransPort LR Family is a family of routers designed for connecting distributed retail terminals (signs, kiosks, vending machines, point-of-care terminals) with business applications. Key features of TransPort LR routers include:

- Dual SIM cellular interfaces, providing redundancy
- Gobi 4G LTE, for flexibility
- Local command-line and web interfaces
- Superior network performance management through Digi Remote Manager (DRM)




Hardware

This section provides hardware specifications, reviews key hardware features, and lists regulatory statements and certifications for TLR Family products.

Hardware specifications

TransPort LR devices have the following hardware specifications:

Environmental specifications

Specification	Value
Operating temperature	-20C to +70C (-4 to 158F)*  *Note: To limit unintentional contact with HOT SURFACES, install the device in a Restricted Access Location above +60C.
Relative humidity	10% to 90% RH non-condensing
Storage and transport temperature	-40 to 85C (-40 to 185F)

Power requirements

Specification	Value
Power input type	DC
Voltage input	12V +/- 10%
Power consumption	1.5A

Specification	Value
Power connector	4-pin Molex 39301040 connector (Digi part number 2312-0012), or equivalent. Two pins are used for power; the other two pins are no-connect.

Dimensions

Specification	Value
Width	20.7 cm (8.15 in)
Depth	13.85 cm (5.45 in)
Height	3.8 cm (1.5 in)
Weight	1.41 kg (3.1 lb)

Ethernet specifications

Specification	Value
Ethernet ports	4 RJ45 shielded Ethernet ports
Physical layer	10/100 Base-T (Auto-MDIX)
Data rate	10Mbps, 100Mbps, 1Gbps
Mode	Full or half duplex (auto-sensing)
Ethernet isolation	2250 VDC

Cellular specifications

Model	Specification	Value
TransPort LR54-AA401 TransPort LR54-AW401	Technology	LTE, HSPA+, UMTS
	Downstream rates	300 Mbps (LTE), 42 Mbps (HSPA+)
	Upstream rates	50 Mbps (LTE), 5.76 Mbps (HSPA+)
	Frequency Bands	LTE: 800, 850, 900, 1800, 1900, 2100 AWS, 2300, 2600 MHz HSPA+, UMTS: 850, 900, AWS 1700, 1900, 2100 MHz
TransPort LR54-DA301	Technology	HSPA+, UMTS, GSM/GPRS/EDGE
	Downstream rates	21 Mbps (HSPA+), 384 Kbps (UMTS), 296 Kbps (EDGE)
	Upstream rates	5.76 Mbps (HSPA+), 384 Kbps (UMTS), 236.8 Kbps (EDGE)
	Frequency Bands	HSPA+, UMTS: 800, 850, 900, 1700, 1900, 2100 MHz GSM/GPRS/EDGE: 850, 900, 1800, 1900 MHz

DSL specifications

Specification	Value
DSL ports	1 RJ11 DSL port
ADSL line modes	Auto (also known as Multimode) ADSL2+ ADSL2 G.dmt G.lite

Serial specifications

Specification	Value
Serial ports	1 DB9 RS232 DCE serial port, female

Wi-Fi specifications

Specification	Value
802.11	a/b/g/n/ac connections, dual band, dual concurrent 2.4GHz and 5GHz
Wi-Fi Modes	Wi-Fi access point mode Wi-Fi client mode
Wi-Fi Security	WPA2 Personal Mixed WPA/WPA2 Personal WPA2 Enterprise Mixed WPA/WPA2 Enterprise

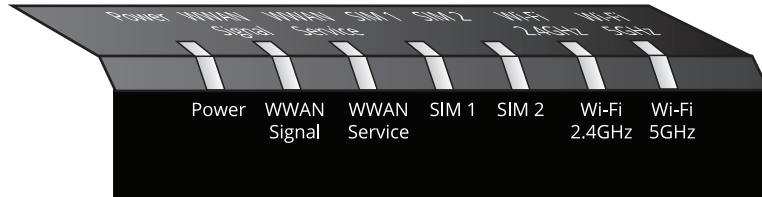
Serial connector pinout

TransPort LR54 products are DCE devices. The pinout for the DB9 and RJ45 serial connectors is as follows:

Signal name	RS232 signal	DCE signal direction	DB9 pin number	RJ45 pin number
Transmit Data	TxD	in	3	6
Receive Data	RxD	out	2	3
Ready To Send	RTS	in	7	1
Clear to Send	CTS	out	8	8
Data Set Ready	DSR	out	6	4
Ground	GND	N/A	5	5
Data Carrier Detect	DCD	out	1	7
Data Terminal Ready	DTR	in	4	2
Ring Indicate	RI	out	Not connected	N/A

LEDs

The TransPort LR54 has LEDs on the top front panel. The number of LEDs varies by model. During bootup, the front-panel LEDs light up in sequence to indicate boot progress. For example, here are the LEDs for a TransPort LR54 Wi-Fi model:



There are also several LEDs on the rear WAN/LAN connectors that indicate network link and activity.

Power

- **Off:** No power.
- **Blue:** Unit has power.

WWAN Signal

Indicates strength of cellular signal.

4G connections

- **Off:** No service.
- **Yellow:** Poor / Fair signal.
- **Green:** Good / Excellent signal.

Tips for improving cellular signal strength:

If the **WWAN Signal** LED is yellow or off, try the following things to improve signal strength:

- Move the TransPort LR device to another location.
- Purchase a Digi Antenna Extender Kit:
 - Antenna Extender Kit, 1m (76000954)
 - Antenna Extender Kit, 3m (76000955)

3G and 2G connections only

For 3G and 2G cellular connections, the current RSSI value serves as the signal strength indicator, with the following thresholds:

- **> -70dBm:** Excellent
- **-70dBm to -85dBm:** Good
- **-86dBm to -100dBm:** Fair
- **< -100dBm:** Poor
- **-110dBm:** No service

WWAN Service

Indicates the presence and level of cellular service running on the device.

- **Off:** No service.
- **Blinking Green:** 2G/3G/4G connection is coming up.
- **Solid Yellow:** 2G or 3G connection is up.
- **Solid Green:** 4G connection is up.

SIM 1

Indicates use of the SIM card installed in SIM slot 1.

- **Off:** SIM 1 is not being used.
- **Solid green:** SIM 1 is being used or is coming up.

SIM 2

Indicates use of the SIM card installed in SIM slot 2.

- **Off:** SIM 2 is not being used.
 - **Solid green:** SIM 2 is being used or is coming up.
-
- **Note** SIM1 and SIM2 are never on both on at the same time.
-

DSL (DSL models only)

Indicates state of and activity on the DSL interface.

- **Off:** DSL interface is off.
- **Slow blinking green:** DSL interface is attempting to train up with the DSLAM.
- **Fast blinking green:** DSL interface is trained up with the DSLAM, and the PPP interface is being brought up.
- **Solid green:** DSL interface is up and can pass IP traffic.

Wi-Fi 2.4GHz LED (Wi-Fi models only)

Indicates state and activity on the Wi-Fi 2.4GHz interface.

- **Off:** Wi-Fi 2.4GHz interface is disabled.
- **Solid green:** Wi-Fi 2.4GHz interface is enabled.
- **Blinking green:** Indicates Wi-Fi traffic on the interface.

Wi-Fi 2.5GHz LED (Wi-Fi models only)

Indicates state of and activity on the Wi-Fi 2.5GHz interface.

- **Off:** Wi-Fi 5GHz interface is disabled.
- **Solid green:** Wi-Fi 5GHz interface is enabled.
- **Blinking green:** Indicates Wi-Fi traffic on the interface.

Ethernet 1-4 Link and Activity (on rear panel)

These LEDs indicate that the Ethernet network interface is up and there is activity on the network interface.

- **Off:** No Ethernet link detected.
- **Solid green:** Ethernet link detected.
- **Blinking green:** Indicates Ethernet traffic.

Regulatory and safety statements

RF exposure statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 27cm between the radiator & your body.

FCC Part 15 Class B

Radio Frequency Interface (RFI) (FCC 15.105)

This device has been tested and found to comply with the limits for Class B digital devices pursuant to Part 15 Subpart B, of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Labeling Requirements (FCC 15.19)

This device complies with Part 15 of FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

If the FCC ID is not visible when installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module FCC ID.

Modifications (FCC 15.21)

Changes or modifications to this equipment not expressly approved by Digi may void the user's authority to operate this equipment.

For operation within 5.15 ~ 5.25GHz / 5.47 ~5.725GHz frequency range, it is restricted to indoor environment. The band from 5600-5650MHz will be disabled by the software during the manufacturing and cannot be changed by the end user. This device meets all the other requirements specified in Part 15E, Section 15.407 of the FCC Rules.

European Community - CE Mark Declaration of Conformity (DoC)



EU Declaration Of Conformity

Manufacturer's Name: Digi International inc.
Manufacturer's Address: 11001 Bren Road East
Minnetonka, MN 55343

declare under our sole responsibility that the product:

Product Name: TransPort LR54
Model Number: 50001899-XX, (X=0-9)

to which this declaration relates are in conformity with the essential requirements and other relevant requirements of EU Directive 2014/30/EU (EMC), EU Directive 2014/35/EU (LV) and EU Directive 2011/65/EU (RoHS2)

Safety: EN 62368-1:2014
EN 50564:2011
EN 50385:2002

Comm: EN 50585:2014

EMC: EN 300 328 v1.9.1 (2015-02) EN 61000-3-2:2014, Class A
EN 301 489-1 v1.9.2 (2011-09) EN 61000-3-3:2013
EN 301 489-7 v1.3.1 (2005-11) EN 61000-4-2:2009
EN 301 489-17 v2.2.1 (2012-09) EN 61000-4-3:2006 + A1:2008 + A2:2010
EN 301 489-24 v1.5.1 (2010-10) EN 61000-4-4:2012
EN 55024:2010 EN 61000-4-5:2014
EN 55022:2010 + AC:2011, Class B EN 61000-4-6:2014
EN 300 386 v1.6.1 (2012-09) EN 61000-4-11:2004

RoHS2: EN 50581:2012

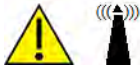
Minnesota, USA, 15th, April 2016
(Place and date of issue)

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5.10 Ignition of Flammable Atmospheres

Warnings for Use of Wireless Devices



Observe all warning notices regarding use of wireless devices.

Potentially Hazardous Atmospheres

Observe restrictions on the use of radio devices in fuel depots, chemical plants, etc. and areas where the air contains chemicals or particles, such as grain, dust, or metal powders, and any other area where you would normally be advised to turn off your vehicle engine.

Safety in Aircraft

Switch off the wireless device when instructed to do so by airport or airline staff. If the device offers a 'flight mode' or similar feature, consult airline staff about its use in flight.

Safety in Hospitals

Wireless devices transmit radio frequency energy and may affect medical electrical equipment. Switch off wireless devices wherever requested to do so in hospitals, clinics, or health care facilities. These requests are designed to prevent possible interference with sensitive medical equipment.

Pacemakers

Pacemaker manufacturers recommended that a minimum of 15cm (6 inches) be maintained between a handheld wireless device and a pacemaker to avoid potential interference with the pacemaker. These recommendations are consistent with independent research and recommendations by Wireless Technology Research.

Persons with Pacemakers:

- Should ALWAYS keep the device more than 15cm (6 inches) from their pacemaker when turned ON.
- Should not carry the device in a breast pocket.
- If you have any reason to suspect that the interference is taking place, turn OFF your device.

Certifications

International EMC (Electromagnetic Compatibility) and safety standards

This product complies with the requirements of following Electromagnetic Compatibility standards. There are no user-serviceable parts inside the product. Contact your Digi representative through for repair information.

Electromagnetic Compatibility (EMC) compliance standards	Safety compliance standards
EN 300 328 v1.8.1 EN 301 893 v1.7.2 EN 301 489 FCC Part 15 Subpart B Class B FCC Part 15 Subpart C certification (Integrated Wi-Fi + Cellular Modules)	EN 62368

Management and status

These topics show how to configure and view status of various TransPort LR device features.

Interfaces

Configurable network interfaces available depend on the TransPort LR device model. This section covers configuring network interfaces from the web interface and command line.

Ethernet interfaces

The Ethernet interfaces can be used as WAN or LAN interfaces. There is no IP configuration set on the individual Ethernet interfaces. Instead, the IP configuration is done on the WAN and LAN interfaces.

Related topics

[Configure Ethernet interfaces on page 28](#)

[Show Ethernet status and statistics on page 29](#)

For more information on WAN interfaces and their configuration, see [Wide Area Networks \(WANs\) on page 52](#)

For more information on LAN interfaces and their configuration, see [Local Area Networks \(LANs\) on page 46](#)

Related commands

[eth on page 156](#)

[show eth on page 186](#)

Configure Ethernet interfaces

To configure an Ethernet interface, you must configure the following items:

Required configuration items

- Enable the Ethernet interface. The Ethernet interfaces are all enabled by default.

Additional configuration options

The following additional configuration settings are not typically configured to get an Ethernet interface working, but can be configured as needed:

- A description of the Ethernet interface.
- The duplex mode of the Ethernet interface. This defines how the Ethernet interface communicates with the device to which it is connected. The duplex mode defaults to **auto**, which means the TransPort LR device negotiates with the connected device on how to communicate.
- The speed of the Ethernet interface. This defines the speed at which the Ethernet interface communicates with the device to which it is connected. The Ethernet speed defaults to **auto**, which means it negotiates with the connected device as to what speed should be used.

From the command line

1. Enable the Ethernet interface. By default, all of the Ethernet interfaces are enabled.

```
eth 1 state on
```

2. Optional: Set the description for the Ethernet interface. For example:

```
eth 1 description "Connected to DSL WAN router"
```

- Optional: Set the duplex mode.

```
eth 1 duplex {auto | full | half}
```

- Optional: Set the speed.

```
eth 1 speed {auto | 1000 | 100 | 10}
```

Related topics

[Ethernet interfaces on page 28](#)

[Show Ethernet status and statistics on page 29](#)

Related commands

[eth on page 156](#)

[show eth on page 186](#)

Show Ethernet status and statistics

To show the status and statistics for the DSL interface, use the [show eth on page 186](#) command. For descriptions of the output fields, see [show dsl on page 182](#). For example:

```
digi.router> show eth

Eth Status and Statistics Port 1
-----
Description      : Factory default configuration for Ethernet 1
Admin Status     : Up
Oper Status      : Up
Up Time          : 1 Day, 13 Hours, 30 Minutes, 23 Seconds

MAC Address      : 00:50:18:21:E2:82
DHCP             : off
IP Address       : 10.52.19.242
Netmask          : 255.255.255.0
DNS Server(s)   :
Link             : 1000Base-T Full-Duplex

Received                               Sent
-----                               ----
Rx Unicast Packet   : 6198             Tx Unicast Packet   : 651
Rx Broadcast Packet : 316403          Tx Broadcast Packet : 2
Rx Multicast Packet : 442690          Tx Multicast Packet : 6
Rx CRC Error        : 0                Tx CRC Error        : 0
Rx Drop Packet      : 0                Tx Drop Packet      : 0
Rx Pause Packet     : 0                Tx Pause Packet     : 0
Rx Filtering Packet : 1                Tx Collision Event  : 0
Rx Alignment Error  : 0
Rx Undersize Error  : 0
Rx Fragment Error   : 0
Rx Oversize Error   : 0
Rx Jabber Error     : 0

Eth Status and Statistics Port 2
-----
```



```

Description      :
Admin Status    : Up
Oper Status     : Up
Up Time        : 1 Day, 13 Hours, 30 Minutes, 23 Seconds

```

```

MAC Address     : 00:50:18:21:E2:83
DHCP           : off
IP Address      : 10.2.4.20
Netmask        : 255.255.255.0
DNS Server(s)  :
Link           : 100Base-T Full-Duplex

```

Received		Sent	
-----		----	
Rx Unicast Packet	: 5531	Tx Unicast Packet	: 2
Rx Broadcast Packet	: 316403	Tx Broadcast Packet	: 2
Rx Multicast Packet	: 442694	Tx Multicast Packet	: 2
Rx CRC Error	: 0	Tx CRC Error	: 0
Rx Drop Packet	: 0	Tx Drop Packet	: 0
Rx Pause Packet	: 0	Tx Pause Packet	: 0
Rx Filtering Packet	: 0	Tx Collision Event	: 0
Rx Alignment Error	: 0		
Rx Undersize Error	: 0		
Rx Fragment Error	: 0		
Rx Oversize Error	: 0		
Rx Jabber Error	: 0		

Eth Status and Statistics Port 3

```

Description      :
Admin Status    : Up
Oper Status     : Up
Up Time        : 1 Day, 13 Hours, 30 Minutes, 23 Seconds

```

```

MAC Address     : 00:50:18:21:E2:84
DHCP           : on
IP Address      : 82.68.87.20
Netmask        : 255.255.255.0
DNS Server(s)  :
Link           : 100Base-T Full-Duplex

```

Received		Sent	
-----		----	
Rx Unicast Packet	: 5530	Tx Unicast Packet	: 2
Rx Broadcast Packet	: 316405	Tx Broadcast Packet	: 2
Rx Multicast Packet	: 442699	Tx Multicast Packet	: 4
Rx CRC Error	: 0	Tx CRC Error	: 0
Rx Drop Packet	: 0	Tx Drop Packet	: 0
Rx Pause Packet	: 0	Tx Pause Packet	: 0
Rx Filtering Packet	: 0	Tx Collision Event	: 0
Rx Alignment Error	: 0		
Rx Undersize Error	: 0		
Rx Fragment Error	: 0		
Rx Oversize Error	: 0		
Rx Jabber Error	: 0		

Eth Status and Statistics Port 4

```

Description      :
Admin Status    : Up
Oper Status     : Down
Up Time         : 0 Seconds

MAC Address     : 00:50:18:21:E2:85
DHCP            : on
IP Address      : Not Assigned
Netmask        : Not Assigned
DNS Server(s)  :
Link           : No connection

Received                               Sent
-----                               ----
Rx Unicast Packet   : 0                Tx Unicast Packet   : 0
Rx Broadcast Packet : 0                Tx Broadcast Packet : 0
Rx Multicast Packet : 0                Tx Multicast Packet : 0
Rx CRC Error        : 0                Tx CRC Error        : 0
Rx Drop Packet     : 0                Tx Drop Packet     : 0
Rx Pause Packet    : 0                Tx Pause Packet    : 0
Rx Filtering Packet : 0                Tx Collision Event  : 0
Rx Alignment Error : 0
Rx Undersize Error : 0
Rx Fragment Error  : 0
Rx Oversize Error  : 0
Rx Jabber Error    : 0
digi.router>

```

Related topics[Ethernet interfaces on page 28](#)[Configure Ethernet interfaces on page 28](#)**Related commands**[eth on page 156](#)[show eth on page 186](#)

Cellular interfaces

The TransPort LR device has two cellular interfaces, named **cellular1** and **cellular2**. These cellular interfaces correspond to the physical SIM card slots **SIM1** and **SIM2** respectively.

Both cellular interfaces cannot be up at the same time. If both cellular interfaces are enabled to **on**, then **cellular1** interface takes precedence.

A typical use case would be to have **cellular1 (SIM1)** configured as the primary cellular interface and **cellular2 (SIM2)** as a backup cellular interface. If the TransPort LR device cannot connect to the cellular network using **SIM1**, it will automatically failover to try to connect using **SIM2**.

For the TransPort LR device to automatically configure a default route for the cellular interface when it is up and for it to be able to failover to and from the cellular interface, it must be assigned to a WAN interface.

Related topics

[Configure cellular interfaces on page 32](#)

[Show cellular status and statistics on page 33](#)

For more information on WAN interfaces and their configuration, see [Wide Area Networks \(WANs\) on page 52](#).

[LEDs on page 16](#) - See the discussion of the **WWAN Signal** and **WWAN Service** LEDs

Related commands

[cellular on page 143](#)

[show cellular on page 178](#)

Configure cellular interfaces

To configure a cellular interface, you need to configure the following:

Required configuration items

Enable the cellular interface. By default, the cellular interfaces are disabled.

- The Access Point Name (APN). The APN is specific to your cellular service.
- Depending on your cellular service, you may need to configure an APN username and password. This information is provided by your cellular provider.
- Assign the cellular interface to a WAN interface. For more information on the WAN configuration, see [Wide Area Networks \(WANs\) on page 52](#).

Additional configuration options

Additional configuration settings are not typically configured, but you can set them as needed:

- Preferred mode. The preferred mode locks the cellular interface to use a particular technology, for example, 4G or 3G. Depending on your cellular service and location, the cellular interface can automatically switch between the different technologies. You may want to lock the cellular interface to a particular technology to minimize disruptions.
- A description of the cellular interface.

- Connection attempts. This is the number of attempts the cellular module will attempt to connect to the cellular network before indicating a failure. It defaults to 20, but you may want to configure this so that the WAN failover can switch to another interface more quickly.

From the command line

1. Enable the cellular interface.

```
cellular 1 state on
```

2. Configure an APN.

```
cellular 1 apn your-apn
```

3. If necessary, configure the APN username and password.

```
cellular 1 apn-username your-apn-username
cellular 1 apn-password your-apn-password
```

4. Optional: Set a preferred mode.

```
cellular 1 preferred-mode 3G
```

5. Optional: Set a description for the cellular interface.

```
cellular 1 description "AT&T Connection"
```

6. Optional: Configure the number of connection attempts. For example, to set the number of attempts to 10, enter:

```
cellular 1 connection-attempts 10
```

Related topics

[Configure cellular interfaces on page 32](#)

[Show cellular status and statistics on page 33](#)

[LEDs on page 16](#) - See the discussion of the **WWAN Signal** and **WWAN Service** LEDs

Related commands

[cellular on page 143](#)

[show cellular on page 178](#)

Show cellular status and statistics

To show the status and statistics for a cellular interface, use the [show lan on page 195](#) command. For a description of the output fields, see the [show cellular](#) command.

```
digi.router> show cellular

Cellular Status and Statistics
```

```

-----
Module           : Telit HE910
Firmware version : 12.00.026
Hardware version : HE910-D
IMEI             : 351579055202293

SIM status       : Using SIM1

Signal strength  : Excellent (-69dBm)
Signal quality   : Excellent (-5dB)

Registration status : Registered

Network provider : AT&T, USA
Temperature      : 32C
Connection type  : 3G
Radio Band       : WCDMA 850
Channel          : 1007

APN in use       :

IP address       : 172.20.1.121
Mask             : 255.255.255.255
Gateway          : 172.20.1.121
DNS servers      : 10.10.8.62, 10.10.8.64

Received          Sent
-----          ----
Packets          4              5
Bytes            58             86

digi.router>

```

Related topics

[Configure cellular interfaces on page 32](#)

[Show cellular status and statistics on page 33](#)

[LEDs on page 16](#) - See the discussion of the **WWAN Signal** and **WWAN Service** LEDs

Related commands

[cellular on page 143](#)

[show cellular on page 178](#)

DSL interface

These topics describe configuring and managing the DSL interface.

Related topics

[Configure DSL on page 35](#)

[Show DSL status and statistics on page 37](#)

Related commands

[dsl on page 153](#)

[show dsl on page 182](#)

Configure DSL

To configure the DSL interface to connect to your DSL network, you need to configure the following:

Required configuration items

- Enable the DSL interface.
- Virtual Path Identifier (VPI) and Virtual Circuit Identifier (VCI) parameters. These parameters are specific to each DSL provider and must be configured to match your provider's settings.
- Data encapsulation for the DSL interface. This parameter is specific to each DSL provider and must be configured to match your provider's settings.
- Username and password. The username and password relate to your account with your DSL provider. A password is not always needed.

Additional configurable options

The following additional configuration settings are not typically configured to get the DSL interface connected to the DSL network, but you can set them as needed:

- The technology used on the DSL line, known as the line mode.
- The Maximum Transmission Unit (MTU). The MTU defines the maximum size (in bytes) of a packet that can be sent over the DSL interface.
- Network Address Translation (NAT).
- A description of the DSL interface.
- Whether to delay bringing up the DSL for a specified number of seconds. This delay allows the DSL provider network to propagate network changes after the device has connected to the network, and before packets can be sent and received. This delay prevents the device from assuming the network is fully operational before it actually is fully operational, which could in turn cause problems with other features, such as interface failover. During this delay, the **DSL** LED flashes, to indicate the interface is not fully up. Because characteristics can differ among provider networks, use of the **delay-up** parameter is provider-specific.

From the command line

1. Enable the DSL interface. By default, the DSL interface is disabled. To enable it, enter:

```
dsl state on
```

2. Configure VPI and VCI:

```
dsl vpi <vpi-number>  
dsl vci <vci-number>
```

3. Configure encapsulation:

```
dsl encapsulation <encapsulation>
```

4. Set the username and password for the DSL interface:

```
dsl username <username>  
dsl password <password>
```

5. Optional: Configure line mode. Normally this should be left as auto were the device will negotiate the mode with the DSL provider. Depending on your DSL line, you may need to configure the line mode to a particular technology for the device to connect to the DSL network. To configure line mode, enter

```
dsl mode <mode>
```

6. Optional: Set the MTU. The MTU defaults to 1500 and automatically adjusts for the encapsulation type.

```
dsl mtu <mtu>
```

7. Enable or disable NAT on the DSL interface. NAT is enabled by default, and normally, there is no need to disable it. The command to configure NAT is:

```
dsl nat <on | off>
```

8. Optional: Set the description for the DSL interface. The description parameter allows you to configure a description for the DSL interface to help you identify it. For example:

```
dsl description "HQ Server Room"
```

9. Optional: Set a delay, in seconds, for bringing up the DSL interface. For example, to set a delay of 60 seconds, enter:

```
dsl delay-up 60
```

Related topics[DSL interface on page 35](#)[Show DSL status and statistics on page 37](#)[LEDs on page 16](#)**Related commands**[dsl on page 153](#)[show dsl on page 182](#)**Show DSL status and statistics**

To show the status and statistics for the DSL interface, use the [show dsl on page 182](#) command. For descriptions of the output fields, see [show dsl on page 182](#). For example:

```

digi.router> show dsl

DSL Status and Statistics
-----

Description      :
Admin Status     : Up
Oper Status      : Up
Up Time          : 6 Hours, 2 Minutes, 12 Seconds
HW Version       : T14.F7_12.0
FW Version       : 3.22.13.0_A60394
System FW ID    : 3.6.20.0(Y09.ZZ.5)3.22.13.0 20151216_v035 [Dec 16 2015 16:59:11]
Line Status      : Up (6 Hours, 2 Minutes, 9 Seconds)
Mode             : ADSL2+
Encapsulation    : PPPoE, LLC
VPI/VCI         : 0/35
MTU              : 1492
Remote Vendor ID : ffb54753504e0010 (GSPN)

IP Address       : 10.10.10.0
Netmask          : 255.255.255.255
Gateway          : 1.2.3.4

                Received                Sent
                -----                ----
Packets         13                      27
Bytes           746                     1934

                Downstream              Upstream
                -----              -----
Speed (kbps)    23919                    1213
Channel Type    Interleaved                    Interleaved
Relative Capacity (%) 100                    100
Attenuation (dB) 0.4                      1.1
Noise Margin (dB) 6.2                    10.5
Output Power (dBm) 20.4                    2.5
FEC             0                      1505
CRC             0                      0
HEC             0                      0

Errored Seconds in 15 Minutes : 0
Errored Seconds in 24 Hours   : 1

```



```
Errored Seconds after Line Up : 1  
digi.router>
```

Related topics

[DSL interface on page 35](#)

[Configure DSL on page 35](#)

Related commands

[dsl on page 153](#)

[show dsl on page 182](#)

Wi-Fi interfaces

Wi-Fi-enabled TransPort LR devices support up to 4 Wi-Fi interfaces on each of the 2.4 GHz and 5 GHz frequency bands. Each Wi-Fi interface can be configured as an independent Wi-Fi Access Point with its own security settings.

Related topics

[Configure a Wi-Fi access point on page 39](#)

[Configure a Wi-Fi access point with WPA2-Enterprise or WPA-WPA2-Enterprise security on page 41](#)

[Show Wi-Fi status and statistics on page 42](#)

Related commands

[wifi on page 215](#)

[wifi5g on page 216](#)

[show wifi on page 202](#)

[show wifi5g on page 203](#)

Configure a Wi-Fi access point

This section describes how to configure a Wi-Fi 2.4 GHz Access Point and a Wi-Fi 5 GHz Access Point.

Required configuration items

Configuring a Wi-Fi Access Point involves configuring the following items:

- Enabling the Wi-Fi Access Point.
- The Wi-Fi Access Point's Service Set Identifier (SSID).
You can configure the SSID to use the device's serial number by including %s in the SSID. For example, an **ssid** parameter value of **LR54_%s** resolves to **LR54_LR123456**.
- The password for the Wi-Fi interface. The password only needs to be set if WPA2-Personal or WPA-WPA2-Personal security is being used.

Additional configuration options

The following additional configuration settings are not typically configured to get an Wi-Fi access point working, but can be configured as needed:

- The type of security used on the Wi-Fi interface. The options are as follows. By default, **WPA2-Personal** security is used.
 - **None:** No security is used on the Wi-Fi network.
 - **WPA2-Personal:** a method of securing a Wi-Fi network using WPA2 with the use of the optional Pre-Shared Key (PSK) authentication. This security method was designed for home users without an enterprise authentication server.
 - **WPA/WPA2-Personal.** This security method is a mixed mode, providing WPA with Temporal Key Integrity Protocol (TKIP) encryption or WPA2 with Advanced Encryption Standard (AES) encryption supported by the Access Point.

- **WPA2-Enterprise:** This security method is designed for enterprise networks and requires a RADIUS authentication server. This security method requires a more complicated setup, but provides additional security. Various kinds of the Extensible Authentication Protocol (EAP) are used for authentication.
 - **WPA/WPA2-Enterprise:** This security method is designed for enterprise networks and requires a RADIUS authentication server. This is a mixed mode method, providing WPA with TKIP encryption or WPA2 with AES encryption supported by the Access Point.
- A description of the Wi-Fi Access Point.

From the command line

To configure a Wi-Fi 2.4 GHz Access Point, the command-line command is [wifi on page 215](#).

To configure a Wi-Fi 5 GHz Access Point, the command-line command is [wifi5g on page 216](#).

The following steps show using the [wifi on page 215](#) command. When configuring a Wi-Fi 5 GHz Access Point, use the [wifi5g on page 216](#) command. The parameters are the same.

1. Enable the Wi-Fi Access Point.

```
wifi 1 state on
```

2. Enter the SSID for the Wi-Fi Access Point.

```
wifi 1 ssid LR54-AP1
```

3. Enter the password for the Wi-Fi Access Point.

```
wifi 1 password your-password
```

4. Optional: Enter the security for the Wi-Fi Access Point.

```
wifi 1 security wpa-wpa2-personal
```

5. Optional: Enter a description for the Wi-Fi Access Point.

```
wifi 1 description "Office AP"
```

Related topics

[Wi-Fi interfaces on page 39](#)

[Configure a Wi-Fi access point with WPA2-Enterprise or WPA-WPA2-Enterprise security on page 41](#)

[Show Wi-Fi status and statistics on page 42](#)

Related commands

[wifi on page 215](#)

[wifi5g on page 216](#)

[show wifi on page 202](#)

[show wifi5g on page 203](#)

Configure a Wi-Fi access point with WPA2-Enterprise or WPA-WPA2-Enterprise security

The WPA2-Enterprise and WPA-WPA2-Enterprise security modes allow a Wi-Fi Access Point to authenticate connecting Wi-Fi clients using a RADIUS server.

When the Wi-Fi Access Point receives a connection request from a Wi-Fi client, it will authenticate the client with the RADIUS server before allowing the client to connect.

Using Enterprise security modes allows for each Wi-Fi client to have different username and password which are configured in the RADIUS server and not the TransPort LR device.

Configuring a Wi-Fi Access Point to use an Enterprise security mode involves configuring the following items:

Required configuration items

Configuring a Wi-Fi Access Point to use an Enterprise security mode involves configuring the following items:

- Enabling the Wi-Fi Access Point.
- The Wi-Fi Access Point's Service Set Identifier (SSID).
You can configure the SSID to use the device's serial number by including %s in the SSID. For example, an **ssid** parameter value of **LR54_%s** resolves to **LR54_LR123456**.
- Setting the security mode to either WPA2-Enterprise or WPA-WPA2-Enterprise.
- RADIUS server IP address.
- RADIUS password.

Additional configuration options

Additional configuration options include:

- RADIUS server port.
- A description of the Wi-Fi Access Point.

From the command line

To configure a Wi-Fi 2.4 GHz Access Point, the command-line command is [wifi on page 215](#).

To configure a Wi-Fi 5 GHz Access Point, the command-line command is [wifi5g on page 216](#).

The following steps show using the [wifi on page 215](#) command. When configuring a Wi-Fi 5 GHz Access Point, use the [wifi5g on page 216](#) command. The parameters are the same.

1. Enable the Wi-Fi Access Point.

```
wifi 1 state on
```

2. Enter the SSID for the Wi-Fi Access Point.

```
wifi 1 ssid LR54-AP1
```

3. Enter the security for the Wi-Fi Access Point.

```
wifi 1 security wpa2-enterprise
```

4. Enter the RADIUS server IP address.

```
wifi 1 radius-server 192.168.1.200
```

5. Enter the RADIUS password.

```
wifi 1 radius-password your-radius-password
```

6. Optional: Enter the RADIUS server port.

```
wifi 1 radius-server-port 3001
```

7. Optional: Enter a description for the Wi-Fi Access Point.

```
wifi 1 description "Office AP"
```

Related topics

[Wi-Fi interfaces on page 39](#)

[Configure a Wi-Fi access point with WPA2-Enterprise or WPA-WPA2-Enterprise security on page 41](#)

[Show Wi-Fi status and statistics on page 42](#)

Related commands

[wifi on page 215](#)

[wifi5g on page 216](#)

[show wifi on page 202](#)

[show wifi5g on page 203](#)

Show Wi-Fi status and statistics

To show the status and statistics for a Wi-Fi 2.4 GHz interface, use the [show wifi on page 202](#) command. For example:

```
digi.router> show wifi

Interface  Status  SSID                               Security
-----
wifi1      Down                                  WPA2-Personal
wifi2      Up      digi.router_2.4g_LR000051         WPA2-Personal
wifi3      Down                                  WPA2-Personal
wifi4      Up      digi.router_2.4g                  None

digi.router>
```

To show the status and statistics for a Wi-Fi 5 GHz interface, use the [show wifi5g on page 203](#) command. For example:

```
digi.router> show wifi5g

Interface  Status  SSID                               Security
-----
wifi5g1    Down                                  WPA2-Personal
```

```
wifi5g2    Up      digi.route_5g_LR000051    None
wifi5g3    Up      digi.route_5g             WPA2-Personal
wifi5g4    Down                       WPA2-Personal

digi.router>
```

Related topics

[Wi-Fi interfaces on page 39](#)

[Configure a Wi-Fi access point on page 39](#)

[Configure a Wi-Fi access point with WPA2-Enterprise or WPA-WPA2-Enterprise security on page 41](#)

Related commands

[wifi on page 215](#)

[wifi5g on page 216](#)

[show wifi on page 202](#)

[show wifi5g on page 203](#)

Local Area Networks (LANs)

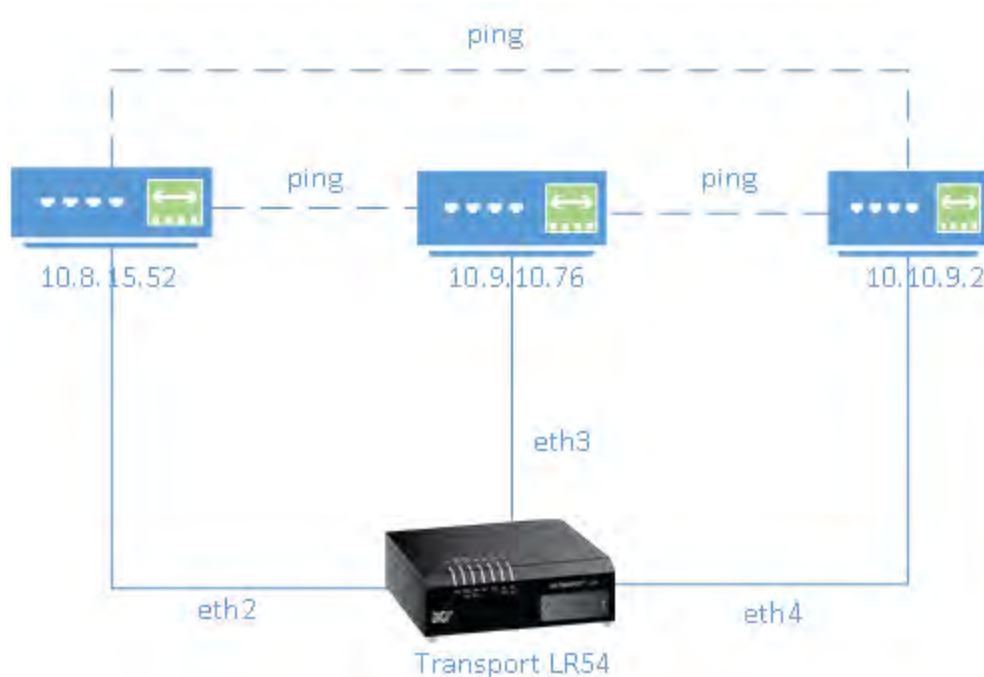
A Local Area Network (LAN) connects networks together, such as Ethernet, DSL, or Wi-Fi, in a logical Layer-2 network. Networks filter traffic between different segments, thereby reducing the amount of traffic on a LAN, even with many LAN segments.

You can configure up to **10** LANs.

When an interface joins a LAN, it cannot be directly addressed anymore. This means that an IP address configured on the interface can no longer be accessed once the network joins the LAN.

Example LAN

The diagram shows a LAN connecting the **eth2**, **eth3**, and **eth4** interfaces for a TransPort LR54 unit. Once the LAN is configured and enabled, the devices connected to the network interfaces can communicate with each other, as demonstrated by the **ping** commands.



Related topics

[Configure a LAN on page 47](#)

[Show LAN status and statistics on page 49](#)

Related commands

[lan on page 167](#)

[show lan on page 195](#)

Configure a LAN

Configuring a Local Area Network (LAN) involves configuring the following items:

Required configuration items

- Identifying which interfaces are in the LAN.
- Enabling the LAN. LANs are disabled by default.
- Setting an IPv4 address and subnet mask for the LAN. While it is not strictly necessary for a LAN to have an IP address, if you want to send traffic from other networks to the LAN, you must configure an IP address.

Additional configuration options

- Setting a name for the LAN.
- Setting the Maximum Transmission Unit, or packet size, for packets sent over the LAN.

From the command line

1. Set the interfaces in the LAN. For example, to include **eth2**, **eth3**, and **eth4** interfaces in **lan1**, enter:

```
lan 1 interfaces eth2,eth3,eth4
```

2. Enable the LAN. For example, to enable **lan1**:

```
lan 1 state on
```

3. Optional: Set an IPv4 address for the LAN.

```
lan 1 ip-address 192.10.8.8
```

4. Optional: Set a subnet mask for the LAN.

```
lan 1 mask 255.255.255.0
```

5. Optional: Give a descriptive name to the LAN.

```
lan 1 description ethlan
```

6. Optional: Set the MTU for the LAN.

```
lan 1 mtu 1500
```

Related topics

[Local Area Networks \(LANs\) on page 46](#)

[Show LAN status and statistics on page 49](#)

Show LAN status and statistics

To show the status and statistics for a LAN, use the [show lan on page 195](#) command. For example, here is **show lan** output before and after enabling **lan1**. For a description of the output fields, see the [show lan on page 195](#) command.

```

digi.router> show lan 1

LAN 1 Status and Statistics
-----
Admin Status   : Up
Oper Status    : Up

Description    : ethlan

Interfaces     : eth2,eth3,eth4
MTU            : 1500

IP Address     : 192.10.8.8
Network Mask   : 255.255.255.0

                Received          Sent
                -----          -
Packets        624                6
Bytes          48632             468

digi.router>

```

Related topics

[Local Area Networks \(LANs\) on page 46](#)

[Configure a LAN on page 47](#)

Related commands

[lan on page 167](#)

[show lan on page 195](#)

DHCP servers

The DHCP server feature can be enabled in a TransPort LR device to assign IP addresses and other IP configuration to other hosts on the same local network. Addresses are assigned from a specified pool of IP addresses. For a local network, the device will use the DHCP server that has the IP address pool in the same IP subnet as the local network.

You can configure up to **10** DHCP servers.

When a host receives an IP configuration, the configuration is valid for a particular amount of time, known as the lease time. After this lease time expires, the configuration must be renewed. The host performs lease-time renewal automatically.

Related topics

[Configure DHCP server settings on page 50](#)

[Show DHCP server settings on page 51](#)

Related commands

[dhcp-server on page 151](#)

Configure DHCP server settings

To configure a DHCP server, you need to configure the following:

Required configuration items

- Enable the DHCP server.
- The IP address pool: the range of IP addresses issued by the DHCP server to clients.
- The IP network mask given to clients.
- The IP gateway address given to clients.
- The IP addresses of the preferred and alternate Domain Name Server (DNS) given to clients.

Additional configuration options

- Lease time: The length, in minutes, of the leases issued by the DHCP server.

From the command line

1. Enable the DHCP server. By default, the DHCP server is disabled.

```
dhcp-server 1 state on
```

2. Enter the starting address of the IP address pool:

```
dhcp-server 1 ip-address-start 10.30.1.150
```

3. Enter the ending address of the IP address pool:

```
dhcp-server 1 ip-address-end 10.30.1.195
```

4. Enter the network mask:

```
dhcp-server 1 netmask 255.255.225.0
```

5. Enter the IP gateway address given to clients:

```
dhcp-server 1 gateway 10.30.1.1
```

6. Enter the preferred DNS server address given to clients:

```
dhcp-server 1 dns1 10.30.1.1
```

7. Enter the alternate DNS server address given to clients:

```
dhcp-server 1 dns2 209.183.48.11
```

8. Enter the lease time:

```
dhcp-server 1 lease-time 60
```

Related topics

[DHCP servers on page 50](#)

[Show DHCP server settings on page 51](#)

Related commands

[dhcp-server on page 151](#)

Wide Area Networks (WANs)

A Wide Area Network (WAN) interface can be an Ethernet, DSL, or cellular interface that connects to a remote network, such as the internet.

Ethernet interfaces

Ethernet interfaces can be used as a WAN interface when connecting to a remote network, such as the internet, through a device such as a cable or DSL modem.



By default, the **eth1** interface is configured as a WAN interface with both DHCP and NAT enabled. This means you should be able to connect to the internet by connecting the **wan/eth1** interface to a device that already has an internet connection.

By default, the **eth2**, **eth3**, and **eth4** interfaces are configured as a LAN interface. If necessary, you can assign these interfaces to a WAN. For more information on Ethernet interfaces and their configuration, see [Ethernet interfaces on page 28](#).

Cellular interfaces

The LR54 supports two cellular interfaces, **cellular1** and **cellular2**.

To use a cellular interface as a WAN interface, it must be configured to connect to the cellular network. For more information on cellular interfaces and their configuration, see [Cellular interfaces on page 32](#).

DSL interface

The TransPort LR device supports one Asymmetric Digital Subscriber Line (ADSL) interface, **dsl**.

To use the DSL interface as a WAN interface, you must configure it to connect to the DSL network. For more information on the DSL interface and its configuration, see [DSL interface on page 35](#).

Related topics

WAN failover

If a WAN interface fails for any reason, the TransPort LR device automatically fails over from one WAN interface to use another.

For example, if you use an Ethernet interface as your main WAN interface, and have a cellular interface configured as a backup WAN interface, if the Ethernet interface was to fail (for example, if the Ethernet cable is broken), the TransPort LR device automatically starts to use the cellular interface until the Ethernet interface becomes active again.

IP probing

Sometimes, problems can occur beyond the immediate WAN connection that prevent some IP traffic reaching their destination. Normally this kind of problem does not cause the WAN interface to fail, as the connection continues to work while the core problem exists somewhere else in the network.

IP probing is a way to detect problems in an IP network. IP probing involves configuring the TransPort LR device to send out regular IP probe packets to a particular destination. If responses to these probe packets are not received, the TransPort LR device can bring down the WAN interface, and switch to using another WAN interface until the IP network problem is resolved.

IP probing involves the following configuration settings:

- The IP address or name of the host to probe
- The size of the IP probe packets
- The rate at which the IP probe packets are sent
- The time, in seconds, after which the IP probe response is considered lost
- The WAN interface timeout, in seconds, if no IP probe responses are received.
- The time, in seconds, after which the WAN interface must receive all IP probe responses before reactivating the WAN interface
- The time, in seconds, after which the TransPort LR device attempts to bring up the WAN interface

All of the IP probing configuration has default values, except for the IP address or name of the host to probe. Use of IP probes requires this IP address. For the rest of the parameters, the default values should be sufficient, but they can be set to different values as needed to suit your WAN failover requirements.

Related topics

[Wide Area Networks \(WANs\) on page 52](#)

[Configure Wi-Fi interfaces](#)

[Example WAN failover: DSL to cellular on page 57](#)

[Show WAN status and statistics on page 59](#)

Related commands

[wan on page 213](#)

Configure a WAN interface

You can configure up to **10** WAN interfaces.

wan1 is the top priority, **wan2** is the second priority, and so on.

The TransPort LR device automatically adds a default IP route for the WAN interface when it comes up. The metric of the route is based on the priority of the interface. For example, as **wan1** is the highest priority, the default route for **wan1** has a metric of 1, and the default route for **wan2** has a metric of 2.

Required configuration items

Assign an Ethernet, DSL or Cellular interface to the WAN interface. By default, WAN interfaces are assigned the following interfaces :

- For TransPort LR devices with DSL:
 - **wan1: eth1**
 - **wan2: dsl**
 - **wan3: cellular1**
 - **wan4: cellular2**
- For TransPort LR devices without DSL:
 - **wan1: eth1**
 - **wan2: cellular1**
 - **wan3: cellular2**

Additional configuration options

These additional configuration settings are not typically configured, but you can set them as needed:

- The IP configuration. WAN interfaces typically get their IP address configuration from the network, for example, DSL or cellular, to which they connect. However, you can manually set the IP configuration as needed. The following manual configuration settings are available:
 - IP address and mask
 - Gateway
 - Preferred and alternate DNS server
- Disable the DHCP client. Ethernet interfaces use DHCP client to get an IP address from a DHCP server, for example, from a cable modem. If you are manually configuring the IP address for the Ethernet interface, disable the DHCP client.
- Network Address Translation (NAT). NAT translates IP addresses from a private LAN network to a public IP address. By default, NAT is enabled. Unless your LAN has a publicly-addressable IP address range, do not disable NAT.
- Maximum Transmission Unit (MTU). The MTU defines the maximum size of a packet sent over the WAN interface.

From the command line**Configure basic WAN settings**

1. Assign an interface to the WAN interface.

```
wan 1 interface eth1
```

2. Optional: Disable DHCP client mode.

```
wan 1 dhcp-client off
```

3. Optional: Configure the IP address, mask, gateway and DNS servers.

```
wan 1 ip-address 10.1.2.2
wan 1 mask 255.255.255.252
wan 1 gateway 10.1.2.1
wan 1 dns1 10.1.2.1
wan 1 dns2 8.8.8.8
```

4. Optional: Set the speed.

```
eth 1 speed {auto | 1000 | 100 | 10}
```

Configure IP probe settings

1. Configure the IP host to probe.

```
wan 1 probe-host 192.168.47.1
```

2. Optional: Configure the size of the IP probe packet.

```
wan 1 dhcp-client off
```

3. Optional: Configure the rate, in seconds, at which the IP probe packet is sent.

```
wan 1 probe-interval 20
```

4. Optional: Configure the time, in seconds, after which the IP probe response is considered lost.

```
wan 1 probe-timeout 5
```

5. Optional: Configure the WAN interface timeout, in seconds, if no IP probe responses are received.

```
wan 1 timeout 60
```

- Optional: Configure the time in, seconds, after which the WAN interface must receive all IP probe responses before reactivating the WAN interface.

```
wan 1 activate-after 30
```

- Optional: Configure the time in seconds after which to attempt to bring up the WAN interface.

```
wan 1 try-after 1200
```

Related topics

[Wide Area Networks \(WANs\) on page 52](#)

[WAN failover on page 53](#)

[Example WAN failover: DSL to cellular on page 57](#)

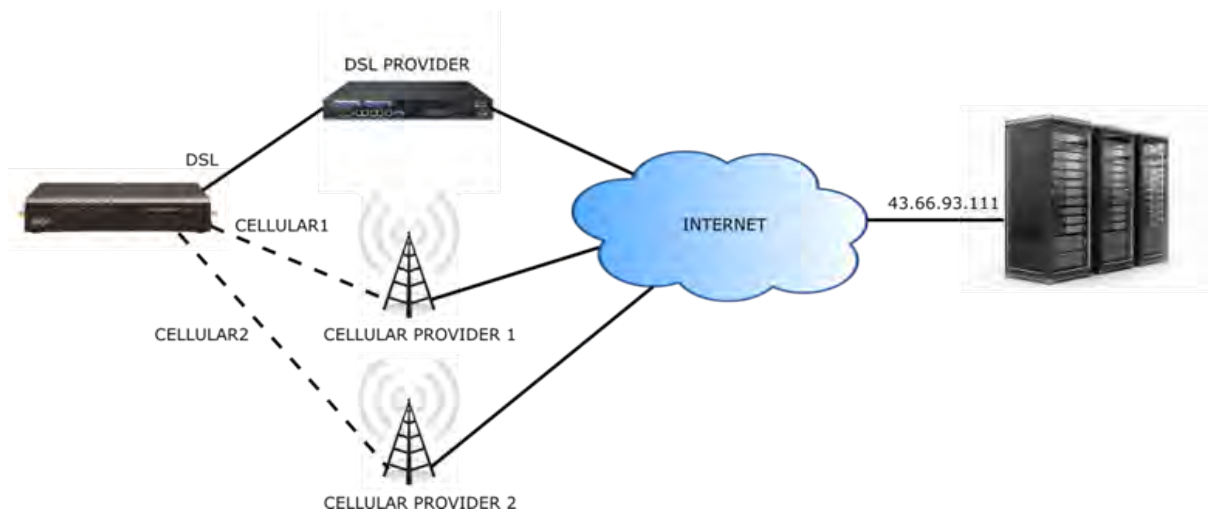
[Show WAN status and statistics on page 59](#)

Related commands

[wan on page 213](#)

Example WAN failover: DSL to cellular

In this example, WAN, the **dsl** interface is the primary WAN. **cellular1** and **cellular2** interfaces serve as backups to **dsl**.



IP probing is configured over the DSL interface. A probe packet of size **256** bytes is sent every **10** seconds to the IP host **43.66.93.111**. If no responses are received for **60** seconds, the TransPort LR device brings the DSL interface down and starts using the **wan2 (cellular1)** interface.

If the TransPort LR device cannot get a connection on the **cellular2** interface, it attempts to use the **wan3 (cellular2)** interface. It attempts to switch back to the **wan2 (cellular1)** interface after **30** minutes (**1800** seconds).

The TransPort LR device continues to send probes out of the DSL interface. If it receives probe responses for **120** seconds, it reactivates the **wan1** interface and starts using it again as the WAN interface.

To achieve this WAN interface failover from DSL to the cellular interface, the WAN failover configuration commands are:

```
wan 1 interface dsl
wan 1 probe-host 43.66.93.111
wan 1 probe-interval 10
wan 1 probe-size 256
wan 1 timeout 60
wan 1 activate-after 120
wan 2 interface cellular1
wan 2 try-after 1800
wan 3 interface cellular2
```

Related topics

[Wide Area Networks \(WANs\) on page 52](#)

[WAN failover on page 53](#)

[Configure a WAN interface on page 54](#)

[Show WAN status and statistics on page 59](#)

Show WAN status and statistics

To show the status and statistics for a cellular interface, use the [show wan on page 201](#) command. For a description of the output fields, see the [show wan on page 201](#) command.

Here is here is the [show wan on page 201](#) command output when no WANs are configured:

```
digi.router> show wan
# WAN Interface  Status  IP Address
-----
digi.router>
```

Here is the [show wan on page 201](#) command output with **eth2** and **cellular1** configured as WAN interfaces, where **eth2** is **up** and **cellular1** is **down**.

```
digi.router> show wan
# WAN Interface  Status  IP Address
-----
2 eth2           Up      192.168.0.25
3 cellular1      Down
digi.router>
```

Here is a [show wan on page 201](#) example with **eth2** and **cellular1** both **up**:

```
digi.router> show wan
# WAN Interface  Status  IP Address
-----
2 eth2           Up      192.168.0.25
3 cellular1      Up      172.20.1.7
digi.router>
```

Related topics

[Wide Area Networks \(WANs\) on page 52](#)

[WAN failover on page 53](#)

[Configure a WAN interface on page 54](#)

[Example WAN failover: DSL to cellular on page 57](#)

Related commands

[wan on page 213](#)

[show wan on page 201](#)

Security

TransPort LR devices have several device security features. This section covers the configuring security settings from the web interface and command line.

User management

User management involves configuring and managing TransPort LR device users, including their authentication credentials and access permissions.

Related topics

[Users and user access permissions on page 61](#)

[Configure a user on page 62](#)

Related commands

[user on page 212](#)

Users and user access permissions

To manage TransPort LR devices via the command-line interface or web interface, users must log in using a configured username and password.

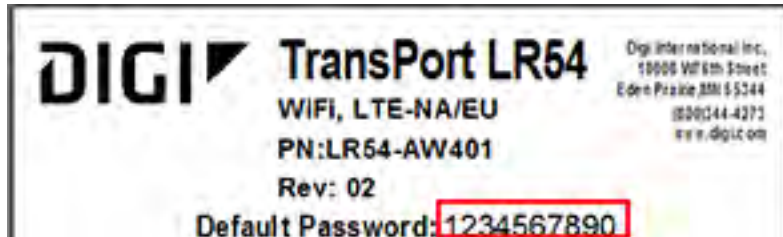
This topic covers the TransPort LR user model and access permissions for users.

Number of supported users

Up to **10** administrative users are supported. Each user has a unique name, password and access level.

Default user

By default, TransPort LR devices have one user preconfigured. This default user is configured as **user 1**. Its default username is **admin**. Its default password is displayed on the label on the bottom of the device, for example:



You can change this **user 1** configuration to match your requirements.

User access permissions

TransPort LR devices support three access levels: **super**, **read-write**, and **read-only**. These access levels determine the level of control users have over device features and their settings.

Access level	Permissions allowed
super	<p>The user can manage all features on TransPort LR devices. Devices can have multiple users with super access level.</p> <p>A user with super access level is required to be present on a device, to allow editing user access levels. If you or any other device user deletes the only user with super access level, you must restore the default user configuration by resetting the device to factory defaults.</p>
read-write	The user can manage all device features except security-related features, such as configuring user access, configuring firewalls, clearing logs, etc.
read-only	The user can monitor device configuration and status, but cannot change the configuration or status of the TransPort LR device.

Related topics

[Configure a user on page 62](#)

[Delete a user on page 63](#)

[Reset the device to factory defaults on page 130](#)

Related commands

[user on page 212](#)

Configure a user

To configure a user, you need to configure the following:

Required configuration items

- Username.
- Password. For security reasons, passwords are stored in hash form. There is no way get or display passwords in clear-text form.

Additional configuration options

- Setting user access permissions. The access level for users defaults to **super**. To restrict the access of this user to either read-write or read-only, you should configure the access level.

From the command line

The [user on page 212](#) command configures users.

1. Configure the username. For example:

```
user 1 name joeuser
```

2. Configure the password. For example:

```
user 1 password omnivers1031
```

3. Optional: Configure the access level. For example:

```
user 1 access read-write
```

Related topics

[Users and user access permissions on page 61](#)

[Delete a user on page 63](#)

Related commands

[user on page 212](#)

Delete a user

To delete a user:

From the command line

Enter the following command:

```
user n name !
```

Configure the password. For example, to delete the user **joedriver** that was previously assigned to **user 1**, enter:

```
user 1 name !
```

Related topics

[Users and user access permissions on page 61](#)

[Configure a user on page 62](#)

Related commands

[user on page 212](#)

Remote management

These topics cover using remote management facilities to manage TransPort LR devices.

Remote Manager

Digi Remote Manager is a hosted remote configuration and management system that allows you to remotely manage a large number of devices. Digi Remote Manager has a web-based interface from which you can perform device operations, such as viewing and changing device configurations and perform firmware updates.

The Digi Remote Manager servers also provide a data storage facility.

Using Digi Remote Manager requires setting up a Digi Remote Manager account. To set up a Digi Remote Manager account and learn more about Digi Remote Manager, go to <http://www.digi.com/products/cloud/digi-remote-manager>.

Configure Remote Manager

Delete this text and replace it with your own content.

Simple Network Management Protocol (SNMP)

Simple Network Management Protocol (SNMP) is a protocol for remotely managing and monitoring network devices. Network administrators can use the SNMP architecture to manage nodes, including servers, workstations, routers, switches, hubs, and other equipment on an IP network, manage network performance, find and solve network problems, and plan for network growth.

Supported SNMP versions

Transport LR devices support the SNMP versions **SNMPv1**, **SNMPv2c**, and **SNMPv3**.

The device supports up to **10** SNMPv1/SNMPv2c communities. Each community can have read-only or read-write access.

The device supports up to **10** SNMPv3 users. You can configure each user's access level as read-only or read-write, and configure security settings on an individual-user basis.

Supported Management Information Bases (MIBs)

Transport LR devices support the following SNMP MIBs for managing the entities in a communication network:

- Standard SNMP MIBs
- An enterprise-specific MIB, specific to the LR54, named **transport-lr54.mib**. This MIB is available for download from Digi Support.

Note SNMPv1 cannot be used with the Enterprise MIB, owing to the COUNTER64 types used in the MIB.

Related topics

[Configure SNMPv1 and SNMPv2 on page 73](#)

[Configure SNMPv3 on page 74](#)

Related commands

[snmp on page 204](#)

[snmp-community on page 205](#)

[snmp-user on page 206](#)

Configure SNMPv1 and SNMPv2

Configuring SNMPv1 or SNMPv2c support involves configuring the following items:

- Enabling the desired SNMP version
- Whether to configure SNMPv1/v2c communities
- If configuring SNMPv1/v2c communities, the community access level

From the command line

1. All SNMP versions are disabled by default. Enable support for SNMPv1 or SNMPv2c by entering:

```
snmp v1 on
```

OR

```
snmp v2c on
```

2. If using SNMPv1/v2c communities, configure a name for each community. For example:

```
snmp-community 1 community public
```

3. The community access level defaults to **read-only**. To set the access level to **read-write**, enter:

```
snmp-community 1 access read-write
```

Related topics

[Simple Network Management Protocol \(SNMP\) on page 73](#)

[Configure SNMPv3 on page 74](#)

Related commands

[snmp on page 204](#)

[snmp-community on page 205](#)

[snmp-user on page 206](#)

Configure SNMPv3

Configuring SNMPv3 support involves configuring the following items:

- Enabling SNMPv3.
- Configuring the SNMPv3 users. Up to 10 SNMPv3 users can be configured.
- Configuring SNMPv3 user authentication type and password, privacy type and password, and user access level.

From the command line

1. All SNMP versions are disabled by default. To enable support for SNMPv3, enter:

```
snmp v3 on
```

2. For each SNMPv3 user, give the user a name of up to 32 characters:

```
snmp-user 1 user joe
```

3. Set the authentication type for the SNMPv3 user (**none**, **md5**, or **sha1**). To use privacy (DES or AES), the authentication type be either **md5** or **sha1**.

```
snmp-user 1 authentication sha1
```

4. Set the authentication password for the SNMPv3 user. The password length can be between 8 and 64 characters.

```
snmp-user 1 authentication-password authpassword
```

5. Set the privacy type for the SNMPv3 user (**none**, **aes**, or **des**):

```
snmp-user 1 authentication des
```

6. Set the privacy password for the SNMPv3 user. The password length can be between 8 and 64 characters.

```
snmp-user 1 privacy-password privpassword
```

7. Configure the access level for the SNMPv3 user.

```
snmp-user 1 access read-write
```

Related topics

[Simple Network Management Protocol \(SNMP\) on page 73](#)

[Configure SNMPv3 on page 74](#)

Related commands

[snmp on page 204](#)

[snmp-community on page 205](#)

[snmp-user on page 206](#)

IP routing

The TransPort LR device uses IP routes to decide where to send a packet that it receives for a remote network. The process for deciding on a route to send the packet is as follows:

1. The device examines the destination IP address in the IP packet, and looks through the IP routing table to find a match for it.
2. If it finds a route for the destination, it forwards the IP packet to the configured IP gateway or interface.
3. If it cannot find a route for the destination, it uses a default route.
4. If there are two or more routes to a destination, the device uses the route with the longest mask.
5. If there are two or more routes to a destination with the same mask, the device will use the route with the lowest metric.

Configuring and managing IP routing involves the following tasks:

Configure general IP settings

Configuring general IP settings is one of the building blocks of setting up IP routing.

Optional configuration settings

- The IP hostname. This hostname identifies the TLR device on IP networks. It is an unqualified hostname. The default setting for the device is **LR54-%s** which expands to **LR54-<serial number>**.
- The administrative distance settings for connected and static routes. Administrative distance settings rank the type of routes, from the most to least preferred. When there are two or more routes to the same destination and mask, the route with the lowest metric is used. By default, routes to connected networks are preferred, with static routes being next. The administrative distance for each route type is added to the route's metric when it is added to the routing table. Configuring the administrative distance of a particular route type can alter the order of use for the routes. The two administrative distance settings are:
 - Administrative distance for connected network routes. The default value is **0**.
 - Administrative distance for static routes. The default value is **1**.

From the command line

1. Set the hostname.

```
ip hostname LR54-NewYork
```

2. Set the administrative distance for connected routes.

```
ip admin-conn 3
```

3. Set the administrative distance for static routes.

```
ip admin-static 5
```

Related topics

[IP routing on page 77](#)

[Configure a static route on page 79](#)

[Show the IPv4 routing table on page 81](#)

[Delete a static route on page 82](#)

Related commands

[ip on page 161](#)

Configure a static route

A static route is a manually configured routing entry. Information about the route is manually entered rather than obtained from dynamic routing traffic. TransPort LR devices supports up to 32 static routes.

Required configuration settings

- Setting the destination network and mask.
- Setting the gateway IP address for routes using LAN and WAN Ethernet interfaces. The gateway IP address should be on the same subnet as the IP address of the LAN or WAN Ethernet interface in use.
- Setting the interface name for routes using cellular and DSL interfaces.

Optional configuration settings

- Setting the metric for the route. The metric defines the order in which routes should be used if there are two routes to the same destination. In such a case, the smaller metric is used.

From the command line

Example 1

To configure a static route to the **192.168.47.0/24** network using the **lan1** interface, which has an IP address of **192.168.1.1** and a gateway at IP address of **192.168.1.254**:

1. Set the destination network and mask.

```
route 1 destination 192.168.47.0
route 1 mask 255.255.255.0
```

2. Set the gateway IP address.

```
route 1 gateway 192.168.1.254
```

Example 2

To configure a static route to the **44.1.0.0/16** network using the **cellular1** interface:

1. Set the destination network and mask.

```
route 4 destination 44.1.0.0
route 4 mask 255.255.0.0
```

2. Set the interface.

```
route 4 interface cellular1
```

3. Optional: Set the metric.

```
route 4 metric 5
```

Once the static route is configured, it should be shown in the IPv4 routing table.

Related topics

[IP routing on page 77](#)

[Configure general IP settings on page 78](#)

[Show the IPv4 routing table on page 81](#)

[Delete a static route on page 82](#)

Related commands

[ip on page 161](#)

[route on page 175](#)

[show route on page 197](#)

Show the IPv4 routing table

To display the IPv4 routing table, use the [show route on page 197](#) command.

```
digl.router> show route
```

Destination	Gateway	Metric	Protocol	Idx	Interface	Status
10.1.2.0/24	192.168.1.254	1	Static	1	lan1	UP
192.168.1.0/24	0.0.0.0	0	Connected		lan1	UP
default	0.0.0.0	1	Connected		eth1	UP
default	0.0.0.0	2	Connected		cellular1	UP

```
digl.router>
```

Related topics

[IP routing on page 77](#)

[Configure general IP settings on page 78](#)

[Configure a static route on page 79](#)

[Delete a static route on page 82](#)

Related commands

[ip on page 161](#)

[route on page 175](#)

[show route on page 197](#)

Delete a static route

To remove a static route from the routing table, clear the destination network configuration.

From the command line

Enter the [route on page 175](#) command, specifying the interface number, the destination parameter and ! to revert the settings for the route destination. For example:

```
route 1 destination !
```

Related topics

[IP routing on page 77](#)

[Configure general IP settings on page 78](#)

[Configure a static route on page 79](#)

[Show the IPv4 routing table on page 81](#)

Related commands

[ip on page 161](#)

[route on page 175](#)

[show route on page 197](#)

Virtual Private Networks (VPN)

Virtual Private Networks (VPNs) are used to securely connect two private networks together so that devices can connect from one network to the other network using secure channels. These topics cover the various network protocols involved in VPNs, and configuring VPNs from the web interface and command line.

IPsec

IPsec is a suite of protocols for creating a secure communication link, or IPsec tunnel, between a host and a remote IP network or between two IP networks across a public network such as the internet.

TransPort LR devices support to up **32** IPsec tunnels.

IPsec data protection

IPsec protects the data being sent across a public network by providing the following:

Data origin authentication

Authentication of data to validate the origin of data when it is received.

Data integrity

Authentication of data to ensure it has not been modified during transmission.

Data confidentiality

Encryption of data sent across the IPsec tunnel to ensure that an unauthorized device cannot read the data.

Anti-Replay

Authentication of data to ensure an unauthorized device has not injected it into the IPsec tunnel.

IPsec modes

IPsec can run in two different modes: **Tunnel** and **Transport**.

Currently, TransPort LR devices support tunnel mode only.

Tunnel

The entire IP packet is encrypted and/or authenticated and then encapsulated as the payload in a new IP packet.

Transport

Only the payload of the IP packet is encrypted and/or authenticated. The IP header is left untouched. This mode has limitations when using an authentication header, because the IP addresses in the IP header cannot be translated (for example, with Network Address Translation (NAT), as it would invalidate the authentication hash value.

Internet Key Exchange (IKE) settings

IKE is a key management protocol is used by IPsec to negotiate the security associations (SAs) that are used to create the secure IPsec tunnel.

SA negotiations are performed in two phases, known as **phase 1** and **phase 2**.

Phase 1

In phase 1, IKE creates a secure authenticated communication channel between the device and the peer (the remote device which is at the other end of the IPsec tunnel) using the configured pre-shared key and the Diffie-Hellman key exchange. This creates the IKE SAs that are used to encrypt further IKE communications.

There are two modes for the phase 1 negotiation: **Main mode** and **Aggressive mode**.

Main mode

Main mode is the default mode. It is slower than aggressive mode, but more secure, in that all sensitive information sent between the device and its peer is encrypted.

Aggressive mode

Aggressive mode is faster than main mode, but is not as secure as main mode, because the device and its peer exchange their IDs and hash information in clear text instead of being encrypted. Aggressive mode is usually used when one or both of the devices have a dynamic external IP address.

Phase 2

In phase 2, IKE negotiates the SAs for IPsec. This creates two unidirectional SAs, one for each direction. Once the phase 2 negotiation is complete, the IPsec tunnel should be fully functional.

There are two versions of IKE, **IKEv1** and **IKEv2**. Currently the LR54 only supports **IKEv1**.

IPsec and IKE renegotiation

To reduce the chances of an IPsec tunnel being compromised, the IPsec SAs and IKE SA are renegotiated at a regular interval. This results in different encryption keys being used in the IPsec tunnel.

Related topics

Related commands

[ipsec on page 162](#)

[ipsec-failover on page 166](#)

[show dsl on page 182](#)

Configure an IPsec tunnel

Configuring an IPsec tunnel with a remote device involves configuring the following items:

Required configuration items

IPsec tunnel configuration settings

- Enabling the IPsec tunnel.
- The IP address or name of the remote device, also known as the peer, at the other end of the IPsec tunnel.
- The local and remote IDs.
- The local and remote IP networks.
- The authentication protocol to use. This setting must match the authentication protocol configured on the remote device. The authentication options are:
 - **SHA1**
 - **SHA256**

The default value is **SHA1**.

- The encryption protocol to use. This has to match the encryption protocol configured on the remote device. The encryption options are:

- **AES – 128 bits**
- **AES – 192 bits**
- **AES – 256 bits**

The default value is **AES – 128 bits**.

- The Encapsulating Security Payload (ESP) Diffie-Hellman group for the IPsec tunnel. This setting must match the Diffie-Hellman group configured on the remote device. The Diffie-Hellman group options are:
 - **None**
 - **Group 5** (1536 bits)
 - **Group 14** (2048 bits)
 - **Group 15** (3072 bits)
 - **Group 16** (4096 bits)
 - **Group 17** (6144 bits)
 - **Group 18** (8192 bits)

The default value is **Group14**.

The larger the number of bits, the more secure the IPsec tunnel. However, a larger bit length requires more computing power, which can slow down the tunnel negotiation and performance.

- The shared key the device and the remote device use to authenticate each other.

IKE configuration settings

- The IKE mode.
 - **Main**
 - **Aggressive**

The default option is **Main**.

- The IKE authentication protocols to use for the IPsec tunnel negotiation. The authentication options are:
 - **SHA1**
 - **SHA256**

The default is **SHA1**.

You can select more than one authentication protocol. IKE negotiates with the remote device which to use. This setting does not need to match the IKE authentication protocols configured on the remote device, but at least one of the authentication protocols must be configured on the remote device.

- The IKE encryption protocols to use for the IPsec tunnel negotiation. The encryption options are:
 - **AES – 128 bits**
 - **AES – 192 bits**
 - **AES – 256 bits**

The default is **AES – 128 bits**.

You can select more than one encryption protocol. IKE negotiates with the remote device which encryption protocol to use. This setting does not need to match the IKE encryption protocols configured on the remote device, but at least one of the encryption protocols must be configured on the remote device.

- The IKE Diffie-Hellman groups to use for the IPsec tunnel negotiation. The Diffie-Hellman group options.
 - **Group 5** (1536 bits)
 - **Group 14** (2048 bits)
 - **Group 15** (3072 bits)
 - **Group 16** (4096 bits)
 - **Group 17** (6144 bits)
 - **Group 18** (8192 bits)

The default value is **Group14**.

You can select more than one Diffie-Hellman group. IKE negotiates with the remote device which group to use. This setting does not need to match the IKE Diffie-Hellman groups configured on the remote device, but at least of the Diffie-Hellman groups must be configured on the remote device.

Additional configuration items

The following additional configuration settings are not typically configured to get an IPsec tunnel working, but can be configured as needed:

Tunnel and key renegotiating

- The lifetime of the IPsec tunnel before it is renegotiated. This defaults to **1 hour** (3600 seconds), and does not need to match the setting on the remote device.
- The number of bytes, also known as lifebytes, sent on the IPsec tunnel before it is renegotiated. By default, this setting is disabled, but can be configured up to **4 GB**. This setting does not need to match the setting on the remote device.
- The IKE lifetime before the keys are renegotiated. This defaults to **4800 seconds** and does not need to match the IKE lifetime configured on the remote device.
- The amount of time before the IPsec lifetime expires, the renegotiation should start. This defaults to **540 seconds** and does not need to match the setting on the remote device.
- The number of bytes before the IPsec lifebytes limit is reached before the key is renegotiated. By default, this is set to 0 and does not need to match the setting on the remote device.

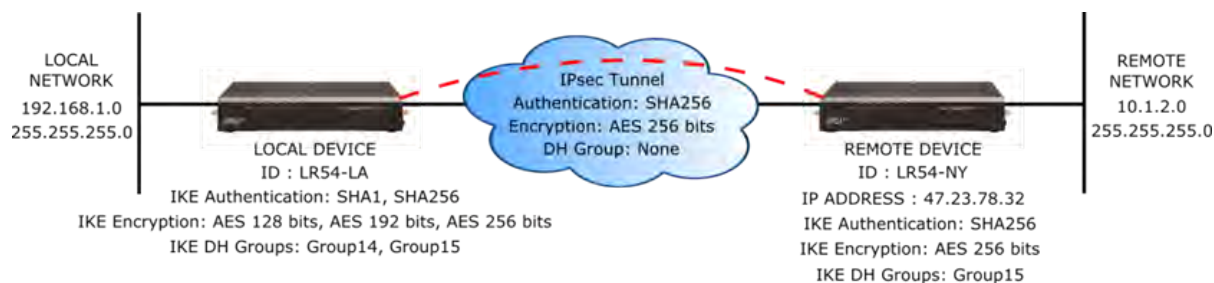
- A randomizing factor for the number of seconds or bytes margin before the IPsec tunnel is renegotiated. This defaults to 100% and does not need to match the setting on the remote device. This setting would be used if the device has a number of IPsec tunnels configured to ensure that the IPsec tunnels are not renegotiated at the same time which could put excessive load on the device.

Other configuration items

- A description for the IPsec tunnel.
- The number of tries IKE will attempt to negotiate the IPsec tunnel with the remote device before giving up.

Example IPsec tunnel

Suppose you are configuring the following IPsec tunnel:



From the command line

1. Enable the IPsec tunnel.

```
ipsec 1 state on
```

2. Enter the IP address or name of the remote device.

```
ipsec 1 peer 47.23.78.32
```

3. Enter the local and remote IDs.

```
ipsec 1 local-id LR54-LA
ipsec 1 remote-id LR54-NY
```

4. Enter the local and remote IP networks.

```
ipsec 1 local-network 192.168.1.0
ipsec 1 local-mask 255.255.255.0
ipsec 1 remote-network 10.1.2.0
ipsec 1 remote-mask 255.255.255.0
```

5. Enter the pre-shared key.

```
ipsec 1 psk "secret-psk"
```

6. Enter the IPsec authentication, encryption, and Diffie-Hellman settings.

```
ipsec 1 esp-authentication sha256
ipsec 1 esp-encryption aes256
ipsec 1 esp-diffie-hellman none
```

7. Enter the IKE authentication, encryption, and Diffie-Hellman settings.

```
ipsec 1 ike-authentication sha1,sha256
ipsec 1 ike-encryption aes128,aes192,aes256
ipsec 1 ike-diffie-hellman group14,group15
```

Related topics

[IPsec on page 84](#)

[IPSec tunnel failover on page 91](#)

[Example: IPsec tunnel between a TransPort LR54 and TransPort WR44 on page 89](#)

[Example: IPsec tunnel between a TransPort LR54 and a Cisco router](#)

[Debug an IPsec configuration on page 92](#)

[Show IPsec status and statistics on page 92](#)

Related commands

[ipsec on page 162](#)

[ipsec-failover on page 166](#)

[show ipsec on page 191](#)

Example: IPsec tunnel between a TransPort LR54 and TransPort WR44

Following an example IPsec configuration between an TransPort LR54 and a TransPort WR44.



The configuration settings for both devices are as follows:

TransPort LR54 configuration	TransPort WR44 configuration
<pre> digi.router> lan 1 state on description IPsec local net mtu 1500 interfaces eth2,eth3,eth4 ip-address 192.168.54.1 mask 255.255.255.0 dns1 dns2 dhcp-client off digi.router> lan 2 state on description Link to WR44 mtu 1500 interfaces eth1 ip-address 10.0.0.54 mask 255.255.255.0 dns1 dns2 dhcp-client off digi.router> ipsec 1 state on description Tunnel to WR44 peer 10.0.0.44 local-network 192.168.54.0 local-mask 255.255.255.0 remote-network 192.168.44.0 remote-mask 255.255.255.0 esp-authentication sha1 esp-encryption aes128 esp-diffie-hellman none auth-by psk psk <configured> local-id 10.0.0.54 remote-id 10.0.0.44 lifetime 3600 lifebytes 0 margin-time 540 margin-bytes 0 random 100 ike 1 ike-mode aggressive ike-encryption aes128 ike-authentication sha1 ike-diffie-hellman group5 ike-lifetime 3600 ike-tries 3 dpdelay 30 dpdtimeout 150 </pre>	<pre> # Link to TransPort LR54 eth 0 IPAddr "10.0.0.44" eth 0 ipsec 1 # IPsec local network eth 1 IPAddr "192.168.44.1" # Route to remote network route 0 IPAddr "192.168.54.0" route 0 ll_ent "eth" # IPsec tunnel configuration eroute 0 peerip "10.0.0.54" eroute 0 peerid "10.0.0.54" eroute 0 ourid "10.0.0.44" eroute 0 ouridtype 3 eroute 0 locip "192.168.44.0" eroute 0 locmsk "255.255.255.0" eroute 0 remip "192.168.54.0" eroute 0 remmsk "255.255.255.0" eroute 0 ESPauth "sha1" eroute 0 ESPenc "aes" eroute 0 authmeth "preshared" eroute 0 autosa 2 # IKE configuration ike 0 encalg "aes" ike 0 keybits 128 ike 0 authalg "sha1" ike 0 ltime 30000 ike 0 aggressive ON ike 0 ikegroup 5 # Remote ID / Password user 1 name "10.0.0.54" user 1 epassword "MDp6Vko=" </pre>

```
Rekeying In      : 68 minutes
AH Cipher Suite  : Not Used
ESP Cipher Suite : aes128, sha1
Renegotiating In : 42 minutes
Outbound ESP SA  : 0x9E1325F2
Inbound ESP SA   : 0x757935D6
Bytes In         : 0
Bytes Out        : 0

digi.router>
```

Related topics

[IPsec on page 84](#)

[IPSec tunnel failover on page 91](#)

[Configure an IPSec tunnel on page 85](#)

[Example: IPsec tunnel between a TransPort LR54 and TransPort WR44 on page 89](#)

[Example: IPsec tunnel between a TransPort LR54 and a Cisco router](#)

[Debug an IPsec configuration on page 92](#)

Related commands

[ipsec on page 162](#)

[ipsec-failover on page 166](#)

[show dsl on page 182](#)

Set system date and time

Having an accurate date and time set on your device is important for a number of reasons, including validating certificates and having accurate timestamps on events in the event log.

Methods for setting system date and time

There are two methods for setting system date and time:

- Using the Simple Network Time Protocol (SNTP). SNTP continually polls an external NTP time server on either a private company network or the internet at a configured interval rate. SNTP usually provides an accuracy of less than a second.
- Setting the date and time manually.

Set the date and time using SNTP

Required configuration items

- Enable SNTP.

Additional configuration options

- The SNTP server. By default, SNTP is configured to use Digi's SNTP server, **time.devicecloud.com**.
- The SNTP update interval. This is the interval at which the TLR device checks the SNTP server for date and time. By default, SNTP is checked every hour. At bootup, the device attempts to send an update message to the configured SNTP server every **15** seconds until it receives a response. Once it receives a response, it reverts to the configured update interval.

From the command line

To set the date and time using SNTP, use the [sntp on page 207](#) command.

1. Enable SNTP.

```
sntp state on
```

2. Optional: Set the SNTP server. For example, to set the server to **time.digi.com**:

```
sntp server time.digi.com
```

3. Optional: Set the SNTP update interval.

```
sntp update-interval 10
```

Set the date and time manually

From the command line

To set the date and time manually, use the [date on page 149](#) command. The [date on page 149](#) command specifies the time in **HH:MM:SS** format, where seconds are optional, followed by the date, in **DD:MM:YYYY** format.

For example, to manually set the time and date to **14:55:00** on **May 3, 2016**, enter:

```
date 14:55:00 03:05:2016
```

Related topics

[Show system date and time on page 98](#)

Related commands

[date on page 149](#)

[sntp on page 207](#)

Show system date and time

From the command line

To display the current system date and time, use the [date on page 149](#) command.

```
digi.router> date  
  
system time: 14:55:06, 03 May 2016  
  
digi.router>
```

Related topics

[Set system date and time on page 96](#)

Related commands

[date on page 149](#)

[sntp on page 207](#)

[Use multiple configuration files to test the configuration on remote devices on page 107](#)

Related commands

[save on page 176](#)

[show system on page 199](#)

Use multiple configuration files to test the configuration on remote devices

You can use multiple configuration files, along with the [autorun on page 141](#) command, to test a new configuration on a remote device that might result in the remote device going offline, in which case the device cannot be remotely accessed.

To test the configuration on a remote device, create a new configuration file with desired configuration changes to test. In addition to the desired configuration changes, the file should contain two [autorun on page 141](#) commands:

- The first [autorun on page 141](#) command automatically reverts the device to use the original configuration file.
- The second [autorun on page 141](#) command schedules a reboot after a period of time.

Example test configuration file

For example, suppose you create a new test configuration file named **test.cfg**

This **test.cfg** file changes the **cellular 1 apn** parameter, and executes two [autorun on page 141](#) commands to automatically revert the device back to use the **config.da0** configuration file and to reboot in **5** minutes. It then saves the configuration to **test.cfg** and reboots the device.

```
update config test.cfg
cellular 1 apn new-apn-to-test
autorun 1 command "update config config.da0"
autorun 2 command "reboot in 5"
save config
reboot
```

If the TransPort LR device does not come back online, the device automatically reverts to the old (working) configuration file, **config.da0**, and reboots after **5** minutes.

If the device comes back online after being rebooted with the configuration (that is, the device connected with the new cellular APN), you can cancel the scheduled reboot using the **reboot cancel** command.

```
reboot cancel
```

Using the [copy on page 147](#) and [update on page 211](#) commands, you can then copy the configuration file to the final configuration file, and change the configuration file name.

```
copy test.cfg config.da0
update config config.da0
```

Related topics

[Managing configuration files on page 102](#)

[Save configuration settings to a file on page 137](#)

[Switch between configuration files on page 137](#)

Related commands

[autorun on page 141](#)

[copy on page 147](#)

[reboot on page 172](#)

[save on page 176](#)

Make a directory

To make a new directory in the TLR filesystem, use the [mkdir on page 168](#) command, specifying the name of the directory.

For example:

```
digi.router> mkdir test
digi.router> dir

File                               Size  Last Modified
-----
test                               Directory
config.da0                         763   Sun Mar  5 12:36:20
config.fac                          186   Mon Feb 21 03:00:17

Remaining User Space: 102,457,344 bytes

digi.router>
```


Display directory contents

To display directory contents, use the [dir on page 152](#) command. For example:

```
digi.router> dir

File                               Size  Last Modified
-----
test                               Directory
config.da0                         763   Sun Mar  5 12:36:20
config.fac                          186   Mon Feb 21 03:00:17

Remaining User Space: 102,457,344 bytes

digi.router>
```

Change the current directory

To change the current directory, use the [cd on page 142](#) command, specifying the directory name.

For example:

```
digirouter> dir

File                               Size  Last Modified
-----
test                               Directory
config.da0                         763   Sun Mar  5 12:36:20
config.fac                          186   Mon Feb 21 03:00:17

Remaining User Space: 102,457,344 bytes
digirouter>
digirouter> cd test

digirouter> dir

File                               Size  Last Modified
-----

Remaining User Space: 102,457,344 bytes

digirouter>
```

Remove a directory

To remove a directory:

1. Make sure the directory is empty.
2. Use the [rmdir on page 174](#) command, specifying the name of the directory to remove.

For example:

```
digi.router> dir

File                               Size  Last Modified
-----
test                               Directory
config.da0                         763   Sun Mar  5 12:36:20
config.fac                         186   Mon Feb 21 03:00:17

Remaining User Space: 102,457,344 bytes
digi.router>
digi.router> rmdir test
Directory test is not empty
ERROR
digi.router>
digi.router> dir test

File                               Size  Last Modified
-----
config.tst                         186   Wed Apr  5 07:10:41

Remaining User Space: 102,457,344 bytes

digi.router>
digi.router> del test/config.tst
digi.router>
digi.router> rmdir test
digi.router>
digi.router> dir

File                               Size  Last Modified
-----
config.da0                         763   Sun Mar  5 12:36:20
config.fac                         186   Mon Feb 21 03:00:17

Remaining User Space: 102,457,344 bytes
```

Display file contents

To display the contents of a file, use the [more on page 169](#) command, specifying the name of the file.

For example:

```
digi.router> more config.da0

# Last updated by username on Thu Nov 19 14:26:02 2015

eth 1 ip-address "192.168.1.1"
cellular 1 apn "mobile.o2.co.uk"
cellular 1 state "on"
user 1 name "username"
user 1 password "$1$4WdqUHrv$K.aB78KILuxVpesZtyveG/"

digi.router>
```

Copy a file

To copy a file, use the [copy on page 147](#) command, specifying the existing file name, followed by the name of the new copy.

For example, to copy file **config.da0** to a file in the main directory named **backup.da0**, and then to a file named **test.cfg** in the **test** directory, enter the following:

```

digi.router>
digi.router> dir

File                               Size  Last Modified
-----
test                               Directory
config.da0                         763   Sun Mar  5 12:36:20
config.fac                         186   Mon Feb 21 03:00:17

Remaining User Space: 102,457,344 bytes
digi.router>
digi.router>
digi.router> copy config.da0 backup.da0
digi.router>
digi.router> dir

File                               Size  Last Modified
-----
test                               Directory
config.da0                         763   Sun Mar  5 12:36:20
config.fac                         186   Mon Feb 21 03:00:17
backup.da0                         763   Wed Apr  5 07:22:29

Remaining User Space: 102,457,344 bytes
digi.router>
digi.router> digi.router> copy config.da0 test/test.cfg

digi.router>
digi.router> dir test

File                               Size  Last Modified
-----
test.cfg                          763   Wed Apr  5 07:24:45

Remaining User Space: 102,457,344 bytes
digi.router>

```

Rename a file

To rename a file, use the [rename on page 173](#) command, specifying the existing name and the new name.

For example:

```
dig1.router> dir

File                               Size  Last Modified
-----
test                               Directory
config.da0                         763   Sun Mar  5 12:36:20
config.fac                          186   Mon Feb 21 03:00:17
backup.da0                          763   Wed Apr  5 07:22:29

Remaining User Space: 102,457,344 bytes
dig1.router>
dig1.router> rename backup.da0 test.da0
dig1.router>
dig1.router> dir

File                               Size  Last Modified
-----
test                               Directory
test.da0                          763   Wed Apr  5 07:22:29
config.da0                         763   Sun Mar  5 12:36:20
config.fac                          186   Mon Feb 21 03:00:17

Remaining User Space: 102,453,248 bytes
dig1.router>
```

Delete a file

To delete a file, use the [del on page 150](#) command, specifying the filename to delete.

For example, to delete a file named **test.cfg** in the **test** directory, enter the following:

```
dig1.router>
dig1.router> dir

File                               Size  Last Modified
-----
test                               Directory
test.da0                           763   Wed Apr  5 07:22:29
config.da0                          763   Sun Mar  5 12:36:20
config.fac                           186   Mon Feb 21 03:00:17

Remaining User Space: 102,453,248 bytes

dig1.router>
dig1.router> del test.da0
dig1.router>
dig1.router> dir test

File                               Size  Last Modified
-----
test.cfg                            763   Wed Apr  5 07:24:45

Remaining User Space: 102,453,248 bytes
dig1.router>
dig1.router> del test/test.cfg
dig1.router> dir test

File                               Size  Last Modified
-----

Remaining User Space: 102,449,152 bytes

dig1.router>
```

Upload and download files

You can download and upload files from and to a TLR device, using utilities such as Secure Copy (SCP), SSH File Transfer Protocol (SFTP), or an SFTP application such as FileZilla.

Upload files using SCP

To upload a file to a TLR device using SCP, the syntax is as follows:

```
scp filename username@ip_address:filename
```

This example uploads a file named **script.py** to TLR device **192.168.1.1**:

```
$ scp script.py john@192.168.1.1:script.py
Password:
script.py                                     100%
3728    0.3KB/s   00:00
```

Download files using SCP

To download a file from a TLR device using SCP, the syntax is as follows:

```
scp username@ip_address:filename filename
```

This example downloads a file named **config.da0** from TLR device **192.168.1.1** using the username **john** to the local directory:

```
$ scp john@192.168.1.1:config.da0 config.da0
Password:
config.da0                                     100%
254    0.3KB/s   00:00
```

Upload files using SFTP

This example uploads a file named **lr54-1.0.2.10.bin** to TLR device **192.168.1.1** using the username **john**:

```
$ sftp john@192.168.1.1
Password:
Connected to 192.168.1.1
sftp> put lr54-1.0.2.10.bin
Uploading lr54-1.0.2.10.bin to lr54-1.0.2.10.bin
lr54-1.0.2.10.bin                             100%
24M 830.4KB/s   00:00
sftp> exit
$
```

Download files using SFTP

This example downloads a file named **config.da0** from TLR device **192.168.1.1** using the username **john** to the local directory:

```
$ sftp john@192.168.1.1
Password:
Connected to 192.168.1.1
sftp> get config.da0
Fetching config.da0 to config.da0
```



```
config.da0 100%  
254 0.3KB/s 00:00  
sftp> exit  
$
```

Command reference

These topics describe the command-line interface for TransPort LR devices and the commands entered through the command-line interface.

```

digi.router> dsl mode ?

Syntax          : dsl 1 mode <value>
Description     : DSL line mode
Current Value   : auto
Valid Values    : auto, adsl2-plus, adsl2, gdmr, glite
Default value   : auto

digi.router> dsl mode

```

Revert command elements using the ! character

Entering **!** reverts an individual command element to its factory default. For example, to revert the previous setting of interfaces on the **lan** command, enter:

```
lan 1 interfaces !
```

Auto-complete commands and parameters

When entering a command and parameter, pressing the **Tab** key causes the command-line interface to auto-complete as much of the command and parameter as possible.

Auto-complete applies to these command elements only :

- Command names. For example, entering **cell<Tab>** auto-completes the command as **cellular**
- Parameter names. For example:
 - **ping int<Tab>** auto-completes the parameter as **interface**
 - **system loc<Tab>** auto-completes the parameter as **location**.
- Parameter values, where the value is one of an enumeration or an on|off type; for example, **eth 1 duplex auto|full|half**

Auto-complete does not function for:

- Parameter values that are string types
- Integer values
- File names
- Select parameters passed to commands that perform an action

Enter configuration commands

Configuration commands configure settings for various device features. These commands have the following format:

```
<command> <instance> <parameter> <value>
```

Where <instance> is the index number associated with the feature. For example, this command configures the **eth1** Ethernet interface:

```
eth 1 ip-address 10.1.2.3
```

For commands with only one instance, you do not need to enter the instance; for example:

```
system timeout 100
```

```

CPU           : 3% (min 1%, max 70%, avg 3%)
Temperature   : Not available

Description   :
Location      :
Contact       :

digi.router>

```

Change the configuration file name

1. Change the name of the configuration file to be used at boot-up and when the configuration is saved.

```
update config <filename>
```

2. If the new configuration file does not exist, enter the [save on page 176](#) command to create and save the configuration file.

```
save config
```

Related topics

[Managing configuration files on page 102](#)

[Save configuration settings to a file on page 137](#)

[Use multiple configuration files to test the configuration on remote devices on page 107](#)

Related commands

[save on page 176](#)

[show system on page 199](#)

Display status and statistics using "show" commands

show commands display status and statistics for various features. For example:

- [show config on page 181](#) displays all the current configuration settings for the device. This is a particularly useful during initial device startup after running the Getting Started Wizard, or when troubleshooting the device.
- [show system on page 199](#) displays system information and statistics for the device, including CPU usage.
- [show eth on page 186](#) displays status and statistics for specific or all Ethernet interfaces.
- [show dsl on page 182](#) displays status and statistics for the DSL interface.
- [show cellular on page 178](#) displays status and statistics for specific or all cellular interfaces.

Enter file management commands

There are commands for managing files in the device's file system, such as **copy**, **del**, **mkdr**, **rename**, **rmdir**.

For more information, see [About the TLR file system](#).

Command descriptions

Following are the TLR Family command-line interface commands. Commands are organized by command type, in alphabetical order.

autorun

Configures commands to be automatically run at boot-up. Auto-run commands can be used for tasks such as starting a Python program, switching configuration files, or scheduling a reboot. You can configure up to 10 auto-run commands.

Syntax

```
autorun <1 - 10> <parameter> <value>
```

Parameters

command

Command to run.

Accepted value is any string up to 100 characters.

Examples

- ```
autorun 1 command \"python script.py\"
```

Automatically run a Python program.

**cd**

Changes the current directory.

**Syntax**

```
cd [dir]
```

**Parameters*****dir***

When a directory name is specified, 'cd' changes the current directory to it.

## cellular

Configures a cellular interface.

### Syntax

```
cellular <1 - 2> <parameter> <value>
```

### Parameters

#### **state**

Enables or disables the cellular interface, or enables it as an on-demand interface. The 'on-demand' setting allows configuring the cellular interface as an on-demand interface. An on-demand interface is brought up as needed if a higher priority goes down.

Accepted values can be one of off, on or on-demand. The default value is off.

#### **description**

A description of the cellular interface.

Accepted value is any string up to 63 characters.

#### **apn**

The Access Point Name (APN) for the cellular interface.

Accepted value is any string up to 63 characters.

#### **apn-username**

The username for the APN.

Accepted value is any string up to 63 characters.

#### **apn-password**

The password for the APN.

This element is available to all users.

Accepted value is any string up to 128 characters.

#### **preferred-mode**

The preferred cellular mode for the cellular interface.

Accepted values can be one of auto, 4g, 3g or 2g. The default value is auto.

#### **connection-attempts**

The number of attempts to establish a cellular connection. After this number of attempts, the cellular module is power cycled, and the device attempts to make a cellular connection again.

Accepted value is any integer from 10 to 500. The default value is 20.

### Examples

- ```
cellular 1 state on
```

Enable the Cellular 1 interface.

- `cellular 1 state off`

Disable the Cellular 1 interface.

- `cellular 1 state on-demand`

Disable Cellular 1 interface until the failover task brings it up.

- `cellular 2 apn broadband`

Set the SIM slot 2 APN to 'broadband.'

- `cellular 1 username my-username`

Set the SIM slot 1 username to 'my-username.'

- `cellular 1 password my-password`

Set the SIM slot 1 password to 'my-password.'

clear

Clears system status and statistics, such as the event log, firewall counters, etc.
This command is available to super users only.

Syntax

```
clear firewall | log
```

Parameters***firewall***

Clears firewall counters.

log

Clears the event log.

Examples

- ```
clear firewall
```

Clear the packet and byte counters in all firewall rules.

- ```
clear log
```

Clear the event log and leaves an entry in the log after clearing.

cloud

Configures Digi Remote Manager settings.

Syntax

```
cloud <parameter> <value>
```

Parameters

state

Enables or disables Digi Remote Manager.

Value is either on or off. The default value is off.

server

The name of the Digi Remote Manager server.

Value should be a fully qualified domain name. The default value is my.devicecloud.com.

reconnect

The time, in seconds, between the device's attempts to connect to Digi Remote Manager.

Accepted value is any integer from 0 to 3600. The default value is 30.

keepalive

The interval, in seconds, used to contact the server to validate connectivity over a non-cellular interface.

Accepted value is any integer from 10 to 7200. The default value is 60.

keepalive-cellular

The interval, in seconds, used to contact the server to validate connectivity over a cellular interface.

Accepted value is any integer from 10 to 7200. The default value is 290.

keepalive-count

Number of keepalives missed before the device disconnects from Remote Manager.

Accepted value is any integer from 0 to 10. The default value is 3.

copy

Copies a file.

This command is available to all users.

Syntax

```
copy source dest
```

Parameters***source***

The source file to be copied to the location specified by 'dest.'

dest

The destination file, or file to which the source file is copied.

cpu

Show CPU usage

Syntax

```
cpu
```

Parameters

date

Manually sets and displays the system date and time.

Syntax

```
date [HH:MM:SS [DD:MM:YYYY]]
```

Parameters***time***

System time, specified in the 24-hour format HH:MM:SS.

date

System date, specified in the format DD:MM:YYYY.

Examples

- ```
date 14:55:00 03:05:2016
```

Set the system date and time to 14:55:00 on May 3, 2016.

## **del**

Deletes a file.

This command is available to all users.

### **Syntax**

```
del file
```

### **Parameters**

#### ***file***

The file to be deleted.

## dhcp-server

Configures Dynamic Host Configuration Protocol (DHCP) server settings.

### Syntax

```
dhcp-server <1 - 10> <parameter> <value>
```

### Parameters

#### **state**

Enables or disables this DHCP server.

Value is either on or off. The default value is off.

#### **ip-address-start**

The first IP address in the pool of addresses to assign.

Value should be an IPv4 address.

#### **ip-address-end**

The last IP address in the pool of addresses to assign.

Value should be an IPv4 address.

#### **mask**

The IP network mask given to clients.

Value should be an IPv4 address.

#### **gateway**

The IP gateway address given to clients.

Value should be an IPv4 address.

#### **dns1**

Preferred DNS server address given to clients.

Value should be an IPv4 address.

#### **dns2**

Alternate DNS server address given to clients.

Value should be an IPv4 address.

#### **lease-time**

The length, in minutes, of the leases issued by this DHCP server.

Accepted value is any integer from 2 to 10080. The default value is 1440.



## **dir**

Displays the contents of the current directory.

### **Syntax**

```
dir [file]
```

### **Parameters**

#### ***file***

Lists information about the file (by default, the current directory).

**dsl**

Configures the DSL interface and account information.

This group is only supported in LR54, LR54W, LR54D and LR54DWC1 products.

**Syntax**

```
dsl <parameter> <value>
```

**Parameters****state**

Enables or disables the DSL interface, or enables it as an on-demand interface. The 'on-demand' setting allows configuring the DSL interface as an on-demand interface. An on-demand interface is brought up as needed if a higher priority goes down.

Accepted values can be one of off, on or on-demand. The default value is off.

**description**

Description of the DSL interface.

Accepted value is any string up to 63 characters.

**mode**

DSL line mode. The default, 'auto,' trains the DSL interface to the best available (highest performance) mode offered by the DSLAM.

Accepted values can be one of auto, adsl2-plus, adsl2, gdmr or glite. The default value is auto.

**vpi**

Virtual Path Identifier (VPI) for the DSL interface.

Accepted value is any integer from 0 to 255. The default value is 0.

**vci**

Virtual Circuit Identifier (VCI) for the DSL interface.

Accepted value is any integer from 17 to 65535. The default value is 38.

**encapsulation**

Data encapsulation to use on the DSL interface.

Accepted values can be one of pppoa-vcmux, pppoa-llc, pppoe-vcmux or pppoe-llc. The default value is pppoa-vcmux.

**ppp-username**

PPP username for this DSL interface.

Accepted value is any string up to 63 characters.

**ppp-password**

PPP password for the DSL interface.

This element is available to all users.

Accepted value is any string up to 128 characters.

**mtu**

Maximum Transmission Unit (MTU) for this DSL interface.

Accepted value is any integer from 128 to 1500. The default value is 1500.

**delay-up**

Delays the DSL interface from coming up for this number of seconds. This delay allows the DSL provider network to propagate network changes after the device has connected to the network, and before packets can be sent and received. This delay prevents the device from assuming the network is fully operational before it actually is fully operational, which could in turn cause problems with other features, such as interface failover. During this delay, the DSL LED flashes, to indicate the interface is not fully up. Because characteristics can differ among provider networks, use of this parameter is provider-specific.

Accepted value is any integer from 0 to 60. The default value is 0.

**Examples**

- `dsl vpi 0`

Set the DSL Virtual Path Identifier to 0.

- `dsl vci 38`

Set the DSL Virtual Channel Identifier to 38.

- `dsl encapsulation pppoa-vcmux`

Set the DSL encapsulation type to 'PPPoA, VC-Mux.'

- `dsl ppp-username my-username`

Set the DSL account login username to 'my-username.'

- `dsl ppp-password my-password`

Set the DSL account login password to 'my-password.'

- `dsl mode auto`

Allow the DSL interface to train to any available line mode.

- `dsl mode gdmr`

Force the DSL interface to train only in G.dmt mode, or not at all.

- `dsl state on`

Enable DSL interface.

- `dsl state off`

Disable DSL interface.

- `dsl state on-demand`

Disable DSL interface until the failover task brings it up.

**eth**

Configures an Ethernet interface.

**Syntax**

```
eth <1 - 4> <parameter> <value>
```

**Parameters****state**

Enables or disables the Ethernet interface, or enables it as an on-demand interface. The 'on-demand' setting allows configuring the Ethernet interface as an on-demand interface. An on-demand interface is brought up as needed if a higher priority goes down.

Accepted values can be one of off, on or on-demand. The default value is on.

**description**

A description of the Ethernet interface.

Accepted value is any string up to 63 characters.

**duplex**

The duplex mode the device uses to communicate on the Ethernet network. The keyword 'auto' causes the device to sense the mode used on the network and adjust automatically.

Accepted values can be one of auto, full or half. The default value is auto.

**speed**

Transmission speed, in Mbps, the device uses on the Ethernet network. The keyword 'auto' causes the device to sense the Ethernet speed of the network and adjust automatically.

Accepted values can be one of auto, 10, 100 or 1000. The default value is auto.

**mtu**

The Maximum Transmission Unit (MTU) transmitted over the Ethernet interface.

Accepted value is any integer from 64 to 1500. The default value is 1500.

**Examples**

```
eth 3 mask 255.255.255.0
```

Set network mask of Ethernet interface 3 to 255.255.255.0.

```
eth 3 state on
```

Enable Ethernet interface 3.

```
eth 3 state off
```

Disable Ethernet interface 3.

- `eth 3 state on-demand`

Disable Ethernet interface 3 until the failover task brings it up.

**firewall**

Configures the firewall.

This command is available to super users only.

**Syntax**

```
firewall rule
```

**Parameters*****rule***

Firewall rule

**failover**

Configures WAN failover settings.

**Syntax**

```
failover <1 - 10> <parameter> <value>
```

**Parameters*****state***

Enables or disables this WAN failover configuration.

Value is either on or off. The default value is off.

***from***

The WAN interface to failover from. Also known as the primary WAN interface.

Accepted values can be one of none, lan1, lan2, lan3, lan4, lan5, lan6, lan7, lan8, lan9, lan10, dsl, cellular1 or cellular2. The default value is none.

***to***

The interface to failover to. Also known as the backup WAN interface.

Accepted values can be one of none, lan1, lan2, lan3, lan4, lan5, lan6, lan7, lan8, lan9, lan10, dsl, cellular1 or cellular2. The default value is none.

***use***

The failover detection method.

Accepted values can be one of ping or passive. The default value is passive.

***timeout***

The number of seconds after which the primary WAN interface should fail over to the backup WAN interface.

Accepted value is any integer from 10 to 3600. The default value is 180.

***probe-host***

The IPv4 device to send probe packets to.

Value should be a fully qualified domain name.

***probe-interval***

The interval, in seconds, between sending probe packets.

Accepted value is any integer from 1 to 3600. The default value is 60.

***probe-size***

The size, in bytes, of the probe packet.

Accepted value is any integer from 64 to 1500. The default value is 64.



***alternate-after***

The time, in seconds, to wait before sending probe packets to an alternate probe when the primary probe fails.

Accepted value is any integer from 0 to 3600. The default value is 0.

***alternate-probe-host***

When *alternate-after* is non-zero, this IPv4 address is used as an alternate address when probes fail on the host configured device.

Value should be a fully qualified domain name.

***switch-primary-up***

The primary interface up time, in seconds, to wait before switching back from the from the backup WAN interface to the primary WAN interface.

Accepted value is any integer from 0 to 3600. The default value is 0.

***switch-after***

The failover time, in seconds, to wait before reattempting to return to the primary WAN interface.

Accepted value is any integer from 0 to 86400. The default value is 0.

***probe-timeout***

The timeout period, in seconds, for each probe packet.

Accepted value is any integer from 1 to 60. The default value is 1.

**ip**

Configures Internet Protocol (IP) settings.

**Syntax**

```
ip <parameter> <value>
```

**Parameters*****admin-conn***

Administrative distance value for connected routes. Administrative distance values rank route types from most to least preferred. If there are two routes to the same destination that have the same mask, the device uses a route's 'metric' parameter value to determine which route to use. In such a case, the administrative distances for the routes determine the preferred type of route to use. The administrative distance is added to the route's metric to calculate the metric the routing engine uses. Usually, connected interfaces are most preferred, because the device is directly connected to the networks on such interfaces, followed by static routes.

Accepted value is any integer from 0 to 255. The default value is 0.

***admin-static***

Administrative distance value for static routes. See 'admin-conn' for how routers use administrative distance.

Accepted value is any integer from 0 to 255. The default value is 1.

***hostname***

IP hostname for this device.

Accepted value is any string up to 63 characters.

**ipsec**

Configures an IPsec tunnel. Up to 32 IPsec tunnels can be configured.

**Syntax**

```
ipsec <1 - 32> <parameter> <value>
```

**Parameters*****state***

Enables or disables the IPsec tunnel, or enables it as an on-demand interface. The 'on-demand' setting allows configuring the IPsec tunnel as an on-demand interface. An on-demand interface is brought up as needed if a higher priority goes down.

Accepted values can be one of off, on or on-demand. The default value is off.

***description***

A description of this IPsec tunnel.

Accepted value is any string up to 255 characters.

***peer***

The remote peer for this IPsec tunnel.

Value should be a fully qualified domain name.

***local-network***

The local network IP address for this IPsec tunnel.

Value should be an IPv4 address.

***local-mask***

The local network mask for this IPsec tunnel.

Value should be an IPv4 address.

***remote-network***

The remote network IP address for this IPsec tunnel.

Value should be an IPv4 address.

***remote-mask***

The remote network mask for this IPsec tunnel.

Value should be an IPv4 address.

***esp-authentication***

The Encapsulating Security Payload (ESP) authentication type used for the IPsec tunnel.

Accepted values can be multiple values of sha1 and sha256. The default value is sha1.

***esp-encryption***

ESP encryption type for IPsec tunnel

Accepted values can be multiple values of aes128, aes192 and aes256. The default value is aes128.

***esp-diffie-hellman***

The Encapsulating Security Payload (ESP) Diffie Hellman group used for the IPsec tunnel.

Accepted values can be multiple values of none, group5, group14, group15, group16, group17 and group18. The default value is group14.

***auth-by***

The authentication type for the IPsec tunnel.

Accepted values can be multiple values of psk. The default value is psk.

***psk***

The preshared key for the IPsec tunnel.

This element is available to all users.

Accepted value is any string up to 128 characters.

***local-id***

The local ID used for this IPsec tunnel.

Accepted value is any string up to 31 characters.

***remote-id***

The remote ID used for this IPsec tunnel.

Accepted value is any string up to 31 characters.

***lifetime***

Number of seconds before this IPsec tunnel is renegotiated.

Accepted value is any integer from 60 to 86400. The default value is 3600.

***lifebytes***

Number of bytes sent before this IPsec tunnel is renegotiated. A value of 0 means the IPsec tunnel will not be renegotiated based on the amount of data sent.

Accepted value is any integer from 0 to 4000000000. The default value is 0.

***marginetime***

The number of seconds before the 'lifetime' limit to attempt to renegotiate the security association (SA).

Accepted value is any integer from 1 to 3600. The default value is 540.

***marginbytes***

The number of bytes before the 'lifebytes' limit to attempt to renegotiate the security association (SA).

Accepted value is any integer from 0 to 1000000000. The default value is 0.

***random***

The percentage of the total renegotiation limits that should be randomized.

Accepted value is any integer from 0 to 200. The default value is 100.

**ike**

The Internet Key Exchange (IKE) version to use for this IPsec tunnel.  
Accepted value is any integer from 1 to 2. The default value is 1.

**ike-mode**

The IKEv1 mode to use for this IPsec tunnel.  
Accepted values can be one of main or aggressive. The default value is main.

**ike-encryption**

The IKE encryption type for this IPsec tunnel.  
Accepted values can be multiple values of aes128, aes192 and aes256. The default value is aes128.

**ike-authentication**

The IKE authentication type for this IPsec tunnel.  
Accepted values can be multiple values of sha1 and sha256. The default value is sha1.

**ike-diffie-hellman**

The IKE Diffie-Hellman group for this IPsec tunnel. Diffie-Hellman is a public-key cryptography protocol for establishing a shared secret over an insecure communications channel. Diffie-Hellman is used with Internet Key Exchange (IKE) to establish the session keys that create a secure channel.  
Accepted values can be multiple values of group5, group14, group15, group16, group17 and group18.  
The default value is group14.

**ike-lifetime**

The lifetime for the IKE key, in seconds.  
Accepted value is any integer from 180 to 4294967295. The default value is 4800.

**ike-tries**

The number of attempts to negotiate this IPsec tunnel before failing.  
Accepted value is any integer from 0 to 100. The default value is 3.

**dpdelay**

Dead peer detection transmit delay.  
Accepted value is any integer from 1 to 3600. The default value is 30.

**dpdtimeout**

Timeout, in seconds, for dead peer detection.  
Accepted value is any integer from 1 to 3600. The default value is 150.

**dpd**

Enables or disables dead peer detection. Dead Peer Detection (DPD) is a method of detecting a dead Internet Key Exchange (IKE) peer. The method uses IPsec traffic patterns to minimize the number of messages required to confirm the availability of a peer.  
Value is either on or off. The default value is off.

**Examples**

- `ipsec 3 state on`

Enable IPsec tunnel 3.

- `ipsec 3 state off`

Disable IPsec tunnel 3.

- `ipsec 3 state on-demand`

Disable IPsec tunnel 3 until the failover task brings it up.

- `ipsec 3 esp-authentication sha256`

Set ESP authentication for IPsec tunnel 3 to SHA256.

- `ipsec 3 esp-encryption aes256`

Set ESP encryption for IPsec tunnel 3 to AES 256 bit keys.

- `ipsec 3 esp-diffie-hellman group15`

Set IPsec tunnel 3 to use ESP Diffie Hellman group 15 for negotiation.

## ipsec-failover

Configures IPsec tunnel failover.

### Syntax

```
ipsec-failover <1 - 10> <parameter> <value>
```

### Parameters

#### **state**

Enables or disables the IPsec failover feature.

Value is either on or off. The default value is off.

#### **from**

The IPsec tunnel to failover from. Also known as the primary IPsec tunnel.

Accepted value is any integer from 1 to 32. The default value is 1.

#### **to**

The IPsec tunnel to failover to. Also known as the backup IPsec tunnel.

Accepted value is any integer from 1 to 32. The default value is 1.

#### **timeout**

The time, in seconds, once the primary interface has gone down, that the IPsec tunnel failover feature should wait before attempting to failover to the backup IPsec tunnel.

Accepted value is any integer from 10 to 3600. The default value is 180.

#### **probe-host**

Probe this IPv4 device.

Value should be a fully qualified domain name.

#### **probe-interval**

The interval, in seconds, between sending probe packets.

Accepted value is any integer from 1 to 3600. The default value is 60.

#### **probe-size**

The size, in bytes, of the probe packet.

Accepted value is any integer from 64 to 1500. The default value is 64.

#### **probe-timeout**

The time to wait before a response to the probe packet.

Accepted value is any integer from 1 to 60. The default value is 1.

#### **switch-primary-up**

The time, in seconds, to wait after the primary IPsec tunnel comes up before switching back to it.

Accepted value is any integer from 0 to 3600. The default value is 0.

## lan

Configures a LAN interface. A LAN interface is a group of Ethernet and Wi-Fi interfaces.

### Syntax

```
lan <1 - 10> <parameter> <value>
```

### Parameters

#### **state**

Enables or disables a LAN interface.

Value is either on or off. The default value is off.

#### **description**

A descriptive name for the LAN.

Accepted value is any string up to 63 characters.

#### **mtu**

Maximum Transmission Unit (MTU) for the LAN.

Accepted value is any integer from 128 to 1500. The default value is 1500.

#### **interfaces**

The member interfaces for the LAN.

Accepted values can be multiple values of eth1, eth2, eth3, eth4, wifi1, wifi2, wifi3, wifi4, wifi5g1, wifi5g2, wifi5g3 and wifi5g4.

#### **ip-address**

IPv4 address for the LAN. While it is not strictly necessary for a LAN interface to have an IP address, an IP address must be configured to send traffic from and to the LAN network.

Value should be an IPv4 address.

#### **mask**

IPv4 subnet mask for the LAN.

Value should be an IPv4 address. The default value is 255.255.255.0.

#### **dns1**

Preferred DNS server.

Value should be an IPv4 address.

#### **dns2**

Alternate DNS server.

Value should be an IPv4 address.

#### **dhcp-client**

Enables or disable the DHCP client for this LAN.

Value is either on or off. The default value is off.



## **mkdir**

Creates a directory.

This command is available to all users.

### **Syntax**

```
mkdir dir
```

### **Parameters**

#### ***dir***

The directory to be created.

**more**

Displays the contents of a file.

**Syntax**

```
more [file]
```

**Parameters**

***file***

File to be displayed.

## ping

Sends ICMP echo (ping) packets to the specified destination address.

### Syntax

```
ping [count n] [interface ifname] [size bytes] destination
```

### Parameters

#### *count*

Number of pings to send.

#### *interface*

The interface from which pings are sent.

#### *size*

The number of data bytes to send.

#### *destination*

The name of the IP host to ping.

### Examples

- ping 8.8.8.8

Ping IP address 8.8.8.8 with packets of default size 56 bytes

- ping count 10 size 8 8.8.8.8

Ping IP address 8.8.8.8 for 10 times

- ping interface eth2 count 5 8.8.8.8

Ping IP address 8.8.8.8 for 5 times via Ethernet interface 2

## **pwd**

Displays the current directory name.

### **Syntax**

```
pwd
```

### **Parameters**

**reboot**

Reboots the device immediately or at a scheduled time. Performing a reboot will not automatically save any configuration changes since the configuration was last saved.

This command is available to all users.

**Syntax**

```
reboot [[in M][at HH:MM][cancel]]
```

**Parameters*****in***

For a scheduled reboot, the minutes before the device is rebooted.

***at***

For a scheduled reboot, the time to reboot the device, specified in the format HH:MM.

***cancel***

Cancels a scheduled reboot.

**rename**

Renames a file.

This command is available to all users.

**Syntax**

```
rename oldName newName
```

**Parameters*****oldName***

Old file name.

***newName***

New file name.

## **rmdir**

Deletes a directory.

This command is available to all users.

### **Syntax**

```
rmdir dir
```

### **Parameters**

#### ***dir***

The directory to be removed.

**route**

Configures a static route, a manually-configured entry in the routing table.

**Syntax**

```
route <1 - 32> <parameter> <value>
```

**Parameters*****destination***

The destination IP network for the static route.

Value should be an IPv4 address.

***mask***

The destination IP netmask for the static route.

Value should be an IPv4 address.

***gateway***

The gateway to use for the static route.

Value should be an IPv4 address.

***metric***

The metric for the static route. The metric defines the order in which routes should be used if there are two routes to the same destination. In such a case, the smaller metric is used.

Accepted value is any integer from 0 to 255. The default value is 0.

***interface***

The name of the interface to which packets are routed.

Accepted values can be one of none, lan1, lan2, lan3, lan4, lan5, lan6, lan7, lan8, lan9, lan10, dsl, cellular1 or cellular2. The default value is none.



**save**

Saves the configuration to flash memory. Unless you issue this command, all configuration changes since the configuration was last saved are discarded after a reboot.

This command is available to all users.

**Syntax**

```
save config
```

**Parameters****config**

Saves all configuration to flash memory.

**Examples**

- ```
save config
```

Save the current configuration to flash memory.

serial

Configures a serial interface.

Syntax

```
serial <1 - 4> <parameter> <value>
```

Parameters***state***

Enables or disables the serial interface.

Value is either on or off. The default value is on.

description

A description of the serial interface.

Accepted value is any string up to 63 characters.

baud

The data rate in bits per second (baud) for serial transmission.

Accepted values can be one of 110, 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 230400, 460800 or 921600. The default value is 115200.

databits

Number of data bits in each transmitted character.

Accepted values can be one of 8 or 7. The default value is 8.

parity

Sets the parity bit. The parity bit is a method of detecting errors in transmission. It is an extra data bit sent with each data character, arranged so that the number of 1 bits in each character, including the parity bit, is always odd or always even.

Accepted values can be one of none, odd or even. The default value is none.

stopbits

The number of stop bits sent at the end of every character.

Accepted values can be one of 1 or 2. The default value is 1.

flowcontrol

The type of flow control signals to pause and resume data transmission. Available options are software flow control using XON/XOFF characters, hardware flow control using the RS232 RTS and CTS signals, or no flow control signals.

Accepted values can be one of none, software or hardware. The default value is none.

show cellular

Displays cellular interface status and statistics.

Parameters***description***

A description of the cellular interface.

module

Manufacturer's model number for the cellular modem.

firmware-version

Manufacturer's version number for the software running on the cellular modem.

hardware-version

Manufacturer's version number for the cellular modem hardware.

imei

International Mobile Station Equipment Identity (IMEI) number for the cellular modem, a unique number assigned to every mobile device.

sim-status

Which SIM slot is currently in use by the device.

signal-strength

A measure of the signal level of the cellular network, measured in dB.

signal-quality

An indicator of the quality of the received cellular signal, measured in dB.

registration-status

The status of the cellular modem's connection to a cellular network.

network-provider

Network provider for the cellular network.

temperature

Current temperature of the cellular modem, as read and reported by the temperature sensor on the cellular module.

connection-type

Cellular connection type.

radio-band

The radio band on which the cellular modem is operating.

channel

The radio channel on which the cellular modem is operating.

pdp-context

The current Packet Data Protocol (PDP) connection context. A PDP context contains routing information for packet transfer between a mobile station (MS) and a gateway GPRS support node (GGSN) to have access to an external packet-switching network. The PDP context identified by an exclusive MS PDP address (the mobile station's IP address). This means that the mobile station will have as many PDP addresses as activated PDP contexts.

ip-address

IP address for the cellular interface.

mask

Address mask for the cellular interface.

gateway

IP address of the remote end of the cellular connection.

dns-servers

IP addresses of the DNS servers in use for the cellular interface.

rx-packets

Number of packets received by the cellular modem during the current data session.

tx-packets

Number of packets transmitted by the cellular modem during the current data session.

rx-bytes

Number of bytes received by the cellular modem during the current data session.

tx-bytes

Number of bytes transmitted by the cellular modem during the current data session.

show cloud

Displays Digi Remote Manager connection status and statistics.

Parameters***status***

Status of the device connection to the Digi Remote Manager.

server

The URL of the connected Digi Remote Manager.

deviceid

Device ID for Digi Remote Manager connection.

uptime

Amount of time, in seconds, that the Digi Remote Manager connection has been established.

rx-bytes

Number of bytes received from Digi Remote Manager.

rx-packets

Number of packets received from Digi Remote Manager.

tx-bytes

Number of bytes transmitted to Digi Remote Manager.

tx-packets

Number of packets transmitted to Digi Remote Manager.

show config

Displays the current device configuration.

Parameters

config

The current configuration running on the device.

show dsl

Displays the DSL interface status and statistics.

This group is only supported in LR54, LR54W, LR54D and LR54DWC1 products.

Parameters***description***

Description of the DSL interface.

admin-status

Whether the DSL interface is sufficiently configured to be brought up.

oper-status

Whether the DSL interface is up or down.

uptime

Amount of time the DSL interface has been in the Up state.

hardware-version

The hardware version of the DSL modem.

firmware-version

The version of the firmware running on the DSL modem.

system-firmware-id

An identifier of the firmware running on the DSL modem.

line-status

The status of the DSL line.

line-uptime

DSL line uptime, in seconds

line-mode

The operational mode for the DSL interface when it is in the Up state.

encapsulation

The data encapsulation type for the DSL interface.

vpi

Virtual Path Identifier (VPI) for the DSL interface.

vci

Virtual Circuit Identifier (VCI) for the DSL interface.

mtu

Maximum Transmission Unit (MTU) for the DSL interface.

remote-vendor-id

The remote vendor ID of the DSLAM to which the DSL interface is connected.

ip-address

IP address of the DSL interface.

mask

Address mask of the DSL interface.

gateway

Gateway address of the DSL interface.

rx-packets

Number of packets received by the DSL interface.

tx-packets

Number of packets transmitted by the DSL interface.

rx-bytes

Number of bytes received by the DSL interface.

tx-bytes

Number of bytes transmitted by the DSL interface.

downstream-speed

Current speed of the downstream DSL channel, in kbps.

upstream-speed

Current speed of the upstream DSL channel, in kbps.

downstream-channel-type

The channel type being used on the downstream DSL channel, either Fast or Interleaved.

upstream-channel-type

The channel type being used on the upstream DSL channel, either Fast or Interleaved.

downstream-relative-capacity

The current relative capacity on the downstream DSL channel. The relative capacity is the percentage of overall available bandwidth.

upstream-relative-capacity

The current relative capacity on the upstream DSL channel.

downstream-attenuation

The current attenuation, in decibels, on the downstream DSL channel. Attenuation is the measure of how much the signal has degraded between the DSLAM and the DSL modem. The lower the attenuation, the better the performance.

upstream-attenuation

The current attenuation, in decibels, on the upstream DSL channel.

downstream-noise-margin

The current noise margin, in decibels, on the downstream DSL channel. The noise margin (also known as Signal to Noise Ratio) is the relative strength of the DSL signal to noise. The larger the noise margin, the better the performance. In some instances, interleaving can help raise the noise margin.

upstream-noise-margin

The current noise margin, in decibels, on the upstream DSL channel.

downstream-output-power

The current amount of power, in dBm, that the DSLAM (downstream) is using. The lower the power output, the better the performance.

upstream-output-power

The current amount of power, in dBm, that the DSL modem (upstream) is using. The lower the power output, the better the performance.

downstream-fec-errors

The number of Forward Error Correction (FEC) errors that have occurred downstream.

upstream-fec-errors

The number of FEC errors that have occurred upstream.

downstream-crc-errors

The number of cyclic redundancy check (CRC) errors that have occurred downstream.

upstream-crc-errors

The number of CRC errors that have occurred upstream.

downstream-hec-errors

The number of Header Error Controls (HEC) errors that have occurred downstream.

upstream-hec-errors

The number of HEC errors that have occurred upstream.

errored-secs-15min

The number of errored seconds in a 15-minute period. An errored second is an interval of a second during which any error whatsoever has occurred, regardless of whether that error was a single bit error, or a complete loss of communication for that entire second.

errored-secs-24hr

The number of errored seconds in a 24-hour period.

errored-secs-lineup

The number of errored seconds after the DSL line comes up.

show eth

Displays Ethernet interfaces status and statistics.

Parameters***description***

A description of the Ethernet interface.

admin-status

Whether the Ethernet interface is sufficiently configured to be brought up.

oper-status

Whether the Ethernet interface is up or down.

uptime

Amount of time the Ethernet interface has been up.

mac-address

The MAC address, or physical address, of the Ethernet interface.

link-status

The current speed and duplex mode of the Ethernet interface.

link-speed

The current speed of the Ethernet interface.

link-duplex

The current duplex mode of the Ethernet interface.

rx-unicast-packets

The number of unicast packets transmitted on the Ethernet interface.

tx-unicast-packets

The number of unicast packets transmitted on the Ethernet interface.

rx-broadcast-packets

The number of broadcast packets received on the Ethernet interface.

tx-broadcast-packets

The number of broadcast packets transmitted on the Ethernet interface.

rx-multicast-packets

The number of multicast packets received on the Ethernet interface.

tx-multicast-packets

The number of multicast packets transmitted on the Ethernet interface.

rx-crc-errors

The number of received packets that do not contain the proper cyclic redundancy check (CRC), or checksum value.

tx-crc-errors

The number of transmitted packets that do not contain the proper cyclic redundancy check (CRC), or checksum value.

rx-drop-packets

The number of received packets that have been dropped on the Ethernet interface.

tx-drop-packets

The number of transmitted packets that have been dropped on the Ethernet interface.

rx-pause-packets

The number of pause packets received on the Ethernet interface. An overwhelmed network node can send a packet, which halts the transmission of the sender for a specified period of time.

tx-pause-packets

The number of pause packets transmitted on the Ethernet interface.

rx-filtering-packets

The number of received packets that were blocked or dropped through packet filtering.

tx-collisionss

The number of collision events detected in transmitted data. Collisions occur when two devices attempt to place a packet on the network at the same time. Collisions are detected when the signal on the cable is equal to or exceeds the signal produced by two or more transceivers that are transmitting simultaneously.

rx-alignment-error

The number of received packets that do not end on an 8-bit boundary, known as an alignment error.

rx-undersize-error

The number of received packets that do not end on an 8-bit boundary, known as an alignment error.

rx-fragment-error

The number of received packets that contain fewer than the required minimum of 64 bytes, and have a bad CRC. Fragments are generally caused by collisions.

rx-oversize-error

The number of received packets that are larger than the maximum 1518 bytes and have a good CRC.

rx-jabber-error

The number of packets that are greater than 1518 bytes and have a bad CRC. If a transceiver does not halt transmission after 1518 bytes, it is considered to be a jabbering transceiver.

show failover

Displays WAN failover status and statistics.

Parameters***description***

Failover status and state.

status

Status of the WAN failover feature.

primary-interface

The primary WAN interface.

primary-interface-status

Status of the primary WAN interface.

secondary-interface

The secondary WAN interface.

secondary-interface-status

Status of the secondary WAN interface.

using-interface

The current WAN interface in use.

detection-method

WAN failover detection method.

last-ping

When the last probe packet was received.

failing-over

Whether the WAN interface is failing over.

switching-back

Whether the WAN interface is switching back.

show firewall

Displays the firewall status and statistics.

Parameters

config

The current firewall running on the device.

show ipsec

Displays IPsec tunnel status and statistics.

Parameters***description***

A description for this IPsec tunnel.

admin-status

Whether this IPsec tunnel is sufficiently configured to be brought up.

oper-status

Whether this IPsec tunnel is up or down.

uptime

Amount of time, in seconds, this IPsec tunnel has been up.

peer-ip

Peer IP address for this IPsec tunnel.

local-network

Local network for this IPsec tunnel.

local-mask

Local network mask for this IPsec tunnel.

remote-network

Remote network for this IPsec tunnel.

remote-mask

Remote network mask for this IPsec tunnel.

key-negotiation

Key negotiation used for this IPsec tunnel.

rekeying-in

Amount of time before the keys are renegotiated.

ah-ciphers

Authentication Header (AH) Ciphers.

esp-ciphers

Encapsulating Security Payload (ESP) Ciphers.

renegotiating-in

Renegotiating in.

outbound-esp-sa

Outbound ESP Security Association (SA).

inbound-esp-sa

Inbound ESP Security Association (SA).

rx-bytes

Number of bytes received over the IPsec tunnel.

tx-bytes

Number of bytes transmitted over the IPsec tunnel.

show ipstats

Displays system-level Internet Protocol (IP) status and statistics.

Parameters***rx-bytes***

Number of bytes received.

rx-packets

Number of packets received.

rx-multicast-packets

Number of multicast packets received.

rx-multicast-bytes

Number of multicast bytes received.

rx-broadcast-packets

Number of broadcast packets received.

rx-forward-datagrams

Number of forwarded packets received.

rx-delivers

Number of received packets delivered.

rx-reasm-requireds

Number of received packets that required reassembly.

rx-reasm-oks

Number of received packets that were reassembled without errors.

rx-reasm-fails

Number of received packets for which reassembly failed.

rx-discards

Number of received IP packets that have been discarded.

rx-no-routes

Number of received packets that have no routing information associated with them.

rx-address-errors

Number of received packets containing IP address errors.

rx-unknown-protos

Number of received packets where the protocol is unknown.

rx-truncated-packets

Number of received packets where the data was truncated.

tx-bytes

Number of bytes transmitted.

tx-packets

Number of packets transmitted.

tx-multicast-packets

Number of multicast packets transmitted.

tx-multicast-bytes

Number of multicast bytes transmitted.

tx-broadcast-packets

Number of broadcast packets transmitted.

tx-forward-datagrams

Number of forwarded packets transmitted.

tx-frag-requireds

Total number of transmitted IP packets that required fragmenting.

tx-frag-oks

Number of transmitted IP packets that were fragmented without errors.

tx-frag-fails

Number of transmitted IP packets for which fragmentation failed.

tx-frag-creates

Number of IP fragments created.

tx-discards

Number of transmitted IP packets that were discarded.

tx-no-routes

Number of transmitted IP packets that had no routing information associated with them.

show lan

Displays LAN interface status and statistics.

Parameters***admin-status***

Whether the LAN interface is sufficiently configured to be brought up.

oper-status

Whether the LAN interface is up or down.

description

Description of the LAN interface.

interfaces

The interfaces connected by the LAN.

mtu

Maximum Transmission Unit for the LAN.

ip-address

IP address for the LAN.

mask

Subnet mask for the LAN.

rx-bytes

Number of bytes received by the LAN.

rx-packets

Number of packets received by the LAN.

tx-bytes

Number of bytes transmitted by the LAN.

tx-packets

Number of packets transmitted by the LAN.

show log

Displays the event log.

Parameters

logs

The name of the event log to display.

show route

Displays all IP routes in the IPv4 routing table.

Parameters***destination***

Destination of the route.

gateway

The gateway for the route.

metric

The metric assigned to the route.

protocol

The protocol for the route.

idx

The index number for the route.

interface

The interface for the route.

status

Status of the route.

show serial

Displays serial interface status and statistics.

Parameters***description***

A description of the serial interface.

admin-status

Whether the serial interface is sufficiently configured to be brought up.

oper-status

Whether the serial interface is up or down.

uptime

Amount of time the serial interface has been up.

tx-bytes

Number of bytes transmitted over the serial interface.

rx-bytes

Number of bytes received over the serial interface.

overrun

Number of times the next data character arrived before the hardware could move the previous character.

overflow

Number of times the received buffer was full when additional data was received.

line-status

The current signal detected on the serial line.

show system

Displays system status and statistics.

Parameters***model***

The model name for the device.

part-number

The part number for the device.

serial-number

The serial number for the device.

hardware-version

The hardware version for the device.

bank

The current firmware flash memory bank in use.

firmware-version

The current firmware version running on the device.

bootloader-version

The current bootloader version running on the device.

config-file

The current configuration file loaded on the device.

uptime

The time the device has been up.

system-time

The current time on the device.

cpu-usage

Current CPU usage.

cpu-min

Minimum CPU usage.

cpu-max

Maximum CPU usage.

cpu-avg

Average CPU usage.

temperature

The current temperature of the device.

description

Description for this device.

location

Location details for this device.

contact

Contact information for this device.

show wan

Displays WAN interface status and statistics.

Parameters

oper-status

Whether the WAN interface is up or down.

interface

The interface assigned to the WAN.

ip-address

IP address for the WAN.

show wifi

Displays status and statistics for a Wi-Fi 2.4 GHz interface.

This group is only supported in LR54, LR54W, LR54D and LR54DWC1 products.

Parameters***interface***

The name of the Wi-Fi 2.4 GHz interface.

oper-status

Whether the Wi-Fi 2.4 GHz interface is up or down.

ssid

Service Set Identifier (SSID) for the Wi-Fi 2.4 GHz interface.

security

Security for the Wi-Fi 2.4 GHz interface.

show wifi5g

Displays status and statistics for a Wi-Fi 5 GHz interface.

This group is only supported in LR54, LR54W, LR54D and LR54DWC1 products.

Parameters***interface***

The name of the Wi-Fi 5 GHz interface.

oper-status

Whether the Wi-Fi 5 GHz interface is up or down.

ssid

Service Set Identifier (SSID) for the Wi-Fi 5 GHz interface.

security

Security for the Wi-Fi 5 GHz interface.

snmp

Configures Simple Network Management Protocol (SNMP) management for this device.

Syntax

```
snmp <parameter> <value>
```

Parameters

v1

Enables or disables SNMPv1 support.

Value is either on or off. The default value is off.

v2c

Enables or disables SNMPv2c support.

Value is either on or off. The default value is off.

v3

Enables or disables SNMPv3 support.

Value is either on or off. The default value is off.

port

The port on which the device listens for SNMP packets.

Accepted value is any integer from 0 to 65535. The default value is 161.

authentication-traps

Enables or disables SNMP authentication traps.

Value is either on or off. The default value is off.

Examples

```
snmp v1 on
```

Enable SNMPv1 support.

```
snmp v2c on
```

Enable SNMPv2c support.

```
snmp port 161
```

Set the SNMP listening port to 161.

snmp-community

Configures SNMPv1 and SNMPv2c communities.

Syntax

```
snmp-community <1 - 10> <parameter> <value>
```

Parameters

community

SNMPv1 or SNMPv2c community name.

This element is available to all users.

Accepted value is any string up to 128 characters.

access

SNMPv1 or SNMPv2c community access level.

Accepted values can be one of read-only or read-write. The default value is read-only.

Examples

```
snmp-community 1 community public
```

Set the first SNMPv1 or SNMPv2c community name to 'public.'

```
snmp-community 1 access read-write
```

Set the first SNMPv1 or SNMPv2c community access level to 'read-write.'

snmp-user

Configures SNMPv3 users.

Syntax

```
snmp-user <1 - 10> <parameter> <value>
```

Parameters

user

SNMPv3 user name.

Accepted value is any string up to 32 characters.

authentication

SNMPv3 authentication type.

Accepted values can be one of none, md5 or sha1. The default value is none.

privacy

SNMPv3 privacy type. To use SNMPv3 privacy (that is, Data Encryption Standard (DES) or Advanced Encryption Standard (AES)) for the SNMP user, the SNMPv3 authentication type must be set to MD5 or SHA1.

Accepted values can be one of none, aes or des. The default value is none.

access

SNMPv3 user access level.

Accepted values can be one of read-only or read-write. The default value is read-only.

authentication-password

SNMPv3 authentication password. The password is stored in encrypted form.

This element is available to all users.

Accepted value is any string between 8 and 64 characters.

privacy-password

SNMPv3 privacy password. The password is stored in encrypted form.

This element is available to all users.

Accepted value is any string between 8 and 64 characters.

sntp

Configures system date and time using Simple Network Time Protocol (SNTP). SNTP continually polls an external NTP time server on either a private company network or the internet at a configured interval rate.

Syntax

```
sntp <parameter> <value>
```

Parameters***state***

Enables or disables SNTP to set the system date and time.

Accepted values can be one of off or on. The default value is off.

server

The SNTP server to use for setting system date and time.

Value should be a fully qualified domain name. The default value is time.devicecloud.com.

update-interval

The interval, in minutes, at which the device checks the SNTP server for date and time.

Accepted value is any integer from 1 to 10080. The default value is 60.

ssh

Configures Secure Shell (SSH) server settings.

Syntax

```
ssh <parameter> <value>
```

Parameters***server***

Enables or disables the SSH server.

Value is either on or off. The default value is on.

port

The port number for the SSH Server.

Accepted value is any integer from 1 to 65535. The default value is 22.

system

Configures system settings.

Syntax

```
system <parameter> <value>
```

Parameters

prompt

The prompt displayed in the command-line interface. You can configure the system prompt to use the device's serial number by including '%s' in the SSID. For example, an 'prompt' parameter value of 'LR54_%s' resolves to 'LR54_LR123456.'

Accepted value is any string up to 16 characters. The default value is digi.router>.

timeout

The time, in seconds, after which the command-line interface times out if there is no activity.

Accepted value is any integer from 60 to 3600. The default value is 180.

loglevel

The minimum event level that is logged in the event log.

Accepted values can be one of emergency, alert, critical, error, warning, notice, info or debug. The default value is info.

name

The name of this device.

Accepted value is any string up to 255 characters.

location

The location of this device.

Accepted value is any string up to 255 characters.

contact

Contact information for this device.

Accepted value is any string up to 255 characters.

page

Sets the page size for command-line interface output.

Accepted value is any integer from 0 to 100. The default value is 40.

device-specific-passwords

Enables or disables device-specific passwords. Encrypted passwords, can be device-specific or not. When encrypted passwords are device-specific, they are more secure, but cannot be copied onto another device.

Value is either on or off. The default value is off.

description

A description of this device.

Accepted value is any string up to 255 characters.

passthrough

The TCP port used for passthrough. The value 0 disables passthrough mode. A reboot is required for changes to this setting to take effect.

Accepted value is any integer from 0 to 65535. The default value is 0.

update

Performs system updates, such as firmware updates, setting the cellular carrier, and setting the configuration file used at bootup and when saving configuration. Firmware update options include specifying the device firmware, the cellular module firmware, and the DSL modem firmware to load onto the device.

Syntax

```
update [firmware | module | dsl | config configuration-file]
```

Parameters

firmware

Updates the firmware of the device.

module

Updates the cellular module firmware.

dsl

Updates the DSL modem firmware.

config

Sets the configuration filename.

Examples

```
update config config.da1
```

Set the configuration file to 'config.da1.'

```
update firmware filename
```

Initiate the router firmware update process.

```
update module filename
```

Initiates the module firmware update process.

```
update dsl filename
```

Initiates the DSL modem firmware update process.

user

Configures users and user access privileges.

Syntax

```
user <1 - 10> <parameter> <value>
```

Parameters***name***

The username for the user.

Accepted value is any string up to 32 characters.

password

The password for the user.

This element is available to all users.

Accepted value is any string up to 128 characters.

access

The user access level for the user. User access levels determine the level of control users have over device features and their settings. The 'super' access permission allows the most control over features and settings, and 'read-only' the lowest control over features and settings.

Accepted values can be one of read-only, read-write or super. The default value is super.

wan

Configures WAN interface settings. A WAN interface can be an Ethernet, DSL, or cellular interface that connects to a remote network, such as the internet.

Syntax

```
wan <1 - 10> <parameter> <value>
```

Parameters***interface***

The WAN interface to configure.

Accepted values can be one of none, eth1, eth2, eth3, eth4, dsl, cellular1 or cellular2. The default value is none.

nat

Enables Network Address Translation (NAT) for outgoing packets on the WAN interface. NAT is a mechanism that allows sending packets from a private network (for example, 10.x.x.x or 192.168.x.x) over a public network. The device changes the source IP address of the packet to be the address for the WAN interface, which is a public IP address. This allows the device on the public network to know how to send responses.

Value is either on or off. The default value is on.

timeout

The time, in seconds, once the primary interface has gone down, that the failover feature should wait before attempting to failover to the backup WAN??interface.

Accepted value is any integer from 10 to 3600. The default value is 180.

probe-host

The IPv4 or fully qualified domain name (FQDN) of the address of the device itself. The WAN failover feature sends probe packets over the WAN interface to the IP??address of this device.

Value should be a fully qualified domain name.

probe-timeout

Timeout, in seconds, for each probe packet.

Accepted value is any integer from 1 to 60. The default value is 1.

probe-interval

Interval, in seconds, between sending probe packets.

Accepted value is any integer from 1 to 3600. The default value is 60.

probe-size

Size of probe packets sent to detect WAN interface failures.

Accepted value is any integer from 64 to 1500. The default value is 64.

activate-after

The time, in seconds, that the primary interface needs to be up before switching back to it as the active interface. If probing is active, no probes are permitted to be lost during this period. Otherwise, the timer is restarted.

Accepted value is any integer from 0 to 3600. The default value is 0.

try-after

The time, in seconds, to wait before attempting to return to the primary WAN interface. This timer is primarily used when failing over between cellular1 and cellular2 interfaces. This is because only one SIM??card can be active at a time.

Accepted value is any integer from 0 to 3600. The default value is 0.

dhcp

Enables or disables the DHCP client. The DHCP client is used to automatically get an IP address for the interface from a DHCP server.

Value is either on or off. The default value is on.

wifi

Configures a Wi-Fi 2.4 GHz interface.

This group is only supported in LR54, LR54W, LR54D and LR54DWC1 products.

Syntax

```
wifi <1 - 4> <parameter> <value>
```

Parameters***state***

Enables or disables the Wi-Fi 2.4 GHz interface, or enables it as an on-demand interface. The 'on-demand' setting allows configuring the cellular interface as an on-demand interface. An on-demand interface is brought up as needed if a higher priority goes down.

Accepted values can be one of off, on or on-demand. The default value is off.

description

A descriptive name for the Wi-Fi 2.4 GHz interface.

Accepted value is any string up to 255 characters.

ssid

Service Set Identifier (SSID) for the Wi-Fi 2.4 GHz interface. You can configure the SSID to use the device's serial number by including '%s' in the SSID. For example, an 'ssid' parameter value of 'LR54_%s' resolves to 'LR54_LR123456.'

Accepted value is any string up to 32 characters.

security

Security for the Wi-Fi 2.4 GHz interface.

Accepted values can be one of none, wpa2-personal or wpa-wpa2-personal. The default value is wpa2-personal.

password

Password for the Wi-Fi 2.4 GHz interface.

This element is available to all users.

Accepted value is any string between 8 and 64 characters.

wifi5g

Configures a Wi-Fi 5 GHz interface.

This group is only supported in LR54, LR54W, LR54D and LR54DWC1 products.

Syntax

```
wifi5g <1 - 4> <parameter> <value>
```

Parameters**state**

Enables or disables the Wi-Fi 5 GHz interface, or enables it as an on-demand interface. The 'on-demand' setting allows configuring the cellular interface as an on-demand interface. An on-demand interface is brought up as needed if a higher priority goes down.

Accepted values can be one of off, on or on-demand. The default value is off.

description

A descriptive name for the Wi-Fi 5 GHz interface.

Accepted value is any string up to 255 characters.

ssid

Service Set Identifier (SSID) for the Wi-Fi 5 GHz interface. You can configure the SSID to use the device's serial number by including '%s' in the SSID. For example, an 'ssid' parameter value of 'LR54_%s' resolves to 'LR54_LR123456.'

Accepted value is any string up to 32 characters.

security

Security for the Wi-Fi 5 GHz interface.

Accepted values can be one of none, wpa2-personal or wpa-wpa2-personal. The default value is wpa2-personal.

password

Password for the Wi-Fi 5 GHz interface.

This element is available to all users.

Accepted value is any string between 8 and 64 characters.