TransPort LR

User Guide

Revision history—90001461

Revision	Date	Description
A	August 2016	Initial revision.
B	October 2016	Added features for TransPort LR firmware 1.2.0.
C	January 2017	Added supportability and usability features: traceroute, show dhcp, show tech-support, and traffic and data packet capture/traffic analyzer features, and documentation for configuring and managing devices from the web interface.

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TransPort LR Family User Guide

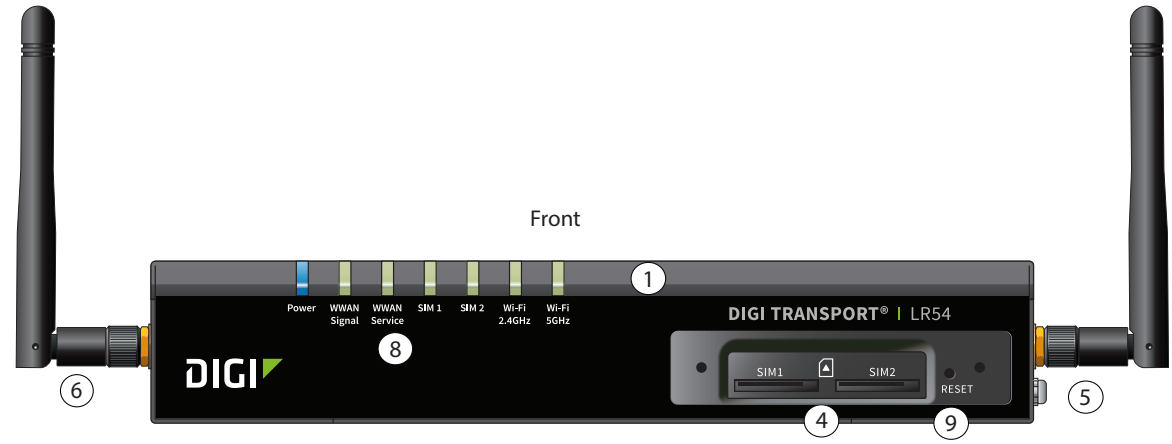
The TransPort LR Family is a family of routers designed for connecting distributed retail terminals (signs, kiosks, vending machines, point-of-care terminals) with business applications. Key features of TransPort LR routers include:

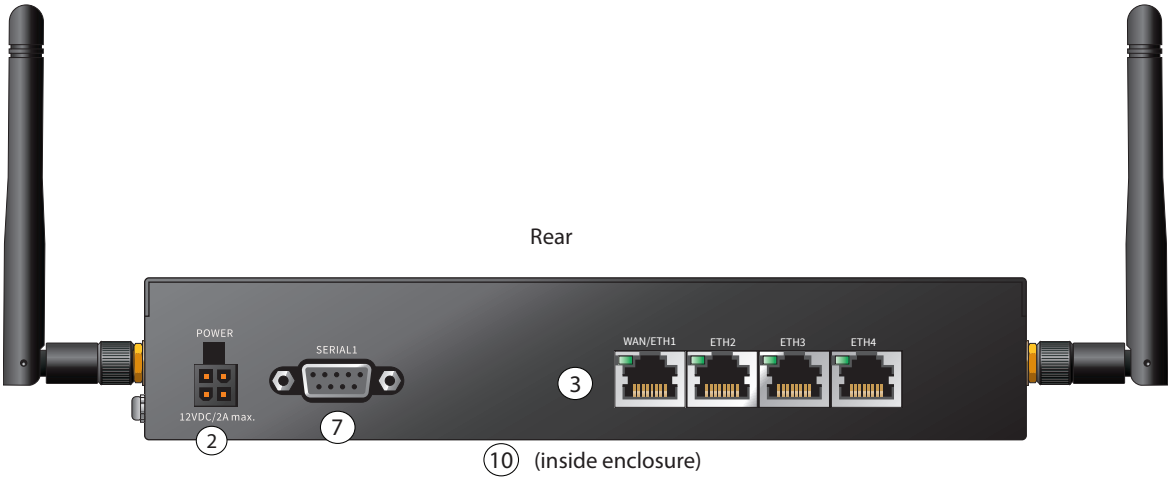
- High-speed CAT6 LTE
- Dual SIM cellular interfaces, providing redundancy
- Powerful 802.11ac Wi-Fi
- 4-port Gigabit Ethernet with LAN and WAN support
- Automated Wide-Area Network (WAN) failover/failback
- Extended operating temperature
- Local command-line and web interfaces
- Superior network performance management through Digi Remote Manager (DRM)
- Global deployment support

Hardware

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

TransPort LR54/LR54W hardware and specifications





1. **Enclosure**. See Environmental specifications and Dimensions and weight.
2. **Power**. See Power requirements.
3. **Ethernet connectors**. See Ethernet specifications.
4. **SIM card slots**. See Cellular specifications.
5. **Cellular antennas**. See Cellular specifications.
6. **Wi-Fi antennas** (Wi-Fi models only). See Wi-Fi specifications .
7. **Serial port connector**. See Serial specifications and Serial connector pinout.
8. **LEDs**. See TransPort LR54 LEDs.

9. **Reset button**. See Reset the device to factory defaults.
10. **Internal temperature sensor**. See Internal sensors.

Environmental specifications

Specification	Value
Operating temperature	-20 C to +70 C (-4 F to 158 F)*  ***Note**: If you are installing this device above **+60 C**, it should be installed in a Restricted Access Location, to limit unintentional contact with hot surfaces.
Relative humidity	10% to 90% RH non-condensing
Storage and transport temperature	-40 C to 85 C (-40 F to 185 F)
Enclosure IP rating	IP30

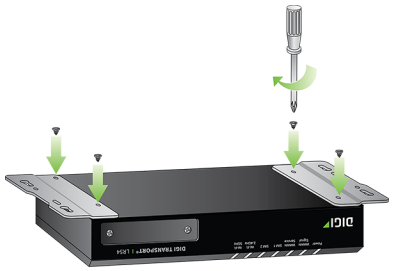
Mounting options

The TransPort LR54 Wall-Mount Kit (part number **78000001**) is available separately for wall-mounting. It contains two mounting brackets and four screws. You will need to supply additional self-tapping screws and sleeve anchors as needed.

Attach mounting brackets to the device

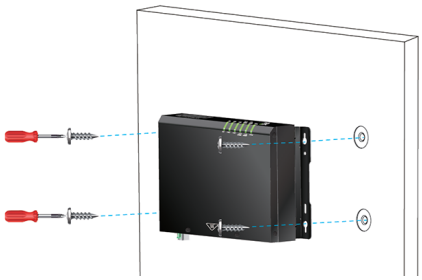
1. Remove the four rubber feet from the bottom of the TransPort LR54.

2. Using the four supplied M3x6mm screws, attach the mounting brackets.



Mount the TransPort LR54 on a wall

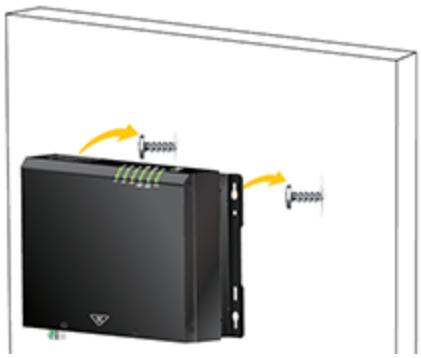
1. Align the TransPort LR54 on wall.
2. Tighten self-tapping screws to wall through holes of mounting brackets. If mounting the device on a concrete wall, use sleeve anchors.



Hang the TransPort LR54 on a wall

Tighten two self-tapping screws to wall, but leave a small part of screw protruding from the wall.

To hang the TransPort LR54 on the wall, center the holes of the mounting brackets on the two wall-mounted screws.



Power requirements

Specification	Value
Power input type	DC
Voltage input	12V +/- 10%
Power consumption	1.5A
Power connector	4-pin Molex connector. Two pins are used for power; the other two pins are no-connect.

Dimensions and weight

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	Technology	Specification	Value
TransPort LR54-AA401 TransPort LR54-AW401	LTE	Downstream rate	300 Mbps
		Upstream rate	50 Mbps
		Frequency bands	800, 850, 900, 1800, 1900, 2100 AWS, 2300, 2600 MHz
	HSPA+ UMTS	Downstream rate	42 Mbps
		Upstream rate	5.76 Mbps
		Frequency bands	850, 900, AWS 1700, 1900, 2100 MHz

Wi-Fi specifications

Specification	Value
802.11	a/b/g/n/ac connections, dual band, dual concurrent 2.4 GHz and 5 GHz
Wi-Fi Modes	Wi-Fi access point mode
Wi-Fi Security	WPA2 Personal Mixed WPA/WPA2 Personal WPA2 Enterprise Mixed WPA/WPA2 Enterprise
Wi-Fi transmit power	**2.4 GHz**: US variant: 13 dBm (802.11g/n), 16 dBm (802.11b) EU variant: 11 dBm (802.11g/n), 14 dBm (802.11b) **5 GHz**: 13 dBm for all modes
Wi-Fi maximum data rates	54 Mbps (802.11a) 11 Mbps (802.11b) 54 Mbps (802.11g) 300 Mbps (802.11n) 866 Mbps (802.11ac)
Wi-Fi receiver sensitivity	-87 dBm / 11 Mbps (802.11b) -71 dBm / 54 Mbps and -90 dBm / 6 Mbps (802.11a) -74 dBm / 54 Mbps and -92 dBm / 6 Mbps (802.11g) -66 dBm / 300 Mbps and -92 dBm / 6 Mbps (802.11n 2.4 GHz) -67 dBm / 300 Mbps and -89 dBm / 6 Mbps (802.11n 5 GHz) -57 dBm / 866 Mbps and -83 dBm / 29 Mbps (802.11ac)

Serial specifications

Specification	Value
Serial ports	1
Standard	RS232
Async/Sync	Async
DTE/DCE	DCE
Signal support	TXD, RXD, RTS, CTS, DTR, DCD, DSR, RI
Flow control	Software (XON/XOFF), Hardware supported
Connector	DB9 female

Related topics

Serial connector pinout

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
Transmit Data	TxD	In	3
Receive Data	RxD	Out	2
Ready To Send	RTS	In	7
Clear to Send	CTS	Out	8
Data Set Ready	DSR	Out	6
Ground	GND	N/A	5
Data Carrier Detect	DCD	Out	1
Data Terminal Ready	DTR	In	4
Ring Indicate	RI	Out	Not connected

Memory and development specifications

Specification	Value
Flash memory available for custom applications	100 MB
RAM	256 MB
System clock	Real Time Clock with super-cap backup
Random number generator	Hardware random number generator
Python version	2.7.11

Internal sensors

TransPort LR devices have an internal temperature sensor for sensing temperature on the main motherboard.

TransPort LR54 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 LR54W (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.

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

Signal strength for 4G cellular connections

Signal strength for 3G and 2G cellular connections

Tips for improving cellular signal strength

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 both on at the same time.

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

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

- **Off**: Wi-Fi 2.4 GHz interface is disabled.
- **Solid green**: Wi-Fi 2.4 GHz interface is enabled.

Wi-Fi 5 GHz LED (Wi-Fi models only)

Indicates state of and activity on the Wi-Fi 5 GHz interface.

- **Off**: Wi-Fi 5 GHz interface is disabled.
- **Solid green**: Wi-Fi 5 GHz interface is enabled.

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.

Signal strength for 4G cellular connections

For 4G connections, the **RSRP** value determines signal strength. To view this value, enter the show cellular command.

- **> -90 dBm**: Excellent
- **-90 dBm to -105 dBm**: Good
- **-106 dBm to -115 dBm**: Fair
- **-116 dBm to -120 dBm**: Poor
- **< -120 dBm**: No service

Signal strength for 3G and 2G cellular connections

For 3G and 2G cellular connections, the current **RSSI** value determines signal strength. To view this value, enter the show cellular command.

- **> -70 dBm**: Excellent
- **-70 dBm** to **-85 dBm**: Good
- **-86 dBm** to **-100 dBm**: Fair
- **< -100 dBm** to **-109 dBm**: Poor
- **-110 dBm**: No service

Tips for improving cellular signal strength

If the signal strength LEDs for your device indicate poor or no service, 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
  - Antenna Extender Kit, 3m

Regulatory and safety statements

The following regulatory and safety statements apply to TransPort LR54 devices.

RF exposure statement

In order to comply with RF exposure limits established in the ANSI C95.1 standards, the distance between the antenna or antennas and the user should not be less than **20 cm**.

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.

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)

Authorised signature for and on behalf of Digi International Inc.
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Digi International GmbH Lise-Meitner-StraRe 9 85737 lsmaning Germany
Telephone:+49-89-540-428-0

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Template 96000759E

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Industry Canada (IC) certifications

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicables aux appareils numeriques de la class B prescrites dans le Reglement sur le brouillage radioelectrique edicte par le ministere des Communications du Canada.

RoHS compliance statement

All Digi International Inc. products that are compliant with the RoHS Directive (EU Directive 2002/95/EC and subsequent amendments) are marked as **RoHS COMPLIANT**. RoHS COMPLIANT means that the substances restricted by the EU Directive 2002/95/EC and subsequent amendments of the European Parliament are not contained in a finished product above threshold limits mandated by EU Directive 2002/95/EC and subsequent amendments, unless the restrictive substance is subject of an exemption contained in the RoHS Directive. Digi International Inc., cannot guarantee that inventory held by distributors or other third parties is RoHS compliant.

Safety statements

Important Safety Information

To avoid contact with electrical current:

- Never install electrical wiring during an electrical storm.
- Never install an Ethernet connection in wet locations unless that connector is specifically designed for wet locations.
- Use caution when installing or modifying lines.
- Use a screwdriver and other tools with insulated handles.
- Wear safety glasses or goggles.
- Do not place Ethernet wiring or connections in any conduit, outlet or junction box containing electrical wiring.
- Installation of inside wire may bring you close to electrical wire, conduit, terminals and other electrical facilities. Extreme caution must be used to avoid electrical shock from such facilities. Avoid contact with all such facilities.
- Ethernet wiring must be at least 6 feet from bare power wiring or lightning rods and associated wires, and at least 6 inches from other wire (antenna wires, doorbell wires, wires from transformers to neon signs), steam or hot water pipes, and heating ducts.
- Do not place an Ethernet connection where it would allow a person to use an Ethernet device while in a bathtub, shower, swimming pool, or similar hazardous location.
- Protectors and grounding wire placed by the service provider must not be connected to, removed, or modified by the customer.
- Do not touch uninsulated Ethernet wiring if lightning is likely!
- External Wiring: Any external communications wiring installed needs to be constructed to all relevant electrical codes. In the United States this is the National Electrical Code Article 800. Contact a licensed electrician for details.

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 15 cm (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 15 cm (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 for repair information.

Certification category	Standards
Electromagnetic Compatibility (EMC) 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)
Safety compliance standards	EN 62368
E-UTRA CA, E-UTRA FDD, E-UTRA TDD, UMTS FDD	PTCRB
Cellular carriers	See the current list of carriers on the TransPort LR54 datasheet, available from the Specifications link on the TransPort LR54 product page on www.digi.com.

Management and status

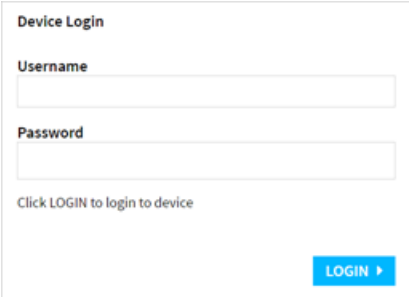
These topics show how to manage your TransPort LR devices, including configuring and viewing the status of various TransPort LR features, performing system administration tasks, and performing diagnostics.

Managing devices from the web interface

The web user interface for TransPort LR products is designed around the way in which users typically use TransPort LR devices.

The first time you access a TransPort LR device, the **Getting Started Wizard** runs. This wizard steps you through the process getting your device initially configured and connected.

After you run the Getting Started Wizard, the next time you access the device, a login prompt for the web interface displays:

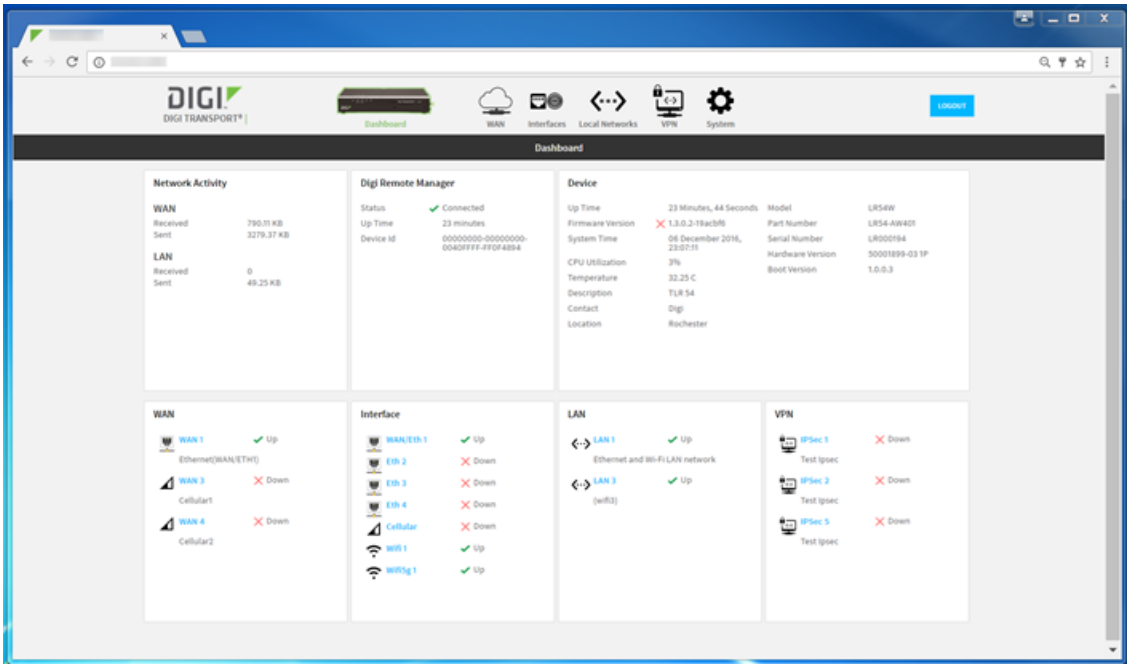


Log in to the web interface

Once you are logged in, the web interface opens and displays the **Dashboard** view for the device. The **Dashboard** provides a snapshot of current activity for the device, including:

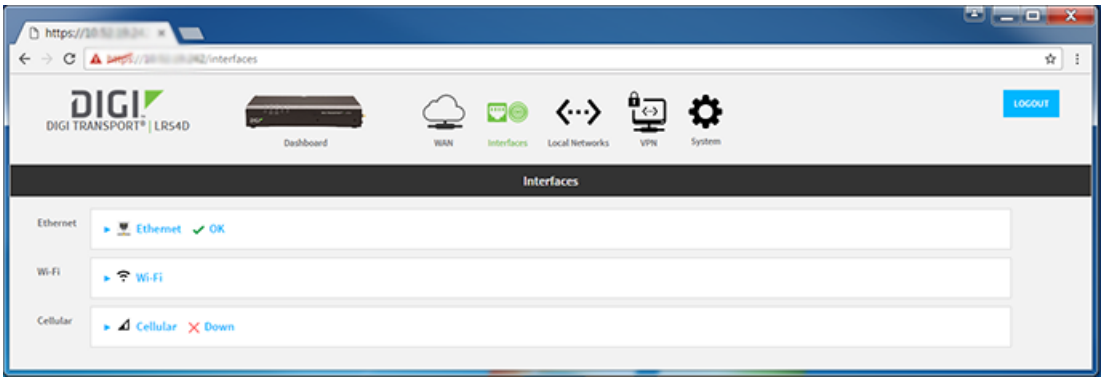
- Network statistics over Wide Area Networks and Local Area Networks
- The current connection status to Digi Remote Manager
- Basic device configuration and identifying information
- Summary information for local area network status and the status of physical interfaces

For more information about this page and fields displayed, see The Dashboard.



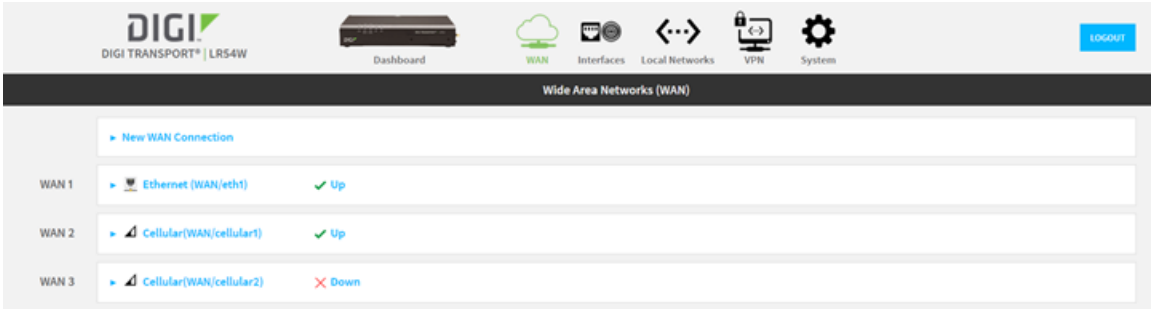
The web interface menu, at the top of the interface view, organizes information by virtual and physical interfaces that represent the “private” and “public” sides of the TransPort LR device. Clicking the items on the menu displays information below the menu.

Clicking the **Interfaces** menu item displays the physical interfaces for your device. From this view, you can configure settings that are specific to the non-networking characteristics of those interfaces, such as Ethernet interface speed, Wi-Fi security, and cellular APN settings. For example:



Clicking the **WAN** and **Local Networks** menu items display views that are virtual representations of wide-area and local networks that use the physical interfaces in the device. From these views, you can view and change configuration settings for the networking capabilities of the router such as IP, fail-over and DHCP server settings.

For example, here is the WAN view for a device:



And here is the Local Networks view for the same device:

Clicking the **System** menu item displays links to pages for displaying pages for performing administrative tasks, such as updating firmware, configuring users, and displaying the event log. From this menu, you can also open the Device Console from this control, to execute commands from within the web interface.

Related topics

The help topics in the **Management and status** section show how to perform tasks both from the web interface and command line. For the steps for each task from the web interface, look for the heading **From the web interface**.

Related topics

Log in to the web interface

The Dashboard

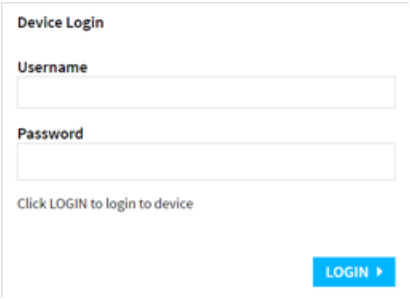
Execute a command from the web interface

Log out of the web interface

Log in to the web interface

The first time you access a TransPort LR device, the **Getting Started Wizard** runs. This wizard steps you through the process getting your device initially configured and connected. After you run the Getting Started Wizard, the next time you access the device, a login prompt for the web interface displays.

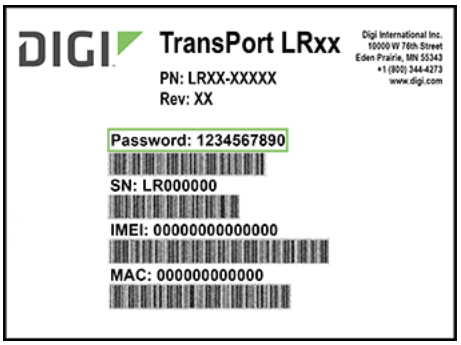
1. On the local network for your device, the default address is **http://192.168.1.1.** Enter this address in a web browser. The Device Login prompt displays:



2. Enter your username and password to log into the device. Click **Login**. The label on the bottom of the device provides a default password, if it was not changed during initial setup.

   Username: **admin**

   Password: See the label on bottom of device.



If the login is successful, the Dashboard for your TransPort LR device displays. See The Dashboard for more information about this view.

Related topics

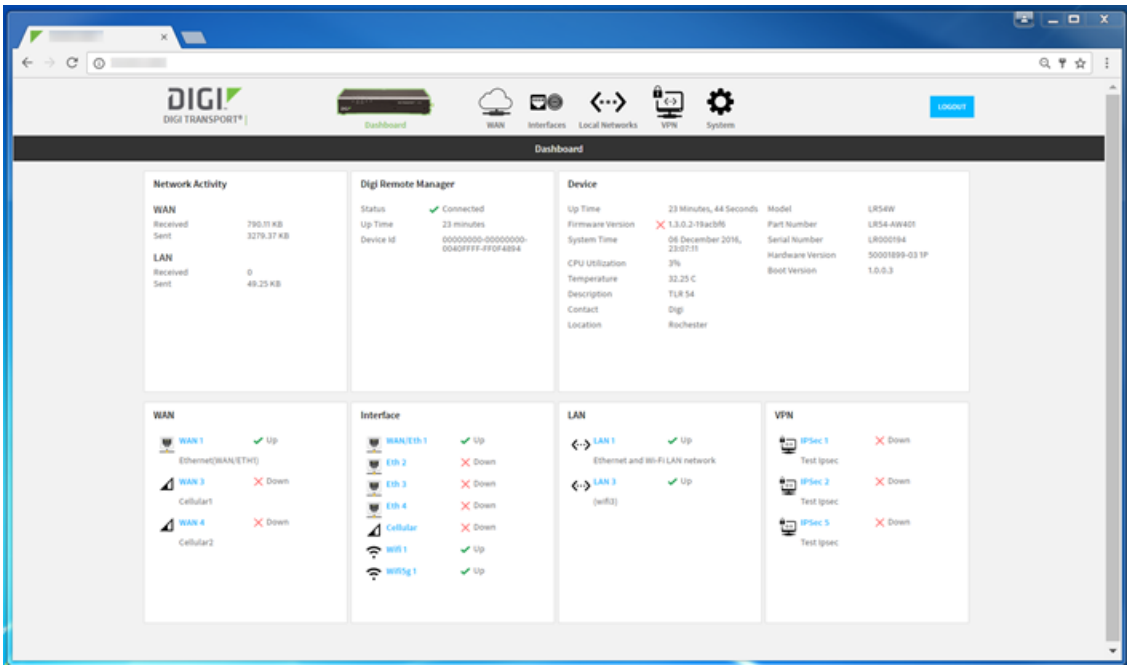
Managing devices from the web interface

The Dashboard

Log out of the web interface

The Dashboard

Clicking **Dashboard** on the web interface menu displays the **Dashboard**.



This display shows the current state of the device in several key areas:

- **Network Activity**: Summarizes network statistics: the total number of bytes sent and received over all Wide Area Networks (WANs) and Local Area Networks (LANs), including all configured and active WANs and LANs and those that have been disabled or are inactive.
- **Digi Remote Manager**: Displays the status of the device's connection to Digi Remote Manager, the amount of time the connection has been up, and the device's registration ID in Digi Remote Manager. For more information on the Digi Remote Manager connection, see Remote management.
- **Device**: Displays device status, statistics, and identifying information. For descriptions of these fields, see the show system command description. For the **Firmware Version** field, a green checkmark ✔ indicates that the device's operating system firmware is up to date, and a red x ✕ indicates that a more recent firmware version than the one currently loaded is available.
- **WAN**: Displays all configured Wide Area Networks (WANs), the physical interface assigned to the WAN, and the current state of the WAN. Click a WAN to display detailed configuration and status information. For more information on WANs, see Wide Area Networks (WANs).
- **Interface**: Displays all configured and available physical interfaces for the device and their current states. For more information on interfaces, see Interfaces.

- **LAN**: Displays all configured Local Area Networks (LANs), the physical interface(s) assigned to the LAN, and the current state of the LAN. Click a LAN to display detailed configuration and status information. For more information on LANs, see Local Area Networks (LANs).
- **VPN**: Displays all configured Virtual Private Network (VPN) tunnels. For more information, see Virtual Private Networks (VPN).

Related topics

Managing devices from the web interface
Log in to the web interface
Log out of the web interface

Log out of the web interface

Click the **Logout** button in the upper right corner of the web interface. The **Device Login** prompt is displayed again.

Related topics

Managing devices from the web interface

The Dashboard

Log in to the web interface

Managing devices from the command line

TransPort LR devices have a command-line interface from which you can configure features, display current feature status and statistics, and perform action commands, such as updating firmware or performing file management tasks.

The help topics in the rest of this section show how to perform tasks both from the web interface and command line. Look for the heading **From the command line** for the steps to perform each task from the command line interface.

Related topics

Command-line interface basics

Command descriptions in the Command reference

Interfaces

TransPort LR devices have several physical communications interfaces. The available interfaces vary by device model. These interfaces can be bridged in a Local Area Network (LAN) or assigned to a Wide Area Network (WAN). This section covers configuring and managing these physical communication interfaces.

Related topics

Local Area Networks (LANs)

Wide Area Networks (WANs)

Ethernet interfaces

Ethernet interfaces can be used in LAN or WAN. There is no IP configuration set on the individual Ethernet interfaces. Instead, the IP configuration is performed as part of configuring the LAN or WAN.

Related topics

Configure Ethernet interfaces

Show Ethernet status and statistics

For more information on WANs, see Wide Area Networks (WANs).

For more information on LANs and their configuration, see Local Area Networks (LANs).

Related commands

eth

show eth

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. You can set the Ethernet interface to **off**, **on**, or **on-demand**. The **on-demand** setting is a failover setting that causes the Ethernet interface to be brought up as needed if another interface with a higher priority goes down. For more information on the failover feature, see the discussion of WAN failover in Wide Area Networks (WANs).
- Once configured, the Ethernet interface must be assigned to a LAN or a WAN. For more information, see Local Area Networks (LANs) and Configure a LAN or Wide Area Networks (WANs) and Configure a Wide Area Network (WAN).

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 web interface

1. On the menu, click **Interfaces**.
2. Click ▸ Ethernet. The available Ethernet interfaces display, along with the current LAN or WAN to which the interface belongs, and its state.
3. Select the Ethernet interface to configure.
4. In the **Edit Selected** box, enter the configuration settings:
   - **State**: Enable or disable the Ethernet interface. By default, all of the Ethernet interfaces are enabled.
   - **Description**: Optional: Enter a description for the Ethernet interface.
   - **Speed**: Optional: Select the speed for the Ethernet interface.
   - **Duplex**: Optional: Select the duplex mode for the Ethernet interface.
5. Click **Apply**.

From the command line

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

```
digi.router> eth 1 state on
```

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

```
digi.router> eth 1 description “Connected to Ethernet WAN router”
```

3. Optional: Set the duplex mode.

```
digi.router> eth 1 duplex {auto | full | half}
```

4. Optional: Set the speed.

```
digi.router> eth 1 speed {auto | 1000 | 100 | 10}
```

Related topics

Ethernet interfaces
Show Ethernet status and statistics
Local Area Networks (LANs)
Configure a LAN
Wide Area Networks (WANs)
Configure a Wide Area Network (WAN)

Related commands

eth
show eth

Show Ethernet status and statistics

From the web interface

A limited set of Ethernet status and statistics are available for the WAN to which the Ethernet interface belongs. For more complete Ethernet interface status and statistics, use the show eth command, described below.

You can view Ethernet status and statistics from the Interfaces panel or the Dashboard.

From the Interfaces panel

1. On the menu, click **Interfaces**. The **Ethernet** section displays all Ethernet interfaces and their configured states.
2. If an interface is assigned to a WAN, click the **WAN** link. Information about the Ethernet interface displays below the WAN name.
3. On the rightmost side of the page, view the Ethernet status and statistics.

From the Dashboard

1. On the menu, click **Dashboard**.
2. In the **WAN** panel, click the WAN associated with an Ethernet interface for which you want to display status and statistics.
3. On the rightmost side of the page, view the Ethernet status and statistics.

From the command line

To show the status and statistics for the Ethernet interface, use the show eth command. 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

Configure Ethernet interfaces

Related commands

eth

show eth

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.

Related topics

Configure cellular interfaces

Show cellular status and statistics

For more information on WANs and their configuration, see Wide Area Networks (WANs).

TransPort LR54 LEDs - See the discussion of the **WWAN Signal** and **WWAN Service** LEDs.

Related commands

cellular

show cellular

Configure cellular interfaces

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

Required configuration items

- Enable the cellular interface. The cellular interfaces are disabled by default. You can set the cellular interface to **off**, **on**, or **on-demand**. The **on-demand** setting is a failover setting that causes the cellular interface to be brought up as needed if another interface with a higher priority goes down. For more information on the failover feature, see the discussion of WAN failover in Wide Area Networks (WANs).
- 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.
- Once configured, if the interface is not already assigned to a WAN interface, assign it to a WAN interface. For more information, see Wide Area Networks (WANs) and Configure a Wide Area Network (WAN).

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 web interface

1. Click **Interfaces**. The configurable interfaces for the device displays.
2. Click ▸ Cellular . The available cellular interfaces to configure display.
3. Select an interface.

4. In the **Edit Selected** box, enter the settings:
   - **Description**: Optional: Provide a description of the cellular interface.
   - **State**: Set the state to **On** to enable the cellular interface, **Off** to disable it, or **On-demand** to cause the cellular interface to be brought up as needed if another interface with a higher priority goes down.
   - **APN**: Enter a descriptive name for the access point.
   - **APN Username**: Enter the user name for logging on to the access point.
   - **APN Password**: Enter the password for logging on to the access point.
   - **Preferred Mode**: Optional: Select the cellular technology on which the interface operates. You can select a particular technology or select **Auto** to have the device automatically select the technology.
   - **Connection Attempts:** Optional: Select the number of attempts to establish a cellular connection, after which the cellular module is power-cycled and another attempt to establish a cellular connection is made.
5. Click **Apply**.

From the command line

1. Enable the cellular interface.

```
digi.router> cellular 1 state on
```

2. Configure an APN.

```
digi.router> cellular 1 apn your-apn
```

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

```
digi.router> cellular 1 apn-username your-apn-username
digi.router> cellular 1 apn-password your-apn-password
```

4. Optional: Set a preferred mode.

```
digi.router> cellular 1 preferred-mode 3G
```

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

```
digi.router> 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:

```
digi.router> cellular 1 connection-attempts 10
```

Related topics

Cellular interfaces

Show cellular status and statistics

Switch the cellular carrier

Wide Area Networks (WANs)

Configure a Wide Area Network (WAN)

Related commands

cellular

show cellular

Show cellular status and statistics

From the web interface

The web interface displays the status and statistics for cellular interfaces on the Wide Area Networks (WAN) page for the WAN to which the cellular interface belongs.

You can view cellular status and statistics from the Interfaces panel or the Dashboard.

From the Interfaces panel

1. On the menu, click **WAN**. The **Wide Area Networks (WAN)** page displays all configured WANs and their configured state.
2. If a cellular interface is assigned to a WAN, click the **WAN** link. Information about the cellular interface displays below the WAN name.
3. On the rightmost side of the page, view the cellular status and statistics.
4. Optional: Click the WAN name again to close the display of cellular interface information.

From the Dashboard

1. On the menu, click **Dashboard**.
2. In the **WAN** panel, click the WAN associated with cellular interface for which you want to display status and statistics. The **WAN** page is displayed.
3. On the rightmost side of the page, view the cellular status and statistics.

From the command line

To show the status and statistics for a cellular interface, use the show lan command. For a description of the output fields, see the show cellular command.

```
digi.router> show cellular

 Cellular Status and Statistics
  ------------------------------

 Admin status           : Up
 Oper status            : Up
 Module                 : Sierra Wireless, Incorporated MC7455
 Firmware version       : SWI9X30C_02.08.02.00
 Hardware version       : 1.0
 IMEI                   : 359072060051337
 Temperature            : 32C

 SIM status             : Using SIM2
 ICCID                  : 89014103278252818581

 Signal strength        : Excellent (-80dBm)
 Signal quality         : Excellent (-8dB)

 Registration status    : Registered
 Attachment status      : Attached
```

```
Network provider        : AT&T, USA
Connection type         : 4G
Radio Band              : LTE 1900 PCS
Channel                 : 700

APN in use              : Context 1: 12655.mcs

IP address              : 172.20.1.132
Mask                    : 255.255.255.248
Gateway                 :
DNS servers             : 10.10.8.62, 10.10.8.64

                   Received                Sent
                   --------                ----
Packets            2                       2
Bytes              612                     656
```

Related topics

Cellular interfaces

Configure cellular interfaces

Switch the cellular carrier

Related commands

cellular

show cellular

Switch the cellular carrier

Currently this operation can only be performed from the command line.

From the command line

1. To display a list of available carriers for your device, enter the **update carrier** command without parameters. For example:

```
digi.router> update carrier

Carrier Name       Firmware Version   Unique ID
-----------------------------------------------
ATT                02.08.02.00        002.009_000
GENERIC            02.08.02.00        002.007_000
VERIZON            02.05.07.00        002.008_002

The current firmware image is ATT.
```

2. To switch from one carrier to another, enter the **update carrier** command, specifying the carrier name. For example, to switch the carrier from **AT&T** to **Verizon**, enter:

```
digi.router> update carrier verizon
Switching carrier to verizon.
Module is rebooting.  This can take up to 3 minutes ...
digi.router>
```

Note If your desired carrier is not displayed in the **update carrier** output as shown in step 1, you must first update the cellular module firmware using the update command, specifying the **update module** command variant. For more information, see Update cellular modem firmware.

Related topics

Cellular interfaces
Configure cellular interfaces
Show cellular status and statistics
Update cellular modem firmware

Related commands

cellular
show cellular
update

Signal strength for 3G and 2G cellular connections

For 3G and 2G cellular connections, the current **RSSI** value determines signal strength. To view this value, enter the show cellular command.

- **> -70 dBm**: Excellent
- **-70 dBm** to **-85 dBm**: Good
- **-86 dBm** to **-100 dBm**: Fair
- **< -100 dBm** to **-109 dBm**: Poor
- **-110 dBm**: No service

Signal strength for 4G cellular connections

For 4G connections, the **RSRP** value determines signal strength. To view this value, enter the show cellular command.

- **> -90 dBm**: Excellent
- **-90 dBm to -105 dBm**: Good
- **-106 dBm to -115 dBm**: Fair
- **-116 dBm to -120 dBm**: Poor
- **< -120 dBm**: No service

Tips for improving cellular signal strength

If the signal strength LEDs for your device indicate poor or no service, 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
  - Antenna Extender Kit, 3m

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. You can configure each Wi-Fi interface as an independent Wi-Fi access point with its own security settings. You can either leave it up to the access point to select the channel, or select a specific channel to use for Wi-Fi interfaces.

Related topics

Configure a channel for Wi-Fi 2.4 GHz interfaces

Configure a channel for Wi-Fi 5 GHz interfaces

Configure an access point

Configure an access point with enterprise security

Show Wi-Fi status and statistics

Related commands

wifi

wifi5g

wifi-global

show wifi

show wifi5g

Configure a channel for Wi-Fi 2.4 GHz interfaces

The default behavior for Wi-Fi communications is to leave it up to the TransPort LR device to select the channel, known as **auto** channel selection. However, you can select a specific channel to use for 2.4 GHz Wi-Fi interfaces. This setting is one of the global Wi-Fi configuration settings.

For Wi-Fi 2.4 GHz, channels **1** to **11** only are allowed, and not **12**, **13**, or **14**.

From the web interface

1. On the menu, click **Interfaces**.
2. Click ▸ Wi-Fi . The available Wi-Fi interfaces display, along with the current LAN to which the interface belongs, and its state.
3. In the **Wi-Fi Options** box, select a channel on the **2.4 GHz Channel** setting, or select **auto** to let the device select the channel.
4. Click **Apply**.

From the command line

To select a channel for Wi-Fi 2.4 GHz communications, the command is wifi-global and the parameter is **wifi-channel**. For example, to set the channel for **Wi-Fi 2.4 GHz** interfaces to channel **1**, enter:

```
digi.router> wifi-global wifi-channel 1
```

Related topics

Wi-Fi interfaces

Configure a channel for Wi-Fi 5 GHz interfaces

Configure an access point

Configure an access point with enterprise security

Show Wi-Fi status and statistics

Related commands

wifi

wifi5g

wifi-global

show wifi

show wifi5g

Configure a channel for Wi-Fi 5 GHz interfaces

The default channel for Wi-Fi 5 GHz interfaces is **36**.

The default behavior for Wi-Fi communications is to leave it up to the TransPort LR device to select the channel, known as **auto** channel selection. However, you can select a specific channel to use for 5 GHz Wi-Fi interfaces. This setting is one of the global Wi-Fi configuration settings.

For Wi-Fi 5 GHz, the following channels are allowed: **36**, **40**, **44**, **48**, **52**, **56**, **60**, **64**, **100**, **104**, **108**, **112**, **116**, **132**, **136**, **140**.

All channels but **36**, **40**, **44**, **48** are Dynamic Frequency Selection (DFS) channels.

Note You can set the DFS channels **52**, **56**, **60**, **64**, **100**, **104**, **108**, **112**, **116**, **132**, **136**, **140**, but the device may need to use a different channel. For example, you can configure the Wi-Fi 5 GHz channel to **56**, but the device might need to use channel **108** instead.

From the web interface

1. On the menu, click **Interfaces**.
2. Click ▸ Wi-Fi . The available Wi-Fi interfaces display, along with the current LAN to which the interface belongs, and its state.
3. In the **Wi-Fi Options** box, select a channel on the **5 GHz Channel** setting, or select **auto** to let the device select the channel.
4. Click **Apply**.

From the command line

To select a channel for Wi-Fi 5 GHz communications, the command is wifi-global and the parameter is **wifi5g-channel**. For example, to set the channel for **Wi-Fi 5 GHz** interfaces to channel **36**, enter:

```
digi.router> wifi-global wifi5g-channel 36
```

Related topics

Wi-Fi interfaces

Configure a channel for Wi-Fi 2.4 GHz interfaces

Configure an access point

Configure an access point with enterprise security

Show Wi-Fi status and statistics

Related commands

wifi

wifi5g

wifi-global

show wifi

show wifi5g

Configure an 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.
- Once configured, the Wi-Fi access point must be assigned to a LAN interface. For more information, see Local Area Networks (LANs) and Configure a LAN.

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 access point.
- Disabling the broadcast of the SSID in broadcast packets. The default is to broadcast the SSID, but you can disable that broadcast to prevent clients from easily detecting the presence of this access point.

- Disabling one or both isolation modes for the Wi-Fi access point. There are 2 isolation modes. By default, both isolation modes are enabled, but you can disable one or both as needed.
  - **Client Isolation**: Prevents clients on the same access point from communicating with each other.
  - **AP Isolation**: Prevents clients on an access point from communicating with clients on other APs.
- Selecting a channel for Wi-Fi 2.4 GHz or 5 GHz communications. For more details, see Configure a channel for Wi-Fi 2.4 GHz interfaces and Configure a channel for Wi-Fi 5 GHz interfaces.

From the web interface

1. On the menu, click **Interfaces**.
2. Click ▸ Wi-Fi . The available Wi-Fi interfaces display, along with the current LAN to which the interface belongs, and its state.
3. Select a Wi-Fi interface to configure.
4. In the **Edit Selected** box, enter the configuration settings for the access point:
   - **Mode**: Select Access Point.
   - **SSID**: Enter the Wi-Fi access point's Service Set Identifier (SSID).
   - **Security**: Select **None**, **WPA-2 Personal**, or **WPA/WPA2-Mixed-Mode-Personal**, depending on the security for this access point.
   - If you selected **WPA-2-Personal**, or **WPA/WPA2-Mixed-Mode-Personal** security, enter the password in the **Password** and **Verify Password** fields.
   - **Description**: Optional: Enter a description of the access point.
   - **State**: Enable or disable the Wi-Fi access point when configuration is complete.
   - **Broadcast SSID**: Optional: Enable or disable broadcasting the SSID in beacon packets.
   - **Isolation - Client**: Optional: Enable or disable Wi-Fi client isolation mode.
   - **Isolation - Access Point**: Optional: Enable or disable Wi-Fi access point isolation mode.
5. Click **Apply**.

From the command line

To configure the global settings for Wi-Fi communications, including selecting the channel for Wi-Fi communications, the command is wifi-global.

To configure a Wi-Fi 2.4 GHz access point, the command is wifi.

To configure a Wi-Fi 5 GHz access point, the command is wifi5g.

The following steps show using the wifi command. When configuring a Wi-Fi 5 GHz access point, use the wifi5g command. The parameters are the same.

1. Enable the Wi-Fi access point.

```
digi.router> wifi 1 state on
```

2. Enter the SSID for the Wi-Fi access point.

```
digi.router> wifi 1 ssid LR54-AP1
```

3. Enter the password for the Wi-Fi access point.

```
digi.router> wifi 1 password your-password
```

4. Optional: Enter the security for the Wi-Fi access point.

```
digi.router> wifi 1 security wpa-wpa2-personal
```

5. Optional: Enter a description for the Wi-Fi access point.

```
digi.router> wifi 1 description “Office AP”
```

6. Optional: Disable broadcasting the SSID in beacon packets.

```
digi.router> wifi 1 broadcast-ssid off
```

7. Optional: Disable Wi-Fi client isolation mode.

```
digi.router> wifi 1 isolate-clients off
```

8. Optional: Disable Wi-Fi access point isolation mode.

```
digi.router> wifi 1 broadcast-ssid off
```

Related topics

Wi-Fi interfaces
Configure a channel for Wi-Fi 2.4 GHz interfaces
Configure a channel for Wi-Fi 5 GHz interfaces
Configure an access point with enterprise security
Show Wi-Fi status and statistics
Local Area Networks (LANs)
Configure a LAN

Related commands

wifi
wifi5g
wifi-global
show wifi
show wifi5g

Configure an access point with 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 an connection request from a Wi-Fi client, it authenticates 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.
- Disabling the broadcast of the SSID in broadcast packets. The default is to broadcast the SSID, but you can disable that broadcast to prevent clients from easily detecting the presence of this access point.
- Disabling one or both isolation modes for the Wi-Fi access point. There are 2 isolation modes. By default, both isolation modes are enabled, but you can disable one or both as needed.
  - **Client Isolation**: Prevents clients on the same access point from communicating with each other.
  - **AP Isolation**: Prevents clients on an access point from communicating with clients on other APs.
- Selecting a channel for Wi-Fi 2.4 GHz or 5 GHz communications. For more details, see Configure a channel for Wi-Fi 2.4 GHz interfaces and Configure a channel for Wi-Fi 5 GHz interfaces.

From the web interface

1. On the menu, click **Interfaces**.
2. Click ▸ Wi-Fi . The available Wi-Fi interfaces display, along with the current LAN to which the interface belongs, and its state.
3. Select a Wi-Fi interface to configure.
4. In the **Edit Selected** box, enter the configuration settings for the access point:
   - **Mode**: Select Access Point.
   - **SSID**: Enter the SSID for the device.
   - **Security**: Select **WPA-2-Enterprise**, or **WPA/WPA2-Mixed-Mode-Enterprise**, depending on the security for this access point.
   - If you selected **WPA-2 Personal**, or **WPA/WPA2-Mixed-Mode-Personal** security, enter the password in the **Password** and **Verify Password** fields.
   - **Description**: Optional: Enter a description of the access point.
   - **State**: Enable or disable the Wi-Fi access point when configuration is complete.
   - **Broadcast SSID**: Optional: Enable or disable broadcasting the SSID in beacon packets.
   - **Isolation - Client**: Optional: Enable or disable Wi-Fi client isolation mode.
   - **Isolation - Access Point**: Optional: Enable or disable Wi-Fi access point isolation mode.
   - **Radius Server**: Enter the IP address of the RADIUS server.
   - **Radius Port**: Optional: Enter the RADIUS server port.
   - **Radius Secret**: Enter the RADIUS password.
5. Click **Apply**.

From the command line

To configure a Wi-Fi 2.4 GHz access point, the command-line command is wifi.

To configure a Wi-Fi 5 GHz access point, the command-line command is wifi5g.

The following steps show using the wifi command. When configuring a Wi-Fi 5 GHz access point, use the wifi5g command. The parameters are the same.

1. Enable the Wi-Fi access point.

```
digi.router> wifi 1 state on
```

2. Enter the SSID for the Wi-Fi access point.

```
digi.router> wifi 1 ssid LR54-AP1
```

3. Enter the security for the Wi-Fi access point.

```
digi.router> wifi 1 security wpa2-enterprise
```

4. Enter the RADIUS server IP address.

```
digi.router> wifi 1 radius-server 192.168.1.200
```

5. Enter the RADIUS password.

```
digi.router> wifi 1 radius-password your-radius-password
```

6. Optional: Enter the RADIUS server port.

```
digi.router> wifi 1 radius-server-port 3001
```

7. Optional: Enter a description for the Wi-Fi access point.

```
digi.router> wifi 1 description "Office AP"
```

8. Optional: Disable broadcasting the SSID in beacon packets.

```
digi.router> wifi 1 broadcast-ssid off
```

9. Optional: Disable Wi-Fi client isolation mode.

```
digi.router> wifi 1 isolate-clients off
```

10. Optional: Disable Wi-Fi access point isolation mode.

```
digi.router> wifi 1 broadcast-ssid off
```

Related topics

Wi-Fi interfaces
Configure a channel for Wi-Fi 2.4 GHz interfaces
Configure a channel for Wi-Fi 5 GHz interfaces
Configure an access point
Show Wi-Fi status and statistics

Related commands

wifi
wifi5g
wifi-global
show wifi
show wifi5g

Show Wi-Fi status and statistics

You can show summary statistics for all Wi-Fi 2.4 GHz and 5 GHz interfaces, and detailed statistics for an individual interface.

From the command line

Show summary statistics for Wi-Fi interfaces

To show the status and statistics for Wi-Fi 2.4 GHz interfaces, use the show wifi command. For example, to show status of all Wi-Fi 2.4 GHz interfaces, enter:

```
digi.router> show wifi

 Interface  Status  SSID                                Security
 ------------------------------------------------------------
 wifi1      Up      LR54-2.4G-LR000181                  WPA2-Personal
 wifi2      Down    LR54-2.4G-Public-LR000181           None
 wifi3      Down    LR54-Office                         WPA2-Enterprise
 wifi4      Down                                        WPA2-Personal

digi.router>
```

To show the status and statistics for a Wi-Fi 5 GHz interface, use the show wifi5g command. For example:

```
digi.router> show wifi5g

 Interface  Status  SSID                                Security
 ------------------------------------------------------------
 wifi5g1    Up      LR54-5G-LR000181                    WPA2-Personal
 wifi5g2    Down    LR54-5G-Public-LR000181             None
 wifi5g3    Down                                        WPA2-Personal
 wifi5g4    Down                                        WPA2-Personal

digi.router>
```

Show detailed status statistics for a Wi-Fi interface

To show the status and statistics for a particular Wi-Fi 2.4 GHz interface, enter **show wifi *n***, where ***n*** is the Wi-Fi 2.4 GHz interface number. For example:

```
digi.router> show wifi 1

 wifi 1 Status and Statistics
 ----------------------------
 Admin Status      : Up
 Oper Status       : Up
 SSID              : LR54-2.4G-LR000181
 Security          : WPA2-Personal

 Received                                        Sent
 --------                                        ----
 Rx Bytes                        : 7185          Tx Bytes
: 1639
 Rx Packets                      : 42            Tx Packets
: 13
 Rx Compressed                   : 0             Tx Compressed
```

```
: 0
 Rx Multicasts                    : 30          Tx Collisions
: 0
 Rx Errors                        : 0           Tx Errors
: 0
 Rx Dropped                       : 0           Tx Dropped
: 0
 Rx FIFO Errors                   : 0           Tx FIFO Errors
: 0
 Rx CRC Errors                    : 0           Tx Aborted Errors
: 0
 Rx Frame Errors                  : 0           Tx Carrier Errors
: 0
 Rx Length Errors                 : 0           Tx Heartbeat Errors
: 0
 Rx Missed Errors                 : 0           Tx Window Errors
: 0
 Rx Over Errors                   : 0

 Connected Clients
 -----------------
 MAC Address        Connection Time  RSSI           Rate
 ------------------------------------------------------------------
 58:94:6B:7A:B4:6C  0h 0m 10s        -31,-31,-72    130Mbps


digi.router>
```

To show the status and statistics for a particular Wi-Fi 5 GHz interface, enter **show wifi5g *n***, where ***n*** is the Wi-Fi 5g interface number. For example:

```
digi.router> show wifi5g 1

 wifi5g 1 Status and Statistics
 ------------------------------
 Admin Status      : Up
 Oper Status       : Up
 SSID              : LR54-5G-LR000181
 Security          : WPA2-Personal

 Received                                        Sent
 --------                                        ----
 Rx Bytes                         : 8718        Tx Bytes
: 1686
 Rx Packets                       : 55          Tx Packets
: 14
 Rx Compressed                    : 0           Tx Compressed
: 0
 Rx Multicasts                    : 41          Tx Collisions
: 0
 Rx Errors                        : 0           Tx Errors
: 0
 Rx Dropped                       : 0           Tx Dropped
: 0
 Rx FIFO Errors                   : 0           Tx FIFO Errors
: 0
 Rx CRC Errors                    : 0           Tx Aborted Errors
: 0
```

```
 Rx Frame Errors                  : 0           Tx Carrier Errors
: 0
 Rx Length Errors                 : 0           Tx Heartbeat Errors
: 0
 Rx Missed Errors                 : 0           Tx Window Errors
: 0
 Rx Over Errors                   : 0

 Connected Clients
 -----------------
 MAC Address        Connection Time  RSSI           Rate
 ------------------------------------------------------------------
 58:94:6B:7A:B4:6C  0h 0m 17s        -47,-52,-55    270Mbps

digi.router>
```

Related topics

Wi-Fi interfaces

Configure a channel for Wi-Fi 2.4 GHz interfaces

Configure a channel for Wi-Fi 5 GHz interfaces

Configure an access point

Configure an access point with enterprise security

Related commands

wifi

wifi5g

wifi-global

show wifi

show wifi5g

Serial interface

TransPort LR devices have a single serial port that provides access to the command-line interface.

Related topics

Configure the serial interface

Show serial status and statistics

Command-line interface basics

Related commands

serial

show serial

Configure the serial interface

By default, the serial interface is **enabled**, with the following configuration, which you can modify as needed:

- Baud rate: **115200**
- Data bits: **8**
- Stop bits: **1**
- Parity: **None**
- Flow control: **None**

From the command line

To change serial configuration settings, use the **serial** command.

- Disable the serial interface.

```
digi.router> serial state off
```

- Enter a description for the serial interface.

```
digi.router> serial description “Command line access”
```

- Set the baud rate. For example, to set the baud rate to **9600**, enter:

```
digi.router> serial baud 9600
```

- Set the data bits. For example, to set the data bits to **7**, enter:

```
digi.router> serial databits 7
```

- Set the stop bits. For example, to set the stop bits to **2**, enter:

```
digi.router> serial stopbits 2
```

- Set the parity. For example, to set the parity to **odd**, enter:

```
digi.router> serial parity odd
```

- Set the flow control. For example, to set the flow control to **hardware**, enter:

```
digi.router> serial flowcontrol hardware
```

Related topics

Serial interface

Show serial status and statistics

Related commands

serial

show serial

Show serial status and statistics

From the command line

To show the status and statistics for the serial interface, use the show serial command. For example:

```
digi.router> show serial

 Serial 1 Status
 ---------------
 Description  :
 Admin Status : up
 Oper Status  : up
 Uptime       : 0:07:05
 Tx Bytes     : 4038
 Rx Bytes     : 81
 Overflows    : 0
 Overruns     : 0
 Line status  : RTS|CTS|DTR|DSR|CD0

digi.router>
```

Related topics

Serial interface

Configure the serial interface

Related commands

serial

show eth

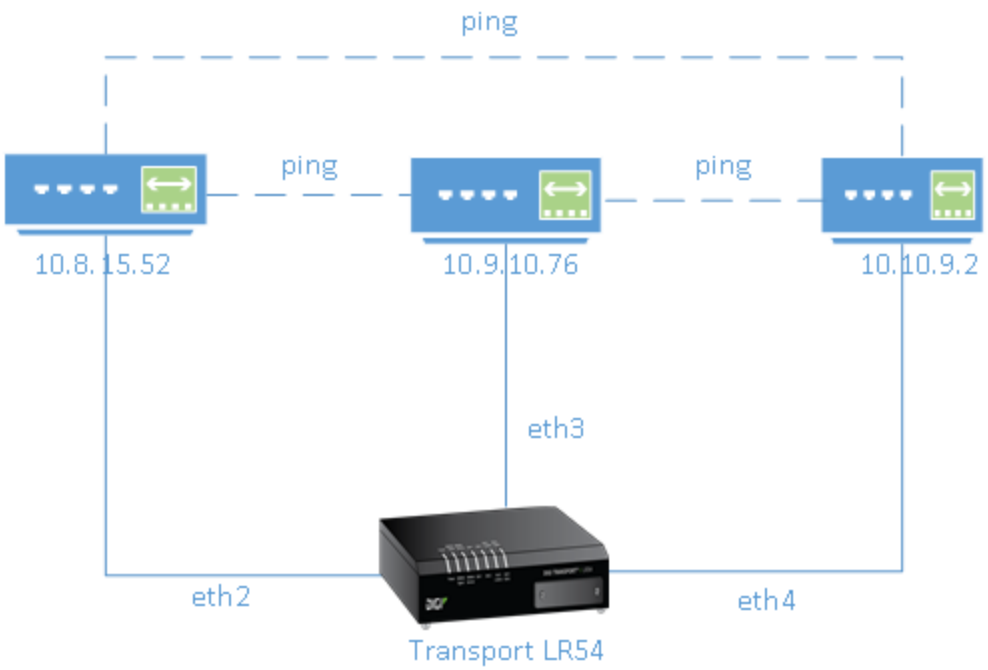
Local Area Networks (LANs)

A Local Area Network (LAN) connects network interfaces together, such as Ethernet or Wi-Fi, in a logical Layer-2 network.

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

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

Show LAN status and statistics

Delete a LAN

DHCP servers

Related commands

lan

show lan

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

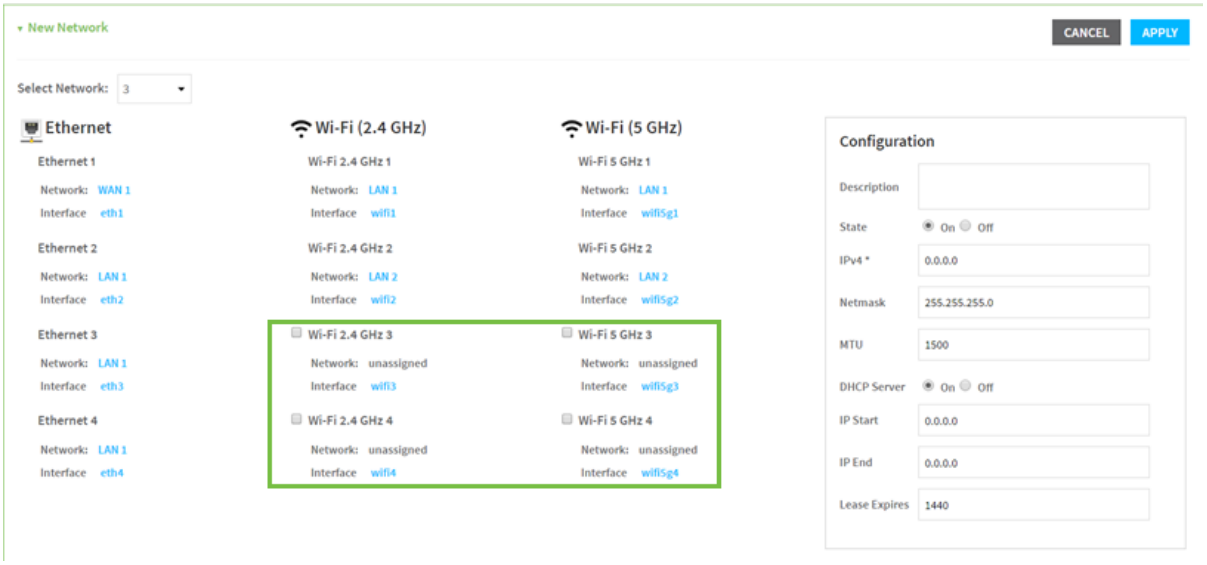
- Setting a descriptive name for the LAN.
- Setting the Maximum Transmission Unit (MTU), or packet size, for packets sent over the LAN.

From the web interface

Create a new LAN

1. On the menu, click **Local Networks**. The **Local Networks** page shows the default LAN configuration for the TransPort LR device, including the physical interfaces assigned to the LANs and their states.
2. Click **New Network**.
3. In the **Select Network** field, assign an index number to the LAN.

4. The interfaces shown below the index number show the interfaces available to be used for the LAN. Any interfaces displayed with an empty checkbox are available. Select an interface(s) to assign to the LAN. For example, in the following **New Network** display, several Wi-Fi 2.4 GHz and 5 GHz interfaces are available to be included in a new LAN:



5. Optional: In the **Description** setting, enter a description for the LAN.
6. In the **State** setting, enable or disable the LAN after it is configured.
7. In the **IPv4** and **Netmask** fields, enter the IPv4 address for the LAN, and the subnet mask for the LAN.
8. In the **MTU** field, enter the Maximum Transmission Unit (MTU), or packet size, for packets sent over the LAN.
9. Configure the DHCP server. You can enable the DHCP server feature 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.
   - **DHCP Server**: Enable or disable the DHCP server. The DHCP server is disabled by default.
   - **IP Start**/**IP End**: These settings set the beginning and end of the IP address pool, or the range of IP addresses the DHCP server issues to clients.
   - **Lease Expires**: The length, in minutes, of the leases issued by the DHCP server.

   Note For a LAN, the device uses the DHCP server that has the IP address pool in the same IP subnet as the LAN. If you set DHCP server values and find that they are not being served to your DHCP clients, review the LAN configuration in the web interface's **Local Networks** page to make sure that the specified **IP Start** and **IP End** values match the corresponding **IPv4** and **Netmask** settings for the interface.

10. Click **Apply**. The new LAN is added to the **LAN** page.

Modify an existing LAN

1. On the menu, click **Local Networks**. The **Local Networks** page shows the default LAN configuration for the TransPort LR device, including the physical interfaces assigned to the LANs and their states. A checkmark next to the interfaces indicates that the interface is a part of a LAN.
2. Select a LAN.
3. Modify the settings as needed; for example:
   - In the interfaces list, assign different physical interfaces to the LAN.
   - In the **Configuration** settings, change the description of the LAN.
   - Enable or disable the LAN.
   - Change the IP address and netmask values.
   - Change the Maximum Transmission Unit (MTU).
   - Change the DHCP server settings.
4. Click **Apply**.

From the command line

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

```
digi.router> lan 1 interfaces eth2,eth3,eth4
```

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

```
digi.router> lan 1 state on
```

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

```
digi.router> lan 1 ip-address 192.10.8.8
```

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

```
digi.router> lan 1 mask 255.255.255.0
```

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

```
digi.router> lan 1 description ethlan
```

6. Optional: Set the MTU for the LAN.

```
digi.router> lan 1 mtu 1500
```

Related topics

Local Area Networks (LANs)

Show LAN status and statistics

Delete a LAN

DHCP servers

Related commands

lan

show lan

Show LAN status and statistics

From the web interface

From the menu, click **Dashboard**. The **Network Activity** panel's LAN section shows the total bytes received and sent over all LANs.

The **LAN** panel shows the configured LANs and their states. Click a LAN to display more information about the LAN or configure it.

From the command line

To show the status and statistics for a LAN, use the show lan command. For example, here is **show lan** output before and after enabling **lan1**.

```
digi.router> show lan 1

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

 Description   : Ethernet and Wi-Fi LAN

 Interfaces    : eth2,eth3,eth4,wifi1,wifi5g1
 MTU           : 1500

 IP Address    : 192.168.1.1
 Network Mask  : 255.255.255.0

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

digi.router>
```

Related topics

Local Area Networks (LANs)

Configure a LAN

Delete a LAN

DHCP servers

Related commands

lan

show lan

Delete a LAN

Deleting a LAN involves removing the physical interface associations from the LAN, thereby disabling the LAN. The definition for the LAN still exists in the device configuration, but it has no active physical interface.

From the web interface

1. On the menu, click **Local Networks**.
2. On the **LAN** page, select the LAN to delete.
3. Click **Delete**.

From the command line

Use the lan command and specify **!** for the **interfaces** parameter value to set it to **none**:

```
wan <wan-number> interfaces !
```

Related topics

Wide Area Networks (WANs)

WAN failover

Configure a Wide Area Network (WAN)

Show WAN status and statistics

Delete a LAN

Related commands

show wan

wan

DHCP servers

You can enable the DHCP server feature 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 uses the DHCP server that has the IP address pool in the same IP subnet as the local network.

Note For a LAN, the device uses the DHCP server that has the IP address pool in the same IP subnet as the LAN. If you set DHCP server values and find that they are not being served to your DHCP clients, review the LAN configuration in the web interface's **Local Networks** page to make sure that the specified **IP Start** and **IP End** values match the corresponding **IPv4** and **Netmask** settings for the interface.

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 renews the lease time automatically.

Related topics

Configure DHCP server settings

Show DHCP server settings

Related commands

dhcp-server

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 web interface

In the web interface, the DHCP server is configured as part of configuring a LAN on the **Local Networks** page. See Configure a LAN.

From the command line

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

```
digi.router> dhcp-server 1 state on
```

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

```
digi.router> 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:

```
digi.router> dhcp-server 1 netmask 255.255.225.0
```

5. Enter the IP gateway address given to clients:

```
digi.router> dhcp-server 1 gateway 10.30.1.1
```

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

```
digi.router> dhcp-server 1 dns1 10.30.1.1
```

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

```
digi.router> dhcp-server 1 dns2 209.183.48.11
```

8. Enter the lease time:

```
digi.router> dhcp-server 1 lease-time 60
```

Related topics

DHCP servers

Show DHCP server settings

Related commands

dhcp-server

Show DHCP server settings

You can view the DHCP status to monitor which devices have been given IP configuration by the TransPort LR device and diagnose any issues.

From the web interface

In the web interface, DHCP server settings are displayed in the LAN configuration settings.

1. On the menu, click **Local Networks**.
2. Select a LAN.
3. In the **Configuration** settings, the DHCP server settings for the LAN are:
   - **DHCP Server**: Whether the DHCP server is enabled or disabled.
   - **IP Start**/**IP End**: These settings set the beginning and end of the IP address pool, or the range of IP addresses the DHCP server issues to clients.
   - **Lease Expires**: The length, in minutes, of the leases issued by the DHCP server.

From the command line

To show the status of the DHCP server, use the show dhcp command. For example:

```
digi.router> show dhcp

DHCP Status
-----------
IP address       Hostname           MAC Address        Lease Expires At
-------------------------------------------------------------------------
192.168.123.123  IKY-CMS-JPINKN1    38:ea:a7:fd:de:cd  16:32:16, 14 Sep 2016
192.168.123.124  IKY-CMS-BOB        38:ea:a7:fd:a3:22  18:21:06, 14 Sep 2016

digi.router>
```

Related topics

DHCP servers

Configure DHCP server settings

Related commands

dhcp-server

Wide Area Networks (WANs)

A Wide Area Network (WAN) provides connectivity to the internet or a remote network. A WAN consists of:

- A physical interface, such as Ethernet or cellular
- Several networking parameters for the WAN, such as IP address, mask, and gateway
- Several parameters controlling failover, described below

Using Ethernet interfaces in a WAN

Depending on model type, TransPort LR devices support several Ethernet interfaces. For example, TransPort LR54 devices have four Ethernet interfaces, named **eth1**, **eth2**, **eth3**, and **eth4**. Other models have fewer Ethernet interfaces, but the naming and numbering of interfaces is similar. You can use these Ethernet interfaces as a WAN when connecting to the internet, through a device such as a cable modem, as shown in the example.

By default, the **eth1** interface is configured as a WAN 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.

Conversely, the **eth2**, **eth3**, and **eth4** interfaces are by default configured as a Local Area Network (LAN). If necessary, you can assign these Ethernet interfaces to a WAN. For more information on Ethernet interfaces and their configuration, see Ethernet interfaces.

Using cellular interfaces in a WAN

TransPort LR devices support two cellular interfaces, named **cellular1** and **cellular2**.

To use a cellular interface as a WAN, the cellular interface must be configured to connect to the cellular network. For more information on cellular interfaces and their configuration, see Cellular interfaces.

WAN priority, default routes, and metrics

You can configure up to **10** WANs. **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 when it comes up. The metric of the default route is based on the priority of the interface. For example, because **wan1** is the highest priority WAN, the default route for **wan1** has a metric of **1**, and the default route for **wan2** has a metric of **2**.

WAN failover

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

For example, if you use an Ethernet interface as your main WAN, and have a cellular interface configured as a backup interface, if the Ethernet interface fails (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.

For more information on WAN failover and the settings involved, see WAN failover.

Related topics

Configure a Wide Area Network (WAN)

WAN failover

Show WAN status and statistics

Delete a WAN

Related commands

wan

show wan

Configure a Wide Area Network (WAN)

You can configure up to **10** Wide Area Network (WANs). Configuring a WAN consists of:

- Associating a physical interface, such as Ethernet or cellular, with the WAN.
- Optionally configuring networking parameters for the WAN, such as IP address, mask, and gateway
- Optionally configuring several parameters controlling failover

Assigning priority to WANs

You can assign priority to WANs based on the behavior you desire for primary and backup for WAN interfaces. For example, if you want Ethernet to be your primary WAN with a cellular interface as backup, assign an Ethernet interface to **wan1**, and assign a cellular interface to **wan2**.

WANs have priorities associated with them, which is based on a metric parameter set for each WAN. The TransPort LR device automatically adds a default IP route for the WAN 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, or Cellular interface to the WAN. By default, WANs are assigned the following physical interfaces:
  - **wan1**: **eth1**
  - **wan2**: **cellular1**
  - **wan3**: **cellular2**

Additional configuration options

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

For **Ethernet** interfaces:

- The IP configuration. WANs typically get their IP address configuration from the network, for example, 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: required for Ethernet WANs if setting IP address manually, to create a default route over the WAN. If setting the IP address via DHCP, this setting is obtained automatically and does not need to be set.
  - 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 to a public IP address. By default, NAT is enabled. Unless your LAN has a publicly-addressable IP address range, do not disable NAT.
- The IP probe settings. These settings control elements of the WAN failover feature, including sending of probe packets over the WAN interface to a specified device to determine whether the WAN is still up, timeouts, and switching between primary and backup interfaces. For more information on these settings, see the discussion of IP probing in Wide Area Networks (WANs).

Note A statically configured IP configuration takes precedence over a configuration derived via DHCP. This allows you to configure alternative DNS servers from those given to you by your network provider.

For **Cellular** interfaces:

- The IP probe settings. These settings control elements of the WAN failover feature, including sending of probe packets over the WAN interface to a specified device to determine whether the WAN is still up, timeouts, and switching between primary and backup interfaces. For more information on these settings, see the discussion of IP probing in Wide Area Networks (WANs).

From the web interface

Create a new WAN

1. On the menu, click **WAN**. The **Wide Area Networks (WAN)** page shows the current WAN configuration for the TransPort LR device, including the physical interfaces assigned to the WANs and their states.
2. Click **New WAN Connection**.
3. In the **Select WAN** field, assign an index number to the WAN. This number sets the WAN priority for the WAN.
4. Select an interface to assign to the WAN.
5. Click **Apply**. The new WAN is displayed in an edit dialog, where you can configure additional options, such as IP address settings and WAN failover.

Modify an existing WAN

1. On the menu, click **WAN**. The **Wide Area Networks (WAN)** page shows the current WAN configuration for the TransPort LR device displays, including the physical interfaces assigned to the WANs, plus any additional WANs that have been created.
2. Select a WAN.

3. Modify the settings as needed; for example:
   - Assign a different physical interface
   - Change the IP configuration
   - Disable DHCP client
   - Change the Maximum Transmission Unit (MTU)
   - Modify the IP probe settings for WAN failover. For more information on these settings, see WAN failover.
4. Click **Apply**.

From the command line

Configure basic WAN settings

1. Assign an interface to the WAN interface.

```
digi.router> wan 1 interface eth1
```

2. Optional: Disable DHCP client mode.

```
digi.router> wan 1 dhcp off
```

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

```
digi.router> wan 1 ip-address 10.1.2.2
digi.router> wan 1 mask 255.255.255.252
digi.router> wan 1 gateway 10.1.2.1
digi.router> wan 1 dns1 10.1.2.1
digi.router> wan 1 dns2 8.8.8.8
```

4. Optional: Set the speed.

```
digi.router> eth 1 speed {auto | 1000 | 100 | 10}
```

Configure IP probe settings

1. Optional: Configure the time, in seconds, to wait for this interface to connect and to receive a probe response before failing over to a lower priority interface.

```
digi.router> wan 1 timeout 60
```

2. Configure the IP host to probe.

```
digi.router> wan 1 probe-host 192.168.47.1
```

3. Optional: Configure the time, in seconds, to wait for a response to a probe. This value must be smaller than the probe-interval and timeout parameter values or the configuration is considered invalid, and an error message is written to the system log.

```
digi.router> wan 1 probe-timeout 5
```

4. Optional: Configure the interval, in seconds, between sending probe packets. This value must be larger than the probe-timeout value. If not, the WAN failover configuration is considered invalid, and an error message is written to the system log

```
digi.router> wan 1 probe-interval 20
```

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

```
digi.router> wan 1 probe-size 120
```

6. Optional: Configure 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**.

```
digi.router> wan 1 activate-after 30
```

7. Optional: Configure the time, in seconds, to wait before retrying this interface after failing over to a lower priority one. Use a large retry timeout when both interfaces are cellular interfaces. Accepted value is any integer from **10** to **3600**. The default value is **180**.

```
digi.router> wan 1 retry-after 1200
```

Related topics

Wide Area Networks (WANs)
WAN failover
Show WAN status and statistics
Delete a WAN

Related commands

show wan
wan

WAN failover

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

For example, if you use an Ethernet interface as your main WAN, and have a cellular interface configured as a backup interface, if the Ethernet interface fails (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.

For more information on WAN failover and the settings involved, see WAN failover.

Conditions that cause failover

Conditions that can cause a WAN to go down and the WAN failover feature to switch to another interface include:

- On an Ethernet interface, the cable for the Ethernet interface is broken or disconnected, or the Ethernet cable modem is switched off.

Detecting when a WAN goes down: active and passive detection

There are two ways to detect when a WAN goes down: active detection and passive detection.

Active detection involves sending out IP probe packets (ICMP echo requests) to a particular host and waiting for a response. The WAN is considered to be down if there are no responses for a configured amount of time. The settings and behavior for active detection through IP probing are described in more detail below.

Passive detection involves detecting the WAN going down by monitoring its link status by some means other than sending IP probe packets; for example, if an Ethernet cable is disconnected or the state of a cellular interface changes from **on** to **off**.

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 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 (ICMP echo requests) to a particular destination. If responses to these probe packets are not received, the TransPort LR device can bring down the WAN, and switch to using another WAN until the IP network problem is resolved.

IP probing involves the following configuration settings:

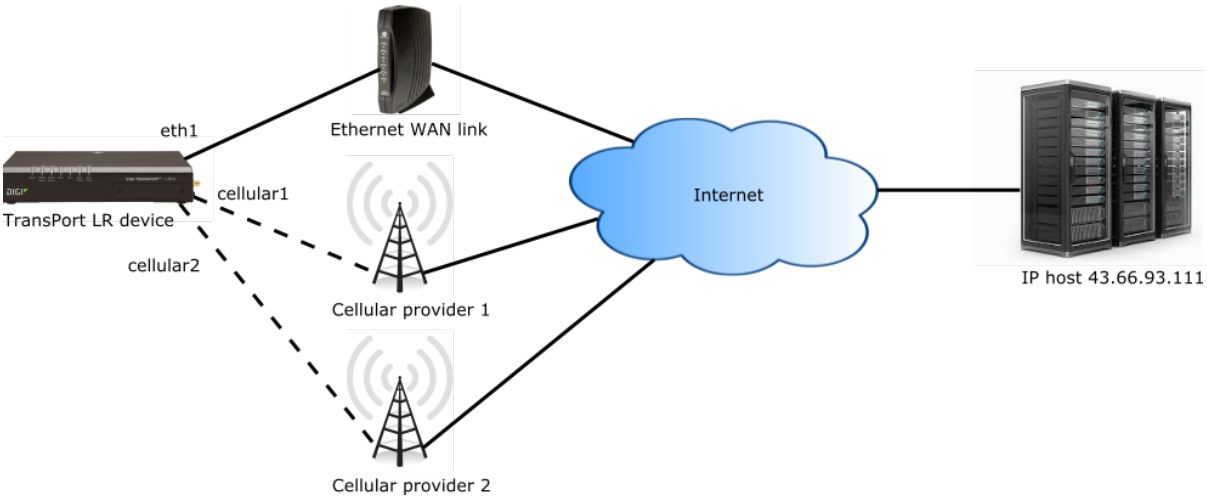
- **timeout**: The time, in seconds, to wait for this interface to connect and to receive a probe response before failing over to a lower priority interface.
- **probe-host**: The IPv4 or fully qualified domain name (FQDN) of the address of the device itself. The WAN failover feature sends probe packets over the WAN to the IP address of this device.
- **probe-timeout**: The time, in seconds, to wait for a response to a probe. This value must be smaller than the probe-interval and timeout parameter values or the configuration is considered invalid, and an error message is written to the system log.
- **probe-interval**: The interval, in seconds, between sending probe packets. This value must be larger than the probe-timeout value. If not, the WAN failover configuration is considered invalid, and an error message is written to the system log.

- **probe-size**: The size of probe packets sent to detect WAN failures.
- **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.
- **retry-after**: The time, in seconds, to wait before retrying this interface after failing over to a lower priority one. Use a large retry timeout when both interfaces are cellular interfaces.

Most of the IP probing configuration parameters have 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 you can set them to different values as needed to suit your WAN failover requirements.

Example WAN failover: Ethernet to cellular

In this example WAN, the **eth1** interface associated with **wan1** serves as the primary WAN, while **cellular1** and **cellular2** are associated with **wan2** and **wan3**, respectively, and serve as backups.



To detect failover:

- The **eth1** interface uses IP probing to detect interface failure.
- The backup WANs, **wan2** and **wan3** use passive techniques to detect interface failure.

Using the IP probing configured over the **eth1** interface, the TransPort LR device sends a probe packet of size **256** bytes to the IP host **43.66.93.111** every **10** seconds. If no responses are received for **60** seconds, the TransPort LR device brings the **eth1** interface down and starts using the **wan2** (**cellular1**) interface.

If the TransPort LR device cannot get a connection on the **wan2** (**cellular1**) 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 **eth1** interface. If it receives probe responses for **120** seconds, it reactivates the **wan1** interface and starts using it again as the primary WAN.

To achieve this WAN failover from the **eth1** to **cellular1** and **cellular2** interfaces, the WAN failover configuration commands are:

```
digi.router> cellular 1 state on
digi.router> cellular 2 state on-demand
digi.router> wan 1 interface eth1
digi.router> wan 1 timeout 60
digi.router> wan 1 probe-host 43.66.93.111
digi.router> wan 1 probe-interval 10
digi.router> wan 1 probe-size 256
digi.router> wan 1 activate-after 120
digi.router> wan 2 interface cellular1
digi.router> wan 2 retry-after 1800
digi.router> wan 3 interface cellular2
```

Related topics

Wide Area Networks (WANs)

Configure a Wide Area Network (WAN)

Show WAN status and statistics

Delete a WAN

Related commands

wan

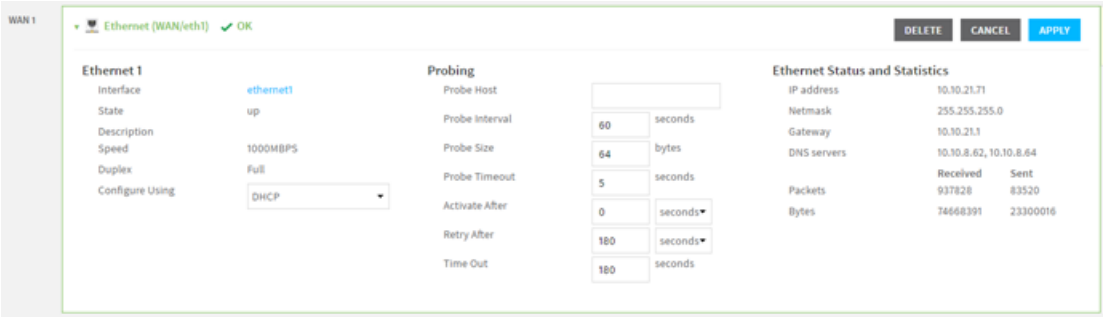
show wan

Show WAN status and statistics

From the web interface

1. On the menu, click **WAN**. The WANs configured for the TransPort LR device display.

2. Select a WAN.
3. The WAN display expands to display the configuration parameters and the status and statistics for the interface assigned to the WAN. For example, for a WAN using interface **eth1** the Ethernet parameters, status, and statistics are as follows:



From the command line

To show the status and statistics for a WAN, use the show wan command. For a description of the output fields, see the show wan command.

For example, here is the show wan command output with **eth1** and **cellular1** configured as WAN interfaces.

```
digi.router> show wan

 # WAN Interface  Status  IP Address
 ----------------------------------
 1 eth1           Up      192.168.0.25
 2 cellular1      Up      172.20.1.7

digi.router>
```

To view status and statistics for the physical interface for the WAN, enter the **show** command for that physical interface; for example, show eth or show cellular.

To show detailed status for a WAN, enter the show wan command, specifying the WAN interface number. For example:

```
digi.router> show wan 1

 WAN 1 Status and Statistics
 ---------------------------
 WAN Interface : eth1
 Admin Status  : Up
 Oper Status   : Up
```

```
 IP Address    : 192.168.13.103
 Mask          : 255.255.255.0
 Gateway       :
 DNS Server(s) : 192.168.11.1, 192.168.13.1

               Received            Sent
               --------            ----
 Packets            932             272
 Bytes            79464           39425

digi.router>
```

When IP probing is enabled, the show wan output provides additional details, including how long it has been since the device received a probe response from the probe host:

```
digi.router> show wan 1

 WAN 1 Status and Statistics
 ---------------------------
 WAN Interface : eth1
 Admin Status  : Up
 Oper Status   : Up

 IP Address    : 10.52.18.120
 Mask          : 255.255.255.0
 Gateway       : 10.52.18.1
 DNS Server(s) : 8.8.8.8

 Probing                      : 10.52.18.1
 Last Probe Response received : 5 seconds ago

               Received            Sent
               --------            ----
 Packets           8356             640
 Bytes           673351           64841

digi.router>
```

If IP probing is disabled because the configuration is invalid, the output is similar to the following:

```
digi.router> show wan 1

 WAN 1 Status and Statistics
 ---------------------------
 WAN Interface : eth1
 Admin Status  : Up
 Oper Status   : Up

 IP Address    : 10.52.18.120
 Mask          : 255.255.255.0
 Gateway       : 10.52.18.1
 DNS Server(s) : 8.8.8.8

 Probes are not being used

            Received            Sent
            --------            ----
 Packets        8356             640
```

```
 Bytes        673351           64841

digi.router>
```

If IP probing is on, but the device has not yet received any replies, the output is similar to the following:

```
digi.router> show wan 1

 WAN 1 Status and Statistics
 ---------------------------
 WAN Interface : eth1
 Admin Status  : Up
 Oper Status   : Up

 IP Address    : 10.52.18.120
 Mask          : 255.255.255.0
 Gateway       : 10.52.18.1
 DNS Server(s) : 8.8.8.8

 Probing                      : 10.52.18.1
 Waiting for first response

                Received            Sent
                --------            ----
 Packets            8356             640
 Bytes            673351           64841
```

Related topics

Wide Area Networks (WANs)

Configure a Wide Area Network (WAN)

WAN failover

Delete a WAN

Related commands

wan

show wan

show cellular

show eth

Delete a WAN

Deleting a WAN involves removing the physical interface association from the WAN, thereby disabling the WAN. The definition for the WAN still exists in the device configuration, but it has no active physical interface.

From the web interface

1. On the menu, click **WAN**.
2. On the **WAN** page, select the WAN to delete.
3. Click **Delete**.

From the command line

Use the wan command to set the **interface** parameter value to **none**:

```
wan <wan-number> interface none
```

Related topics

Wide Area Networks (WANs)

WAN failover

Configure a Wide Area Network (WAN)

Show WAN status and statistics

Related commands

show wan

wan

Security

TransPort LR devices have several device security features. This section covers configuring and managing these security features.

User management

TransPort LR devices allow for creating users, defining their login information, and setting their 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.

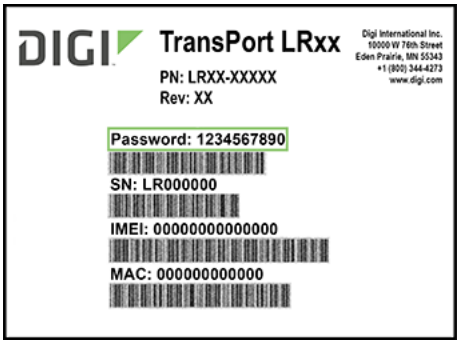
This topic covers the TransPort LR user model and access permissions for users.

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	The user can manage all features on TransPort LR devices. Devices can have multiple users with **super** access level. A user with **super** access level must 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.
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

Delete a user

Change a user's password

Reset the device to factory defaults

Related commands

user

Configure a user

Only users with **Super** access permission can configure a user or change user configuration settings. See User management for descriptions of user access permissions.

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

Required configuration items

- A username of up to **32** characters long.
- A password, from **1-128** characters long. For security reasons, passwords are stored in hash form. There is no way to 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 web interface

1. On the menu, click **System**.
2. Select **User Management**. The **User Management** page shows all defined users and a link to create a new user. The indicator **Active User** displays next to the currently logged-on user.
3. Click **New User**.

   Note In the web interface, a new user is added to the next available user index number. In contrast to adding a user from the command line, the index number is not a value you can set or change.

4. Enter user account information:
   - **Username**: The username for the user. 32 character limit.
   - **Access**: The user access permission for the user: **Super**, **Read-Write**, or **Read-Only**. For descriptions of these access permissions, see User management.
   - **Password/Confirm Password**: Password for the user.
5. Click **Apply**.

From the command line

The user command configures users.

1. Configure the username. For example:

```
digi.router> user 1 name joeuser
```

2. Configure the password. For example:

```
digi.router> user 1 password omnivers1031
```

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

```
digi.router> user 1 access read-write
```

Related topics

User management

Delete a user

Change a user's password

Related commands

user

Delete a user

You can delete user definitions when they are no longer needed.

Only users with **Super** access permission can delete users. See User management for descriptions of user access permissions.

From the web interface

1. Click **System**.
2. Select **User Management**. The **User Management** page shows currently defined users.
3. Select the user to delete.
4. Click **Delete** and respond to the confirmation prompt.

From the command line

Enter the following command:

```
digi.router> user n name !
```

For example, to delete the user **joeuser** that was previously assigned to **user 1**, enter:

```
digi.router> user 1 name !
```

Related topics

User management

Configure a user

Change a user's password

Related commands

user

Change a user's password

Only users with Super access permission can change a user's password.

From the web interface

1. Click **System**. The **User Management** page lists currently defined users.
2. Select the user.
3. Click **Change Password**.
4. Enter the new password.
5. Enter the new password again.
6. Click **Apply**.

From the command line

Enter the user command, specifying the new password value:

```
user <user number> password <password-value>
```

For example:

```
user 6 password tester
```

Related topics

User management

Configure a user

Delete a user

Related commands

user

Firewall

The TransPort LR firewall is a full stateful firewall to control which packets are allowed into and out of the device. Firewalls can filter packets based on the IP address, protocol, TCP ports, and UDP ports. You can also use the firewall to do port forwarding; that is, forwarding a packet from a device on a public network to a device on a private network by modifying the destination IP address and/or TCP or UDP destination port.

Firewall design is based on iptables

The TransPort LR firewall is based on the open-source firewall named **iptables**. It uses the same syntax as the **iptables** firewall, except that the rules start with the keyword **firewall** instead of **iptables**. The firewall syntax is case-sensitive.

For more information on configuring the firewall, see www.netfilter.org/documentation and IptablesHowTo.

Tables and chains in firewall rules

Depending on their function, firewall rules are organized into tables and chains. The tables define the function of the rule. The chains define when the rule is applied in relation to when a packet is being received, sent or forwarded.

Tables

Firewall tables are as follows:

filter
The filter table filters packets being sent, received, and forwarded by the device. This is the default table if one is not specified in the firewall rule. The filter table supports these chains: **INPUT**, **OUTPUT**, **FORWARD**.

nat
The nat table modifies the source and destination IP addresses and TCP and UDP ports so that traffic can be sent between private IP networks such as a company network and public IP networks such as the internet. The nat table supports these chains: **OUTPUT**, **PREROUTING**, **POSTROUTING**.

mangle
The mangle table modifies a packet being sent, received, or forwarded by the device. The mangle table supports these chains: **INPUT**, **OUTPUT**, **FORWARD**, **PREROUTING**, **POSTROUTING**.

raw
The raw table marks packets for special treatment. When a packet is received, the raw table is processed first. The raw table supports these chains: **INPUT**, **OUTPUT**, **FORWARD**, **PREROUTING**, **POSTROUTING**.

Chains

By default, there are **5** chains for directing packets:

INPUT
For packets destined for the device.

OUTPUT
For packets generated by the device.

FORWARD
For packets forwarded by the device.

PREROUTING

For packets before the device has decided to forward the packet, or if the packet has been defined for the device.

POSTROUTING
For packets that have been forwarded by the device, or if the packet has been generated by the device.

Policy rules

A policy rule defines the default action for a chain; for example **ACCEPT** or **DROP**.

For example, the policy could be to drop all inbound packets that do not explicitly match any of the chain rules.

Using a policy rule is better than simply defining a normal rule that matches all packets. Policy rules are automatically the last rule tested for a chain, while a normal rule could appear anywhere in the list of rules, depending how it and subsequent rules were added.

Related topics

Default firewall configuration

Allow SSH access through the default firewall on WANs

Allow HTTPS access through the default firewall on WANs

Add a firewall rule

Update a firewall rule

Delete a firewall rule

Save firewall rules

Show firewall rules and counters

Example firewall rules

For more information on configuring the firewall, see www.netfilter.org/documentation and IptablesHowTo.

Related commands

firewall

show firewall

Default firewall configuration

To provide a secure device “out of the box”, the firewall is configured for the following default behavior:

- Block all traffic received on the physical interfaces for WANs (**eth1**, **cellular1**, **cellular2**) except for traffic for established connections or related data.
- Allow all traffic from the physical interfaces for LANs to be forwarded by the device.
- Only allow ICMP, SSH, HTTP, HTTPS, DNS and DHCP traffic to be received on the physical interfaces for LANs.
- All other traffic is blocked.

The default setting allows devices connected on the physical interfaces for LANs to make connections over the physical interfaces for WANs, but remote devices cannot make a connection to the device or devices connected on the physical interfaces for LANs.

This means that, by default, it is not possible to make an SSH or HTTPS connection via a WAN. To use SSH or HTTPS over a WAN, you must add a rule to the firewall to explicitly allow the connection.

Allow SSH access through the default firewall on WANs

Allow HTTPS access through the default firewall on WANs

Related topics

Firewall

Add a firewall rule

Allow SSH access through the default firewall on WANs

Update a firewall rule

Delete a firewall rule

Save firewall rules

Show firewall rules and counters

Example firewall rules

For more information on configuring the firewall, see www.netfilter.org/documentation and IptablesHowTo.

Related commands

firewall

show firewall

Allow SSH access through the default firewall on WANs

To allow SSH access through the default firewall on WAN interfaces:

1. Open the command-line interface, either from a command prompt or the web interface Device Console.
2. Depending on the interfaces you are using, copy and paste the following rules into the command line.
   - Port **22** is the default SSH port. If SSH has been configured to use a different port, using the ssh command, use that port instead of **22**.
   - To prevent other devices making SSH connections, specify the source IP address of the device making the SSH connection. If you do not want to specify the source IP address, remove **-s <source-ip-address>** from the rules.

```
firewall -A INPUT -i eth1 -s <source-ip-address> -p tcp --dport 22 -j
ACCEPT
firewall -A INPUT -i cellular1 -s <source-ip-address> -p tcp --dport 22 -j
ACCEPT
firewall -A INPUT -i cellular2 -s <source-ip-address> -p tcp --dport 22 -j
ACCEPT
```

3. Enter the **save config** command to save the firewall rules to the configuration file.

Related topics

Log in to the command line interface
Firewall
Default firewall configuration
Allow HTTPS access through the default firewall on WANs
Add a firewall rule
Update a firewall rule
Delete a firewall rule
Save firewall rules
Show firewall rules and counters
Example firewall rules

For more information on configuring the firewall, see www.netfilter.org/documentation and IptablesHowTo.

Related commands

firewall
show firewall
save
ssh

Allow HTTPS access through the default firewall on WANs

To allow HTTPS access through the default firewall on WAN interfaces:

1. Open the command-line interface, either from a command prompt or the web interface Device Console.
2. Depending on the interfaces you are using, copy and paste the following rules into the command line. To prevent other devices making HTTPS connections, specify the source IP address of the device making the HTTPS connection. If you do not want to specify the source IP address, remove **-s <source-ip-address>** from the above rules.

```
firewall -A INPUT –i eth1 –s <source-ip-address> -p tcp --dport 443 –j
ACCEPT
firewall -A INPUT –i cellular1 –s <source-ip-address> -p tcp --dport 443 –j
ACCEPT
firewall -A INPUT –i cellular2 –s <source-ip-address> -p tcp --dport 443 –j
ACCEPT
```

Related topics

Log in to the command line interface
Firewall
Default firewall configuration
Allow SSH access through the default firewall on WANs
Add a firewall rule
Update a firewall rule
Delete a firewall rule
Save firewall rules
Show firewall rules and counters
Example firewall rules

For more information on configuring the firewall, see www.netfilter.org/documentation and IptablesHowTo.

Related commands

firewall
show firewall
save

Add a firewall rule

From the command line

Use the firewall command to add rules to the firewall.

Add a rule to the bottom of the firewall

To add a rule to the bottom of the firewall, use the firewall command's **–A** option, using the following syntax. The firewall command syntax is case-sensitive.

```
firewall [-t table] -A <chain> <rule>
```

If no table is specified on the command, the **filter** table is used.

For example, to append a rule to the bottom of the **filter** table, the firewall command is:

```
digi.router> firewall -A INPUT -i lan1 -p icmp --icmp-type echo-request -j DROP
digi.router>
```

The show firewall output for the **filter** table created by the above command is:

```
digi.router> show firewall filter

Filter Table
------------
Chain INPUT (policy DROP 4 packets, 256 bytes)
  pkts bytes target     prot opt in     out     source               destination
     3   152 DROP       tcp  --  any    any     anywhere             anywhere
         tcp dpt:22
     0     0 DROP       icmp --  lan1   any     anywhere             anywhere
         icmp echo-request

Chain FORWARD (policy ACCEPT 0 packets, 0 bytes)
  pkts bytes target     prot opt in     out     source               destination

Chain OUTPUT (policy ACCEPT 4 packets, 256 bytes)
  pkts bytes target     prot opt in     out     source               destination

digi.router>
```

Insert a rule at any position of the firewall

To insert rules into the firewall at any position, use the firewall command's **–I** option, using the following syntax:

```
firewall [-t table] -I <chain> <position> <rule>
```

For example, to insert a rule before the second rule, specify a position of **2**.

```
digi.router>

digi.router> show firewall filter

Filter Table
------------
Chain INPUT (policy DROP 0 packets, 0 bytes)
  pkts bytes target     prot opt in     out     source               destination
     3   152 DROP       tcp  --  any    any     anywhere             anywhere
```

```
        tcp dpt:22
    74  4440 DROP       icmp --  lan1   any     anywhere             anywhere
        icmp echo-request

Chain FORWARD (policy ACCEPT 0 packets, 0 bytes)
  pkts bytes target     prot opt in     out     source               destination

Chain OUTPUT (policy ACCEPT 0 packets, 0 bytes)
  pkts bytes target     prot opt in     out     source               destination

digi.router>
digi.router> firewall -I INPUT 2 -i cellular1 -p udp --dport 7 -j ACCEPT
digi.router>
digi.router> show firewall filter

Filter Table
------------
Chain INPUT (policy DROP 4 packets, 256 bytes)
  pkts bytes target     prot opt in     out     source               destination
     3   152 DROP       tcp  --  any    any     anywhere             anywhere
        tcp dpt:22
     0     0 ACCEPT     udp  --  cellular1 any     anywhere             anywhere
           udp dpt:7
    74  4440 DROP       icmp --  lan1   any     anywhere             anywhere
        icmp echo-request

Chain FORWARD (policy ACCEPT 0 packets, 0 bytes)
  pkts bytes target     prot opt in     out     source               destination

Chain OUTPUT (policy ACCEPT 4 packets, 256 bytes)
  pkts bytes target     prot opt in     out     source               destination

digi.router>
```

Related topics

Firewall

Default firewall configuration

Allow SSH access through the default firewall on WANs

Allow HTTPS access through the default firewall on WANs

Update a firewall rule

Delete a firewall rule

Save firewall rules

Show firewall rules and counters

Example firewall rules

For more information on configuring the firewall, see www.netfilter.org/documentation and IptablesHowTo.

Related commands

firewall

show firewall

Update a firewall rule

To update a firewall rule, use the firewall command's **–R** option, using the following syntax:

```
firewall [-t table] –R <chain> <position> <rule>
```

For example, to update the second rule, specify a position of **2**.

```
digi.router> firewall -R INPUT 2 -i cellular1 -p udp --dport 123 -j ACCEPT
```

The show firewall output for the filter table created by the above command is:

```
digi.router> show firewall filter

Filter Table
------------
Chain INPUT (policy DROP 2 packets, 130 bytes)
  pkts bytes target     prot opt in     out     source               destination
     3   152 DROP       tcp  --  any    any     anywhere             anywhere
         tcp dpt:22
     0     0 ACCEPT     udp  --  cellular1 any     anywhere             anywhere
           udp dpt:123
    74  4440 DROP       icmp --  lan1   any     anywhere             anywhere
         icmp echo-request

Chain FORWARD (policy ACCEPT 0 packets, 0 bytes)
  pkts bytes target     prot opt in     out     source               destination

Chain OUTPUT (policy ACCEPT 2 packets, 130 bytes)
  pkts bytes target     prot opt in     out     source               destination

digi.router>
```

Related topics

Firewall

Default firewall configuration

Allow SSH access through the default firewall on WANs

Allow HTTPS access through the default firewall on WANs

Add a firewall rule

Delete a firewall rule

Save firewall rules

Show firewall rules and counters

Example firewall rules

For more information on configuring the firewall, see www.netfilter.org/documentation and IptablesHowTo.

Related commands

firewall

show firewall

Delete a firewall rule

To delete a firewall rule, use the firewall command's **–D** option. You can delete a single firewall rule or all firewall rules.

Delete a single firewall rule

For example, suppose the following firewall rule exists to block incoming SSH traffic over the **cellular1** interface. The firewall rule is displayed here through the output from a show config command:

```
[FIREWALL]
*filter
-A INPUT -i cellular1 -p tcp -m tcp --dport 22 -j DROP
COMMIT
[FIREWALL_END]
```

The command to delete this firewall rule is:

```
firewall –D INPUT -i cellular1 -p tcp -m tcp --dport 22 -j DROP
```

Delete all firewall rules

To remove all firewall rules, use the firewall command's **-F** option. If you do not specify a table, all the rules in the filter table are deleted.

```
firewall -F [-t <table>]
```

WARNING! Using **firewall -F -t nat** to clear entries in the NAT table removes entries that perform NAT operations on WAN interfaces. Clearing such entries could leave the device unreachable if you are remotely accessing it over a WAN interface.

Related topics

Firewall

Default firewall configuration

Allow SSH access through the default firewall on WANs

Allow HTTPS access through the default firewall on WANs

Add a firewall rule

Update a firewall rule

Save firewall rules

Show firewall rules and counters

Example firewall rules

For more information on configuring the firewall, see www.netfilter.org/documentation and IptablesHowTo.

Related commands

firewall

show firewall

Save firewall rules

To save the firewall rules in the configuration file, use the **save config** command.

For more information on the format of the configuration file and saving configuration, see Managing configuration files.

Related topics

Firewall

Default firewall configuration

Allow SSH access through the default firewall on WANs

Allow HTTPS access through the default firewall on WANs

Add a firewall rule

Update a firewall rule

Delete a firewall rule

Show firewall rules and counters

Example firewall rules

For more information on configuring the firewall, see www.netfilter.org/documentation and IptablesHowTo.

Related commands

save

firewall

show firewall

Show firewall rules and counters

From the command line

To display the firewall, use the show firewall command.

For example:

```
digi.router> show firewall

Filter Table
------------
Chain INPUT (policy ACCEPT 1540 packets, 104K bytes)
  pkts bytes target     prot opt in     out     source               destination
    16   960 DROP       tcp  --  cellular1 any     anywhere             anywhere
           tcp dpt:22

Chain FORWARD (policy ACCEPT 704 packets, 76028 bytes)
  pkts bytes target     prot opt in     out     source               destination

Chain OUTPUT (policy ACCEPT 1466 packets, 97328 bytes)
  pkts bytes target     prot opt in     out     source               destination



Raw Table
---------
Chain PREROUTING (policy ACCEPT 3866 packets, 284K bytes)
  pkts bytes target     prot opt in     out     source               destination

Chain INPUT (policy ACCEPT 3599 packets, 255K bytes)
  pkts bytes target     prot opt in     out     source               destination

Chain FORWARD (policy ACCEPT 2020 packets, 202K bytes)
  pkts bytes target     prot opt in     out     source               destination

Chain OUTPUT (policy ACCEPT 3332 packets, 231K bytes)
  pkts bytes target     prot opt in     out     source               destination

Chain POSTROUTING (policy ACCEPT 5352 packets, 433K bytes)
  pkts bytes target     prot opt in     out     source               destination



NAT Table
---------
Chain PREROUTING (policy ACCEPT 143 packets, 14103 bytes)
  pkts bytes target     prot opt in     out     source               destination

Chain INPUT (policy ACCEPT 3 packets, 164 bytes)
  pkts bytes target     prot opt in     out     source               destination

Chain OUTPUT (policy ACCEPT 1248 packets, 82344 bytes)
  pkts bytes target     prot opt in     out     source               destination

Chain POSTROUTING (policy ACCEPT 1379 packets, 95795 bytes)
  pkts bytes target     prot opt in     out     source               destination
     0     0 MASQUERADE  all  --  any    eth1    anywhere             anywhere
```

```
     0     0 MASQUERADE  all  --  any    cellular1  anywhere             anywhere
     0     0 MASQUERADE  all  --  any    cellular2  anywhere             anywhere

digi.router>
```

By default, all firewall tables are displayed. To display individual tables, specify the table name on the show firewall command. In the command output, the policy for each chain is also displayed in brackets after the chain name. For example:

```
digi.router> show firewall filter

Filter Table
------------
Chain INPUT (policy ACCEPT 1732 packets, 117K bytes)
  pkts bytes target     prot opt in     out     source               destination
    16   960 DROP       tcp  --  cellular1 any     anywhere             anywhere
           tcp dpt:22

Chain FORWARD (policy ACCEPT 788 packets, 82764 bytes)
  pkts bytes target     prot opt in     out     source               destination

Chain OUTPUT (policy ACCEPT 1646 packets, 110K bytes)
  pkts bytes target     prot opt in     out     source               destination

digi.router>
```

Display and clear firewall rule counters

The firewall keeps a counter for each rule which counts the number of packets and bytes that have been matched against the rule. This is a useful tool to determine if a rule is correctly detecting packets.

To clear the counters, use the **clear firewall** command.

```
digi.router> show firewall filter

Filter Table
------------
Chain INPUT (policy ACCEPT 1732 packets, 117K bytes)
  pkts bytes target     prot opt in     out     source               destination
     3   152 DROP       tcp  --  cellular1 any     anywhere             anywhere
           tcp dpt:22
    23  1380 DROP       icmp --  lan1   any     anywhere             anywhere
         icmp echo-request

Chain FORWARD (policy ACCEPT 788 packets, 82764 bytes)
  pkts bytes target     prot opt in     out     source               destination

Chain OUTPUT (policy ACCEPT 1646 packets, 110K bytes)
  pkts bytes target     prot opt in     out     source               destination

digi.router>
digi.router> clear firewall

Filter Table
------------
Chain INPUT (policy ACCEPT 0 packets, 0 bytes)
  pkts bytes target     prot opt in     out     source               destination
```

```
     0     0 DROP       tcp  --  cellular1 any     anywhere             anywhere
           tcp dpt:22
     0     0 DROP       icmp --  lan1   any     anywhere             anywhere
        icmp echo-request

Chain FORWARD (policy ACCEPT 0 packets, 0 bytes)
  pkts bytes target     prot opt in     out     source               destination

Chain OUTPUT (policy ACCEPT 0 packets, 0 bytes)
  pkts bytes target     prot opt in     out     source               destination

digi.router>
```

Related topics

Firewall

Default firewall configuration

Allow SSH access through the default firewall on WANs

Allow HTTPS access through the default firewall on WANs

Add a firewall rule

Update a firewall rule

Delete a firewall rule

Show firewall rules and counters

Example firewall rules

For more information on configuring the firewall, see www.netfilter.org/documentation and IptablesHowTo.

Related commands

clear - the **clear firewall** command variant

firewall

show firewall

Example firewall rules

Define a policy to drop all packets if they do not match any other rule

```
digi.router> firewall -P INPUT DROP
```

Filter inbound SSH (port 22) traffic on the cellular1 interface

```
digi.router> firewall -A INPUT -i cellular1 -p tcp -dport 22 -j DROP
```

Block incoming ping requests on the eth1 interface

```
digi.router> firewall -A INPUT -i eth1 -p icmp --icmp-type echo-request -j DROP
```

Allow incoming HTTPS connections (port 443)

```
digi.router> firewall -A INPUT -p tcp --dport 443 -m state --state
NEW,ESTABLISHED -j ACCEPT
```

Allow outgoing ping requests and their incoming responses

```
digi.router> firewall -A OUTPUT -p icmp --icmp-type echo-request -j ACCEPT
digi.router> firewall -A INPUT -p icmp --icmp-type echo-reply -j ACCEPT
```

Block any inbound connection attempts over the cellular1 interface

```
digi.router> firewall -A INPUT -m state --state ESTABLISHED,RELATED -j ACCEPT
digi.router> firewall -A INPUT -m state --state NEW -i cellular1 -j DROP
```

Port forward any packet with TCP destination port 422 to IP address 192.168.1.47 port 22

```
digi.router> firewall -t nat -A PREROUTING -p tcp --dport 422 -j DNAT --to
192.168.1.47:22
```

Related topics

Firewall

Default firewall configuration

Allow SSH access through the default firewall on WANs

Allow HTTPS access through the default firewall on WANs

Add a firewall rule

Update a firewall rule

Delete a firewall rule

Save firewall rules

Show firewall rules and counters

For more information on configuring the firewall, see www.netfilter.org/documentation and IptablesHowTo.

Related commands

firewall

show firewall

Services and applications

These topics describe the network services and configurable aspects of running application programs on TransPort LR devices.

Auto-run commands

Auto-run commands are commands that are automatically run at boot-up. You can use auto-run commands for such tasks as:

- Starting a Python program
- Switching between configuration files
- Scheduling a reboot

The TransPort LR supports up to **10** auto-run commands.

Required configuration items

Configure the command that is to be automatically run at boot up.

See Use multiple configuration files to test configurations on remote devices for an example of using autorun commands to test configuration on a remote device that could potentially cause the device to stay offline.

Using the command line

Use the autorun command.

Example: Update the configuration from file config.da0

```
autorun 1 command “update config config.da0”
```

Example: Run a timed reboot

```
autorun 2 command “reboot in 5”
```

Related topics

Use multiple configuration files to test configurations on remote devices

Managing configuration files

Save configuration settings to a file

Switch between configuration files

Reboot the device

Related commands

autorun

reboot

SSH server

TransPort LR devices have a Secure Shell (SSH) server for managing the device through the command-line interface over a SSH connection.

Only the SSHv2 protocol is supported as earlier versions of SSH protocol are no longer considered secure.

Configure a Secure Shell (SSH) server

Use SSH to connect to the TransPort LR command-line interface

Terminate an SSH connection

Configure a Secure Shell (SSH) server

To configure the SSH server:

Required configuration items

Enable the SSH server. It is enabled by default.

Additional configuration options

SSH server port. By default the port is **22**, the standard SSH port, but this setting can be configured as needed.

From the command line

1. Enable the SSH server.

```
digi.router> ssh state on
```

2. Optional: Configure the port number for the SSH server.

```
digi.router> ssh port 50684
```

Related topics

Use SSH to connect to the TransPort LR command-line interface

Terminate an SSH connection

Related commands

ssh

exit

Use SSH to connect to the TransPort LR command-line interface

You can make SSH connections using utilities such as PuTTY, TeraTerm, or the Linux **ssh** command.

The following example shows a user using the Linux **ssh** command to connect to IP address **192.168.1.1** for the first time using the **admin** user account.

```
$ ssh admin@192.168.1.1
The authenticity of host '192.168.1.1 (192.168.1.1)' can't be established.
RSA key fingerprint is 2c:db:01:65:2f:bb:a3:4f:c0:5e:dd:2d:e7:9f:7d:01.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added '192.168.1.1' (RSA) to the list of known hosts.
Password: **********

Welcome admin
Access Level: super
Timeout     : 180 seconds
digi.router>
```

Related topics

Configure a Secure Shell (SSH) server

Terminate an SSH connection

Related commands

ssh

exit

Terminate an SSH connection

To terminate an SSH connection, exit the command-line interface using the exit command.

Related topics

Configure a Secure Shell (SSH) server

Use SSH to connect to the TransPort LR command-line interface

Related commands

ssh

exit

Remote management

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

Digi 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 www.digi.com/products/cloud/digi-remote-manager.

To learn more about Digi Remote Manager features and functions, see the Remote Manager User Guide.

Related topics

Configure Digi Remote Manager

Show Digi Remote Manager connection status

Remote Manager User Guide

Related commands

cloud

show cloud

Configure Digi Remote Manager

Digi Remote Manager is enabled by default and should require no additional configuration. Once the device has a WAN connection, it should automatically connect to Digi Remote Manager.

Additional configuration options

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

- You can disable the Digi Remote Manager connection if it is not required.
- You can change the reconnection timer. By default, the device attempts to connect to Digi Remote Manager every **30** seconds.
- The non-cellular keepalive timeout. By default, the device will send a keepalive message to Digi Remote Manager and expect a keepalive message every **60** seconds when using a non-cellular WAN interface. You can change the non-cellular keepalive timeout value depending on your WAN characteristics.
- The cellular keepalive timeout. By default, the device will send a keepalive message to Digi Remote Manager and expect a keepalive message every **290** seconds when using a cellular WAN interface. You can change the cellular keepalive timeout length depending on your cellular interface characteristics.
- The keepalive count before the Remote Manager connection is dropped. By default, the device disconnects and attempts to reconnect to Remote Manager after **3** missed keepalive messages.

From the web interface

Register device in Digi Remote Manager

- **If you have already registered your device**, for example, if you have registered your device with Digi Remote Manager when you went through the Getting Started Wizard:
  1. Enter your credentials to log in to your Remote Manager account and click **Log In**.
  2. A message should display, showing the name of the group into which your device has been registered in the **Remote Manager Status** section of the Digi Remote Manager page.

- **If you have not already registered the device**:
  1. On the menu, click **System**.
  2. Select **Digi Remote Manager**.
  3. On the **Digi Remote Manager** page, enter your credentials to log in to your Digi Remote Manager account and click **Log In**.
  4. Select which group to which your device should belong in your Digi Remote Manager account, then click **Register Device**.
  5. If the registration succeeds, a message displays indicating that your device has been registered in your Digi Remote Manager account; for example:

```
This device is registered in your Digi Remote Manager account
Group location: Group C
```

Optional: Modify Digi Remote Manager settings

1. On the menu, click **System**.
2. Select **Digi Remote Manager**.
3. On the **Digi Remote Manager** page, enter the settings.
   - Enable or disable the TransPort LR device's connection to Digi Remote Manager.
   - **Ethernet Keepalive**: The interval between sending keepalives to Digi Remote Manager over Ethernet interfaces.
   - **Cellular Keepalive**: The interval between sending keepalives to Digi Remote Manager over cellular interfaces.
   - **Reconnect Delay**: The reconnection timer for reconnecting to Digi Remote Manager after a disconnect. By default, the device attempts to connect to Digi Remote Manager every **30** seconds.
4. Click **Apply**.

From the command line

- Disable the Digi Remote Manager connection.

```
digi.router> cloud state off
```

- Set the reconnect timer. For example, to set it to **60** seconds:

```
digi.router> cloud reconnect 60
```

- Set the non-cellular keepalive time. For example , to set it to **180** seconds:

```
digi.router> cloud keepalive 180
```

- Set the cellular keepalive time. For example, to set it to **600** seconds:

```
digi.router> cloud keepalive-cellular 600
```

- Set the keepalive count. For example, to set it to **5**:

```
digi.router> cloud keepalive-count 5
```

Related topics

Digi Remote Manager

Show Digi Remote Manager connection status

Remote Manager User Guide

Related commands

cloud

show cloud

Show Digi Remote Manager connection status

From the web interface

1. On the menu, click **System**.
2. Select **Digi Remote Manager**.
3. On the **Digi Remote Manager** page, the rightmost column of shows the connection status Digi Remote Manager for your device, and statistics.

From the command line

To show the status of the Digi Remote Manager connection, use the show cloud command.

In the show cloud command output, the device ID is the unique identifier for the device on the Digi Remote Manager.

For example:

```
digi.router> show cloud

 Device Cloud Status
 -------------------

 Status    : Connected
 Server    : my.devicecloud.com
 Device ID : 00000000-00000000-0040FFFF-FF0F4594

 Uptime    : 1 Minute, 9 Seconds

            Received                      Sent
            --------                      ----
 Packets          13                        14
 Bytes            37                       218

digi.router>
```

Related topics

Digi Remote Manager

Configure Digi Remote Manager

Remote Manager User Guide

Related commands

cloud

show cloud

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 You cannot use SNMPv1 with the Enterprise MIB, because of the **COUNTER64** types used in the Enterprise MIB.

Related topics

Configure SNMPv1 and SNMPv2

Configure SNMPv3

Related commands

snmp

snmp-community

snmp-user

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. To enable support for SNMPv1 or SNMPv2c, enter:

   ```
   digi.router> snmp v1 on
   ```

   OR

   ```
   digi.router> snmp v2c on
   ```

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

   ```
   digi.router> snmp-community 1 community public
   ```

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

   ```
   digi.router> snmp-community 1 access read-write
   ```

Related topics

Simple Network Management Protocol (SNMP)

Configure SNMPv3

Related commands

snmp

snmp-community

snmp-user

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:

```
digi.router> snmp v3 on
```

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

```
digi.router> 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**.

```
digi.router> snmp-user 1 authentication sha1
```

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

```
digi.router> snmp-user 1 authentication-password authpassword
```

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

```
digi.router> snmp-user 1 authentication des
```

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

```
digi.router> snmp-user 1 privacy-password privpassword
```

7. Configure the access level for the SNMPv3 user.

```
digi.router> snmp-user 1 access read-write
```

Related topics

Simple Network Management Protocol (SNMP)
Configure SNMPv3

Related commands

snmp
snmp-community

snmp-user

Routing

This topic area covers configuring and managing routes for TransPort LR devices.

IP routing

The TransPort LR device uses IP routes to decide where to send a packet 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 uses the route with the lowest metric.

Configuring and managing IP routing involves the following tasks:

Configure general IP settings
Configure a static route
Show the IPv4 routing table
Delete a static route

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 web interface

In the web interface, general IP settings are configured as part of configuring a LAN or WAN. See Configure a LAN and Configure a Wide Area Network (WAN).

From the command line

1. Set the hostname.

```
digi.router> ip hostname LR54-NewYork
```

2. Set the administrative distance for connected routes.

```
digi.router> ip admin-conn 3
```

3. Set the administrative distance for static routes.

```
digi.router> ip admin-static 5
```

Related topics

IP routing

Configure a static route

Show the IPv4 routing table

Delete a static route

Related commands

ip

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 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.

```
digi.router> route 1 destination 192.168.47.0
digi.router> route 1 mask 255.255.255.0
```

2. Set the gateway IP address.

```
digi.router> 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.

```
digi.router> route 4 destination 44.1.0.0
digi.router> route 4 mask 255.255.0.0
```

2. Set the interface.

```
digi.router> route 4 interface cellular1
```

3. Optional: Set the metric.

```
digi.router> route 4 metric 5
```

Once the static route is configured, it should appear in the IPv4 routing table, which you can display using the show route command.

Related topics

IP routing

Configure general IP settings

Show the IPv4 routing table

Delete a static route

Related commands

ip

route

show route

Show the IPv4 routing table

From the command line

To display the IPv4 routing table, use the show route command.

```
digi.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

digi.router>
```

Related topics

IP routing

Configure general IP settings

Configure a static route

Delete a static route

Related commands

ip

route

show route

Delete a static route

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

From the command line

to revert the settings for the route destination, enter the route command, specifying the interface number, the destination parameter, and the **!** character. For example:

```
digi.router> route 1 destination !
```

Related topics

IP routing

Configure general IP settings

Configure a static route

Show the IPv4 routing table

Related commands

ip

route

show route

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 that 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

Configure an IPsec tunnel

Example: IPsec tunnel between a TransPort LR54 and TransPort WR44

Debug an IPsec configuration

Show IPsec status and statistics

Related commands

ipsec

show ipsec

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 IPsec tunnels are disabled by default. You can also set the IPsec tunnel state to **off**, **on**, or **on-demand**. The **on-demand** setting is a failover setting that causes the IPsec tunnel to be brought up as needed if another IPsec tunnel with a higher priority goes down.
- 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 at either end of the IPsec tunnel. The setting for the local ID must match the setting for the remote ID on the remote device, and the setting for the remote ID must match the setting for the local ID on the remote device.
- The local and remote IP networks at either end of the IPsec tunnel.
- 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)

  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 supported on TransPort LR devices are:
  - **Group 5** (1536 bits)
  - **Group 14** (2048 bits)
  - **Group 15** (3072 bits)
  - **Group 16** (4096 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

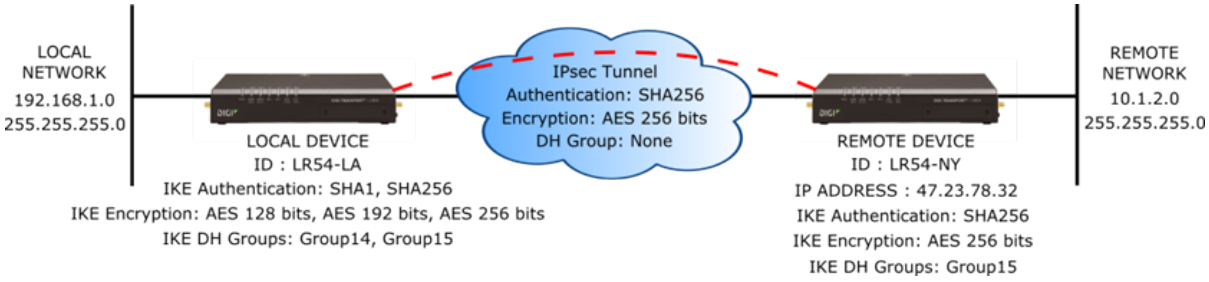
- The lifetime of the IPsec tunnel before it is renegotiated. This defaults to **1 hour** (**3600** seconds), and does not need to match the setting on the remote device.
- The number of bytes, also known as lifebytes, sent on the IPsec tunnel before it is renegotiated. By default, this setting is disabled, 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.
- The metric for the IPsec route. The metric defines the order in which the device uses routes if there are two routes to the same destination. In such a case, the device uses the route with the smaller metric. The default is 10 but you can configure the metric differently to increase or decrease the route's priority.

Example IPsec tunnel

Suppose you are configuring the following IPsec tunnel:



From the web interface

Configure a new IPsec tunnel

1. **Prerequisite**: Configuring an IP tunnel requires an configured LAN to be available for use in the IPsec tunnel. The default configuration for TransPort LR devices includes a LAN, but if that LAN has been deleted or is unavailable, you will need to configure a LAN for use in the IPsec tunnel. See Configure a LAN.
2. On the menu, click  **VPN**.
3. Click **New IPsec Tunnel**. The **VPN** page displays the settings for a new IPsec tunnel. The settings are displayed in four groups: **Network**, **Encryption**, **Negotiation**, and **Lifetime**. Most of these settings groups have defaults which you can review and use or modify as needed. The Network settings involve settings you must supply.
4. In the **Select IPsec** setting, select a number to assign to the IPsec tunnel.
5. Enter the **Network** settings:
   - **State**: Enables or disables the IPsec tunnel when configuration is completed and the IPsec tunnel is available for use.
   - **IPSec Pre-Shared Key**: Enter the shared key the device and the remote device use to authenticate each other
   - **Local IP Network**: The network used for the IPsec tunnel on the local side of the tunnel. Select a LAN from the list.
   - **Local Identifier**: Enter the local identifier for the IPsec tunnel. The value for the **Local Identifier** must match the value for the **Remote Identifier** on the remote device at the other end of the tunnel.
   - **Remote Peer IP Address or Name**: Enter the IP address or name of the remote device, also known as the **peer**, at the other end of the IPsec tunnel.
   - **Remote IP Network**: Enter the IP address of the network used for the IPsec tunnel on the remote side of the tunnel.
   - **Remote IP Network Mask**: Enter the IP network mask of the network used for the IPsec tunnel on the remote side of the tunnel.
   - **Remote Identifier**: Enter the remote identifier for the IPsec tunnel. The value for the Remote Identifier must match the value for the Local Identifier on the remote device at the other end of the tunnel.
6. Review the **Encryption** settings and modify as needed. These settings configure the encryption protocols to use for the IPsec tunnel negotiation.
7. Review the **Negotiation** settings and modify as needed. These settings configure detailed negotiation protocols and other options to use for the IPsec tunnel negotiation.

8. Review the **Lifetime** settings and modify as needed. These settings configure the duration of the IPsec tunnel before it is renegotiated, and the lifetime of the Internet Key Exchange (IKE) before the keys are renegotiated.
9. Click **Apply**.

Modify an existing IPsec tunnel

1. On the menu, click  **VPN**. The existing IPsec tunnels and their current states are displayed.
2. Select an IPsec tunnel and click **Edit**.
3. Modify the **Network**, **Encryption**, **Negotiation**, and **Lifetime** settings as needed.
4. Click **Apply**.

From the command line

1. Enable the IPsec tunnel.

```
digi.router> ipsec 1 state on
```

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

```
digi.router> ipsec 1 peer 47.23.78.32
```

3. Enter the local and remote IDs.

```
digi.router> ipsec 1 local-id LR54-LA
digi.router> ipsec 1 remote-id LR54-NY
```

4. Enter the local and remote IP networks.

```
digi.router> ipsec 1 local-network 192.168.1.0
digi.router> ipsec 1 local-mask 255.255.255.0
digi.router> ipsec 1 remote-network 10.1.2.0
digi.router> ipsec 1 remote-mask 255.255.255.0
```

5. Enter the pre-shared key.

```
digi.router> ipsec 1 psk “secret-psk”
```

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

```
digi.router> ipsec 1 esp-authentication sha256
digi.router> ipsec 1 esp-encryption aes256
digi.router> ipsec 1 esp-diffie-hellman none
```

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

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

Related topics

IPsec

Example: IPsec tunnel between a TransPort LR54 and TransPort WR44

Debug an IPsec configuration

Show IPsec status and statistics

Related commands

ipsec

show ipsec

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

```
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
   margintime                     540
   marginbytes                    0
   random                         100
   ike                            1
   ike-mode                       aggressive
   ike-encryption                 aes128
   ike-authentication             sha1
   ike-diffie-hellman             group5
   ike-lifetime                   3600
   ike-tries                      3
   dpddelay                       30
```

TransPort WR44 configuration

```
# 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=
```

TransPort LR54 configuration	TransPort WR44 configuration
`dpdtimeout 150` `dpd off`	

Related topics

IPsec

Configure an IPsec tunnel

Debug an IPsec configuration

Show IPsec status and statistics

Related commands

ipsec

show ipsec

Show IPsec status and statistics

From the web interface

On the menu, click **VPN**. The **VPN** page displays IPsec status and statistics for IPsec tunnels.

From the command line

The show ipsec displays the status of the IPsec tunnels and statistics regarding their use.

Display summary status for IPsec tunnels

To display summary status and statistics of all configured IPsec tunnels, enter the show ipsec command without parameters.

```
digi.router> show ipsec

 #   Status  Peer             Local               Remote              Uptime
 ---------------------------------------------------------------------------
 1   Up      192.170.1.100    192.168.0.0/16      192.169.1.0/24      3 minutes

digi.router>
```

Display detailed status and statistics for an IPsec tunnel

To display detailed status and statistics of all configured IPsec tunnels, enter the show ipsec command, specifying the tunnel number.

```
digi.router> show ipsec 1

 IPsec 1 Status and Statistics
 -----------------------------
 Description      :
 Admin Status     : Up
 Oper Status      : Up
 Uptime           : 2 minutes

 Peer             : 192.170.1.100
 Local Network    : 192.168.0.0/16
 Remote Network   : 192.169.1.0/24

 IKE Information
 ---------------
 Key Negotiation  : IKEv1, aes128, sha1, modp2048
 SPIs             : 5078e20a02eb1e9c_i* 6b2cfcdf33b4125c_r

 Tunnel Information
 ------------------
 Rekeying In      : 68 minutes
 AH Cipher Suite  : Not Used
 ESP Cipher Suite : aes128, sha1
 Renegotiating In : 42 minutes
 Outbound ESP SAs : d2fad10b, 9bcc91db
 Inbound ESP SAs  : 2af8bb94, 3be64703

 Dead Peer Detection is off
```

```
  Bytes In          : 0
  Bytes Out         : 0

digi.router>
```

Related topics

IPsec

Configure an IPsec tunnel

Example: IPsec tunnel between a TransPort LR54 and TransPort WR44

Debug an IPsec configuration

Related commands

ipsec

show ipsec

System administration

These topics cover administration and management tasks that need to be performed on TransPort LR devices periodically.

Configure system settings

The TransPort LR device has several settings that control the general behavior of the device, and information displayed about the device.

From the web interface

On the menu, click **System**. The choices on the **System** menu are:

- **Firmware Update**: Updates operating system firmware and other device firmware. See Updating firmware.
- **Device Console**: Opens the Device Console, from which you can execute commands. See Execute a command from the web interface.
- **User Management**: Creates and manages device users and their access permissions. See User management.
- **Digi Remote Manager**: Configures the connection to Digi Remote Manager. See Digi Remote Manager.
- **Reboot**: Reboots the device. See Reboot the device.

From the command line

Required configuration items

- None. Most system settings either have defaults. The informational settings default to blank if no value is specified.

Additional configuration options

- The system prompt displayed in the command-line interface. The default system prompt is **digi.router>**. You can configure the system prompt to be any value of up to **16** characters. To use the device's serial number in the system prompt, include **%s** in the **prompt** parameter value. For example, a **prompt** parameter value of **LR54_%s** resolves to **LR54_LR123456**.
- The command-line interface timeout. This is the time, in seconds, after which the command-line interface times out if there is no activity. The default is **180** seconds. You can specify any value between **60** and **3600** seconds.
- The minimum event level that is logged in the event log. The default value is **info**, but you can also set the event level to the following levels: **emergency**, **alert**, **critical**, **error**, **warning**, **notice**, or **debug**. For more information on the event log, see Use event and system logs, Event log levels, and Configure the event logging level.
- The name of this device.
- The location of this device.
- Contact information for this device.

- The page size for command-line interface output; that is, the number of lines of output displayed. The default value is **40**. You can set the page size to any value between **0** and **100**.
- Enabling 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. By default, device-specific passwords are disabled, but you can enable them if required.
- A description of this device.
- The TCP port used for passthrough. By default, passthrough mode is disabled, but you can enable it by setting a TCP port of any value but **0**. A reboot is required for changes to this setting to take effect.
- Disabling the Getting Started Wizard. By default, the Getting Started Wizard is enabled to start up at system startup, to perform initial device configuration. You can disable the wizard so it is skipped at system startup.
- Enabling display of IPsec debugging messages. These messages help diagnose issues with IPsec configuration and interoperability. The default setting for IPsec debugging messages is off, but you can enable them as needed. For more information on IPsec debugging, see Debug an IPsec configuration.

Examples of changing system settings

- Change the system prompt.

```
digi.router> system prompt "LR54_%s"
```

- Set the command-line interface timeout. For example, to set the timeout to 60 seconds, enter:

```
digi.router> system timeout 60
```

- Configure the event log level. For example, to set the event log level to **warning**, enter:

```
system log-level warning
```

- Specify a name for the device.

```
digi.router> system name "Wireless router"
```

- Specify the location of the device.

```
digi.router> system name "Second floor"
```

- Specify contact information for the device.

```
digi.router> system contact "John Doe at x3749"
```

- Set the page size for command-line interface output. For example, to set the output to **30** lines:

```
digi.router> system page 30
```

- Enable device-specific passwords.

```
digi.router> system device-specific-passwords on
```

- Specify a description of the device.

```
digi.router> system description "Engineering department wireless router"
```

- Specify the TCP port used for passthrough.

```
digi.router> system passthrough 5000
```

- Disable the Getting Started Wizard.

```
digi.router> system wizard off
```

- Enable IPsec debugging.

```
digi.router> system ipsec on
```

Related topics

System administration

Show system information settings

Related commands

system

show system

Show system information settings

From the web interface

1. On the menu, click **Dashboard**.
2. In the **Device** section of the dashboard, view the system information settings. For descriptions of these fields, see the show system command description.

From the command line

To show system settings, use the show system command. For example:

```
digi.router> show system

  Model              : LR54W
  Part Number        : LR54-AW401
  Serial Number      : LR000130

  Hardware Version   : 50001899-03 A
  Using Bank         : 0
  Firmware Version   : 1.0.0.3-90c4383 06/19/16 20:31:29
  Bootloader Version: v1.0.0.2
  Using Config File : config.da0

  Uptime             : 4 Hours, 59 Minutes, 4 Seconds
  System Time        : 20 June 2016, 13:01:04

  CPU                : 3% (min 1%, max 60%, avg 2%)
  Temperature        : 33C

  Description        :
  Location           :
  Contact            :

digi.router>
```

Related topics

System administration

Configure system settings

Related commands

system

show system

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

- None.

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 **once a day**. 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 command.

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

```
digi.router> sntp server time.digi.com
```

2. Optional: Set the SNTP update interval.

```
digi.router> sntp update-interval 10
```

Set the date and time manually

From the command line

To set the date and time manually, use the date command. The date 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:

```
digi.router> date 14:55:00 03:05:2016
```

Set the time zone and daylight saving time

When the date and time is set using SNTP, the system time is set to Universal Coordinated Time (UTC) and not to your local time. In addition, the date and time, whether it is set manually or using SNTP, does not automatically change to reflect Daylight Saving Time (DST). By setting the time zone, the device displays the local time for that time zone and automatically adjusts for daylight saving time.

You can set the time zone to any of the following values:

canada-atlantic, **canada-central**, **canada-eastern**, **canada-mountain**, **canada-newfoundland**, **canada-pacific**, **europe-central**, **europe-eastern**, **europe-western**, **none**, **uk-ireland**, **us-alaska**, **us-arizona**, **us-central**, **us-eastern**, **us-hawaii**, **us-indiana**, **us-mountain**, **us-pacific**. The default is **none**.

From the command line

Optional: Set the time zone. For example, to set the time zone to US Eastern:

```
digi.router> system timezone us-eastern
```

Related topics

Show system date and time

Related commands

date

sntp

Show system date and time

From the web interface

1. On the menu, click **Dashboard**.
2. In the **Device** panel, view the **System Time** field.

From the command line

To display the current system date and time, use the date command.

```
digi.router> date

system time: 14:55:06, 03 May 2016

digi.router>
```

Related topics

Set system date and time

Related commands

date

sntp

Updating firmware

Maintaining your TransPort LR device involves periodic updates to firmware for the main operating system and several subsystems.

Update system firmware

Update cellular modem firmware

Update system firmware

This topic shows how to update the TransPort LR operating system firmware.

System firmware files

The TransPort LR operating system firmware images consist of a single file with the naming convention ***<platform>-<version>*.bin**. For example, **lr54-1.2.3.4.bin**.

Certificate management for firmware images

The system firmware files are signed to ensure that only Digi-approved firmware load onto the device. The TransPort LR device validates the system firmware image as part of the update process and only successfully updates if the system firmware image can be authenticated.

Handling of multiple system firmware images

The TransPort LR device can store up to **2** system firmware images in its flash memory. The system firmware update operation overwrites the system firmware image not used with the new system firmware image. The TransPort LR device automatically switches to boot the new system firmware image when it is next rebooted. This means that the TransPort LR device should always have at least one good system firmware image. If a newly loaded firmware image is corrupted, the device automatically falls back to run the system firmware image it was running before the system firmware update.

Digi Remote Manager recommended for managing firmware updates

If you have a network of many devices, you can use the Digi Remote Manager Profile Manager to handle firmware updates. Profile Manager ensures all your devices are running the correct firmware version and that all newly installed devices are updated to that same version. For more information, see the **Profiles** section of the Remote Manager User Guide.

From the web interface

Digi maintains a repository of available TransPort LR firmware versions. You can update system firmware to one of these versions, or upload a previously downloaded firmware file.

Update firmware from available versions in the Digi repository

1. From the menu, click **System > Firmware Update**. The Firmware view displays the current firmware version running on the TransPort LR device.
2. Select a version from the **Available Versions** list. The system firmware file downloads.
3. Click **Update Firmware**.

Download and upload firmware

1. Download the TransPort LR operating system firmware from the Digi Support FTP site; locations for the latest firmware for each model are listed below.

Model	Latest firmware file location
TransPort LR54	http://ftp1.digi.com/support/firmware/transport/LR54/latest

2. Select **Upload firmware** from the **Available Versions** list.

3. Click **Choose File**.
4. Browse to the system firmware file location and select the file.
5. Click **Update Firmware**.

From the command line

1. Download the TransPort LR operating system firmware from the Digi Support FTP site; locations for the latest firmware for each model are listed below.

Model	Latest firmware file location
TransPort LR54	http://ftp1.digi.com/support/firmware/transport/LR54/latest

2. Load the firmware image onto the device. To do so, use a Windows SFTP client, such as FileZilla, or use the Linux applications **scp** and **sftp**. For example, to use **scp**:

```
$ scp lr54-1.1.0.6.bin admin@192.168.1.1:lr54-1.1.0.6.bin
Password:
lr54-1.1.0.6.bin
                100%   22MB   1.0MB/s   00:22
$
```

3. Check that the firmware file has been successfully uploaded to the device.

```
digi.router> dir

  File                        Size   Last Modified
  -----------------------------------------------------
  ssh_host_rsa_key.pub         382   Fri May  6 11:05:02
  ssh_host_dsa_key.pub         590   Fri May  6 11:05:05
  config.da0                  1541   Mon May 23 12:32:22
  config.fac                  1760   Fri May  6 11:44:26
  lr54-1.1.0.6.bin        22935287   Mon Jul 23 12:36:31

  Remaining User Space: 79,015,936 bytes

digi.router>
```

4. Update the firmware by entering the update command, specifying the **firmware** keyword and the firmware file name.
   If any errors occur during the firmware update process, see Firmware update issues.

```
digi.router> update firmware lr54-1.1.0.6.bin

Verifying lr54-1.1.0.6.bin, please wait ...
Verified lr54-1.1.0.6.bin
Updating firmware using lr54-1.1.0.6.bin, please wait ...
Firmware update complete. Please reboot to run new firmware.
digi.router>
```

5. Reboot the device to run the new firmware image using the reboot command.

```
digi.router> reboot
```

6. Once the device has rebooted, verify the running firmware version by entering the show system command.

```
digi.router> show system

Model              : LR54W
Part Number        : LR54-AW401
Serial Number      : LR000038

Hardware Version   : Not available
Using Bank         : 1
Firmware Version   : 1.1.0.6 06/17/16 13:37:58
Bootloader Version: 1003
Using Config File : config.da0

Uptime             : 14 Minutes, 29 Seconds
System Time        : 23 July 2016, 13:08:09

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

Description        :
Location           :
Contact            :

digi.router>
```

Related topics

Update cellular modem firmware

Reboot the device

Related commands

reboot

show system

update

Update cellular modem firmware

Digi provides the cellular modem files for all certified cellular carriers for TransPort LR devices on the Digi repository of cellular modem firmware files.

From the command line

Update cellular modem firmware from a file on the Digi repository

Enter the **update modem** command, specifying your carrier name, **<ATT|VERIZON|GENERIC>**. For example:

```
digi.router> update modem verizon

Start retrieving modem firmware files
verizon.nvu         100%[===================>]  18.83K  --.-KB/s   in 0.08s
verizon.cwe         100%[===================>]  61.22M   103KB/s   in 2m 59s
Done retrieving modem firmware files
Preparing modem for firmware download

Please wait for switching modem to download mode
Downloading
Firmwar
e.......................................................................
....................
Flash Complete, Waiting for Modem to Reboot
...........................
Firmware Download Completed

PRI Upgrade successful
Firmware Upgrade successful
Firmware download completed
```

Related topics

Update system firmware

Reboot the device

Switch the cellular carrier

Related commands

copy

reboot

show system

update

Managing configuration files

The configuration file for TransPort LR devices holds all of the configuration for a device that is applied when the device boots up. The configuration file contains the commands required to configure the device to the user's needs.

When the device boots up, the configuration file is read and each of the commands are processed in order.

Configuration file name

By default, the configuration file is named **config.da0**. You can change the name of the configuration file if desired. For more information, see Switch between configuration files.

Factory default configuration file

The device has a factory default configuration file, named **config.fac**. This file contains the configuration that is applied when the device is factory defaulted. You can customize the **config.fac** file, so that a factory-defaulted device boots up with the your custom configuration.

Saving configuration changes

Configuration changes are **not automatically saved** to the configuration file. You must explicitly save all configuration changes; the changes are lost when the device is next rebooted. For more information on saving configurations, see Save configuration settings to a file.

Key sections of the configuration file

There are several sections of note in the configuration file. Following is an example configuration file. The notes in red identify these key sections.

Timestamp section

The first part of the configuration file includes a **timestamp** of when the configuration file was saved, and by which user:

```
digi.router> more config.da0

# Last updated by admin on Mon May 23 12:32:22 2016
```

Main configuration section

Next is the **main configuration section** of the configuration file, containing the commands and parameters required to configure features.

- Any passwords in the file are stored in encrypted form. It is not possible to display passwords in clear-text form.
- To include comments in the file, begin the line with a **#** character.

```
lan 1 description "Ethernet and Wi-Fi LAN network"
lan 1 state "on"

lan 1 interfaces "eth2,eth3,eth4,wifi1,wifi5g"

lan 1 ip-address "192.168.1.1"
```

```
lan    2 description "Guest Wi-Fi network"
lan 2 interfaces "wifi2,wifi5g2"
lan 2 ip-address "192.168.2.1"
wifi 1 state on
wifi 1 ssid LR54-2.4G-%s
wifi 1 password "$00$U2FsdGVkX1++WEpeSUigEAS11pE+aU+uGGAqPgOF8iU="
wifi5g 1 state on
wifi5g 1 ssid LR54-2.4G-%s
wifi5g 1 password "$00$U2FsdGVkX1/aQwCR/VgIcG0r/Un/Px9a3XBRkPI9euQ="
user 1 name "admin"
user 1 password

"$6$n8bHC46Qo.TQfT/r$61hWHSyO71CYMrIOdUMUSB9vq7powrwcMftGAL912MLQutR9LHhW2k1LQrsZ
xETCz3sAw4DL4vZU20b1ZxxC."
⋮
```

Firewall configuration section

The next section is the **firewall configuration section**, containing rules for controlling which packets are allowed into and out of the device. For more information, see Firewall.

```
[FIREWALL]
*nat
-A POSTROUTING -o eth1 -j MASQUERADE
COMMIT
[FIREWALL_END]

digi.router&gt;
```

Device-specific passwords and sharing configuration files among devices

Passwords are stored in the configuration file in an encrypted form. It is not possible to read the password in clear-text form once it has been configured.

By default, passwords are stored in a form that allows another device to decipher the encrypted form of the password. This allows for sharing and copying configuration files between devices, but only if device-specific passwords have not been enabled.

If sharing the configuration file is not required, you can encrypt passwords in a device-specific manner. This means that only the device on which the password is configured can decipher the password. To enable device specific passwords, use the **system device-specific-passwords** command.

Related topics

Save configuration settings to a file

Switch between configuration files

Use multiple configuration files to test configurations on remote devices

Reset the device to factory defaults

File system

Save configuration settings to a file

Configuration changes are **not** automatically saved. This means that the device will lose any unsaved changes when it is next rebooted.

To save configuration settings to a file:

From the web interface

On configuration pages, clicking **Apply** saves your changes to the configuration file immediately.

From the command line

Enter the **save config** command.

```
digi.router> save config
```

Related topics

Managing configuration files

Switch between configuration files

Use multiple configuration files to test configurations on remote devices

File system

Related commands

save

Switch between configuration files

You can have multiple configuration files stored on the device, although the device uses only one configuration file when it reboots.

From the command line

Identify the current configuration file

If necessary, identify the current configuration file the TransPort LR device is using. Enter the show system command and note the file listed after **Using Config File:**. For example:

```
digi.router> show system

Model              : LR54W
Part Number        : LR54-AW401
Serial Number      : LR000038

Hardware Version   : Not available
Using Bank         : 1
Firmware Version   : 1.1.0.6 06/17/16 13:37:58
Bootloader Version: 201602051801
Using Config File : config.da0

Uptime             : 14 Minutes, 29 Seconds
System Time        : 23 July 2016, 13:08:09

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.

   ```
   digi.router> update config <filename>
   ```

2. If the new configuration file does not exist, enter the save command to create and save the configuration file.

   ```
   digi.router> save config
   ```

Related topics

Managing configuration files

Save configuration settings to a file

Use multiple configuration files to test configurations on remote devices

File system

Related commands

save

show system

Use multiple configuration files to test configurations on remote devices

You can use multiple configuration files, along with the autorun 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 commands:

- The first autorun command automatically reverts the device to use the original configuration file.
- The second autorun command schedules a reboot after a period of time.

Example test configuration file

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

This **test.cfg** file changes the **cellular 1 apn** parameter, and executes two autorun 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 Access Point Name (APN)), you can cancel the scheduled reboot using the **reboot cancel** command.

```
digi.router> reboot cancel
```

Using the copy and update commands, you can then copy the configuration file to the final configuration file, and change the configuration file name.

```
digi.router> copy test.cfg config.da0
digi.router> update config config.da0
```

Related topics

Managing configuration files

Save configuration settings to a file

Switch between configuration files

File system

Related commands

autorun

copy

reboot

save

update

Reboot the device

You can reboot the TransPort LR device immediately, or schedule a reboot after a period of time or at a specific time.

You can cancel a scheduled reboot, if required.

Note Any unsaved configuration is lost during the reboot. You may want to save your configuration settings to a file before rebooting. See Save configuration settings to a file.

From the web interface

1. On the menu, click **System**.
2. Select **Reboot**. A message displays the maximum time expected for the reboot operation. When the device reboot operation completes, the device reconnects and the **Device Login** page displays.

From the command line

Reboot the device immediately

To reboot the device immediately, enter:

```
digi.router> reboot
```

Reboot the device after a period of time

To reboot the device after a period of time, enter the following command, where **MM** represents the number of minutes to wait before rebooting.

```
digi.router> reboot in MM
```

For example, to reboot in 5 minutes:

```
digi.router> reboot in 5
```

Reboot the device at a specific time

To reboot the device at a specific time, enter the following command, where **HH:MM** is the time at which to reboot. The time is in 24-hour format.

```
digi.router> reboot at HH:MM
```

For example, to reboot at 6:30 PM (18:30 hours):

```
digi.router> reboot at 18:30
```

Cancel a scheduled reboot

To cancel a scheduled reboot, enter:

```
digi.router> reboot cancel
```

Related topics

Set system date and time

Save configuration settings to a file
Reset the device to factory defaults

Related commands

reboot
save

Reset the device to factory defaults

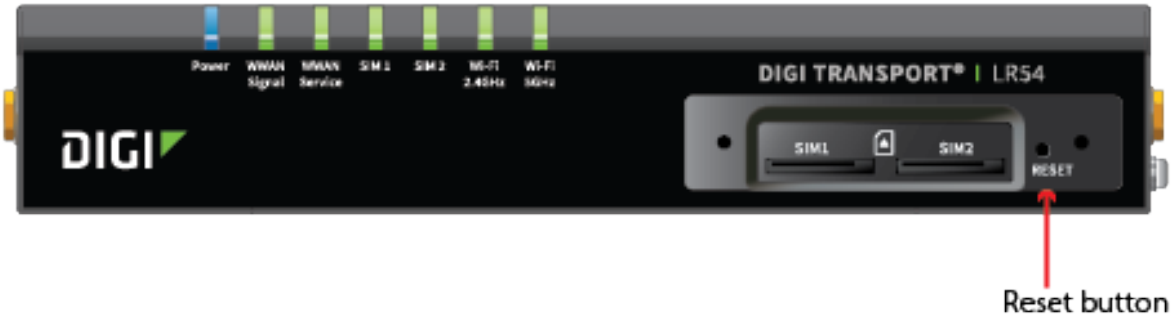
Resetting the device to factory defaults performs the following actions:

- Clears all configuration settings. When the device boots up again, it uses the configuration in file **config.fac**. If the **config.fac** file has been deleted, the device will regenerate it with the default Digi configuration.
- Deletes all user files including Python scripts.
- Regenerates SSH keys.
- Clears event and system log files.
- Creates a new event in the event log indicating a factory reset.

To reset the device to factory defaults:

1. Locate the reset button on your device.

   TransPort LR54: The **Reset** button is located beneath the SIM card slot cover on the front panel, to the right of SIM slot 2. Remove the SIM cover to access the **Reset** button.



2. Press and hold the **Reset** button for **5** seconds. The device reboots automatically.
   The device is now reset back to factory defaults. Follow the instructions on the TransPort device's Quick Start Guide to reconfigure the device.

Related topics

Managing configuration files
Save configuration settings to a file
Reboot the device

Diagnostics

These topics cover the diagnostics capabilities available for TransPort LR devices.

Use event and system logs

The **event log** contains events related to the functionality of the TransPort LR device. These events include information about configuration changes, interface state changes, user access, etc.

The **system log** contains events related to the device's low-level system. While these events are typically not useful to device end users, they are useful to Digi Support and Engineering when diagnosing device issues.

Format of event log entries

Event log entries have the following format:

```
<timestamp> <level> <application> <event message>
```

For example, here is an event log entry showing a configuration change by the user **admin** to the **system timeout** parameter which has been logged by the command-line interface (CLI) application at the **info** log level:

```
May  3 12:05:29 user.info CLI[admin]: system timeout 3600
```

Related topics

Event log levels

Configure the event logging level

Display the event or system log

Save event or system logs to a file

Clear the event or system log file

Event log levels

Events can be logged at one of eight log levels. The log levels, from highest to lowest level of severity, are:

Log level	Conditions indicated
emergency	Device is unusable.
alert	Events that should be resolved immediately.
critical	A feature may not be working correctly.
error	An error has occurred with a particular feature.
warning	An error will occur if no action is taken.
notice	Events that are unusual, but are not error conditions.
info	Normal operational messages that require no action.
debug	Useful information for Digi Technical Support and Engineering to use in debugging the device.

The default level at which events are logged is **info**, which means that any event of a level **info** or higher is logged. To change the event logging level, see Configure the event logging level.

Related topics

Use event and system logs

Configure the event logging level

Display the event or system log

Save event or system logs to a file

Clear the event or system log file

Related commands

clear

show log

system

Configure the event logging level

You can change the level of events that are logged in the event log from its default, which is to log all events of level **informational** or higher. For a description of the event logging levels, see Use event and system logs. This event logging level applies to the event log only, not the system log.

To configure the event log level:

From the command line

Enter the system log-level command, specifying the event log level.

```
system log-level <level>
```

For example:

```
system log-level warning
```

Related topics

Use event and system logs

Event log levels

Display the event or system log

Save event or system logs to a file

Clear the event or system log file

Related commands

clear

show log

system

Display the event or system log

To display the event or system log:

From the command line

Display the event log

To display the event log, use the show log command. For example:

```
digi.router> show log

Jun  8 16:54:50 user.notice CLI[admin]: Login by admin.
Jun  8 16:54:47 user.notice CLI[]: Login failure by .
Jun  8 16:54:39 user.info cellular_monitor[1245]: modem support = HE910 4G
support = 0
Jun  8 16:54:39 user.info cellular_monitor[1245]: Model = HE910
```

Display the system log

To display the system log, use the **show log system** command variant. For example:

```
digi.router> show log system

Nov 18 12:07:45 kern.warning kernel:ESW: Link Status Changed - Port2 Link Down
Nov 18 12:07:43 kern.info kernel:device wifi5g1 entered promiscuous mode
Nov 18 12:07:43 kern.info kernel:device wifi1 entered promiscuous mode
Nov 18 12:07:43 kern.info kernel:lan1: port 3(eth4) entering forwarding state
Nov 18 12:07:43 kern.info kernel:lan1: port 3(eth4) entering forwarding state
Nov 18 12:07:43 kern.info kernel:device eth4 entered promiscuous mode
Nov 18 12:07:43 kern.info kernel:lan1: port 2(eth3) entering forwarding state
Nov 18 12:07:43 kern.info kernel:lan1: port 2(eth3) entering forwarding state
Nov 18 12:07:43 kern.info kernel:device eth3 entered promiscuous mode

digi.router>
```

Related topics

Use event and system logs

Event log levels

Configure the event logging level

Save event or system logs to a file

Clear the event or system log file

Related commands

clear

show log

system

Clear the event or system log file

As needed, you can clear the event or system log. This results a single new entry in the event or system log after the previous events are cleared. This clear function is useful when you want to start all logs fresh from a certain point in time.

From the command line

To clear the event log, use the **clear log** command. For example,

```
digi.router> clear log
```

To clear the system log, use the **clear log system** command. For example,

```
digi.router> clear log system
```

Related topics

Use event and system logs

Event log levels

Configure the event logging level

Display the event or system log

Save event or system logs to a file

File system

Related commands

clear

show log

system

Save event or system logs to a file

By default, the event logs are stored in RAM. This means the event logs are lost when the device is rebooted. You can configure the device to store the event logs in a file to help diagnose issues if the device is being rebooted. When enabled, the event log is stored in the file **event.log** and the system event log is stored in the file **system.log**.

The maximum size of a log file is **2 MB**. When the event and system log files reach this size, they are backed up to **event.log.0** and **system.log.0** respectively, and the log file is cleared out.

WARNING! Saving event logs to files and keeping them resident for some time is not recommended for normal operations, as this practice can lead to additional wear to the device's flash memory.

From the command line

To log events to the file **event.log** and system.log, use the system command, specifying the **log-to-file** parameter:

```
system log-to-file on
```

To log system events to the file **system.log**, use the system command, specifying the **log-system-to-file** parameter:

```
system log-system-to-file on
```

Related topics

Use event and system logs

Event log levels

Configure the event logging level

Display the event or system log

Clear the event or system log file

File system

Related commands

clear

show log

system

Analyze traffic

The traffic analyzer captures data traffic on any of the WAN and LAN interfaces and decodes the captured data traffic for diagnosis.

You can capture data traffic on multiple interfaces at the same time, and define capture filters to reduce the amount of data traffic captured.

You can capture up to 10 MB of data traffic, in two 5 MB files.

To perform more detailed analysis, you can upload the captured data traffic from the device and view it using a third-party application, such as Wireshark (www.wireshark.org).

WARNING! Enabling data traffic capture significantly affects device performance.

Related topics

Capture data traffic

Example filters for capturing data traffic

Show captured data traffic

Clear captured data traffic

Save captured data traffic to a file

Related commands

analyzer

clear

show analyzer

Capture data traffic

You can capture up to 10 MB of data traffic, in two 5 MB files.

WARNING! Enabling data traffic capture significantly affects device performance.

From the command line

To capture data traffic, use the analyzer command.

The analyzer command has the following parameters:

state
Enables or disables the capturing of data traffic. As this configuration can be saved, it means that the device can be configured to start capturing data as soon as it boots up.

interfaces
Defines the interfaces on which data is captured.

filter
Defines the capture filter to reduce the amount of data traffic being captured. The filters use the BPF syntax for defining filters, described at http://www.tcpdump.org/manpages/pcap-filter.7.html. See Example filters for capturing data traffic for examples of using the syntax to define filters.

Note Captured data traffic is captured into RAM and is lost when the device reboots, unless you save the traffic to a file. See Save captured data traffic to a file.

To capture data on the **eth1** and **cellular1** interfaces, the configuration commands are:

```
digi.router> analyzer state on
digi.router> analyzer interfaces eth1,cellular1
digi.router>
```

Related topics

Analyze traffic

Example filters for capturing data traffic

Show captured data traffic

Clear captured data traffic

Save captured data traffic to a file

Related commands

analyzer

clear

show analyzer

Example filters for capturing data traffic

To filter captured data, use the **analyzer** command's filter parameter. For example:

```
digi.router> analyzer filter ip host 192.168.1.1
```

Following are examples of the syntax for filters on data traffic capturing for several types of network data.

Example IPv4 capture filters

Capture traffic to and from IP host 192.168.1.1:

```
digi.router> analyzer filter ip host 192.168.1.1
```

Capture traffic from IP host 192.168.1.1:

```
digi.router> analyzer filter ip src host 192.168.1.1
```

Capture traffic to IP host 192.168.1.1:

```
digi.router> analyzer filter ip dst host 192.168.1.1
```

Capture traffic for a particular IP protocol:

```
digi.router> analyzer filter ip proto <protocol>
```

where **<protocol>** can be a number in the range of 1 to 255 or one of the following keywords: **\icmp**, **icmp6**, **igmp**, **pim**, **ah**, **esp**, **vrrp**, **\udp**, or **\tcp**.

Note **icmp**, **tcp**, and **udp** are also filter keywords and must be preceded with **** when used with **protocol**

Capture traffic to and from a TCP port 80:

```
digi.router> analyzer filter ip proto \tcp and port 80
```

Capture traffic to UDP port 53:

```
digi.router> analyzer filter ip proto \udp and dst port 53
```

Capture traffic from UDP port 53:

```
digi.router> analyzer filter ip proto \udp and src port 53
```

Capture to and from IP host 10.0.0.1 but filter out ports 22 and 80:

```
digi.router> analyzer filter ip host 10.0.0.1 and not (port 22 or port 80)
```

Example Ethernet capture filters

Capture Ethernet packets to and from host 00:40:FF:0F:45:94:

```
digi.router> analyzer filter ether host 00:40:FF:0F:45:94
```

Capture Ethernet packets from host 00:40:FF:0F:45:94:

```
digi.router> analyzer filter ether src 00:40:FF:0F:45:94:
```

Capture Ethernet packets to host 00:40:FF:0F:45:94:

```
digi.router> analyzer filter ether dst 00:40:FF:0F:45:94
```

Related topics

For more information on filtering, see http://www.tcpdump.org/manpages/pcap-filter.7.html

Analyze traffic

Capture data traffic

Show captured data traffic

Clear captured data traffic

Save captured data traffic to a file

Related commands

analyzer

clear

show analyzer

Show captured data traffic

From the command line

To view the captured data traffic, use the show analyzer command. The command output shows the following information for each packet:

- The packet number
- The timestamp for when the packet was captured
- The length of the packet and the amount of data captured
- Whether the packet was sent or received by the device
- The interface on which the packet was sent or received
- A hexadecimal dump of the packet of up to 256 bytes
- Decoded information of the packet

The output uses indents received packets as a visual cue for sent and received packets.

The output is paged. Press the spacebar to view the next page of data. Enter **Q** to navigate to the command prompt.

For example:

```
digi.router> show analyzer

Packet 1 : Nov-09-2016 09:26:06.256857, Length 74 bytes (Captured Length 74
bytes)

Sent on interface eth1

  00 04 2d f4 f8 aa 00 40  ff 0f 45 94 08 00 45 00   ..-....@ ..E...E.
  00 3c 19 73 00 00 7f 01  e2 da 2f 00 00 64 08 08   .<.s.... ../..d..
  08 08 08 00 08 e1 00 01  44 7a 61 62 63 64 65 66   ........ Dzabcdef
  67 68 69 6a 6b 6c 6d 6e  6f 70 71 72 73 74 75 76   ghijklmn opqrstuv
  77 61 62 63 64 65 66 67  68 69                     wabcdefg hi

 Ethernet Header
   Destination MAC Addr : 00:04:2d:f4:f8:aa
   Source MAC Addr      : 00:40:ff:0f:45:94
   Ethernet Type        : IP (0x0800)
 IP Header
   IP Version           : 4
   Header Length        : 20 bytes
   ToS                  : 0x00
   Total Length         : 60 bytes
   ID                   : 6515 (0x1973)
   Flags                :
   Fragment Offset      : 0 (0x0000)
   TTL                  : 127 (0x7f)
   Protocol             : ICMP (1)
   Checksum             : 0xe2da
   Source IP Address    : 47.0.0.100
   Dest. IP Address     : 8.8.8.8
 ICMP Header
   Type                 : Echo Request (8)
   Code                 : 0
```

```
   Checksum              : 0x08e1
 ICMP Data
   61 62 63 64 65 66 67 68  69 6a 6b 6c 6d 6e 6f 70   abcdefgh ijklmnop
   71 72 73 74 75 76 77 61  62 63 64 65 66 67 68 69   qrstuvwa bcdefghi


 Packet 2 : Nov-09-2016 09:26:06.284248, Length 74 bytes (Captured Length 74
bytes)

 Received on interface eth1

           00 40 ff 0f 45 94 00 04  2d f4 f8 aa 08 00 45 00   .@..E... -.....E.
           00 3c e7 97 00 00 36 01  5d b6 08 08 08 08 2f 00   .<....6. ]...../.
           00 64 00 00 10 e1 00 01  44 7a 61 62 63 64 65 66   .d...... Dzabcdef
           67 68 69 6a 6b 6c 6d 6e  6f 70 71 72 73 74 75 76   ghijklmn opqrstuv
           77 61 62 63 64 65 66 67  68 69                     wabcdefg hi

         Ethernet Header
           Destination MAC Addr : 00:40:ff:0f:45:94
           Source MAC Addr      : 00:04:2d:f4:f8:aa
           Ethernet Type        : IP (0x0800)
         IP Header
           IP Version           : 4
           Header Length        : 20 bytes
           ToS                  : 0x00
           Total Length         : 60 bytes
           ID                   : 59287 (0xe797)
           Flags                :
           Fragment Offset      : 0 (0x0000)
           TTL                  : 54 (0x36)
           Protocol             : ICMP (1)
           Checksum             : 0x5db6
           Source IP Address    : 8.8.8.8
           Dest. IP Address     : 47.0.0.100
        ICMP Header
           Type                 : Echo Reply (0)
           Code                 : 0
           Checksum             : 0x10e1
        ICMP Data
           61 62 63 64 65 66 67 68  69 6a 6b 6c 6d 6e 6f 70   abcdefgh ijklmnop
           71 72 73 74 75 76 77 61  62 63 64 65 66 67 68 69   qrstuvwa bcdefghi

digi.router>
```

Related topics

Analyze traffic

Capture data traffic

Example filters for capturing data traffic

Clear captured data traffic

Save captured data traffic to a file

Related commands

analyzer

clear

show analyzer

Clear captured data traffic

To clear the captured data traffic, use the clear command, specifying **clear analyzer**.

```
digi.router> clear analyzer
digi.router>
```

Related topics

Analyze traffic

Capture data traffic

Show captured data traffic

Save captured data traffic to a file

Related commands

analyzer

clear

show analyzer

Save captured data traffic to a file

Data traffic is captured to RAM and not saved when the device reboots. To upload the file to a PC, you must first save the captured data to a file.

From the command line

Use the **show analyzer <filename>** command. For example:

```
digi.router> save analyzer lan1.pcapng
digi.router>
```

Related topics

Analyze traffic

Capture data traffic

Show captured data traffic

Clear captured data traffic

File system

Related commands

analyzer

clear

show analyzer

Use the "ping" command to troubleshoot network connections

Use the ping command from the command line or web interface Device Console to help troubleshoot connectivity problems. See the ping command description for command syntax and examples.

Stop ping commands

To stop pings when the number of pings to send (the **count** parameter) has been set to a high value, enter **Ctrl+C**.

Ping to check internet connection

To check your internet connection, enter:

```
ping 8.8.8.8
```

Related topics

Use the "traceroute" command to diagnose IP routing problems

Diagnostics

Troubleshooting

Execute a command from the web interface

Related commands

ping

traceroute

Use the "traceroute" command to diagnose IP routing problems

Use the traceroute command from the command line or web interface Device Console to diagnose IP routing problems. This command traces the route to a remote IP host and displays results. The traceroute command differs from ping in that traceroute shows where the route fails, while ping simply returns a single error on failure.

See the traceroute command description for command syntax and examples. The traceroute command has several parameters, but they are generally not used or required:

- **hops**: The maximum number of hops to allow.
- **host**: The IP address of the destination host.
- **interface**: The interface for sending the route trace.
- **size**: The size, in bytes, of the message to send.
- **src-ip**: Use this source IP address for outgoing packets.
- **timeout**: The maximum number of seconds to wait for a response from a hop.

Example

This example shows using **traceroute** to verify that the TransPort LR device can route to host **8.8.8.8** (www.google.com) through the default gateway. The command output shows that **15** routing hops were required to reach the host:

```
digi.router> show route

Destination Gateway Metric Protocol Idx Interface Status
-------------------------------------------------------------------------------
-----
10.101.1.0/24 0.0.0.0 0 Connected lan1 UP
192.168.1.0/24 0.0.0.0 0 Connected lan3 UP
10.101.12.0/24 0.0.0.0 0 Connected lan4 UP
10.101.8.0/24 0.0.0.0 0 Connected lan2 UP
192.168.8.0/24 0.0.0.0 0 Connected eth1 UP
default 192.168.8.1 1 Static eth1 UP
digi.router>
digi.router> traceroute 8.8.8.8
traceroute to 8.8.8.8 (8.8.8.8), 30 hops max, 60 byte packets
1 192.168.8.1 (192.168.8.1) 0.613 ms 0.384 ms 0.452 ms
2 10.240.192.1 (10.240.192.1) 19.039 ms 19.070 ms 18.985 ms
3 96.34.84.22 (96.34.84.22) 19.279 ms 25.487 ms 27.848 ms
4 96.34.80.240 (96.34.80.240) 32.560 ms 96.34.80.238 (96.34.80.238) 32.593 ms
96.34.80.230 (96.34.80.230) 32.688 ms
5 96.34.2.12 (96.34.2.12) 32.494 ms 42.865 ms 96.34.81.23 (96.34.81.23) 32.418 ms
6 96.34.81.190 (96.34.81.190) 32.590 ms 31.993 ms 31.993 ms
7 96.34.2.12 (96.34.2.12) 42.367 ms 24.334 ms 29.216 ms
8 96.34.0.51 (96.34.0.51) 34.155 ms 33.648 ms 27.910 ms
9 96.34.148.2 (96.34.148.2) 34.194 ms 96.34.0.137 (96.34.0.137) 25.195 ms 37.465
ms
10 216.239.46.248 (216.239.46.248) 31.285 ms 31.068 ms 216.58.215.44
(216.58.215.44) 37.434 ms
11 96.34.148.2 (96.34.148.2) 40.958 ms 209.85.143.112 (209.85.143.112) 31.281 ms
96.34.148.2 (96.34.148.2) 40.600 ms
12 216.239.46.248 (216.239.46.248) 21.515 ms 209.85.250.70 (209.85.250.70) 63.989
ms 216.58.215.44 (216.58.215.44) 30.455 ms
```

```
13 209.85.251.163 (209.85.251.163) 26.121 ms 216.239.48.235 (216.239.48.235)
27.429 ms 209.85.251.161 (209.85.251.161) 26.867 ms
14 216.239.48.160 (216.239.48.160) 33.652 ms 64.233.174.11 (64.233.174.11) 45.731
ms 209.85.250.70 (209.85.250.70) 29.792 ms
15 216.239.48.235 (216.239.48.235) 30.280 ms 72.14.234.55 (72.14.234.55) 34.517
ms 209.85.251.243 (209.85.251.243) 38.733 ms
16 * 8.8.8.8 (8.8.8.8) 40.967 ms 44.762 ms
digi.router>
```

By entering a **whois** command on another Unix device, the output shows that the route is as follows:

1. **192/8**: The local network of the TransPort LR device.
2. 1**92.168.8.1**: The local network gateway to the internet.
3. **96/8**: Charter Communications, the network provider.
4. **216/8**: Google Inc.

Stop the traceroute process

To stop the traceroute process, enter **Ctrl-C**.

Related topics

Use the "ping" command to troubleshoot network connections

Diagnostics

Troubleshooting

Execute a command from the web interface

Related commands

ping

traceroute

Use the "show tech-support" command

The show tech-support command displays information useful for Digi Technical Support when handling issues with your device.

You can execute this command from the command-line interface or from the Device Console in the web interface.

The syntax for show tech-support is:

```
show tech-support [filename]
```

The **filename** parameter is optional. If specified, the information is saved to the given filename.

The **show tech-support** command executes the following commands:

- **show system**
- **show config more**
- **config.da0** (or whichever configuration file is in use)
- **show route**
- **show lan**
- **show lan x**, for whichever LAN interface's **admin** status is **up**
- **show dhcp**
- **show wan**
- **show wan x**, for whichever WAN interface's **admin** status is **up**
- **show cellular**
- **show ipsec**
- **show ipsec x**, for whichever IPsec tunnel is configured (**state**=**on**)
- **show log**
- **show log system**

In the output, each executed command's output is prefixed with the command's name; for example:

```
show system
===========
```

Related topics

Use the "ping" command to troubleshoot network connections

Diagnostics

Troubleshooting

Execute a command from the web interface

Related commands

show tech-support

File system

The TransPort LR file device's local system has approximately **100 MB** of space available for storing files, such as Python programs, alternative configuration files and firmware versions, and release files, such as cellular module images.

You can manage the file system from the web interface or the command line.

Following are common operations for directories and files in the TransPort LR Family file system:

Related topics

Managing configuration files

Make a directory

From the command line

To make a new directory, use the mkdir 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>
```

Related topics

File system

Display directory contents

Change the current directory

Remove a directory

Related commands

mkdir

Display directory contents

From the command line

To display directory contents, use the dir 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>
```

Related topics

File system

Make a directory

Change the current directory

Remove a directory

Related commands

dir

Change the current directory

From the command line

To change the current directory, use the cd command, specifying the directory name.

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> cd test

digi.router> dir

 File                        Size   Last Modified
---------------------------------------------------------

Remaining User Space: 102,457,344 bytes


digi.router>
```

Related topics

File system

Make a directory

Display directory contents

Remove a directory

Related commands

cd

Remove a directory

From the command line

1. Make sure the directory is empty.
2. Use the rmdir 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

digi.router>
```

Related topics

File system

Make a directory

Display directory contents

Change the current directory

Related commands

rmdir

Display file contents

From the command line

To display the contents of a file, use the more 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>
```

Related topics

File system

Copy a file

Rename a file

Delete a file

Upload and download files

Related commands

more

Copy a file

From the command line

To copy a file, use the copy 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> 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> 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>
```

Related topics

File system

Display file contents

Rename a file

Delete a file

Upload and download files

Related commands

copy

Rename a file

From the command line

To rename a file, use the rename command, specifying the existing name and the new name.

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
 backup.da0                   763   Wed Apr  5 07:22:29

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

digi.router>
```

Related topics

File system

Display file contents

Copy a file

Delete a file

Upload and download files

Related commands

rename

Delete a file

From the command line

To delete a file, use the del command, specifying the filename to delete.

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

```
digi.router>
digi.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

digi.router>
digi.router> del test.da0
digi.router>
digi.router> dir test

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

 Remaining User Space: 102,453,248 bytes


digi.router>
digi.router> del test/test.cfg
digi.router> dir test

 File                        Size   Last Modified
 ----------------------------------------------------------
 Remaining User Space: 102,449,152 bytes

digi.router>
```

Related topics

File system

Display file contents

Copy a file

Rename a file

Upload and download files

Related commands

del

Upload and download files

From the command line

You can download and upload files from and to a TransPort LR 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 device using SCP, the syntax is:

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

For example, to upload a file named **script.py** to a device at IP address **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 device using SCP, the syntax is:

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

For example, to download a file named **config.da0** to the local directory from a device at IP address **192.168.1.1** using the username **john**:

```
$ 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
$
```

Related topics

File system

Display file contents

Copy a file

Rename a file

Delete a file

Troubleshooting

These topics present tools and interfaces for troubleshooting, common issues and resolutions, and other troubleshooting information for TransPort LR products.

Troubleshooting tools and resources

There are several tools and resources available within your TransPort LR device and on Digi's website for dealing with configuration or other device issues.

Use event and system logs

Analyze traffic

Use the "ping" command to troubleshoot network connections

Use the "traceroute" command to diagnose IP routing problems

Use the "show tech-support" command

Reboot the device

Digi support site

Digi knowledge base

Digi support site

For support for your TransPort LR device, go to https://www.digi.com/support.

Digi knowledge base

To access the Digi knowledge base, go to http://knowledge.digi.com/.

Command reference

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

Command-line interface basics

Following are basic tasks you can perform within the command-line interface.

Command line interface access options

You can access the TransPort LR command line interface through the **serial1** interface or through a SSH connection.

You can use open-source terminal software, such as PuTTY and TeraTerm.

Alternatively, you can open the command line interface in the web interface, where it is called the Device Console.

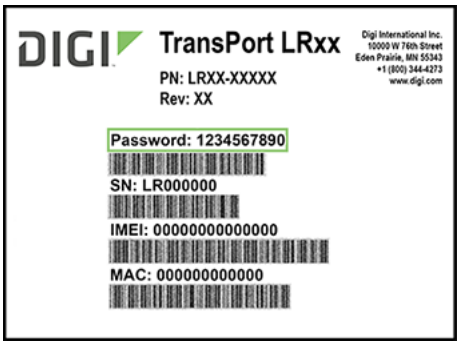
Related topics

Log in to the command line interface

Use SSH to connect to the TransPort LR command-line interface

Log in to the command line interface

1. Connect to the TransPort LR device via the Serial 1 interface or with a SSH connection.
   - For Serial connections, the baud rate is **115200**, **8** data bits, **no** parity, **1** stop bit, and **no** flow control.
   - For SSH connections, the default IP address of the device is **192.168.1.1**.
2. At the login prompt, enter the username and password. The default username is **admin**. The password for your device is printed on the device label; look for the value after **Default Password:**.




```
Username: admin
Password: **********
```

3. A welcome message is displayed, followed by the current access permission level for your username and the timeout for the command session, followed by the TLR command prompt. (For more information about access level and session command timeout, see Related topics.)

```
Welcome admin
Access Level: super
Timeout     : 3600 seconds
digi.router>
```

Related topics

Command line interface access options
User management
Use SSH to connect to the TransPort LR command-line interface

Related commands

system - The **system timeout n** command changes the timeout for a command session.

Exit the command line interface

Enter the exit command.

Display command and parameter help using the ? character

Entering **?** displays help text for all commands, individual commands, and command parameters. For example:

```
digi.router> eth ?

Configures an Ethernet interface

Syntax:
eth <1 - 4> <parameter> <value>

Available Parameters:
 Parameter     Description
-----------------------------------------------------------------------------
description    Ethernet interface description
duplex         Ethernet interface duplex mode
mtu            Ethernet interface MTU
speed          Ethernet interface speed
state          Enables or disables Ethernet interface

digi.router> eth
```

To display help on parameters, enter the command, the interface number as needed, and parameter name, followed by the **?** character. For example, to display help on the **eth** command's **speed** parameter, enter:

```
digi.router> eth 1 speed ?

Syntax           : eth 1 speed <value>
Description      : Ethernet interface speed
Current Value    : auto
Valid Values     : auto, 10, 100, 1000
Default value    : auto

digi.router> eth 1 speed
```

Revert command settings using the ! character

To revert command settings to their defaults, use the **!** character.

Example

To revert the default setting of the interfaces parameter on the **lan** command, enter:

```
digi.router> 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. Configuration 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:

```
digi.router> eth 1 ip-address 10.1.2.3
```

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

```
digi.router> system timeout 100
```

Entering strings in configuration commands

For string parameters, if the string value contains a space, the value must be enclosed in quotation marks; For example, to assign a descriptive name for the device using the **system** command, enter:

```
digi.router> system description "HQ router"
```

Save configuration settings to a file

Configuration changes are **not** automatically saved. This means that the device will lose any unsaved changes when it is next rebooted.

To save configuration settings to a file:

From the web interface

On configuration pages, clicking **Apply** saves your changes to the configuration file immediately.

From the command line

Enter the **save config** command.

```
digi.router> save config
```

Related topics

Managing configuration files

Switch between configuration files

Use multiple configuration files to test configurations on remote devices

File system

Related commands

save

Switch between configuration files

You can have multiple configuration files stored on the device, although the device uses only one configuration file when it reboots.

From the command line

Identify the current configuration file

If necessary, identify the current configuration file the TransPort LR device is using. Enter the show system command and note the file listed after **Using Config File:**. For example:

```
digi.router> show system

Model              : LR54W
Part Number        : LR54-AW401
Serial Number      : LR000038

Hardware Version   : Not available
Using Bank         : 1
Firmware Version   : 1.1.0.6 06/17/16 13:37:58
Bootloader Version: 201602051801
Using Config File : config.da0

Uptime             : 14 Minutes, 29 Seconds
System Time        : 23 July 2016, 13:08:09

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.

   ```
   digi.router> update config <filename>
   ```

2. If the new configuration file does not exist, enter the save command to create and save the configuration file.

   ```
   digi.router> save config
   ```

Related topics

Managing configuration files

Save configuration settings to a file

Use multiple configuration files to test configurations on remote devices

File system

Related commands

save

show system

Display status and statistics using "show" commands

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

- show config 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 displays system information and statistics for the device, including CPU usage.
- show eth displays status and statistics for specific or all Ethernet interfaces.
- show cellular displays status and statistics for specific or all cellular interfaces.

Execute a command from the web interface

1. Click  .
2. Select **Device Console**. The Device Console displays.

3. To display the currently supported list of commands for the device, enter **?**
4. Enter the command.

Related topics

Command-line interface basics

Command reference

? (Display command help)

Displays help text for all commands, individual commands, and command parameters.

To display help on parameters, enter the command name, the interface number as needed, and parameter name, followed by the **?** character.

! (Revert command settings)

Reverts an individual command element to its default.

For example, to revert the default setting of interfaces on the **lan** command, enter:

```
digi.router> lan 1 interfaces !
```

analyzer

Configures the network packet capture feature. Enabling data traffic capture significantly affects device performance.

Syntax

```
analyzer <parameter> <value>
```

Parameters

state

Enables or disables packet capture.

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

interfaces

The member interfaces for the packet capture operation. List the interfaces, separated by commas.

Accepted values can be multiple values of lan1, lan2, lan3, lan4, lan5, lan6, lan7, lan8, lan9, lan10, eth1, eth2, eth3, eth4, wifi1, wifi2, wifi3, wifi4, wifi5g1, wifi5g2, wifi5g3, wifi5g4, cellular1, cellular2 and lo.

filter

The filter for capturing data packets, in BPF format. If you do not specify a filter, the capture operation captures all incoming and outgoing packets.

Accepted value is any string up to 255 characters.

autorun

Configures commands to be automatically run at boot-up. You can use auto-run commands 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, traffic analyzer log, etc. This command is available to super users only.

Syntax

```
clear firewall
clear log
clear log system
clear log all
clear analyzer
```

Parameters

firewall

Clears firewall counters.

log

Clears event log.

analyzer

Clears the traffic analyzer log.

Examples

- `clear firewall`

  Clear the packet and byte counters in all firewall rules.

- `clear log`

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

- `clear log system`

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

- `clear analyzer`

  Clear the traffic analyzer log.

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 on.

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 10 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.

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).

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.

exit

Exits the TransPort LR command-line interface.

Syntax

```
exit
```

firewall

Configures the firewall. The TransPort LR firewall is a full stateful firewall to control which packets are allowed into and out of the device. Firewalls can filter packets based on the IP address, protocol, TCP ports, and UDP ports. You can also use the firewall to do port forwarding. The TransPort LR firewall is based on the open-source firewall named iptables. It uses the same syntax as the iptables firewall, except that the rules start with firewall instead of iptables. The firewall syntax is case-sensitive. For more information on configuring the firewall, see the Firewall section of the TransPort LR User Guide and these external sources: http://www.netfilter.org/documentation and https://help.ubuntu.com/community/IptablesHowTo

This command is available to super users only.

Syntax

```
firewall rule
```

Parameters

rule

Firewall rule.

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.
Accepted values can be one of off or on. 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 and group16. 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.

margintime

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 1. 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 and group16. 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.

dpddelay

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.

metric

The metric for the IPsec route. The metric defines the order in which the device uses routes if there are two routes to the same destination. In such a case, the device uses the IPsec route with the smaller metric.

Accepted value is any integer from 0 to 255. The default value is 10.

Examples

- `ipsec 3 state on`

  Enable IPsec tunnel 3.

- `ipsec 3 state off`

  Disable IPsec tunnel 3.

- `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.

lan

Configures a Local Area Network (LAN). A LAN is a group of Ethernet and Wi-Fi interfaces.

Syntax

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

Parameters

state

Enables or disables a LAN.

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 physical 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 to have an IP address, an IP address must be configured to send traffic from and to the LAN.

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 the device uses routes if there are two routes to the same destination. In such a case, the device uses the route with the smaller metric.

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, 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
save analyzer
```

Parameters

config

Saves all configuration to flash memory.

analyzer

Saves the current captured traffic to a file.

Examples

- `save config`

  Save the current configuration to flash memory.

- `save analyzer packets.pcapng`

  Saves the current captured traffic to packets.pcapng.

serial

Configures a serial interface.

This group is only supported in TransPort LR54, TransPort LR54W, TransPort LR54D, TransPort LR54DWC1, Transport LR11, Transport LR21, Transport LR31 and Last Platform products.

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 analyzer

Displays the traffic analyzer log.

Parameters

description

Display the traffic analyzer log.

show cellular

Displays cellular interface status and statistics.

Parameters

description

A description of the cellular interface.

admin-status

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

oper-status

Whether the Cellular interface is up or down.

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.

attachment-status

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

iccid

Integrated Circuit Card Identifier (ICCID). This identifier is unique to each SIM card.

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 dhcp

Displays information about DHCP connected clients.

Parameters

dhcp

Displays the DHCP status.

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-collisions

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.

rx-packets

The number of packets received on the Ethernet interface.

tx-packets

The number of packets transmitted on the Ethernet interface.

rx-bytes

The number of bytes received on the Ethernet interface.

tx-bytes

The number of bytes transmitted on the Ethernet interface.

rx-errors

The total number of received packets that are marked as errors.

tx-errors

The total number of transmitted packets that are marked as errors.

tx-carrier-error

The number of transmission failures due to improper signaling, as with a duplex mismatch.

rx-fifo-error

The number of events in which the Ethernet driver detects an inability to service the receive packet queue, as with processor congestion.

tx-fifo-error

The number of events in which the Ethernet driver detects an inability to service the transmit packet queue, as with processor or network congestion.

show firewall

Displays the firewall status and statistics. By default, all firewall tables are displayed. To display individual tables, specify the table name on the show firewall command. In the command output, the policy for each chain is also displayed in brackets after the chain name. The firewall keeps a counter for each rule which counts the number of packets and bytes that have been matched against the rule. This is a useful tool to determine if a rule is correctly detecting packets. To clear the counters, use the 'clear firewall' command.

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-sas

Outbound ESP Security Associations (SA).

inbound-esp-sas

Inbound ESP Security Associations (SA).

rx-bytes

Number of bytes received over the IPsec tunnel.

tx-bytes

Number of bytes transmitted over the IPsec tunnel.

ike-spis

IKE Security Parameter Indexes.

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 Local Area Network (LAN) status and statistics.

Parameters

admin-status

Whether the LAN is sufficiently configured to be brought up.

oper-status

Whether the LAN is up or down.

description

Description of the LAN.

interfaces

The physical interfaces for 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 log(event or system/kernel).

Parameters

system

Display the system/kernel log.

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.

This group is only supported in TransPort LR54, TransPort LR54W, TransPort LR54D, TransPort LR54DWC1, Transport LR11, Transport LR21, Transport LR31 and Last Platform products.

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 tech-support

Displays information needed by Digi Technical Support when diagnosing device issues.

Parameters

output-file

The name of the file to which the command output is written. Optional.

show wan

Displays Wide Area Network (WAN) status and statistics.

Parameters

admin-status

Whether the WAN is sufficiently configured to be brought up.

oper-status

Whether the WAN is up or down.

interface

The physical interface assigned to the WAN.

ip-address

IP address for the WAN.

dns1

Preferred DNS server.

dns2

Alternate DNS server.

gateway

The gateway to use for the static route.

mask

Subnet mask for the WAN.

rx-bytes

Number of bytes received by the WAN.

rx-packets

Number of packets received by the WAN.

tx-bytes

Number of bytes transmitted by the WAN.

tx-packets

Number of packets transmitted by the WAN.

probe-host

The IPv4 address or fully qualified domain name (FQDN) of the device to send probes to.

probe-resp-seconds

Seconds since we received the last probe response, or -1 if probes are disabled, or -2 if we have not received any yet.

show wifi

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

This group is only supported in TransPort LR54, TransPort LR54W, TransPort LR54D, TransPort LR54DWC1, Transport LR11, Transport LR21, Transport LR31 and Last Platform products.

Parameters

interface

The name of the Wi-Fi 2.4 GHz interface.

description

A descriptive name for the Wi-Fi 2.4 GHz interface.

admin-status

Whether the Wi-Fi 2.4 GHz interface is sufficiently configured to be brought up.

oper-status

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

channel

The radio channel on which the Wi-Fi 2.4 GHz interface is operating.

ssid

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

security

Security for the Wi-Fi 2.4 GHz interface.

rx-bytes

The number of bytes received by the Wi-Fi 2.4 GHz interface.

tx-bytes

The number of bytes transmitted by the Wi-Fi 2.4 GHz interface.

rx-packets

The number of packets transmitted by the Wi-Fi 2.4 GHz interface.

tx-packets

The number of packets transmitted by the Wi-Fi 2.4 GHz interface.

rx-multicasts

The number of receive multicasts by the Wi-Fi 2.4 GHz interface.

tx-collisions

The number of transmit collisions by the Wi-Fi 2.4 GHz interface.

rx-errors

The number of receive errors by the Wi-Fi 2.4 GHz interface.

tx-errors

The number of transmit errors by the Wi-Fi 2.4 GHz interface.

rx-dropped

The number of receive packets dropped by the Wi-Fi 2.4 GHz interface.

tx-dropped

The number of transmit packets dropped by the Wi-Fi 2.4 GHz interface.

rx-fifo-errors

The number of receive FIFO errors by the Wi-Fi 2.4 GHz interface.

tx-fifo-errors

The number of transmit FIFO errors by the Wi-Fi 2.4 GHz interface.

rx-crc-errors

The number of received packets by the Wi-Fi 2.4 GHz interface that do not contain the proper cyclic redundancy check (CRC), or checksum value.

tx-aborted-errors

The number of transmit aborted errors by the Wi-Fi 2.4 GHz interface.

rx-frame-errors

The number of receive frame errors by the Wi-Fi 2.4 GHz interface.

tx-carrier-errors

The number of transmit carrier errors by the Wi-Fi 2.4 GHz interface.

rx-length-errors

The number of receive length errors by the Wi-Fi 2.4 GHz interface.

tx-heartbeat-errors

The number of transmit heartbeat errors by the Wi-Fi 2.4 GHz interface.

rx-missed-errors

The number of receive missed errors by the Wi-Fi 2.4 GHz interface.

tx-window-errors

The number of transmit window errors by the Wi-Fi 2.4 GHz interface.

rx-over-errors

The number of receive over errors by 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 TransPort LR54, TransPort LR54W, TransPort LR54D, TransPort LR54DWC1, Transport LR11, Transport LR21, Transport LR31 and Last Platform products.

Parameters

interface

The name of the Wi-Fi 5 GHz interface.

description

A descriptive name for the Wi-Fi 5 GHz interface.

admin-status

Whether the Wi-Fi 5 GHz interface is sufficiently configured to be brought up.

oper-status

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

channel

The radio channel on which the Wi-Fi 5 GHz interface is operating.

ssid

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

security

Security for the Wi-Fi 5 GHz interface.

rx-bytes

The number of bytes received by the Wi-Fi 5 GHz interface.

tx-bytes

The number of bytes transmitted by the Wi-Fi 5 GHz interface.

rx-packets

The number of packets transmitted by the Wi-Fi 5 GHz interface.

tx-packets

The number of packets transmitted by the Wi-Fi 5 GHz interface.

rx-multicasts

The number of receive multicasts by the Wi-Fi 5 GHz interface.

tx-collisions

The number of transmit collisions by the Wi-Fi 5 GHz interface.

rx-errors

The number of receive errors by the Wi-Fi 5 GHz interface.

tx-errors

The number of transmit errors by the Wi-Fi 5 GHz interface.

rx-dropped

The number of receive packets dropped by the Wi-Fi 5 GHz interface.

tx-dropped

The number of transmit packets dropped by the Wi-Fi 5 GHz interface.

rx-fifo-errors

The number of receive FIFO errors by the Wi-Fi 5 GHz interface.

tx-fifo-errors

The number of transmit FIFO errors by the Wi-Fi 5 GHz interface.

rx-crc-errors

The number of received packets by the Wi-Fi 5 GHz interface that do not contain the proper cyclic redundancy check (CRC), or checksum value.

tx-aborted-errors

The number of transmit aborted errors by the Wi-Fi 5 GHz interface.

rx-frame-errors

The number of receive frame errors by the Wi-Fi 5 GHz interface.

tx-carrier-errors

The number of transmit carrier errors by the Wi-Fi 5 GHz interface.

rx-length-errors

The number of receive length errors by the Wi-Fi 5 GHz interface.

tx-heartbeat-errors

The number of transmit heartbeat errors by the Wi-Fi 5 GHz interface.

rx-missed-errors

The number of receive missed errors by the Wi-Fi 5 GHz interface.

tx-window-errors

The number of transmit window errors by the Wi-Fi 5 GHz interface.

rx-over-errors

The number of receive over errors by 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 on.

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 1440.

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 prompt value. For example, a '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.

wizard

Enables or disables the Getting Started Wizard. To skip the wizard, disable this option.

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

ipsec-debug

Enables or disables display of IPsec debugging messages. These messages help diagnose issues with IPsec configuration and interoperability.

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

log-to-file

Enables or disables logging TLR events to a file. If disabled, the log is created in RAM, and is lost when the device is rebooted. If enabled, the log is created to flash and is saved on reboot. Saving event logs to files and keeping them resident for some time is not recommended for normal operations, as this practice can lead to additional wear to the device's flash memory.

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

log-system-to-file

If enabled, log system/kernel events to system.log (on flash, will be saved on reboot). This is not recommended for normal operations, as this practice can lead to additional wear to the device's flash memory.

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

timezone

Sets the system timezone. When the date and time is set using SNTP, the system time is set to Universal Coordinated Time (UTC) and not to your local time. In addition, the date and time, whether it is set manually or using SNTP, does not automatically change to reflect Daylight Saving Time (DST). By setting the time zone, the device displays the local time for that time zone and automatically adjusts for daylight saving time.

Accepted values can be one of none, canada-atlantic, canada-central, canada-eastern, canada-mountain, canada-newfoundland, canada-pacific, europe-central, europe-eastern, europe-western, uk-ireland, us-alaska, us-arizona, us-central, us-eastern, us-hawaii, us-indiana, us-mountain or us-pacific. The default value is none.

traceroute

Traces the network route to a remote IP host.

Syntax

```
traceroute [src-ip <ip-address>] [interface <interface>] [hops <n>] [timeout
<secs>] [size <bytes>] host
```

Parameters

src-ip

Use this source IP address for outgoing packets.

interface

The interface from which traceroute messages are sent.

hops

The maximum number of hops to allow.

timeout

The maximum number of seconds to wait for a response from a hop.

size

The size, in bytes, of the message to send.

host

The IP address of the destination host.

Examples

- `traceroute 8.8.8.8`

  Finds the network route to IP address 8.8.8.8

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 system firmware, the cellular module firmware, and the DSL modem firmware to load onto the device.

Syntax

```
update firmware <firmware-file>
update modem <firmware-images-path | carrier-name>
update dsl <dsl-file>
update config <configuration-file>
update carrier <carrier-name>
```

Parameters

firmware

Updates the device system firmware.

modem

Updates the cellular modem firmware.

dsl

Updates the DSL modem firmware.

config

Sets the configuration filename.

carrier

Update the cellular module for a carrier. Current allowed carrier values are att, verizon, and generic.

Examples

- `update config config.da1`

  Set the configuration file to 'config.da1.'

- `update firmware filename`

  Initiate the device system firmware update process.

- `update modem`

  Initiate the cellular modem firmware update process. This process retrieves image files from Digi International site and downloads the images to the modem.

- `update modem ./modem_fw`

  Initiate the cellular modem firmware update process. This process uploads firmware files from the directory ./modem_fw to the cellular modem.

- `update modem verizon`

  Initiate the cellular modem firmware update process. This process retrieves firmware files from the Digi repository of cellular modem firmware files and uploads the images to the modem.

- `update dsl filename`

  Initiates the DSL modem firmware update process.

- `update carrier att`

  Initiates the cellular module to use ATT.

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 a Wide Area Network (WAN). The physical communications interface for the WAN 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 physical interface to use for the WAN.

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. 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, to wait for the physical interface to connect and to receive a probe response before failing over to a lower priority 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 to the IP address of this device.

Value should be a fully qualified domain name.

probe-timeout

Timeout, in seconds, to wait for a response to a probe. The value for this parameter must be smaller than the probe-interval and timeout parameter values or the configuration is considered invalid, and an error message is written to the system log.

Accepted value is any integer from 1 to 60. The default value is 5.

probe-interval

Interval, in seconds, between sending probe packets. The value for probe-interval must be larger than the probe-timeout value. If not, the WAN failover configuration is considered invalid, and an error message is written to the system log.

Accepted value is any integer from 2 to 3600. The default value is 60.

probe-size

Size of probe packets sent to detect WAN 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.

retry-after

The time, in seconds, to wait before retrying this interface after failing over to a lower priority one. Use a large retry timeout when both interfaces are cellular interfaces.

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

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.

ip-address

The IPv4 address to be statically assigned to this WAN if DHCP is disabled.

Value should be an IPv4 address.

mask

The IPv4 mask to be statically assigned to this WAN if DHCP is disabled.

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

gateway

The gateway to use for the default route.

Value should be an IPv4 address.

dns1

The IPv4 address of the primary DNS server. This value overrides the value assigned by DHCP.

Value should be an IPv4 address.

dns2

The IPv4 address of the secondary DNS server used if the device cannot communicate with the primary server.

Value should be an IPv4 address.

wifi

Configures a Wi-Fi 2.4 GHz interface.

This group is only supported in TransPort LR54, TransPort LR54W, TransPort LR54D, TransPort LR54DWC1, Transport LR11, Transport LR21, Transport LR31 and Last Platform 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, wpa-wpa2-personal, wpa2-enterprise or wpa-wpa2-enterprise. The default value is wpa2-personal.

password

Password for the Wi-Fi 2.4 GHz interface. The password must be 8-63 ASCII or 64 hexadecimal characters

This element is available to all users.

Accepted value is any string between 8 and 64 characters.

broadcast-ssid

Enables or disables broadcasting the SSID in beacon packets. Disabling the SSID prevents clients from easily detecting the presence of this access point.

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

isolate-clients

Enables or disables Wi-Fi client isolation, which prevents clients connected to the Wi-Fi access point from communicating with each other.

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

isolate-ap

Enables or disables clients on a Wi-Fi access point from communicating with clients on other Access Points.

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

radius-server

The IP address for the RADIUS server for WPA/WPA2-Enterprise.

Value should be an IPv4 address.

radius-server-port

The port for the RADIUS server.

Accepted value is any integer from 1 to 65535. The default value is 1812.

radius-password

The password for the RADIUS server.

This element is available to all users.

Accepted value is any string between 1 and 64 characters.

pmf

Enables or disables Protected Management Frames for the Wi-Fi 2.4 GHz interface. Enabling this feature is currently not recommended, as it will prevent most clients from being able to connect to the Wi-Fi access point.

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

wifi5g

Configures a Wi-Fi 5 GHz interface.

This group is only supported in TransPort LR54, TransPort LR54W, TransPort LR54D, TransPort LR54DWC1, Transport LR11, Transport LR21, Transport LR31 and Last Platform 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 '.'

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, wpa-wpa2-personal, wpa2-enterprise or wpa-wpa2-enterprise. The default value is wpa2-personal.

password

Password for the Wi-Fi 5 GHz interface. The password must be 8-63 ASCII or 64 hexadecimal characters

This element is available to all users.

Accepted value is any string between 8 and 64 characters.

broadcast-ssid

Enables or disables broadcasting the SSID in beacon packets. Disabling the SSID prevents clients from easily detecting the presence of this access point.

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

isolate-clients

Enables or disables Wi-Fi client isolation, which prevents clients connected to the Wi-Fi access point from communicating with each other.

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

isolate-ap

Enables or disables clients on a Wi-Fi access point from communicating with clients on other Access Points.

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

radius-server

The RADIUS server for WPA/WPA2-Enterprise.

Value should be an IPv4 address.

radius-server-port

The port for the RADIUS server.

Accepted value is any integer from 1 to 65535. The default value is 1812.

radius-password

The password for the RADIUS server.

This element is available to all users.

Accepted value is any string between 1 and 64 characters.

pmf

Enables or disables Protected Management Frames for the Wi-Fi 5 GHz interface. Enabling this feature is currently not recommended, as it will prevent most clients from being able to connect to the Wi-Fi access point.

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

wifi-global

Configures global settings for Wi-Fi interfaces.

This group is only supported in TransPort LR54, TransPort LR54W, TransPort LR54D, TransPort LR54DWC1, Transport LR11, Transport LR21, Transport LR31 and Last Platform products.

Syntax

```
wifi-global <parameter> <value>
```

Parameters

wifi-channel

The channel to use for Wi-Fi 2.4 GHz interfaces.

Accepted values can be one of auto, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 or 11. The default value is auto.

wifi5g-channel

The channel to use for Wi-Fi 5 GHz interfaces.

Accepted values can be one of auto, 36, 40, 44, 48, 52, 56, 60, 64, 100, 104, 108, 112, 116, 132, 136 or 140. The default value is 36.