



Digi WR64

Hardware Reference

Revision history—90002276

Revision	Date	Description
A	July 2018	Initial release.
B	December 2018	Added Quick Start content.

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Warranty

To view product warranty information, go to the following website:

www.digi.com/howtobuy/terms

Customer support

Gather support information: Before contacting Digi technical support for help, gather the following information:

- ✓ Product name and model
- ✓ Product serial number (s)
- ✓ Firmware version
- ✓ Operating system/browser (if applicable)
- ✓ Logs (from time of reported issue)
- ✓ Trace (if possible)
- ✓ Description of issue
- ✓ Steps to reproduce

Contact Digi technical support: Digi offers multiple technical support plans and service packages. Contact us at +1 952.912.3444 or visit us at www.digi.com/support.

Feedback

To provide feedback on this document, email your comments to

techcomm@digi.com

Include the document title and part number (Digi WR64 Hardware Reference, 90002276 B) in the subject line of your email.

Contents

Quick start

Step 1: What's in the box	6
Step 2: Gather accessories	6
Step 3: Connect	7
Step 4: Power up	7
Step 5: Configure	8
Next steps	8
Quick start using the Digi Remote Manager mobile app	8

Digi WR64 hardware

Digi WR64 key features	9
Digi WR64 hardware specifications	9
Digi WR64 front and back views	9
Digi WR64 electrical rating	10
Digi WR64 power connector	10
Mount the Digi WR64 on a wall	11
Install SIM cards	11
Digi WR64 serial connector pinout	12
Digi WR64 LEDs	13
Power	13
GNSS Service	13
Wi-Fi1 Service	13
Wi-Fi2 Service	13
WWAN1/WWAN2 Signal	13
WWAN1/WWAN2 Service	13
Ethernet 1-4 Link and Activity (on rear panel)	14
Power sensor and button behavior	14
Tips for improving cellular signal strength	14
Reset the device to factory defaults	14

Digi WR64 regulatory and safety statements

RF exposure statement	16
Federal Communication (FCC) Part 15 Class B	16
Radio Frequency Interference (RFI) (FCC 15.105)	16
European Community - CE Mark Declaration of Conformity (DoC)	16
CE mark (Europe)	17
Maximum transmit power for radio frequencies	18
Innovation, Science, and Economic Development Canada (IC) certifications	18

RoHS compliance statement	19
Safety statements	19

Certifications

International EMC (Electromagnetic Compatibility) and safety standards	20
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Quick start

Congratulations on your Digi WR64 purchase. The following steps guide you through the setup.

Step 1: What's in the box

When you open the WR64 package, look for the following:

- **Welcome Card**
- **Digi WR64 device**
- **Digi WR64 label**

Step 2: Gather accessories

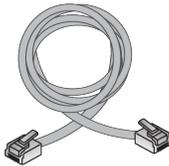
Digi offers several **WR64 accessory kits** so you can purchase exactly what you need to support your WR64. See [WR64 support](#) for a list of accessory kits.

Here's the list of accessories used in this *Quick start*:



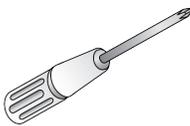
Antennas

Use antennas provided by a Digi accessory kit or use alternate antennas that comply with the WR64 antenna requirements.



Ethernet cable(s)

- If you intend to configure Ethernet at this time, use an Ethernet cable to connect the WR64 **WAN/ETH1** port to a WAN.
- Use an Ethernet cable to connect the WR64 **ETH2** port to a laptop or PC to access the local web interface via a browser.



Phillips-head screwdriver

Use a #1 Phillips-head screwdriver to remove and replace the SIM gasket cover when installing SIM cards.



Power supply

Use a power supply provided by a Digi accessory kit or use an alternate power supply that complies with the power supply requirements.



Laptop or personal computer

Use an Ethernet cable to connect your WR64 to a laptop or PC.



SIM card(s)

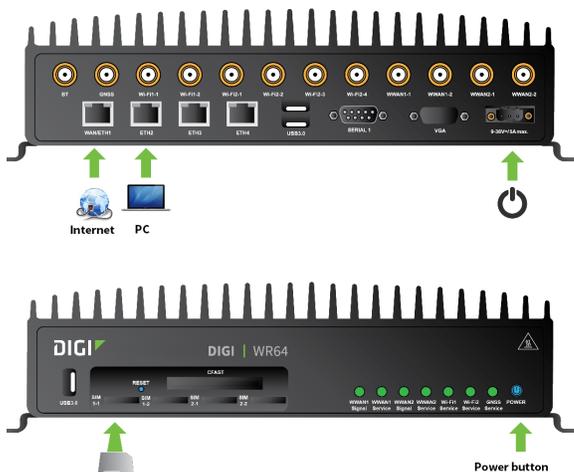
If you intend to configure cellular at this time, acquire SIM cards as needed. Note the carrier, network APN (Access Point Name), and SIM pin (if any) for each card.



Smart phone or tablet

Optional: Use a smart phone or table to to automatically register your WR64 in your Digi Remote Manager account and connect to your cellular network. See [Quick start using the Digi Remote Manager mobile app](#).

Step 3: Connect



SIM cards (not included). Required to configure cellular.

- a. If you intend to configure cellular at this time, [Install SIM cards](#).
- b. Attach antenna(s).
- c. If you intend to configure Ethernet at this time, use an Ethernet cable to connect the WR64 **WAN/ETH1** port to a hub with access to the Internet.
- d. Use an Ethernet cable to connect the WR64 **ETH2** port to your PC.

Step 4: Power up

- a. Connect DC power.

Note If you need help understanding power requirements, see [Digi WR64 power connector](#).

- b. Indicator LEDs blink to show status during startup.
- c. Wait for the power LED to stop blinking. The device is ready.

Step 5: Configure

- d. On the PC connected to the WR64, open a browser and go to **192.168.1.1**.
- e. Log into the WR64:

User name: Use the default user name: **admin**

Password: Use the unique password printed on the bottom label of the device (or the printed label included in the package)

The WR64 **Getting Started Wizard** appears.

Next steps

After completing the **Getting Started Wizard**:

- ✓ To manage and configure your WR64 locally using the local web interface, see [Digi WR Routers User Guide](#).
- ✓ To manage and configure your WR64 remotely using Digi Remote Manager, see [Digi Remote Manager User Guide](#).

Quick start using the Digi Remote Manager mobile app

After connecting your hardware and powering up, you can use the Digi Remote Manager mobile app to quickly register your WR64 into your Digi Remote Manager account.

Here's how:

If you already have a Digi Remote Manager account:

- a. Download the **Digi Remote Manager** mobile app from the [App Store](#) (iPhone) or [Google Play](#) (Android).
- b. Click **Log in or Sign Up** and log in to your account.
- c. From the menu, select **Install a device with a QR or bar code** and scan the installation QR code on the label.
- d. Follow the prompts to complete your WR64 registration.

If you need to sign up for a Digi Remote Manager account:

- a. Click [here](#) to create a new account. You'll receive an email with login instructions.
- b. On your smartphone or tablet, download the **Digi Remote Manager** mobile app from the [App Store](#) (iPhone) or [Google Play](#) (Android).
- c. Open the **Digi Remote Manager** mobile app, click **Log in** and log into your new account.
- d. From the menu, select **Install a device with a QR or bar code** and scan the installation QR code on the label.
- e. Follow the prompts to complete your WR64 registration.

Digi WR64 hardware

Digi WR64 key features

The Digi WR64 is an LTE-Advanced (LTE-A) router. Key features include:

- Wired Gigabit Ethernet (4-port) for onboard systems
- Segmented private versus public data communication across dual 600 Mbps CAT 11 cellular
- Video offload over 1.7 Gbps 802.11ac Wi-Fi backhaul
- Passenger Wi-Fi over 867 Mbps 802.11ac access point
- Superior network performance management through Digi Remote Manager (DRM)
- Global deployment support

Digi WR64 hardware specifications

For a detailed list of Digi WR64 hardware specifications, see [Digi WR64 specifications](#).

Digi WR64 front and back views

The following figures show front and back views of the Digi WR64.





Digi WR64 electrical rating

The Digi WR64 devices require connection to a conditioned power system that meets these requirements:

- Tolerance within maximum operating voltage range 9 VDC to 36 VDC.
- [Digi WR64 power connector](#) on the front of the device requires wiring terminals with the following specifications:
 - Wire size: 30-12 AWG
 - Wire type: copper wire only
 - Terminal blocks torque: 5-7 pounds per inch
 - For supply connections, use wires suitable for at least 85° C.
- Power installation must be performed by a qualified electrician, following the National Electrical Code, ANSI/NFPA 70 and Canadian Electrical Code, Part I, CSA C22.1.
- There must be a disconnect device in front of WR64 devices to protect maintenance workers. Use a 20 A circuit-breaker as the disconnect device.
- Before doing any maintenance, the maintenance worker must use caution and close the general power supply.

Digi WR64 power connector

The WR64 has a power connector located on the back of the device:



Pin	Connection
1	Ignition sensor
2	Positive
3	Negative

See [Digi WR64 electrical rating](#) for information on connecting power to the device.

Mount the Digi WR64 on a wall

1. Align the WR64 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.

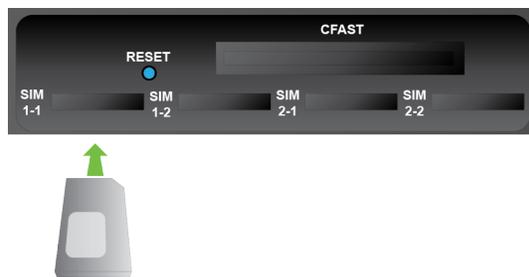
Install SIM cards

To install SIM cards:

1. On the WR64 front panel, use a screwdriver to remove the SIM slot cover.
2. For high-vibration environments, apply a thin layer of dielectric grease to the SIM contacts.

Note If the WR64 device is used in an environment with high vibration levels, SIM card contact fretting may cause unexpected SIM card failures. To protect the SIM cards, Digi strongly recommends that you apply a thin layer of dielectric grease to the SIM contacts prior to installing the SIM cards.

3. Insert the SIM card(s) into the SIM sockets. Insert the end of each SIM card with the chamfered corner first and the SIM contacts facing upwards:



4. After all SIM cards are in place, replace the SIM slot cover.

Digi WR64 serial connector pinout

The WR64 is a DTE device. The pinout for the DB9 serial connector is as follows:

Signal name	RS232 signal	DTE 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	9

Digi WR64 LEDs

The WR64 LEDs are located 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.



Power

- **Off:** No power.
- **Blinking Blue:** Unit is powering on.
- **Blue:** Unit has power.

GNSS Service

- **Solid Green:** GNSS is enabled and has a valid fix.
- **Blinking Green:** GNSS is enabled but does not have a valid fix.
- **Off:** GNSS is not enabled.

Wi-Fi1 Service

- **Solid Green:** Any of the Wi-Fi Access Points 1 to 4 or Wi-Fi Client 1 interfaces are enabled.
- **Off:** None of the Wi-Fi Access Points 1 to 4 or Wi-Fi Client 1 interfaces are enabled.

Wi-Fi2 Service

- **Solid Green:** Any of the Wi-Fi Access Points 5 to 8 or Wi-Fi Client 2 are enabled.
- **Off:** None of the Wi-Fi Access Points 5 to 8 or Wi-Fi Client 2 are enabled.

WWAN1/WWAN2 Signal

Indicates strength of cellular signal.

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

WWAN1/WWAN2 Service

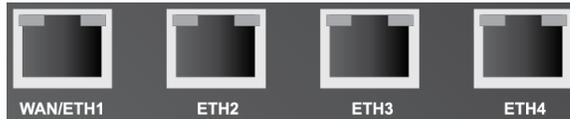
Indicates the presence and level of cellular service running on the device.

- **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.

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

The LEDs on the **WAN/ETH1**, **ETH2**, **ETH3**, and **ETH4** ports indicate that the Ethernet network interface is up and there is activity on the network interface.



Left LED (on top of port connector)

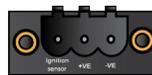
- **Off:** No Ethernet link detected.
- **Blinking amber:** Indicates Ethernet traffic.

Right LED (on top of port connector)

- **Off:** No Ethernet link detected.
- **Solid green:** 10/100 Mbps link detected.
- **Solid amber:** 1000 Mbps link detected.

Power sensor and button behavior

The WR64 has an ignition sensor that can automatically power on the device when the ignition line is on.



You can also power on the WR64 using the **Power** button. If the WR64 does not automatically restart when the power ignition sense is on, press the **Power** button to restore power.

Tips for improving cellular signal strength

If the signal strength LEDs or the signal quality for your device indicate **Poor** or **No service**, try the following things to improve signal strength:

- Move the device to another location.
- Try connecting a different set of antennas, if available.
- Purchase a Digi Antenna Extender Kit:
 - [Antenna Extender Kit, 1m](#)
 - [Antenna Extender Kit, 3m](#)

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. For the **Digi WR64**, the **Reset** button is located on top of the SIM card slots on the front panel. Remove the SIM cover to access the **Reset** button.



2. Press and hold the **Reset** button for **15** seconds. The device reboots automatically. The device resets to factory defaults. Follow the instructions in the [Quick start](#) to reconfigure the device.

Digi WR64 regulatory and safety statements

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**.

Federal Communication (FCC) Part 15 Class B

Radio Frequency Interference (RFI) (FCC 15.105)

The WR64 has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, 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 correct the interference by one or more of the following measures:

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

Labeling Requirements (FCC 15.19)

The WR64 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)

Digi has issued Declarations of Conformity for the Digi WR64 concerning emissions, EMC, and safety. For more information, see www.digi.com/resources/certifications.

Important note

Digi customers assume full responsibility for learning and meeting the required guidelines for each country in their distribution market. Refer to the radio regulatory agency in the desired countries of operation for more information.

CE mark (Europe)

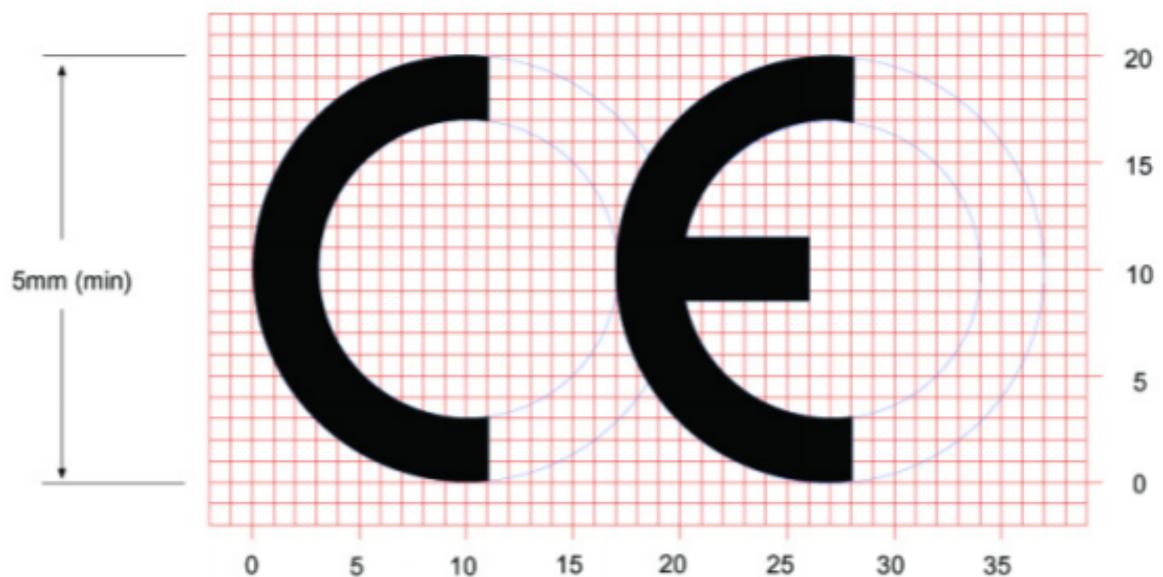
The Digi WR64 is certified for use in several European countries. For information, visit www.digi.com/resources/certifications.

If the Digi WR64 is incorporated into a product, the manufacturer must ensure compliance of the final product with articles 3.1a and 3.1b of the RE Directive (Radio Equipment Directive). A Declaration of Conformity must be issued for each of these standards and kept on file as described in the RE Directive (Radio Equipment Directive). Furthermore, the manufacturer must maintain a copy of the (product name) user manual documentation and ensure the final product does not exceed the specified power ratings, antenna specifications, and/or installation requirements as specified in the user manual.

OEM labeling requirements

The 'CE' marking must be affixed to a visible location on the OEM product.

CE labeling requirements



The CE mark shall consist of the initials “CE” taking the following form:

- If the CE marking is reduced or enlarged, the proportions given in the above graduated drawing must be respected.
- The CE marking must have a height of at least 5mm except where this is not possible on account of the nature of the apparatus.
- The CE marking must be affixed visibly, legibly, and indelibly.

Maximum transmit power for radio frequencies

The following tables show the maximum transmit power for frequency bands.

Cellular frequency bands

Frequency bands	Maximum transmit power
Cellular LTE 700 MHz Cellular LTE 800 MHz Cellular LTE 850 MHz Cellular LTE 900 MHz Cellular LTE 1700 MHz Cellular LTE 1800 MHz Cellular LTE 1900 MHz Cellular LTE 2100 MHz	200 mW
Cellular LTE 2600 MHz Cellular LTE 2300 MHz Cellular LTE 2500 MHz	158.49 mW

Wi-Fi frequency bands

Frequency bands	Maximum transmit power
The WR64 device supports 11 overlapping channels (channels 1-11) at 22 MHz or 40 MHz wide spaced at 5 MHz. Centered at 2.412 MHz to 2.462 MHz.	79 mW
The WR64 device supports 4 overlapping channels (channels 36, 40, 44, and 48) at 22 MHz or 40 MHz or 80 MHz wide spaced at 5 MHz. Centered at 5180 MHz to 5240 MHz	63 mW

Innovation, Science, and Economic Development 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 présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère 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



WARNING! RISK OF EXPLOSION IF BATTERY IS REPLACED BY INCORRECT BATTERY TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.



ATTENTION! IL Y A RISQUE D'EXPLOSION SI LA BATTERIE EST REMPLACÉE PAR UNE BATTERIE DE TYPE INCORRECT. METTRE AU REBUT LES BATTERIES USAGÉES CONFORMÉMENT AUX INSTRUCTIONS



WARNING! For ambient temperatures above 60° C, this equipment must be installed in a Restricted Access Location only.



AVERTISSEMENT! Cet équipement est destiné à être installé dans un lieu d'accès restreint uniquement.



WARNING! Hot parts!
To avoid burns when handling device parts, wait at least one half hour after switching off the device before handling parts.



AVERTISSEMENT! Pièces chaudes!
Doigts brûlés lors de la manipulation des pièces. Attendez une demi-heure après la mise hors tension avant de manipuler les pièces

Certifications

International EMC (Electromagnetic Compatibility) and safety standards

This product complies with the requirements of the 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	<ul style="list-style-type: none">■ EN 300 328 v1.8.1■ EN 301 893 v1.7.2■ EN 301 489■ FCC Part 15 Subpart B Class B
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 WR64 datasheet, available on the Digi WR64 Specifications page .