



Digi Utility Communication Hub for TransPort® WR21

Installation Guide

Revision history—90001372-88

Revision	Date	Description
A	September, 2013	Initial release.
B	March, 2017	Applied new branding and corrected barcode.

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About the Digi Utility Communication Hub for the TransPort® WR21

Introduction

The Digi Utility Communication Hub for the TransPort® WR21 offers utility and energy management service providers a customizable remote command center for managing the TransPort router. The Digi TransPort WR21 is a 3G/4G LTE enterprise router with two Ethernet ports, a software-selectable RS-485 connection, and advanced routing and security features such as VRRP, IPv6, and 256-bit AES. For documentation supporting the Digi TransPort WR21, see the *Digi TransPort User Guide* on www.digi.com.

Safety notices

1. Please read all instructions before installing and powering the unit. You should keep these instructions in a safe place for future reference. When installing and using this electrical equipment, always follow basic precautions.
2. If the power supply shows signs of damage or malfunction, stop using it immediately, turn off the power and disconnect the power supply before contacting your supplier for a repair or replacement.
3. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. Use only the accessories, attachments, and power supplies provided by the manufacturer – connecting non-approved antennas or power supplies may damage the unit, cause interference or create an electric shock hazard, and will void the warranty.
4. Do not attempt to repair the product. The unit contains no electronic components that can be serviced or replaced by the user. Any attempt to service or repair the unit by the user will void the product warranty.
5. Products in the TransPort WR family are designed for indoor use and should be used in an environment suitable for computers and other electronic equipment.
6. Ports that are capable of connecting to other apparatus are defined as SELV ports. To ensure conformity with IEC60950 make sure that these ports are only connected to ports of the same type on other apparatus.

Note A licensed electrician may be required to install or perform maintenance on this equipment. Always follow applicable local, state and federal codes and guidelines.



WARNING! RISK OF ELECTRIC SHOCK: Always disconnect the mains AC voltage prior to any work on this equipment.



WARNING! An appropriate external disconnect device must be installed and properly marked to ensure that an electrical hazard is not present.



WARNING! Bonding between conduit and Protected Earth (PE) is required and must be part of the installation.



WARNING! Conduit hub.



WARNING! Mounting the device vertically will ensure proper orientation. Cover screws are required as part of the safety rating.

Special notes on safety for wireless routers

Digi International products are designed to the highest standards of safety and international standards compliance for the markets in which they are sold. However, cellular-based products contain radio devices which require specific consideration. Please take the time to read and understand the following guidance. Digi International assumes no liability for a user's failure to comply with these precautions.



Wireless routers incorporate a wireless radio module. Users should ensure that the antenna(s) is (are) positioned at least 1 meter away from themselves and other persons in normal operation.

When in a hospital or other health care facility, observe the restrictions on the use of mobile phones. Do not use the unit in areas where guidelines posted in sensitive areas instruct users to switch off mobile phones. Medical equipment may be sensitive to RF energy.

The operation of cardiac pacemakers, other implanted medical equipment and hearing aids can be affected by interference from cellular terminals such as the wireless routers when placed close to the device. If in doubt about potential danger, contact the physician or the manufacturer of the device to verify that the equipment is properly shielded. Pacemaker patients are advised to keep the wireless router away from the pacemaker while it is on.



Wireless routers must NOT be operated on aircraft. The operation of wireless appliances in an aircraft is forbidden to prevent interference with communications systems. Failure to observe these instructions may lead to the suspension or denial of cellular services to the offender, legal action, or both.



As with any electrical equipment, do not operate the unit in the presence of flammable gases, fumes or potentially explosive atmospheres. Radio devices should not be used anywhere that blasting operations are taking place.



Wireless routers receive and transmit radio frequency energy when power is on. Interference can occur if used close to TV sets, radios, computers or inadequately shielded equipment. Follow any special regulations and always power off your unit wherever forbidden or when it may cause interference or danger.



SOS IMPORTANT! - Wireless routers operate using radio signals and cellular networks cannot be guaranteed to connect in all possible conditions. Therefore, never rely solely upon any wireless device for life critical communications.

Product Disposal Instructions

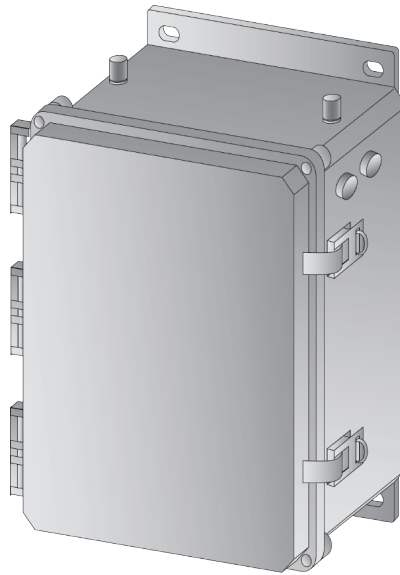


The WEEE (Waste Electrical and Electronic Equipment: 2002/96/EC) directive has been introduced to ensure that electrical/ electronic products are recycled using the best available recovery techniques to minimize the impact on the environment.

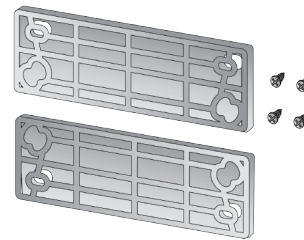
This product contains high quality materials and components which can be recycled. At the end of its life this product **MUST NOT** be mixed with other commercial waste for disposal. Check with the terms and conditions of your supplier for disposal information.

Digi International Ltd WEEE Registration number: WEE/HF1515VU suitable for computers and other electronic equipment.

Package contents



Assembly



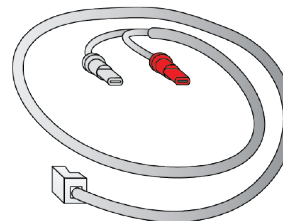
Mounting kit



Cellular
antenna x 2



Battery



Battery cable

If any item is missing or damaged, please contact your supplier.

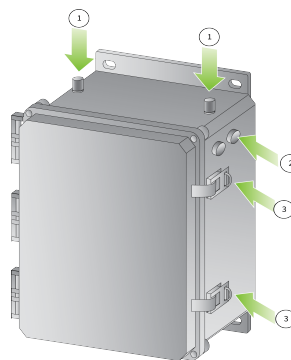
Depending on model and configuration, the package may also contain additional cables or antennas, as appropriate.

Product features

Exterior features

Front view

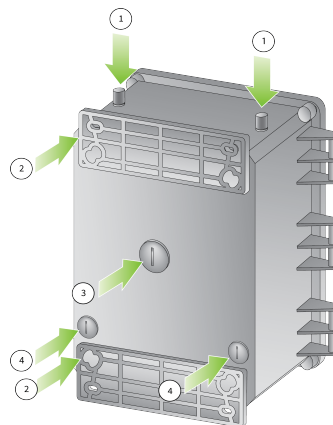
1. Cellular antenna TNC connectors
2. Vent plugs
3. Locking hasps



Back view

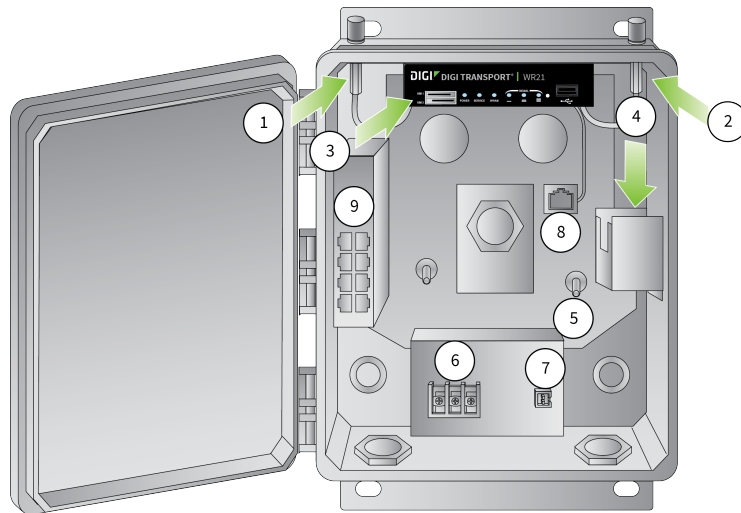
1. Cellular antenna TNC connectors
2. Mounting brackets
3. 1" conduit hole
4. 1/2" conduit holes

Note Some of the conduit holes shown below may not be accessible.



Interior features

- | | |
|-------------------------------------|---|
| 1. Primary cellular antenna cable | 5. Protected bonding ground |
| 2. Secondary cellular antenna cable | 6. AC wiring terminal block/protected earth ground (PE) |
| 3. SIM slot | 7. Battery terminal |
| 4. Battery mounting bracket | 8. Ethernet connectors (LAN0 and LAN1) |
| | 9. Ethernet switch |



Mounting the Utility Communication Hub

The mounting kit provided with your device includes:

- Mounting flanges (2)
 - 1/4" Phillips flathead screws (4)
1. Fasten the mounting brackets to the top and bottom of the rear side of the enclosure with the 1/4"-20 x .25" SS Phillips screws provided. The torque limit is -20 inches per pound.
 2. Select the location to mount the device.

Note The Utility Communication Hub should be mounted to a rigid vertical surface with the knockout holes facing down and the dual cellular antennas facing up. There are two mounting flanges on the base of the unit. Dimensions are approximately 10" x 12" x 6".

3. Remove the seal plugs on either the bottom or rear surface of the device. There are three 1/2" NPT holes and three 1" NPT holes.

Note Conduits or fittings are not provided. It is the responsibility of the installer to determine which hardware to use.

Note Bonding between conduit is not automatic and must be provided as part of the installation.

4. Secure the device to the vertical surface with mounting hardware (not provided). The cover is secured by four corner screws. Note the torque limit of -5 inches per pound.
 - Operating temperature: -15° C to +55° C (+5° F to +131° F)
 - Storage temperature: -20° C to +60° C (-4° F to +140° F)
 - Altitude maximum: 2000 meters (6561 feet)

Install the cable

The DB9 connector in the Utility Communication Hub is pre-wired straight through to the RS-232/485 connection.

Note If you require an RS-232/485 connection you must provide your own cable.

RS-232

Pin #	Direction	RS-232 DCE	Description
1	Out	DCD	Data carrier detect
2	Out	RXD	Receive data
3	In	TXD	Transmit data
4	In	DTR	Data terminal ready
5	N/A	GND	Ground
6	Out	DSF	Data set ready
7	In	RTS	Ready to send
8	Out	CTS	Clear to send
9	Out	RI	Ring indicate

RS-422/RS-485

Pin #	Direction	RS-232 DCE	Description
1	Out	CTS_B	Clear to send B
2	Out	RD_A	Receive data A
3	In	TD_A	Transmit data A
4	In	RTS_B	Ready to send B
5	N/A	GND	Ground
6	Out	RD_B	Receive data B
7	In	RTS_A	Ready to send A
8	Out	CTS_A	Clear to send A
9	In	TD_B	Transmit data B

Note For true RS-485 mode (2-wire half-duplex mode), the TD_A and RD_A pair and TD_B and RD_B pair must be connected together. The CTS and RTS signals are optional and not normally needed for RS485.

Connect the hardware

Install SIM card(s)

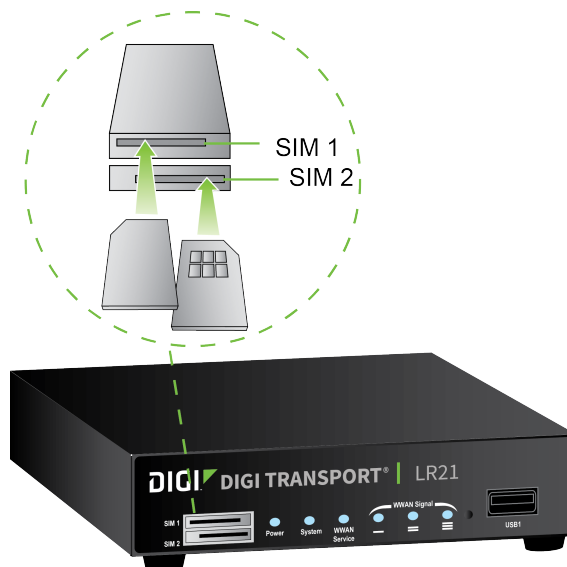
When installing the SIM card(s), insert the primary SIM card in the upper SIM slot (SIM 1), with the contacts face down.

If you are installing a second SIM card, insert the card in the lower slot (SIM 2), with the contacts face up.

In both cases, insert the end of the SIM card with the chamfered corner first.

The Utility Communication Hub also allows for dual network installations where one wireless service can be used as a back-up in the event that the primary service fails. These installations cannot be used to access two networks simultaneously. By default, SIM 1 is used for access to the primary network and SIM 2 is used for the back-up network.

Note See [Interior features](#) for SIM slot location.



Connect the antennas

Connect one cellular antenna to each of the cellular antenna TNC connectors. It is highly recommended to utilize an additional antenna for diversification. Dual antennas will provide improved signal strength resulting in better performance. The cellular antenna cables come pre-installed.

Note For most applications, the antenna(s) included with the unit will provide suitable reception, but some circumstances/environments may require a higher quality antenna or one mounted in a different location. If this is the case, Digi has many antenna options to choose from. Contact your sales representative or visit www.digi.com. If you use antennas other than those supplied, ensure that the separation between the two is no less than eight inches (8").

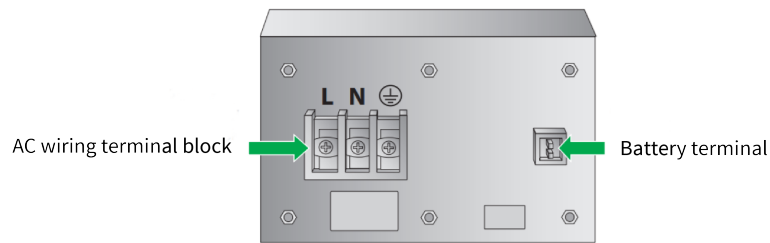


If you prefer a hard-wired network connection, you may connect an Ethernet cable to LAN0.

Connect power

It is recommended that you use an external IEC 61643-series certified surge protector with the product. The surge protector should be rated for the operating voltage of the AC mains circuit that powers the product and have a clamping voltage not exceeding 2500 V.

The device is intended to be connected to an AC power source that is separately protected by a building branch circuit rated at 20A. Consult the local, state and federal codes and guidelines. The device is rated for 105-277 VAC power, single phase. Connect power to the device using the AC wiring terminal block shown in the figure.



Auxiliary power cable

The auxiliary power cable is designed to power a DIN rail mounted datalogger, RTU, or similar industrial device. It supplies 24 VDC @ 500 mA (max) and comes with a 2 position terminal block plug with 5mm pitch.

Install the battery

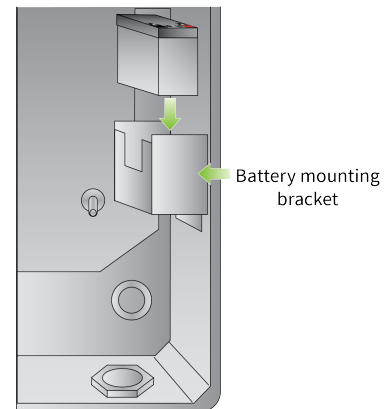


WARNING! For all installations: Use precautions to avoid risk of electrostatic charge/discharge. Always practice proper grounding techniques prior to servicing the device.

The battery is shipped in a separate cardboard box inside the container. Remove it from its packaging and mount it into the battery slot on the side of the unit using the following instructions:

1. Gently insert the battery into the battery mounting bracket as shown.

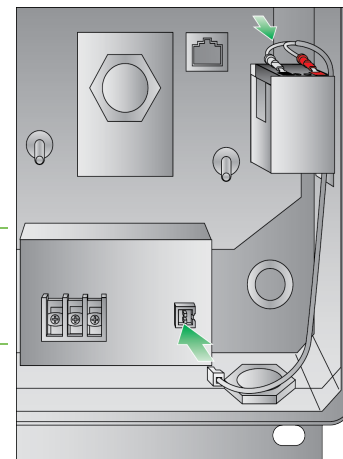
Note Ensure that the battery terminals are facing upwards.



2. Connect the red wire of the battery cable to the red (positive) lead on the battery.
3. Connect the black wire of the battery cable to the black (negative) lead on the battery.

Note The remaining end of the battery cable should not be connected to the power supply until the unit has been installed in the field.

4. Connect the remaining end of the battery cable to the battery terminal on the power supply.



Battery disposal

The Utility Communication Hub contains a lead-acid battery. This battery must be recycled after use. Please follow all applicable federal, state and regional laws dictating proper recycling methods.

Device initialization

When the unit is powered-up, the POWER indicator illuminates and the unit initiates a series of diagnostic self tests. During this process one or more of the other indicators flashes to indicate that the unit is busy. When the flashing stops, the unit has completed its self-test diagnostics and is ready to be configured.

Configuration

Once the unit is installed and powered up, you must configure it to communicate with the LAN and WAN. Use either the Command Line Interface (CLI) or the web interface. We recommend the web interface, which you can access via a web browser (Firefox, Internet Explorer, or Chrome).

Note You will not be able to use the unit for remote communication until you have subscribed to a mobile/cellular wireless network service.

Network settings

The default IP address for the LAN port is 192.168.1.1 with a subnet mask of 255.255.255.0. The unit has a DHCP server enabled by default which can assign an appropriate IP address to your PC if the PC is configured to get an IP address automatically. You can also manually configure your PC to be on the 192.168.1.x network. For example, you can use the IP address 192.168.1.2 and subnet mask of 255.255.255.0. Make sure that the unit does not conflict with other devices that may already be on the network.

Web interface

Follow these steps to log into the web interface and launch the Getting Started Wizard to configure the device. To configure the communication settings via command line interface, see [Command line interface \(CLI\)](#).

1. **Connect to the web interface:** Open a web browser (Firefox, Internet Explorer, or Chrome) on your PC and navigate to <http://192.168.1.1>. If successful, you will be prompted to enter a username and password. The default username is “username,” and the default password is “password.” After you log in, we recommended that you immediately change the default username and password.

TRANSPORT WR21 (SN: 292999) CONFIGURATION AND MANAGEMENT

[Home](#)

System

Model: TransPort WR21
 Part Number: WR21-528-DE1-XX
 Serial Number: 292999
 FW Version: 5.2.17.9 (Jan 19 2017 13:40:28)
 Image Number: 0
 Boot Version: 7.59a
 Uptime: 5 minutes 27 seconds
 System Time: 2 Mar 2017 10:04:28
 CPU Utilization: 1% (Min: 1%, Max: 100%, Avg: 1%)
 Temperature: 68°C (CPU)
 Description:
 Contact:
 Location:

[more](#)

LEDs

Power: ●
 Service: ●
 WWAN: ●
 Signal 1: ●
 Signal 2: ●
 Signal 3: ●

Device Cloud

Server: my.devicecloud.com
 Status: Disabled
 Device ID: 00000000-00000000-000420FF-FF047887
 Uptime: 0 seconds
 Data Received: 0 Bytes
 Data Sent: 0 Bytes

Interfaces

Ethernet 0: ●
 Ethernet 1: ●
 Cellular: ●

Cellular

Module: MC7354
 SIM: Detected (using SIM 1)
 Signal Strength: Good (-96 dBm)
 Signal Quality: Fair to Poor (-14 dB)
 Uptime: 2 Minutes 11 Seconds
 Temperature: 34°C
 IP address: 166.250.60.195
 DNS Server: 198.224.152.119
 Data Received: 1.74 KB
 Data Sent: 1.29 KB

[more](#)

Ethernet 0

Description:
 IP Address: 10.10.14.39 (DHCP)
 Mask: 255.255.255.0
 MAC: 00:04:2D:04:78:87
 Speed: 100
 Mode: Full Duplex
 Data Received: 1.76 MB
 Data Sent: 3.73 MB

[more](#)

If you are unable to connect to the web interface, see [Troubleshooting](#).

2. **Configure the unit:** The easiest way to perform the initial configuration of the unit is to use the Getting Started Wizard. This wizard allows you to configure the following items where applicable.
 - Username and password
 - LAN IP settings
 - DHCP server
 - Mobile module and connection
 - Wi-Fi access point

The Getting Started Wizard is located in the Getting Started section on the Home menu.



WELCOME TO THE TRANSPORT® WR21 GETTING STARTED WIZARD



The Getting Started Wizard will guide you through the first-time setup and installation of your TransPort WR21.

Please enter the default username and password to get started

Username

Password

GET STARTED

SKIP WIZARD

Command line interface (CLI)

To configure the unit serially, ensure that it is connected to a PC. You will need terminal emulation software, such as HyperTerminal.

CLI notes

- Enter the command **CONFIG C SHOW** to view the current configuration settings.
 - Enter the command **CONFIG 0 SAVE** to save changes made to the unit.
- All entered commands take effect immediately.

Communication settings

1. Configure the following settings for the unit:

COM Port: [select the appropriate port; typically COM1]

Baud Rate: 115200

Data Bits: 8

Stop Bits: 1

Parity: No Parity

Flow Control: None

2. Enter the command **AT** to ensure the connection is active. If the device is functioning properly, it will return the response OK.
3. Enter the command **AT15** to ensure the COM port is set up correctly.

Network settings

Use the following commands to configure the unit with an IP address as part of an existing network.

Note The DHCP server still operates unless it is disabled.

Command	Description
ETH 0 IPADDR XXX.XXX.XX.XXX	Sets the Eth 0 IP address
ETH 0 MASK XXX.XXX.XX.XXX	Sets the Eth 0 subnet mask

For example, enter the following commands:

ETH 0 IPADDR 192.168.10.254

ETH 0 MASK 255.255.255.0

Note When you set the mask to 255.255.255.0 value, it doesn't appear in the output of the **CONFIG C SHOW** command, as it is a default value.

Use the following command to stop the DHCP server from serving addresses:

Command	Description
DHCP 0 IPMIN X	Removes the minimum IP address that will be server via DHCP, disabling the DHCP server

For example, enter the command **DHCP 0 IPMIN !** to stop the DHCP server from receiving DHCP requests. The ! variable removes a value or sets it back to its default.

To retain the DHCP server, but on a different subnet, you must configure the following parameters:

Command	Description
DHCP 0 IPMIN x.x.x.x	Minimum IP address to assign, the start of the DHCP pool
DHCP 0 IPRANGE	The number of IP addresses in the DHCP pool
DHCP 0 GATEWAY x.x.x.x	The IP gateway address the DHCP clients should use (normally this router's LAN IP address)
DHCP 0 MASK x.x.x.x	The subnet mask DHCP clients should use
DHCP 0 DNS	The DNS server DHCP clients should use

For more information on CLI commands, the the *Digi TransPort User Guide* on www.digi.com.

Troubleshooting

Troubleshooting resources

There are several resources available on Digi's Support site, www.digi.com/support:

- Digi's Support Knowledge Base: <http://www.digi.com/support/kbase>.
- Digi TransPort support documents: www.digi.com/products/cellular-solutions/cellular-routers/digi-transport-wr21#productsupport.

When submitting a support request, please include a copy of the debug.text file from the unit's flash.

For instructions on how to download the debug.text file from the unit, see the online document *QN24 - Extracting the debug.text file from a Digi TransPort or Sarian router*.

Unable to open the web interface

Ensure that the LAN cable is properly connected to the LAN port and that the “LAN” status indicator on the front of the unit is illuminated. If it is not, there is a problem with either the LAN cable or the device it is connecting to. If the status indicator is illuminated, open the command prompt window on your PC and enter the command **ping 192.168.1.1** to ensure that the PC can communicate with the unit. If you do not get a response, the problem could be one of the following:

- The IP address of the unit has been changed from its default of 192.168.1.1.
- **PC IP configuration** - The PC's LAN interface that is connected to the unit should be configured to **Obtain an IP address automatically**. Use the Getting Started Wizard, to configure the PC, if necessary.
- Check the PC's LAN connection and any LAN device (for example, Ethernet switch) that is used to connect to the unit.
- Open a command window and enter **ipconfig /release** then **ipconfig /renew**.
- **ARP resolution** - Clear the PC's ARP cache with the command **arp -d ***, then retry the ping command. If you do get a response but are unable to view the web interface, there is probably a problem with your web browser configuration.

Unable to log in to the web interface

Use any of the asynchronous serial ports to gain access to the units. Connect your PC to the unit using a straight-through RS-232 serial cable. This allows you to change the configuration using the Command Line Interface (CLI). Please see the *Digi TransPort User Guide* for information on how to use the CLI. The User Guide is available at www.digi.com. If you have further questions about your product please contact Digi Technical Support.



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