Quick start guide

Nokia Industrial 5G fieldrouter FRRx504c

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Nokia Industrial 5G fieldrouter FRRx504c provides 5G service in a ruggedized form factor. With an operating temperature range of -40℃ ~ 70℃ endurance, they offer industrial-grade environmental qualifications while providing higher speed data services for video and other bandwidth-intensive applications.

Nokia Industrial 5G fieldrouter FRRx504c is qualified for industrial environments and ideally suited for logistics, manufacturing, and other indoor applications.

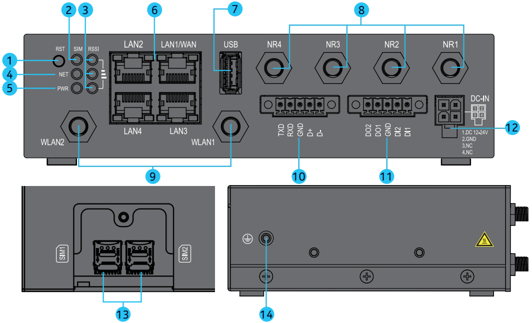
Nokia Industrial 5G fieldrouter FRRx504c supports wide range of bands. Remote device management is supported via TR-069 protocol. The router can also be managed using Local Web UI on the device itself.

This document provides a guide on set up you Nokia Industrial 5G fieldrouter FRRx504c.

To review full capabilities of the device please refer to datasheet.

For information and detailed instruction on configurations please review the user manual.

Device Architecture



① Reset button ② SIM status ③ Signal indicator

④ Network registration status ⑤ Power status ⑥ LAN port

⑦ USB interface ⑧ NR/LTE antennas ⑨ Wi-Fi antennas

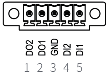
⑩ RSR232/485 port ⑪ DI/DO port ⑫ Power port

⑬ SIM interface ⑭ Ground screw hole

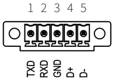
Note: To restart the router press Reset button for 1second. To reset the router to factory default press the Reset button for 10 seconds.Reset button for 10s, the router will reset to factory defaults.

Port Definition

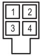
DI/DO Port Definition

	Number	Definition
 DI/DO Port	1	DO2
	2	DO1
	3	GND
	4	DI2
	5	DI1

RS232/485 Port Definition

	Number	Definition
 RS232/485 Port	1	RS232 TXD
	2	RS232 RXD
	3	GND
	4	RS485 D+
	5	RS485 D-

DC-IN Port **Definition**

	Number	Definition
 DC-IN Port	1	12-24V, ⎓
	2	GND
	3	NC
	4	NC

Temperature and Power

Operating Temperature	-40℃ ~ 70℃
Storage Temperature	-40℃ ~ 85℃
Humidity	5% ~ 95%
Power Supply	DC 12 ~ 24V
Power Consumption	＜ 24W

Packing List

Items	Accessories	Qty
1	Assembled product	1
2	Ethernet cable	1
3	Power cable	1
4	5-PIN terminal block	2
5	Mounting screw	10
6	Mounting kit	2
7	DIN rail mounting buckle	1
8	Grounding cable	1
9	Paddle antenna	6
10	AC/DC power adapter (comes in separate packing)	1
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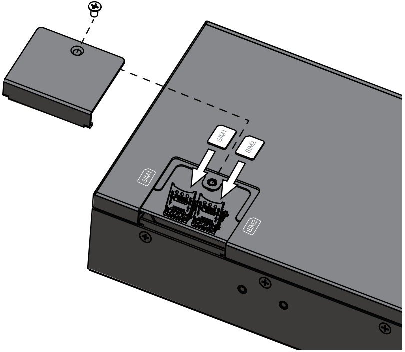
Hardware Configuration

Install SIM cards

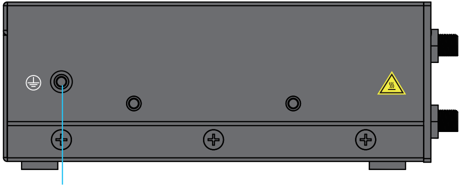
1. Use a cross screwdriver to remove the SIM card cover.
2. Slide the SIM cards into the SIM slots until they click into place. By default, the SIM card in slot 1 (the left slot) is the Primary SIM card. When the router is powered on or rebooted, it automatically connects to the network associated with the Primary SIM card.
3. Re-attach the cover.

Note: The router does not support SIM card hot-plug, please confirm that the device is powered off when the SIM card is inserted or removed.

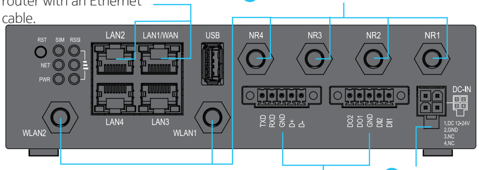


Connect and turn on the router

Note: Please connect the protecting ground cable as first step, connect 12-24 VDC power cable as the last step.



① Connect the protecting ground cable.



③ Connect a computer to the router with an Ethernet cable.

② Connect antennas.

④ Connect devices to the RS232/RS485/DIDO ports.

⑤ Connect 12~24 VDC power cable.

Connect the antennas

Connect the NR1/NR2/NR3/NR4 cellular antennas and WLAN1/ WLAN2 Wi-Fi antennas. It is recommended to have all connected antennas.

Antenna ports	Definitions	Remarks
NR1	**5G NR:** LB TX0 /PRX & MHB TX0 /PRX & UHB TX1/DRX n41 TX0/PRX n77/n78/n79 TX1/DRX **LTE:** LB TX0/PRX & MHB TX0/PRX & UHB TX1/DRX	LB: 617–960 MHz MHB: 1452–2690 MHz UHB: 3400–3800 MHz n77/n78: 3300–4200 MHz n79: 4400–5000 MHz LAA: 5150–5925 MHz GNSS L1: 1559–1609 MHz GNSS L5: 1166–1187 MHz PRX: Primary receive DRX: Diversity receive TX0/TX1: Transmit output
NR2	**5G NR:** MHB PRX MIMO & UHB PRX MIMO n41 PRX MIMO n77/n78/n79 PRX MIMO **LTE:** MHB PRX MIMO & UHB PRX MIMO & LAA PRX **GNSS:** L5	
NR3	**5G NR:** MHB TX1/ DRX MIMO & UHB TX0/PRX n41 TX1/DRX MIMO n77/n78/n79 TX0/PRX **LTE:** MHB TX1/DRX MIMO & UHB TX0/PRX	
NR4	**5G NR:** LB TX1/ DRX & MHB DRX & UHB DRX MIMO n41 DRX n77/n78/n79 DRX MIMO **LTE:** LB TX1 25/DRX & MHB DRX & UHB DRX MIMO & LAA DRX **GNSS:** L1	
WLAN1	Wi-Fi 2.4GHz & 5GHz	Wi-Fi 2.4G: 2400-2483.5 MHz
WLAN2	Wi-Fi 2.4GHz & 5GHz	Wi-Fi 5G: 5150-5875 MHz

About Nokia

We create the critical networks and technologies to bring together the world's intelligence, across businesses, cities, supply chains and societies.

With our commitment to innovation and technology leadership, driven by the award-winning Nokia Bell Labs, we deliver networks at the limits of science across mobile, infrastructure, cloud, and enabling technologies.

Adhering to the highest standards of integrity and security, we help build the capabilities we need for a more productive, sustainable and inclusive world.

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Connect to the network

When the router is powered on, power LED should turn green.

When the SIM card is installed, router begins the activation/provisioning process and attempts to connect to the network. This process may take a few minutes. When the connection is established the NET LED will turn green.

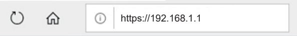
Signal LEDs indicate the RF signal strength.

Indicator	Status	Description
PWR	Steady on	Power on
	Off	No power supply
NET	Steady on	Registered to network
	Off	Not register/SIM LOCK/PIN LOCK
	Blinking (500ms interval)	Network searching
SIM	Steady on	SIM ready
	Off	No SIM or SIM error
RSSI	Steady on	Indicate the RF signal strength: RSRP -85~-30 dBm: 3 LEDs on RSRP -120~-85 dBm: 2 LEDs on RSRP -135~-120 dBm: 1 LED on
	Off	No signal
	Blinking one by one	Firmware upgrade

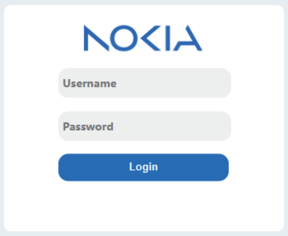
Software Configuration

Login to the Web management page

1. Launch the web browser, enter https://192.168.1.1 in the address bar, and press Enter.


https://192.168.1.1

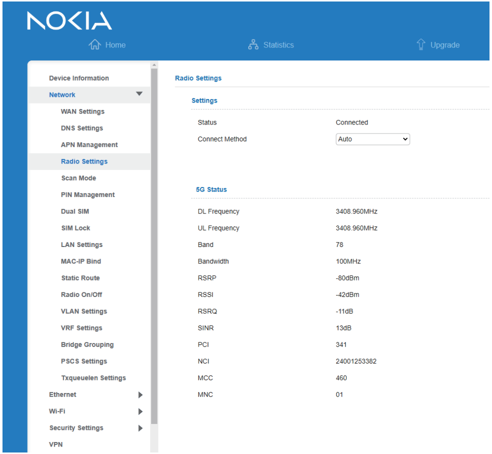
2. Enter the username and password, and click Login.
3. After the password is verified, you can login to the web management page.



The default username and password are both admin. If you want to view or configure the router, you should use the super account to login to the web management page. The default super username is superadmin, and the password is admin.

Radio Settings

1. Choose Network > Radio Settings.
2. On Radio Settings page, you can set the configuration of network.
3. In the Status list, you can view the RF status, such as Frequency, RSSI, RSRP, RSRQ, CINR, SINR, Cell ID and etc.



Radio Settings

Settings

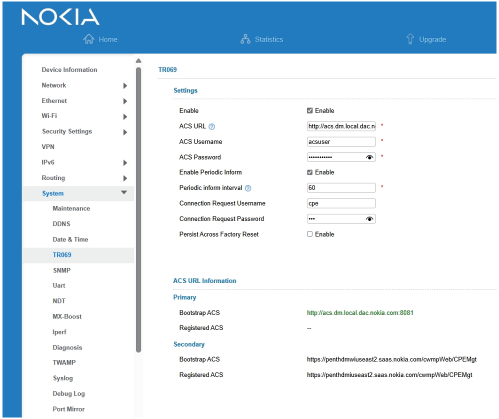
Status	Connected
Connect Method	Auto

5G Status

DL Frequency	3408.960MHz
UL Frequency	3408.960MHz
Band	78
Bandwidth	100MHz
RSRP	-80dBm
RSSI	-42dBm
RSRQ	-11dB
SINR	13dB
PCI	341
NCI	24001253382
MCC	460
MNC	01

Device management settings

1. Choose Settings > Device Information
2. On the Device Information page, you can view Device Serial Number, IMEI, IMSI and Software Version.
3. Choose Settings > System > TR069
4. On the TR069 page, you can view/set Device management/ TR069 parameters.



TR069

Settings

Enable	☑ Enable
ACS URL	http://acs.dm.local.dac.n *
ACS Username	acsuser *
ACS Password	•••••••••••• *
Enable Periodic Inform	☑ Enable
Periodic inform interval	60 *
Connection Request Username	cpe
Connection Request Password	•••
Persist Across Factory Reset	☐ Enable

ACS URL Information

Primary

Bootstrap ACS	http://acs.dm.local.dac.nokia.com:8081
Registered ACS	--

Secondary

Bootstrap ACS	https://penthdmwiuseast2.saas.nokia.com/cwmpWeb/CPEMgt
Registered ACS	https://penthdmiuseast2.saas.nokia.com/cwmpWeb/CPEMgt

FAQs

The POWER indicator does not turn on.
1. Make sure that the power cable is connected properly and the router is powered on.
2. Make sure that the power supply is compatible with the router.

Fails to Login the web management page.
1. Make sure that the router is powered on.
2. Verify that the router is correctly connected to the computer through Wi-Fi or a network cable.
3. If the problem persists, please contact the authorized local service suppliers.

The router fails to search for the wireless network.
1. Check if the power supply is connected properly.
2. Check if the router is placed in an open area that is far away from obstructions, such as concrete or wooden walls.
3. If the problem persists, please contact the authorized local service suppliers.

The parameters are restored to default values.
1. If the router is powered off unexpectedly while being configured, the parameters may be restored to the default settings.
2. After configure the parameters, download the configuration file and restore the desired settings quickly.

FCC Statement

This equipment 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 try 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 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.

FCC Radiation Exposure Statement

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment and it also complies with Part 15 of the FCC RF Rules. This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons

and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provided with antenna installation instructions and consider removing the no-collocation statement.

This device complies with Part 15 of the 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.
Caution!

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

ISED Warning statements

This device complies with Industry Canada’ s licence-exempt RSSs. Operation is subject to the following two conditions:
(1) This device may not cause interference; and
(2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d’ Industrie Canada applicables aux appareils radio exempts de licence.
L’ exploitation est autorisée aux deux conditions suivantes :
(1) l’ appareil ne doit pas produire de brouillage;
(2) l’utilisateur de l’appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d’en compromettre le fonctionnement.

ISED Radiation Exposure Statement

The device meets the exemption from the routine evaluation limits in section 2.5 of RSS 102 and compliance with RSS-102 RF exposure, users can obtain Canadian information on RF exposure and compliance.

Le dispositif rencontre l'exemption des limites courantes d'évaluation dans la section 2.5 de RSS 102 et la conformité à l'exposition de RSS-102 rf, utilisateurs peut obtenir l'information canadienne sur l'exposition et la conformité de rf.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

Cet émetteur ne doit pas être Co-placé ou ne fonctionnant en même temps qu'aucune autre antenne ou émetteur. Cet équipement devrait être installé et actionné avec une distance minimum de 20 centimètres entre le radiateur et votre corps.

ISED Statement

1.The device for operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;

2.For devices with detachable antenna(s), the maximum antenna gain permitted for devices in the bands 5250-5350 MHz and 5470-5725 MHz shall be such that the equipment still complies with the e.i.r.p. limit;

3.For devices with detachable antenna(s), the maximum antenna gain permitted for devices in the band 5725-5850 MHz shall be such that the equipment still complies with the e.i.r.p. limits specified for point-to-point and non-point-to-point operation as appropriate.

1.Les dispositifs fonctionnant dans la bande 5150-5250 MHz sont réservés uniquement pour une utilisation à l’intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux;

2.Le gain maximal d’antenne permis pour les dispositifs utilisant les bandes 5250-5350 MHz et 5470-5725 MHz doit se conformer à la limite de p.i.r.e.;

3.Le gain maximal d’antenne permis (pour les dispositifs utilisant la bande 5725-5850 MHz) doit se conformer à la limite de p.i.r.e. spécifiée pour l’exploitation point à point et non point à point, selon le cas.