rfconfig command (MINT version)

> ✅ Successfully pass the free certification exam at IW Academy and become an Infinet Certified Engineer.
>
> To the certification exam

- Description
- Parameters
- Examples

Description

The command is used to configure a radio interface. This section describes the command in WANFleX software version with Polling technology support.

> ⊘ **CAUTION**
>
> Not all radio interfaces have the same set of parameters and options because it depends on the radio module type and standard. A complete list of parameters available for the specific interface can be displayed by "*rf interface ?*" command. Radio module type and its features list can be displayed by "*rf interface cap*" command.

Syntax:

```
usage: rf interface parameters...
Interface rf5.0 parameters:
 band XXX: bandwidth (MHz)
 grid B G: frequency grid - <bw> freq1[-freq2[/step]],... | clear
 freq XXX: central frequency (MHz)
 bitr XXX: bitrate (Kbps)
 txpwr XXX: tx power (dBm)
 sid XXX: system identifier - up to 8 hex digits [10101010]
 cap [full]: RF capabilities
 dist XXX: distance in kilometers or auto
 txrt XXX: max transmit retries [15]
 txvrt XXX: max transmit retries in voice mode [6]
 [-]burst : burst mode (Super Packeting)
 [-]shortgi: short guard interval mode
 noise XXX: Noise floor threshold, dB [26]
 [-]pwrctl : automatic TPC mode
 mimo|miso
 [-]misoctl
 [-]greenfield
```

> ⚠ **NOTE**
>
> If frequency roaming is enabled, make changes to the roaming profile using "*mint profile*" command before making changes on the unit.

Parameters

Parameter	Description
cap	Displays the radio module capabilities including the information on power levels, frequencies etc.

Title

band XXX	Allows choosing the bandwidth for transmission, can be specified as numeric or text values: • "*double*" – 40 MHz. • "*full*" – 20 MHz. • "*half*" – 10 MHz. • "*quarter*" – 5 MHz. The ability to switch between different bandwidth values is determined by the license. Within the same wireless network, devices must have the same values for this parameter.
grid B G	Allows to create a customized frequency grid within the license restrictions, i.e. to form the list of operating frequencies. • "*B*" – the bandwidth for which the frequency grid is formed. • "*G*" – list of sub ranges with the defined frequency step (start frequency–end frequency/step), or a list of comma delimited standalone frequencies. The resulting frequency grid can be viewed in radio interface properties and used in all cases when the frequency is determined automatically ("*roaming*", "*dfs*" and so on). • "*clear*" – restores the default frequency grid supplied in the unit's license.
freq XXX	Sets central operating frequency in MHz. Must be equal at the both sides of the link.
bitr XXX	The bit transfer rate in Kbit/s of the radio link. Allowed values are: • bandwidth 5 MHz: 3250, 6500, 9750, 13000, 19500, 26000, 29250, 32500 Kbit/s. • bandwidth 10 MHz: 6500, 13000, 19500, 26000, 39000, 52000, 58500, 65000 Kbit/s. • bandwidth 20 MHz: 13000, 26000, 39000, 52000, 78000, 104000, 117000, 130000 Kbit/s. • bandwidth 40 MHz: 30000, 60000, 90000, 120000, 180000, 240000, 270000, 300000 Kbit/s.
txpwr XXX	Sets the transmitter emitting power in dBm, maximal if ATPC is on, and fixed if off. The acceptable transmit power values can vary depending on the radio module type.
sid XXX	Network system identifier, a arbitrary hexadecimal number in the range of 1H to FFFFFFH. All routers that are supposed to see each other on the same radio link must have the same identifier.
dist XXX	Distance value between two devices (in kilometers). This parameter changes time values for some delays and time-outs thus making possible to work on longer distances with smooth adjustment. The "*dist*" parameter is only applied when sending network packets, therefore, it must be set on each network device. • "*auto*" – enables automatic distance calculation. The "0" value sets the default radio module settings.
txrt XXX	Sets the maximum number of repeat requests to be done when sending unicast packets. By default is 15.
txvrt XXX	Sets the maximum number of repeat requests for data packets (excluding voice packets) in voice mode. By default is 6. The maximum allowed value is 64. Voice mode is turned on automatically when VoIP traffic appears.
[-]burst	Enables/disables the BURST protocol support. The BURST protocol is grouping several short packets with the same destination address on a radio link into larger packets, thus significantly decreases the response time for applications when intensive streams of short packets appears. BURST has influence to a whole radio interface on selected device, but the BURST protocol can only work for destinations where it is also enabled at the other end, and only if MINT protocol is used at both sides. BURST does not affect the operation of other devices in the network. BURST protocol operation statistic can be viewed by using the "*muffer stat*" command. Enabled by default.
[-]shortgi	Enables/disables the short guard interval mode. Using of this mode allows the device to increase its throughput by reducing the time interval between symbols being transmitted. However, this may significantly increase the intersymbol interference and, thus, cause a higher errors rate. Enabled by default.
noise XXX	Sets Noise Floor Threshold for radio interface. Measured in decibel, by default is 20. Threshold is defined as a positive shift relative to the current level of noise which is measured by a device. The unit begins data transmission only when there are no signals in the air that have signal level higher than Noise Floor Threshold. To display Noise Floor and Noise floor Threshold values use the "*stat*" parameter.
extnoise X	Raises / lowers the noise level, allows to reduce the interference influence (in case of level increasement) or to increase the received signal the modulation (in case of level decreasement). Available values are from -16 to 32 dB. By default - 0.

Title

[-]pwrctl	Enables/disables Automatic Transmit Power Control (ATPC). When it is enabled the system automatically adjusts device's output power to the optimal value that is necessary and sufficient to maintain the maximum productivity of the link in the given conditions. Enabled by default.
mimo|miso	Allows to select a signal coding method: MIMO or MISO.
[-]misoctl	In this mode the device use MISO for transmission of service packets while working on a low modulation. It allows keep the link operation when a transmitter in one the polarizations fails or in case of signal levels imbalance in different streams. To disable this mode use the "*-misoctl*" parameter.
[-]greenfield	Enables/disables "*Greenfield*" mode. This mode reduces the transmitted frame size, removing the original (pre-802.11n) field from the header. Allows to increase the performance by 15%, as well as avoid the processing and decoding of noise preambles, which leads to an improvement of signal quality.
stat	Displays the radio module's statistic. For more information about table values see "Examples" subsection. • "*1*" – shows statistic in current moment, if not specified, the statistic is displayed in real time.

Examples

Displays the radio module's parameters.

```
rfconfig cap
   Radio capabilities:
   Adapter name:                      Atheros AR9220 Wireless PCI Adapter. InfiNet Wireless RMM63 6.2
GHz Radio
   Subvendor: 0xfff1, Subid 0x6300
   Power levels (dBm):                min 0 max 23 step 0.5
   (per packet power control supported)
   Greenfield mode supported
   MAC address:                       000435230A20
   Bandwidth modes:                   28, 7, 14, 30, 15, 5, 10, 20, 40
```

Possible ways of how to set frequency grid are shown in the following example:

```
rf rf5.0 grid 40 4920-5940/5
rf rf5.0 grid 20 5310-5390/10,5450,5500-5580/20
rf rf5.0 grid 10 5480, 5500, 5520, 5540, 5560, 5580
```

Set the bandwidth value 20 on the node which use frequency roaming.

```
mint rf5.0 profile 1 -band 20
rf band 20
```

Title

Display the current radio module's statistic.

```
rf stat
RF rf5.0 status UP (band 20, freq 6200)  :ACTIVE
DFS  status    DFSONLY (mode STA)


+--------------------------------------+--------------------------------------+
|        Receive statistics            |        Transmit  statistics          |
+--------------------------------------+--------------------------------------+
| Broadcast Rate         104000        | Voice Mode             OFF           |
| Bytes Received         3338045       | Bytes Transmitted      2650312       |
| Packets Received OK    57173         | Packets Transmitted OK 55005         |
| Load (kbps)            1442          | Load (kbps)            172           |
| Load (pps)             257           | Load (pps)             187           |
| Frame size (bytes)     701           | Frame size (bytes)     114           |
+--------------------------------------+--------------------------------------+
| RX Medium Load         0.8%          | TX Medium Load         0.6%          |
| Total Medium Busy      1.6%          |                                      |
+--------------------------------------+--------------------------------------+
| Duplicate Received     0             | Total Retries          705           |
| Aggr duplicates        0             | Aggr Subframe Retries  0             |
| Aggr drops             0             | Aggr Full Retries      210           |
| FIFO Overrun           0             | FIFO Underrun          0             |
| CRC Errors             6             | Excessive Retries      47            |
| Noise Floor            -89           | Max aggr frames        3             |
| Noise Floor Threshold  -63           | Max aggr bytes         740           |
| Scrambled frames       0             | Scrambled frames       0             |
| Scramble errors        0             | Tx queue overflow      0             |
+--------------------------------------+--------------------------------------+
```

- "*RF rf5.0 status UP (band 20, freq 4900) :ACTIVE*" – interface status, bandwidth, frequency, state.
- "*DFS status OFF*" – DFS status.
- "*Broadcast Rate*" – current bitrate value for Broadcast and Multicast packets on the BS sector (depends upon the speed of the slowest CPE).
- "*Voice Mode*" – presence/absence of voice traffic. If some appears, mode of it's prioritized processing is turned on.
- "*Bytes Received*" – number of received bytes including headers.
- "*Bytes Transmitted*" – number of transmitted bytes including headers.
- "*Packets Received OK*" – number of correctly received frames.
- "*Packets Transmitted OK*" – number of correctly transmitted frames.
- "*Load (kbps)*" – wireless link load (Kbit/s).
- "*Load (pps)*" – wireless link load (packets/s).
- "*Frame size (bytes)*" – frame size (bytes).
- "*Medium Load*" – time spent to receive frames (%).
- "*Medium Busy*" – time during which the medium was occupied (reception or transmission) (%).
- "*Duplicate Received*" – number of duplicate packets received.
- "*Total Retries*" – total number of retries.
- "*Aggr Subframe Retries*" – number of packet drops in an aggregate due to protocol excesses (for transmission).
- "*Aggr Full Retries*" – number of duplicate aggregates transmitted.
- "*FIFO Overrun*" – number of FIFO queues overruns in the radio when receiving.
- "*FIFO Underrun*" – number of FIFO queues underruns in the radio while transmitting.
- "*CRC Errors*" – number of received packets with CRC errors.
- "*Excessive Retries*" – number of packets which were not transmitted with maximal number of retries.
- "*Noise Floor*" – input noise level. Measurement cycle –10 seconds.
- "*Noise Floor Threshold*" – noise threshold level for RF interface.
- "*Max aggr frames*" – maximal detected number of packets in an aggregate.
- "*Max aggr bytes*" – maximal detected bytes in an aggregate.
- "*Scrambled frames*" – number of received/transmitted scrambled frames.
- "*Scramble errors*" – number of scramble errors.
- "*Tx queue overflow*" – data queue overflow for transmittion.