

Black Lab Server Manual

Using nmcli for network connections

By The Black Lab Linux Team

NAME

`nmcli` - command-line tool for controlling NetworkManager

SYNOPSIS

```
nmcli [ OPTIONS ] OBJECT { COMMAND | help }
```

```
OBJECT := { nm | con | dev }
```

```
OPTIONS := {  
-t[erse]  
-p[retty]  
-m[mode] tabular | multiline  
-f[ields] <field1,field2,...> | all | common  
-e[scape] yes | no  
-v[ersion]  
-h[elp]  
}
```

DESCRIPTION

`nmcli` is a command-line tool for controlling NetworkManager and getting its status. It is not meant as a replacement of `nm-applet` or other similar clients. Rather it's a complementary utility to these programs. The main `nmcli`'s usage is on servers, headless machines or just for power users who prefer the command line.

The use cases comprise:

- Initscripts: `ifup/ifdown` can utilize NetworkManager via `nmcli` instead of having to manage connections itself and possible interfere with NetworkManager.
- Servers, headless machines: No GUI is available; then `nmcli` is used to talk directly to NetworkManager and control only system-wide connections.
- User sessions: For this case, `nmcli` can talk to `nm-applet` to find user connections. It can still talk directly to NetworkManager for manipulating these connections. As `nmcli` doesn't have direct access to user configuration data in GConf, `nm-applet` handles that itself. That may, for example, cause the applet to pop up keyring dialogs when secrets are needed.

OPTIONS

-t, --terse

Output is terse. This mode is designed and suitable for computer (script) processing.

-p, --pretty

Output is pretty. This causes `nmcli` to produce easy readable outputs for humans, i.e. values are aligned, headers are printed, etc.

-m, --mode tabular | multiline

Switch between tabular and multiline output. If omitted,

default is tabular for most commands. For the commands producing more structured information, that cannot be displayed on a single line, default is multiline. Currently, they are:

```
'nmcli con list id|uuid <name>'
'nmcli dev list'
```

tabular - Output is a table where each line describes a single entry. Columns define particular properties of the entry.

multiline - Each entry comprises more lines, each property on its own line. The values are prefixed with the property name.

-f, --fields <field1,field2,...> | all | common

This option is used to specify what fields (column names) should be printed. Valid field names differ for specific commands. List available fields by providing an invalid value to the --fields option.

all is used to print all valid field values of the command.

common is used to print common field values of the command. If omitted, default is common. The option is mandatory when --terse is used. In this case, generic values all and common cannot be used. (This is to maintain compatibility when new fields are added in the future).

-e, --escape yes | no

Whether to escape ':' and '\' characters in terse tabular mode. The escape character is '\'. If omitted, default is yes.

-v, --version

Show nmcli version.

-h, --help

Print help information.

OBJECT

nm

NetworkManager

Use this object to inquire and change state of NetworkManager.

COMMAND := { **status** | **sleep** | **wakeup** | **wifi** | **wwan** }

status

Show overall status of NetworkManager. This is the default action, when no command is provided to nm object.

Reference to D-Bus:

No simple reference.

sleep

Put NetworkManager to sleeping mode. Thus all interfaces that NetworkManager manages are deactivated.

Reference to D-Bus:

interface: org.freedesktop.NetworkManager

method: Sleep

arguments: TRUE

wakeup

Awake NetworkManager from sleep. When NetworkManager is awoken, devices are available to be activated.

Reference to D-Bus:

interface: org.freedesktop.NetworkManager

method: Sleep

arguments: FALSE

wifi [on|off]

Inquire or set status of WiFi in NetworkManager. Without any further argument, WiFi status is printed; on enables WiFi; off disables WiFi.

Reference to D-Bus:

No simple reference.

wwan [on|off]

Inquire or set status of WWAN in NetworkManager. Without any further argument, WWAN status is printed; on enables WWAN; off disables WWAN.

Reference to D-Bus:

No simple reference.

con Connections

Get information about NetworkManager's connections.

COMMAND := { **list** | **status** | **up** | **down** }

list [id <id> | uuid <id> | system | user]

List configured connections. Without a parameter, configured connection from both system and user settings services are listed. system argument filters only system-wide connections, user prints user connections only. In order to get connection details, id with connection's name or uuid with connection's UUID shall be specified. When no command is given to con object, the default action is 'nmcli con list'.

Reference to D-Bus:

No simple reference.

status

Print status of active connections.

Reference to D-Bus:

No simple reference.

up id <id> | uuid <id> [iface <iface>] [ap <hwaddr>] [--nowait] [--timeout <timeout>]

Activate a connection. The connection is identified by its name using id or UUID using uuid. For requiring particular device to activate the connection on, iface option with interface name should be given. ap option can further concretize what AP should be used in case of WiFi connection. --nowait option causes nmcli to exit immediately and not to wait for command completion. --timeout option provides a means to specify how long to wait for operation completion.

Reference to D-Bus:

interface: org.freedesktop.NetworkManager

method: ActivateConnection

arguments: according to arguments

down id <id> | uuid <id>

Deactivate a connection. The connection is identified by its name using id or UUID using uuid.

Reference to D-Bus:

interface: org.freedesktop.NetworkManager

method: DeactivateConnection

arguments: according to arguments

dev Devices
Get information about devices.

COMMAND := { **status** | **list** | **disconnect** | **wifi** }

status

Print status of devices. This is the default action, when no command is specified to dev object.

Reference to D-Bus:

No simple reference.

list [**iface** <iface>]

Get detailed information about devices. Without an argument, all devices are examined. To get information for a specific device, iface argument with the interface name should be provided.

Reference to D-Bus:

No simple reference.

disconnect **iface** <iface> [--nowait] [--timeout <timeout>]

Disconnect a device and prevent the device from automatically activating further connections without user/manual intervention. --nowait option causes nmcli to exit immediately and not to wait for command completion. --timeout option provides a means to specify how long to wait for operation completion.

Reference to D-Bus:

interface: org.freedesktop.NetworkManager.Device

method: Disconnect

arguments: none

wifi [**list** [**iface** <iface>] [**hwaddr** <hwaddr>]]

List available WiFi access points. iface and hwaddr options can be used to get just APs for particular interface or specific AP, respectively.

Reference to D-Bus:

No simple reference.