Nokia M10

ADSL router

Release Note

C33539.25 C0
06.06.2000

1 About this document

This document describes the features which have been added to the M10 software versions 5.3.0 R2 and 5.4.0 R2.

2 New features

2.1 Software version 5.3.0 R2

The following features have been added to the software version 5.3.0 R2:

- changed admin-disable command
- dedicated management channel
- improved PPP connection handshake procedure
- transmit priority selection
- static ARP configuration
- router configuration accessible to user-admin
- changed NAT Pinhole Configuration page.

2.2 Software version 5.4.0 R2

The following features have been added to the software version 5.4.0 R2:

- OAM default VPI/VCI 0/16
- PPP over Ethernet encapsulations on WAN link
- H.323 support for outgoing calls

- PPP over Ethernet only bridging

2.3 Changed admin-disable command

A new **Admin Restrictions** command has been added. It replaces the commands which were used to control the management of the M10. You must have the admin rights to access this command. You can allow management only through the desired ports. With this command you can, for example, disable management through the Ethernet port. The restrictions can be configured through the following CLI commands:

Command	**Enable/disable the management through Ethernet port**
Description	Enables/disables the management of Nokia M10 through the Ethernet port.
Syntax	set ip ethernet restrictions [none|admin-disabled]
Arguments	The `restrictions` argument is used to enable/disable management through the Ethernet port. `None` means that M10 can be managed through the Ethernet port and `admin-disabled` disables the possibility to manage M10 through the Ethernet port.
Example	`m10> set ip ethernet restrictions admin-disabled`

You can also disable management through the Ethernet port with your Web browser (see Figure 1) by clicking the **Admin-Disabled** radio button.

Note If you disable management through the Ethernet port and reboot M10 you can no longer manage M10 with your local Web browser or telnet.

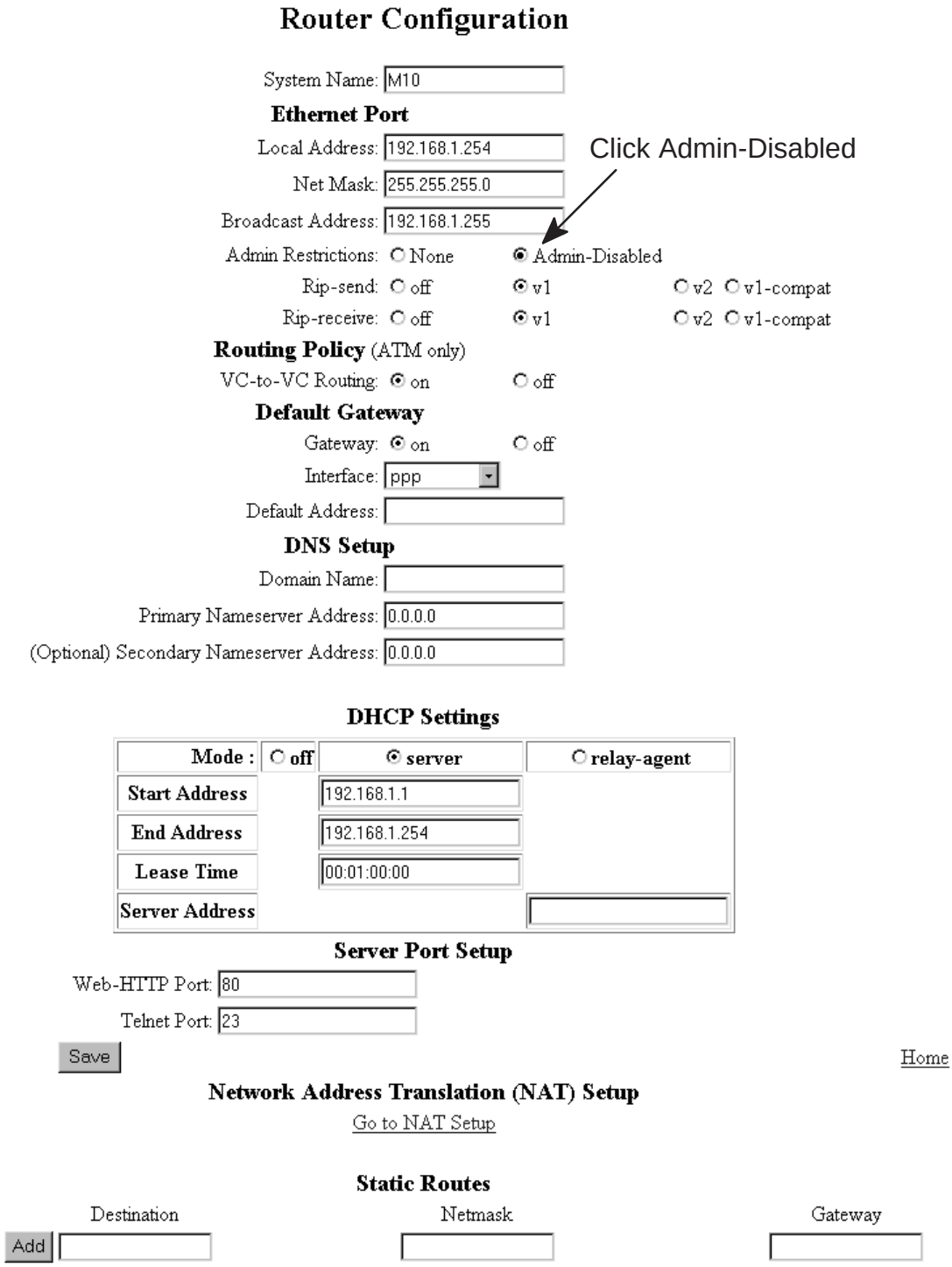

Figure 1 Disabling management through the Ethernet port

Command	Enable/disable the management through PPP link
Description	Enables/disables the management of Nokia M10 through the specified ATM link using ppp-vcmux encapsulation.
Syntax	set ip ip-ppp {vccx} restrictions [none|admin-disabled|admin-only]
Arguments	The first argument identifies the ATM channel (vccx, x = 1 ... 8). If there is only one ATM channel using ppp-vcmux encapsulation you can leave the argument `vccx` out. The second argument is used to configure restrictions. `None` means that there are no management restrictions, `admin-disabled` disables the possibility to manage M10 through this link, `admin-only` makes this link the dedicated management channel which can only be used for management purposes.
Example	`m10> set ip ip-ppp vcc1 restrictions admin-disabled`

Command	Enable/disable the management through channels using IP over ATM or bridged encapsulations
Description	Enables/disables the management of Nokia M10 through the specified ATM link using ip-llc, ip-vcmux, ether-llc, or ether-vcmux encapsulation. This command can be also used to configure a dedicated management channel.
Syntax	set ip dsl {vccx} restrictions [none|admin-disabled|admin-only]
Arguments	The first argument identifies the ATM channel (vccx, x = 1 ... 8). If there is only one ATM channel using one of these encapsulations you can leave the argument `vccx` out. The second argument is used to configure restrictions. `None` means that there are no restrictions, `admin-disabled` disables the possibility to manage M10 through this port, `admin-only` makes this channel the dedicated management channel which can only be used for management purposes.
Example	`m10> set ip dsl vcc2 restrictions admin-only`

The same commands are also available in the step mode.

2.4 Dedicated management channel

The operator or Internet service provider can establish a dedicated management channel to the M10. This channel provides access to the M10 management (telnet and Web browser) and it can be used to upload a new software to the M10. When the management channel is enabled it prevents data traffic between the management channel and the Ethernet as well as traffic between the management channel and other active ATM channels. Figure 2 shows the principle of the dedicated management channel.

In Figure 2 VCC1 is used for customers data transmission. Administration through this channel has been disabled. The operator or the service provider uses the VCC2 for management purposes only.

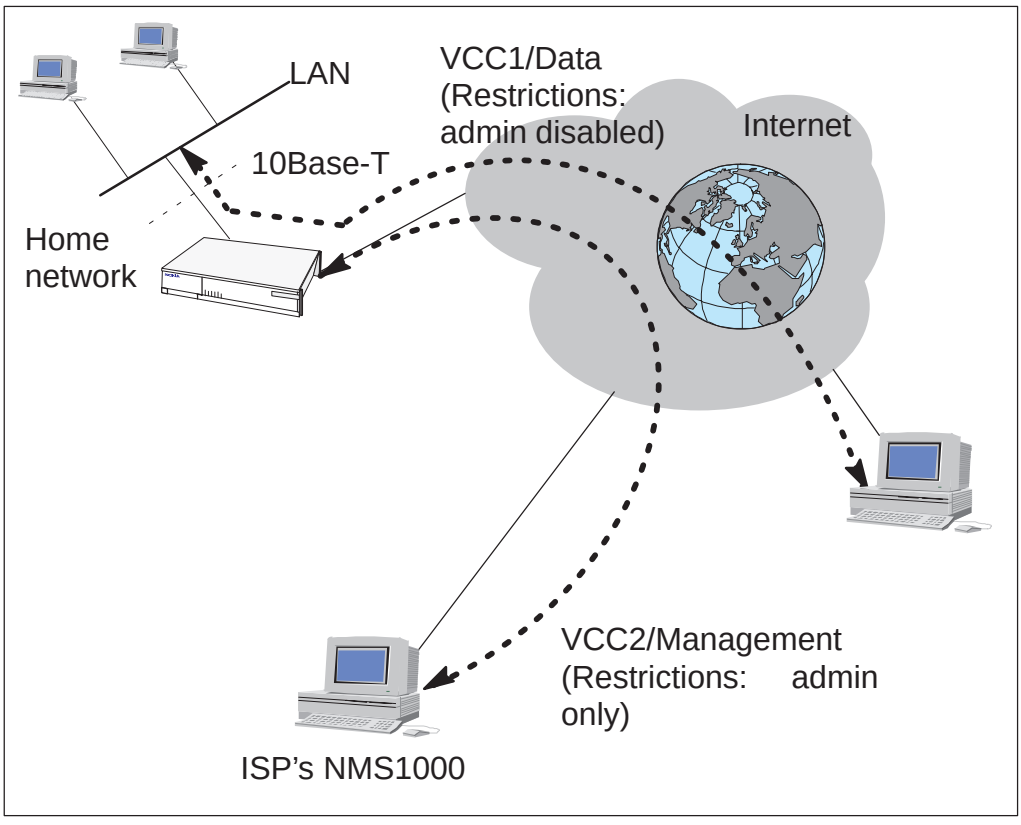

Figure 2 Dedicated management channel

Enabling the dedicated management channel

You can enable the dedicated management channel by configuring Admin restrictions as **admin-only** for the desired ATM channel. This

can be done through CLI or with a Web browser. The corresponding CLI command is:

Command	**Enable/disable the management through channels using IP over ATM or bridged encapsulations**
Description	Enables/disables the management of Nokia M10 through the specified ATM link using ip-llc, ip-vcmux, ether-llc, or ether-vcmux encapsulation. This command can be also used to configure a dedicated management channel.
Syntax	set ip dsl {vccx} restrictions [none|admin-disabled|admin-only]
Arguments	The first argument identifies the ATM channel (vccx, x = 1 ... 8). If there is only one ATM channel using one of these encapsulations you can leave the argument `vccx` out. The second argument is used to configure restrictions. `None` means that there are no restrictions, `admin-disabled` disables the possibility to manage M10 through this port, `admin-only` makes this channel the dedicated management channel which can only be used for management purposes.
Example	`m10> set ip dsl vcc2 restrictions admin-only`

The same command is available in the step mode.

You can also enable the dedicated management channel with a Web browser through the VCCx configuration page by clicking the **Admin-Only** radio button (see Figure 3).

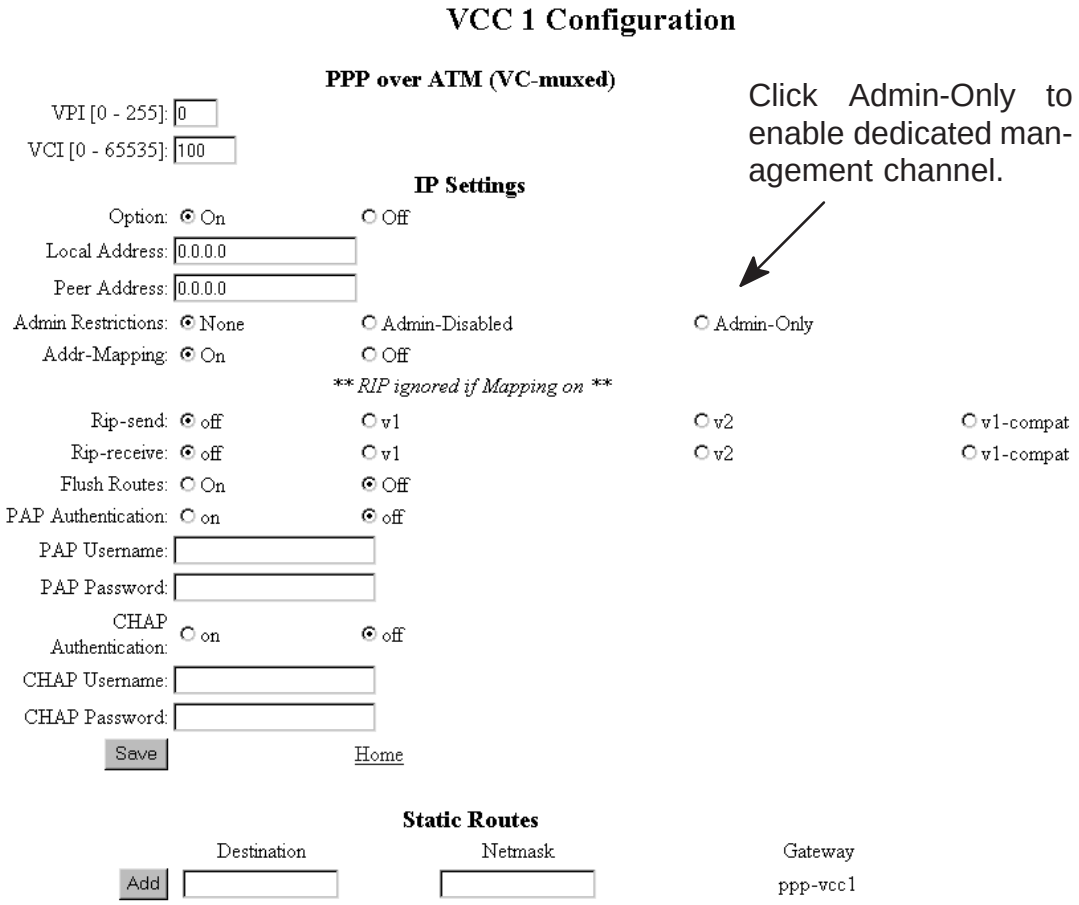

Figure 3 VCCx configuration page

2.5 Improved PPP connection handshake procedure

The PPP connection handshake procedure has been improved. In earlier versions, during congestion in the Remote access node, the PPP connection handshake sometimes failed. This has now been fixed.

2.6 Transmit priority selection

If you are using at least two upstream ATM connections, you can set priorities to these connections. You can also set the maximum transmit rate to the connection. The connection with a high priority gets more upstream bandwidth than the low priority connection. The following example clarifies the transmit priority selection:

Connection	Priority	Maximum transmit rate
VCC1	HIGH	400 kbps
VCC2	LOW	0 (no limit)

Table 1 Transmit priority selection example settings

The settings shown in Table 1 affect the connections in the following way:

- When VCC1 is not transmitting, VCC2 can use the whole bandwidth.
- When VCC1 starts transmitting, it gets 400 kbps bandwidth and VCC2 gets the rest of the available bandwidth.
- If the upstream bandwidth is 400 kbps and VCC1 uses 400 kbps, VCC2 can not transmit anything until VCC1 starts to transmit less than 400 kbps.

Activating transmit priority function

You can activate the transmit priority function with your Web browser or through the command line interface.

Note You must have admin rights to set transmit priorities.

To set transmit priorities with a Web browser:

1. Click ATM link on the M10 home page.
2. Click Config button of the VCC you want to configure. VCC Configuration page is shown.
3. Set transmit priority to High or Low.
4. Set the maximum transmit rate for the VCC in question.
5. Repeat this procedure if you want to set priorities to other VCCs.
6. Save the settings and restart your M10.

To set priorities through the command line interface:

1. Start the command line interface.
2. Go to Config mode.
3. Give the following command (example): `set atm vcc 1 tx-priority high tx-max-kbps 400`
4. Save the configuration and restart M10.

The Set transmit priority CLI command is:

Command	Set transmit priority
Description	Sets transmit priorities to VCCs
Syntax	set atm [vcc x] tx-priority [high|low] tx-max-kbps [0 – 1000]
Arguments	The `tx-priority` argument sets the priority of the VCC to high or low. The `tx-max-kbps` argument defines the maximum transmit rate of the VCC
Example	`m10> set atm vcc 1 tx-priority high tx-max-kbps 400`

2.7 Static ARP configuration

If you have devices on your Ethernet which do not understand ARP requests, you can manually set their IP addresses to the ARP table through the command line interface.

To configure a static ARP table entry:

1. Start the command line interface.
2. Go to Config mode.
3. Enter the following CLI command (example): `set ip static-arp ip-address 192.168.1.2 hardware-address 00.40.43.02.20.1f`
4. Save configuration and restart M10.

The new CLI command is:

Command	Set static ARP table entry
Description	Sets a static IP address – MAC address mapping to the ARP table
Syntax	set ip static-arp ip-address [ip-address] hardware-address [hardware-address]
Arguments	The `ip-address` argument defines the IP address assigned to the device. The `hardware-address` argument is the hardware MAC address of the device.
Example	`m10> set ip static-arp ip-address 192.168.1.2 hardware-address 00.40.43.02.20.1f`

2.8 Router configuration with user-admin rights

Now a user with user-admin rights can also configure router settings. The link to the Router page is on the M10 home page.

2.9 NAT Pinhole Configuration page

The NAT Pinhole Configuration page has been changed. Now the page contains also the Server Port Setup which is used for changing the port numbers of the integrated HTTP and telnet servers. You must change the port numbers if you use Network Address Port Translation and you have HTTP or telnet servers on your local network.

The new “Name” field on the NAT Pinhole Configuration page lets you name the pinhole entry.

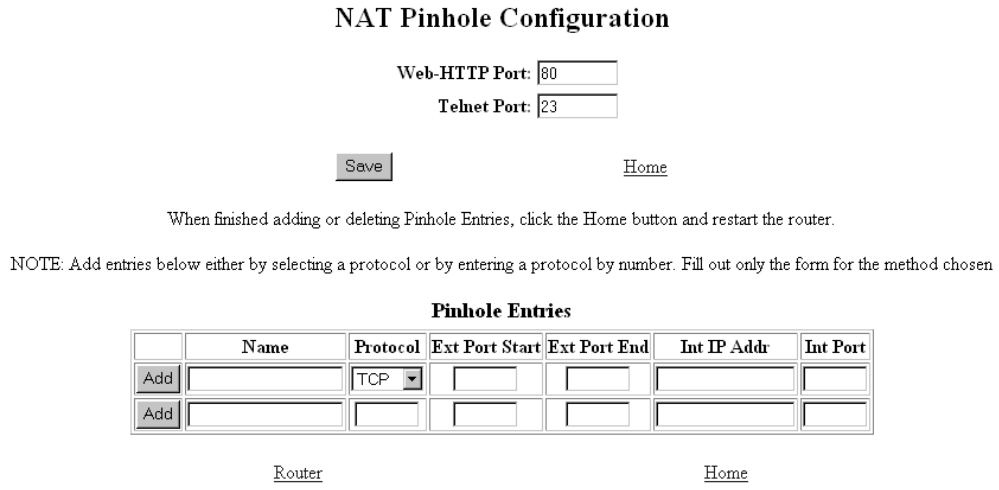

Figure 4 NAT Pinhole Configuration page

The Configure pinhole CLI command has been changed. The new command is:

Command	Configure pinhole
Description	Configures pinhole.
Syntax	set pinhole name [name] protocol-select [tcp | udp | icmp | pptp] external-port-start [port_number] external-port-end [port_number] internal-ip [ip_address] internal-port [port_number]
Arguments	The `name` argument defines the unique pinhole entry name. The `protocol-select` argument specifies the protocol. The `external-port-start` specifies the start of the external port range. The `external-port-end` specifies the end of the external port range. Together the external port arguments define the available range of allowed external ports. The `internal-ip` argument specifies the IP address of the server located in LAN and the `internal-port` argument its port. Valid values for `port_number` are 0 – 65535.
Example	`m10> set pinhole name web-server protocol-select tcp external-port-start 80 external-port-end 80 internal-ip 192.168.1.180 internal-port 80`

2.10 OAM default VPI/VCI 0/16

By default, M10 answers ATM ping OAM loopbacks when they are sent on the ATM channel VPI/VCI 0/16. If you want to use this feature to test your ATM connection with ATM ping, make sure that the PVC 0/16 has been configured in your DSLAM towards M10.

2.11 PPP over Ethernet encapsulations on WAN link

Two new encapsulations have been added:

- pppoe-vcmux
- pppoe-llc

RFC 2516 defines the PPP over Ethernet. It describes the building of PPP sessions and encapsulating of PPP packets over Ethernet.

This feature affects the *Set payload encapsulation* command.

Command	Set payload encapsulation for specific ATM channel
Description	Defines how the payload is encapsulated to the specified logical ATM channel.
Syntax	set atm vcc [1 | 2 | 3 | 4 | 5 | 6 | 7 | 8] encap [ip-llc | ip-vcmux | ether-llc | ether-vcmux | ppp-vcmux | ppp-llc | pppoe-vcmux | pppoe-llc]
Arguments	The first argument `1|2|3|4|5|6|7|8` specifies the channel and the second argument sets the encapsulation. The `ip-llc` and `ether-llc` encapsulations are according to RFC 1483 with LLC/SNAP encapsulation for IP and Ethernet frames, respectively. The `ip-vcmux` and `ether-vcmux` encapsulation are vc-multiplexed according to RFC 1483 for IP and Ethernet frames, respectively. In `ppp-vcmux` encapsulation both bridged and routed protocols are first encapsulated to point-to-point protocol (PPP) which is, in turn, encapsulated to ATM according to RFC 1483 vc-multiplexing. `ppp-llc` is PPP over ATM, LLC/NLPID encapsulation. `pppoe-vcmux` and `pppoe-llc` are PPP over Ethernet encapsulations.
Example	`m10 (top)>> set atm vcc 1 encap pppoe-vcmux` `m10 (top)>>`

2.12 H.323 support for outgoing calls

H.323 functionality has been added to NAT. H.323 messages will go through NAT to outbound direction. This feature enables, for example, outgoing NetMeeting calls without any addditional configuration in your M11.

2.13 PPP over Ethernet only bridging

When bridging and eth-llc encapsulation are enabled, only PPP over Ethernet packets can be allowed to go from the LAN to the WAN. This is done with the following commands in the *Bridge* node:

Command	Switch on PPP over Ethernet filter on Ethernet port
Description	When this filter is on, only PPP over Ehernet packets will be bridged from LAN to WAN.
Syntax	set ethernet filter pppoe-only [on | off]
Arguments	`on | off` argument switches filter on and off.
Example	`m10 (bridge)>> set ethernet filter pppoe-only on` `m10 (bridge)>>`

Command	Switch on PPP over Ethernet filter on WAN port
Description	When this filter is on, only PPP over Ehernet packets will be bridged from LAN to WAN through the specified ATM channel.
Syntax	set dsl vcc[1 | 2 | 3 | 4 | 5 | 6 | 7 | 8] filter pppoe-only [on | off]
Arguments	The first argument `1|2|3|4|5|6|7|8` specifies the channel and `on | off` argument switches filter on and off.
Example	`m10 (bridge)>> set dsl vcc1 filter pppoe-only on` `m10 (bridge)>>`