

MOTOTRBO

Linked Capacity Plus (LCP)

HP MSR2003 (JG411A) Router Configuration Guide

Version 1.1

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MOTOTRBO Linked Capacity Plus (LCP) - HP MSR 2003 Router Configuration Guide

This document is intended as a configuration guide to assist with the programming conventions and commands used in the HP MSR2003 routers. This document does not provide detailed information on the basics of IP networking or the basics of programming code plugs for Linked Capacity Plus.

The following pages are to be used as an example only. This is a 2-site system example however; it can be extended to multiple sites by inserting user specific network topology information.

Specific Configurations Needs for this Router (the router will NOT work directly out of the box):

1. Must configure router to have "Network Address Translation".
2. Must configure Master Router in Linked Capacity Plus to have a static IP configuration.
NOTE: The example configures all routers with static IP addresses.
3. Must configure routers for "Port Forwarding".
NOTE: For the MSR 2003 router, port forwarding rules enable NAT-Loopback to occur.
4. Router settings, other than what is described here, are not validated by Motorola Solutions, Inc.

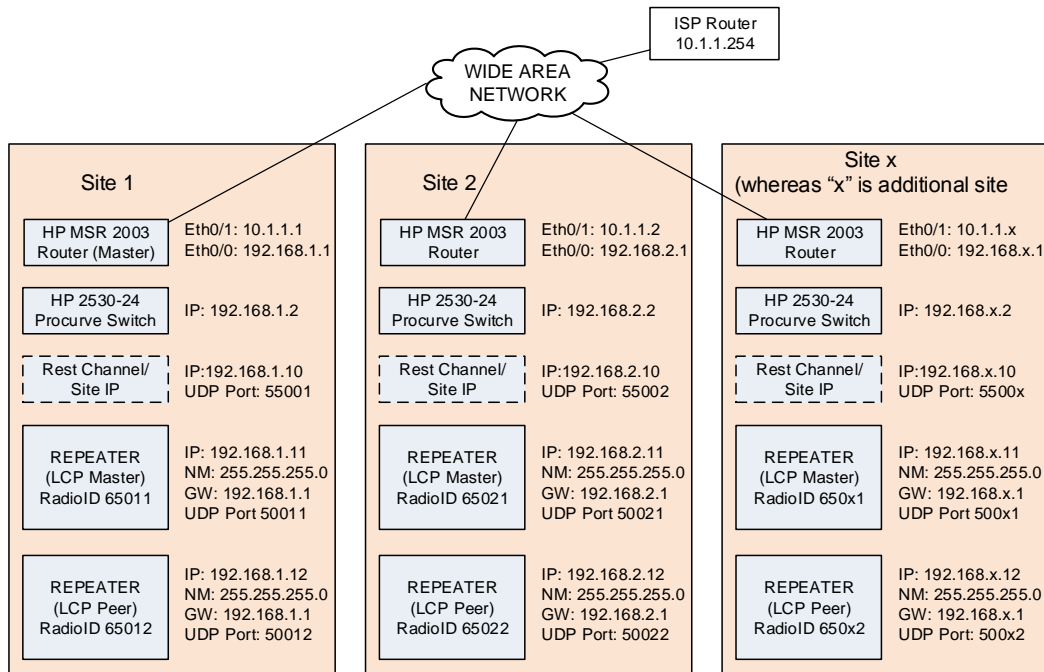
Example Notes:

1. Each site should have a different LAN IP address and subnet.
 2. Each repeater should have a different UDP port number. The convention used in the example below is: 500XY, where X is the site number and Y is the repeater number.
 3. Each Rest Channel/Site IP should have a different UDP port number. The convention used in the example below is 5500X, where X is the site number.
 4. The following documentation is the example for programming the router at Site 1. The router at every site must also be configured using each site's specific details.
 5. Command line reference documentation may be downloaded at:
http://h20566.www2.hp.com/portal/site/hpsc/template.PAGE/public/psi/manualsResults/?sp4ts.oid=5408894&spf_p.tpst=psiContentResults&spf_p.prp_psiContentResults=wsrp-navigationalState%3Daction%253Dmanualslist%257Ccontentid%253DSetup-and-install-general%257Clang%253Den&javax.portlet.begCacheTok=com.vignette.cachetoken&javax.portlet.endCacheTok=com.vignette.cachetoken
1. Router and Repeater Configurations verified:

a. Repeater Firmware: R02.06.00

b. Router Software Version: MSR 2003 version 7.1.059, Release 0305

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Configuration method using the HP MSR 2003 Command Line Interface

Document and Example Conventions:

Text as displayed in the command line interface.

Command line text for the user to enter.

<Command line text that is router or site specific>

1. Connect the device and PC via USB cable.
2. Configure the terminal emulation program on PC (example: PuTTY)
 - a. 9600, data bits to 8, parity to none, stop bit to 1, and flow control to none
3. Enter the Command Line Interface (CLI) of the device
4. Configure the device using the bold command listed below. Note: the setting below are for configuring the router at site 1 follow the system IP plan for the additional sites.

Using the Console Serial Interface

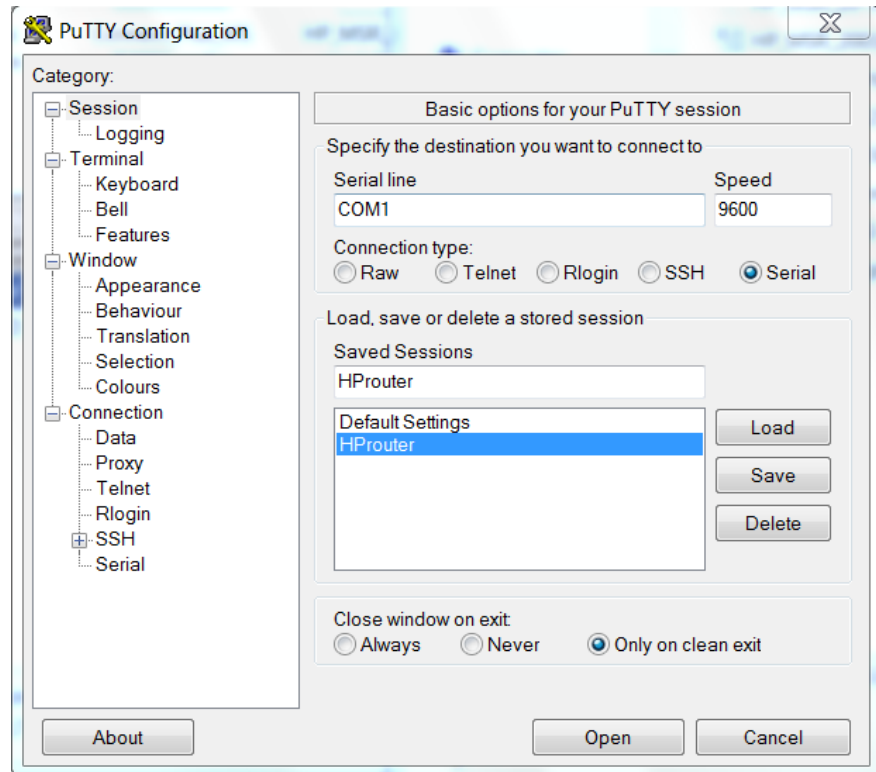
Connect to the Serial port (USB)

Serial Line: COM X

(Look in the Windows Device Manager for COM number)

Speed: 9600

Connection Type: Serial



System View v. User View

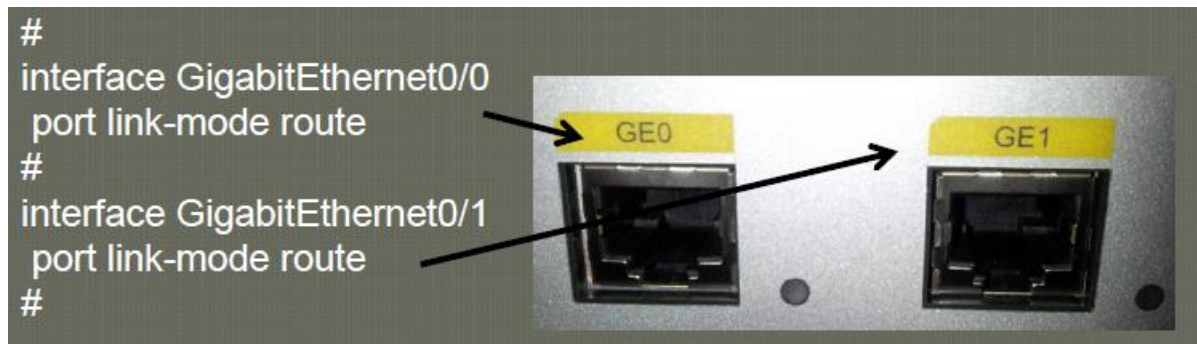
When you access/log in to the MSR 2003 device and access the command line interface, you enter the user view, where the prompt <device name> is displayed. Only limited operations may be performed limited operations in the user view, for example, display operations, file operations and Telnet operations. To perform further configuration of the MSR 2003 device, enter the system view.

The prompt [device name] indicates you are in the System view. All operations can be performed in the system view.

Configure the name of the router.

<Sysname> system-view	Enters into configuration editing mode.
[Sysname] sysname <sysname>	Name the device, which can be a string of 1 to 30 characters. It replaces "Sysname" with the text of your choice. It is a convenient reference while working on multiple routers. For this example, the command is: [Sysname] sysname Site1
[Site1] save	Saves the current configuration.

Configure the Ethernet interface IP addresses and Network Address Translations.



[Site1] interface GigabitEthernet 0/0	Enter interface Ethernet 0/0 parameter view. Of the two Ethernet ports (GE0 and GE1) on the front of the chassis, GE0 will be the LAN Ethernet interface in this example.
[Site1-GigabitEthernet0/0] ip address <LAN IP address> <LAN Subnet Mask>	Configure the LAN interface IP address and subnet mask. Use the IP address and mask that was decided for the site. For this example, the command is: ip address 192.168.1.1 255.255.255.0
[Site1-GigabitEthernet0/0] port link-mode route	Set the link-mode to route
[Site1-GigabitEthernet0/0] description <interface description>	Configure the description of this Ethernet interface. For this example, the command is: description Site1 LAN

[Site1-GigabitEthernet0/0] nat hairpin enable	Enable nat hairpin mode on LAN interface.
[Site1-GigabitEthernet0/0] save	Save the configuration
[Site1-GigabitEthernet0/0] quit	Moves to the command tree root.
[Site1] interface GigabitEthernet 0/1	Enter interface Ethernet 0/0 parameter view. Of the two Ethernet ports (GE0 and GE1) on the front of the chassis, GE1 will be the WAN Ethernet interface in this example.
[Site1-GigabitEthernet0/1] ip address <WAN IP address> <WAN Subnet Mask>	Configure the WAN interface IP address and subnet mask. This WILL be specific from the network provider, and may be the ISP Static IP address. For this example, the command is: <code>ip address 10.1.1.1 255.255.255.0</code>
[Site1-GigabitEthernet0/1] description <interface description>	Configure the description of this Ethernet port. For this example, the command is: <code>description Site1_WAN</code>
[Site1-GigabitEthernet0/1] port link-mode route	Set the link-mode to route
[Site1-GigabitEthernet0/1] nat outbound port-preserved	Enable port preservation on outbound packets on WAN interface.
[Site1-GigabitEthernet0/1] nat server protocol udp global <repeater global IP address> <repeater UDP port> inside <repeater IP address> <repeater UDP port>	Adds a port forwarding rule for the Rest Channel/Site IP address and port number. For this example, the command is: <code>nat server protocol udp global 10.1.1.1 55001 inside 192.168.1.10 55001</code>
[Site1-GigabitEthernet0/1] nat server protocol udp global <repeater global IP address> <repeater UDP port> inside <repeater IP address> <repeater UDP port>	Adds a port forwarding rule for each traffic repeater's IP address and port number. For this example, the two commands are: <code>nat server protocol udp global 10.1.1.1 50011 inside 192.168.1.11 50011</code> <code>nat server protocol udp global 10.1.1.1 50012 inside 192.168.1.12 50012</code>
[Site1-GigabitEthernet0/1] nat static enable	Enable static nat configuration for WAN interface.
[Site1-Ethernet0/1] save	Save the configuration
[Site1-Ethernet0/1] quit	Moves to the command tree root.

Add Static Default Route

[Site1] ip route-static 0.0.0.0 0.0.0.0 <Gateway Address>	This states that all traffic that doesn't have another static route should use the default gateway address. For this example, the command is: <code>ip route-static 0.0.0.0 0.0.0.0 10.1.1.254</code>
[Site1] save	Save the configuration

Other Common/Optional Router Configurations: Set Console Password

<Site1> system-view	Enters into configuration editing mode.
[Site1] user-interface aux 0	Access aux 0 interface for console interface operations
[Site1-line-aux0] authentication-mode password	Set the authentication mode to password
[Site1-line-aux0] set authentication password simple <password>	Set the simple password to be "Motorola1" for this example: set authentication password simple Motorola1
[Site1-line-aux0] user-role network-admin	Set the user role to be "network-admin."
[Site1-line-aux0] save	Save the configuration
[Site1-line-aux0] quit	Moves to the command tree root.

Other Common/Optional Router Configurations: Enable Telnet

<Site1> system-view	Enters into configuration editing mode.
[Site1] telnet server enable	Enable telnet server.
[Site1] user-interface vty 0 63	Configure the terminal interface
[Site1] user-role network-admin	Set user role to "network-admin"
[Site1-line-vty0-63] authentication-mode scheme	Set the authentication mode to scheme.
[Site1-line-vty0-63] set authentication password simple <password>	Set the simple password to be "Motorola1" for this example: set authentication password simple Motorola1
[Site1-line-vty0-63] save	Save the configuration
[Site1-line-vty0-63] quit	Moves to the command tree root.

Other Common/Optional Router Configurations: Set the clock mode to NTP(Network Time Protocol).

<Site1> system-view	Enters into configuration editing mode.
[Site1] clock protocol ntp	Set the clock protocol to NTP
[Site1] ntp unicast-server<ip address of ntp server>	Set the NTP server used for setting the router clock to 192.168.1.3 for this example: ntp unicast-server 192.168.1.3
<Site1> save	Save the configuration

Other Common/Optional Router Configurations: Manually set the router clock datetime (disable NTP)

<Site1> system-view	Enters into configuration editing mode.
[Site1] clock protocol none	Disable clock protocol (i.e. NTP disable)
[Site1] quit	Return to user-mode to set the date and time.
<Site1> clock datetime <current time> <current date>	Set the datetime in this example to 8:25:00 03/14/2016. clock datetime 8:25:00 03/14/2016
<Site1> save	Save the configuration