

Configuring Morning Star for LAN-Dial Service

You will need the following hardware to setup your equipment:

Using 2 serial cables is preferred, one to be used as a console to configure the router, and one to connect to the modem. A null modem cable, or null modem adapter is required for the console line (tx and rx are flipped, usually pins 3 and 4). *We not supply these cables*

On a PC, some terminal emulation program will be used to configure the router, or an ascii terminal can be used. Connect the console cable to the dumb terminal or PC. Communication parameters should be 9600 baud, 8 data bits, no parity and 1 stop bit. With a valid configuration and all cables connected properly you will receive "login:" as a prompt. You can login as "root", just hit return for a password and you will be logged in at the "#" prompt. From here Unix commands can be used such as 'ls' to see what files exist.

You are now ready to configure the router by editing the files described below. To get familiar with the built-in editor, refer to pages 58 and 59 of the MSE User Guide before you begin.

The Morningstar Express Router (MSE) operating system is modeled after the UNIX operating system. The Console interface is actually a stopped down version of "sh." You can do shell-like things including history, I/O redirection, and create simple shell scripts.

When the Morningstar Express Router (MSE) is booted, it checks for the existence of an "rc.boot" file. If found, it executes instructions in this file. There is always an "rc.default" file, which contains enough instructions to get the machine up and console ready. This file is hardwired into memory and cannot be changed. It is executed if "rc.boot" is corrupted or not present.

The MSE router is not shipped with an "rc.boot" file. Here is a listing of important files on the MSE router:

- rc.boot - contains startup instructions and general configuration.
- resolv.conf – nameserver's for the resolver to use.
- inetd.conf - just like Unix, controls telnet, FTP, and tftp server.
- gated.conf - controls RIP routing (optional).
- Systems - contains phone number for modem to dial/login info.
- Devices - specifies modem type, dialout device & baud rate
- Auth-specifies user name and password

All of these files reside in FLASH memory on the MSE router. They must be saved after modification or creation or the changes will not be permanent through reboots.

There is a rudimentary ed-like editor which you can use to modify or create files in FLASH.

You can also download files to FLASH using TFTP or FTP.

To get a listing of commands on the MSE router, type "?". For a listing of processes running, type "ps ax." For a listing of files in FLASH, type "ls."

Configuring Morning Star for LAN-Dial Service (cont'd)

Sample rc.boot file for LAN-Dial:

```
hostname ACCT.XD
console tty2
version
ifconfig loO 127.1
getty tty2 9600 nowait respawn
ifconfig enet0 LAN.LAN.LAN.LAN netmask 255.255.255.0
pppd LAN.LAN.LAN.O:38.1.1.1 auto idle 900
route add default 38.1.1.1
inetd
```

LAN.LAN.LAN.LAN = your router IP address
ACCT.ID = your account ID.

Sample Systems file:

38.1.1.1 Any ACU 38400 **PHONE.NUM** in--in: **ACCT.ID** word: **PASSWORD**
PASSWORD =Your LAN-Dial acct password
PHONE.NUM = phone number to our pop (Use 9, **PHONE.NUM** if your phone system requires)

Sample Devices file:

```
HAYES-9600 tty1 38400 crtscts
```

Sample Auth file:

```
ACCT.ID PASSWORD
ACCT.ID = your account I D
PASSWORD = the password that goes with your account ID.
```

Sample gated.conf file:

This is a very simple config file which simply turns on RIP and broadcasts RIP out every interface:

```
rip yes
```

gated will announce directly connected networks and other networks it has learned of via RIP.

Sample resolv.conf file:

```
domain DOMAIN
nameserver NS1.IP
nameserver NS2.IP
DOMAIN = Your domain name
NS1.IP & NS2.IP = Your assigned name resolvers
NOTE:
```

This file uses the exact same syntax as the UNIX BIND resolv.conf file.

Configuring Morning Star for LAN-Dial Service (cont'd)

Sample inetd.conf file:

```

#       cat inetd.conf
#       @(#) inetd.conf 1.23 90/01/03 SMI
#
#       Configuration file for inetd(8).  see inetd.conf(5).
#
#       To re-configure the running inetd process, edit this file, then
#       send the inetd process a SIGHUP.
#
#       Ftp and telnet are standard Internet services.
#
ftp     stream      tcp      nowait   root     ftpd
telnet  stream      tcp      nowait   root     telnetd
#
#netstat          stream      tcp      nowait   root     netstat -in
#ps              stream      tcp      nowait   root     ps
#debug          stream      tcp      nowait   root     internal-debug
#
# Time service is used for clock synchronization.
#
time          stream      tcp      nowait   root     internal
time          dgram      udp      wait     root     internal
#
# Echo, discard, daytime, and chargen are used primarily for testing.
#
echo stream      tcp      nowait   root     internal
echo dgram      udp      wait     root     internal
discard        stream      tcp      nowait   root     internal
discard        dgram      udp      wait     root     internal
daytime        stream      tcp      nowait   root     internal
daytime        dgram      udp      wait     root     internal
chargen        stream      tcp      nowait   root     internal
chargen        dgram      udp      wait     root     internal
    
```

Saving Files to Flash:

When a file is modified, it will be marked as "unsaved":

```

# ls
total    14
saved    69    may    5      12:24  acl.parties
saved    42    Dec    31     1969  file.crypt
saved    940   Dec    31     1969  inetd.conf
saved     0    May    5      12:24  manager.families
saved    32    Sep    2      14!14  passwd
saved    492   Dec    31     1969  protocols
unsaved  283   Sep    2      14:58  rc.boot
saved    38    Dec    31     1969  resolv.conf
saved   1912  Dec    31     1969  services
saved    221   Dec    31     1969  smp.parties
saved   1705  Dec    31     1969  snmpd.config
saved    746   Dec    31     1969  tz
saved    67    Dec    31     1969  view.parties
    
```

Configuring Morning Star for LAN-Dial Service (cont'd)

To save a file, type "save <filename>". It will be marked as "saved."

```
# save rc.boot
#
# ls
total      14
saved      69  may   5   12:24  acl.parties
saved      42  Dec   31   1969  file.crypt
saved     940  Dec   31   1969  inetd.conf
saved       0   May   5   12:24  manager.families
saved      32  Sep   2   14:14  passwd
saved     d92  Dec   31   1969  protocols
saved     283  Sep   2   14:58  rc.boot
saved      38  Dec   31   1969  resolv.conf
saved     1912 Dec   31   1969  services
saved     221  Dec   31   1969  smp.parties
saved     1705 Dec   31   1969  snmpd.config
saved      746 Dec   31   1969  tz
saved       67  Dec   31   1969  view.parties
```

Editing a file:

The editor Is a line editor and not a full-screen editor. You can get help by typing "?." Here is an example session using the line editor:

```
#edit rc.boot
rc.boot: read 11 lines, 283 characters
hostname test1
edit> ?
Commands are:
  a <line number> Enter append mode starting after the named line
  i <line number> Enter append mode starting before the named line
  e <line number> Enter edit mode on the named line
  d -<range>      Delete the named lines
  p <range>      Print the named lines
  <range>        Print the named lines
  <return>       Print the next line
  -              Print the previous line
  .              Print the number of the current line
  w              Write the file
  q              Exit
  ?              Print this message
```

Leave append mode with ^D or a dot ('.') on a line by itself. Leave edit mode with a return. A line number can be a number, a dot (current line), a minus sign ('--', previous line), a plus sign ('+', next line), or a dollar sign ('\$ ', last line). A range is either a line number or two line numbers separated by a '-'.

```
edit> w
rc.boot: wrote 11 lines, 283 characters
edit> q
#
```

After writing and quitting out of the editor, you must SAVE the file to FLASH using the "save" command.

Configuring Morning Star for LAN-Dial Service (cont'd)

Using tftp to modify or create a file:

Given the state of the line editor on the MSE router, it is often easier to create or modify your MSE router files on a UNIX machine with your editor of choice and use TFTP to transfer the files to the MSE router:

```
#
# tftp 192.33.4.253
tftp> get rc.boot rc.boot
Received 285 bytes in 0.6 seconds
tftp>
tftp> get inetd.conf inetd.conf
Received 1150 bytes in 0.7 seconds
tftp>
tftp> get resolv.conf resolv.conf
Received 40 bytes in 0.1 seconds
tftp>
tftp> get gated.conf gated.conf
Received 10 bytes in 0.2 seconds
tftp>
tftp> quit
#
#save rc.boot
#save inetd.conf
#save resolv.conf
#save gated.conf
```

Once this is done, you can reboot the router with the new configuration.

Example of “NETSTAT” output from a working LAN-Dial Connection:

```
#netstat -r -n
Routing tables
Destination          GatewayFlags      Refs   Use  Interface
Route Tree for Protocol Family 2:
(root node) =>
default  38.2.211.1      UG      2   102736  tty0
3B.2.211 38.2.211.254   U       1    11     tty0
127      127.0.0.1      UR      0    0      lo0
127.0.0.1 127.0.0.1      UH      0    0      lo0
192.77.191      192.77.191.1U  0    0     enet0
224.0.0.9 127.0.0.1      UH      0    0      lo0
(root node)
```