User Manual

RT-1000 Multichannel Network Interface



Edited by:

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Note

The manufacturer reserves the right to make modifications at any time and without previous information of the here described product.

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1 Description

The network interface for the RT-1000 multichannel direction finder system includes all devices to connect the system over an internet connection to a remote PC. The network interface is built with a redundancy in the transmission/ telephone line. Therefore 2 network switches and 4 DSL modems are necessary.

2 Block Diagram



3 Components

| DF Channel Components | | | |
|-----------------------|--------------------------|--|--|
| Pos. | Component | Description | |
| 1 | Network Switch (Cabinet) | HP 1820-24 G with spanning tree enabled | |
| 2 | Network Switch (Tower) | HP 1820-24 G with spanning tree enabled | |
| 3 | Modem A1 | Orion 3 SHDL modem, line one, master configuration | |
| 4 | Modem A2 | Orion 3 SHDL modem, line one, slave configuration | |
| 5 | Modem B1 | Orion 3 SHDL modem, line two, master configuration | |
| 6 | Modem B2 | Orion 3 SHDL modem, line two, slave configuration | |
| 7 | LAN connection | Network cable | |
| 8 | DSL connection | Telephone cable | |

4 Network Interface Configuration

4.1 Switch Configuration

To configure the network switches a PC with a network interface card (NIC) and a browser must be connected to the switch. The NIC should be configured according to the subnet of the switch.

- 1. Connect to the shelter switch (Pos. 1) with default IP 192.168.1.1 (if no DHCP is available)
- Login to the switch with default user parameters Username: admin Password: _____ (no password)

| MP 1820-24G Switch J9980A × + | | | - 01 | X |
|---|--|--------------------|--------|---|
| 🗲 🕲 192.168.77.207/htdocs/login/login.lsp | ⊽ ⊄] | 🔮 🛪 Google 🛛 👂 🏠 🖻 | 4 A 9 | Ξ |
| Make it matter. | | | hp-sw2 | ^ |
| | | | | |
| | | | | |
| | | | | |
| | HP 1820-24G Switch J9980A | | | |
| | Username admin Password | | | |
| | Log In | | | |
| | | | | |
| | © Copyright 2014 Hewlett-Packard Development Company | у, L.P. | | ~ |

3. Go to the page "Setup Network", "get connected" and set IP settings as required. IP address: 192.168.77.207

| Subnet Mask: | 255.255.255.0 | | |
|--|---------------------------|--|----------------------------|
| Gatewav Address | : 192.168.77.1 | | |
| | | | _ 🗆 🗙 |
| HP 1820-24G Switch J9980A × + | | | |
| 🗲 🕲 192.168.77.207/htdocs/pages/main/n | nain.lsp | ⊽ C ⁱ Soogle | ▶ ☆ 自 ♣ 余 😕 ☰ |
| | | | |
| | HP 1820-24G Switch J9800A | | |
| Setup Network > Get Connected | | | Save Configuration Log Out |
| | | | |
| | Get Connected | | Help |
| Dethered | | | |
| Setup Network | Network Details | | |
| Get Connected System Time | Protocol Type | Static O DHCP @ | |
| Switching | IP Address | 192.168.77.207 (x.x.x.x) | |
| VLAN Trunke | Subnet Mask | 255.255.255.0 (x.x.x.x) | |
| ► LLDP | Gateway Address | 192.168.77.1 (x.x.x.x) | |
| LLDP-MED Security | MAC Address | 8C:DC:D4:F7:E8:20 | |
| For Security For Security For Security | | | |
| Diagnostics | Web Parameters | | |
| Maintenance | Session Timeout (Minutes) | 5 (1 to 60) | |
| | Management Access | | |
| | Management VLAN ID | 1 • | |
| | Management Port | None V | |
| | SNMP | | |
| | SNMP | Enabled Disabled | |
| | Community Name | public (1 to 20 characters) | |
| | | Apply Refresh Cancel | |
| | | © Copyright 2014 Hewlett-Packard Development Company, L.P. | |

- 4. Press "Apply" and reconnect the PC to the switch with the new IP address.
- 5. Go to "Setup Network", "System Time" and set time settings as required and press "Apply"

| (g) 192.168.77.207/htdocs/pages/ma | in/main.lsp | ▼ C 1 🕄 - Google - P ☆ 自 🖡 🏫 9 | |
|------------------------------------|------------------------------------|--|--|
| hp | HP 1820-24G Switch J9980A | | |
| etup Network > System Time > | Time | Save Configuration Log | |
| | Clock Time Time Zone Davlight Savi | ing Time | |
| | Time Configuration | and a result | |
| | inne contiguration | | |
| Dashboard Setup Network | Set System Time | Using Simple Network Time Protocol (SNTP) D Manually | |
| Get Connected | CNTD C 5K | | |
| System Time | SN IP Configuration | | |
| VLAN | SNIP Client | Enabled Obsabled | |
| Trunks | SNIP/NIP Server | 129.70.132.34 (x.x.x.x) | |
| LLDP | Server Port | 123 (1 to 65535) | |
| Security | Last Update Time | Jan 1 00:00:00 1970 | |
| Green Features | Last Attempt Time | Jan 1 00:10:01 1970 | |
| Diagnostics | Last Attempt Status | Request Timed Out | |
| maintenance | Requests | 0. | |
| | Failed Requests | 4 | |
| | Manual Time Configuration | | |
| | Time | 01:11:06 (00:00:00 to 23:59:59) | |
| | Date | January 1, 1970 | |
| | | | |
| | | Apply Refresh Cancel | |
| | | | |
| | | | |
| | | © Copyright 2014 Newlett-Packard Development Company, L.P. | |
| | | | |

- 6. Go to the page "Switching", "Spanning Tree", "Configuration" and change settings to the values listed below and press "Apply":
- enable spanning tree, protocol version RSTP (802.1w)
- bridge-priority for the first switch (shelter) is 0 (zero)
 bridge-priority for the second switch (tower) is 16.384
 - bridge-priority for the second switch (tower) is 16.384 - 🗆 🗙 🍈 HP 1820-24G Switch J9980A 🗙 🕂 ♦ ③ 192.168.77.207/htdocs/pages/main/ 🗢 Cl 🔡 + Google ♀ ☆ 自 ♣ 龠 9 Ξ P 1820-24G Switch .199804 hp ENK/AGT 22
 1
 3
 5
 7
 0
 11
 13
 15
 17
 19
 21

 2
 4
 6
 8
 19
 12
 14
 16
 18
 20
 22
 Switching > Spanning Tree nfigu us Configuration Spanning Tree Configuration Dashboard Setup Network Spanning Tree Bridge Con Switching Port Configuration Enabled O Disabled Spanning Tree Port Configuration Port Mirroring Jumbo Frames Flow Control Spanning Tree Loop Protection IGMP Snooping Protocol Version RSTP (802.1w) Y Max Age 20 (6 to 40) Hello Time 2 Forward Delay 15 (4 to 30) 16384 ~ Bridge Priority VLAN Trunks BPDU Guard LLDP BPDU Filter LLDP-MED Security Green Features Diagnostics Maintenance Spa Root Bridge Identifier 40:00:8C:DC:D4:F7:E8:20 Root Guarded Interfaces TCN Guarded Interfaces 1-26, TRK1-TRK8 BPDU Flood Enabled Interfaces BPDU Filtered Interfaces Display All 👻 rows Showing 1 to 34 of 34 entries Filter Interface 💠 Port Role 💠 Port Forwarding State 💠 Port Priority 💠 Port Path Cost 💠 Auto Edge 💠 Point-to-point MAC \$ Disabled Disabled 0x0080 Enabled False 2 Disabled Disabled 0x0080 0 Enabled False Disabled Disabled 0×0080 False 3 0 Enabled Disabled Disabled 0x0080 Enabled False Disabled Disabled 0×0080 Enabled Fals
- 7. Go to "Maintenance", "Backup and Update manager", backup, transfer a file from the switch) and click on the arrow pointing downwards:

| G. 192.108.77.207/http://pages/main/main.isp | | ⊽ C ⁴ 8 * Go | ogle 🦻 🏠 | 自非合 | Ø |
|--|-------------------|---|---|--|-------|
| Image: Weight of the second | Switch J9980A | | | Diller erty suggested 1 Space 2 LINK/ACT 25 LINK/ACT 25 | |
| aintenance > Backup and Update Manager | | | Save C | onfiguration | og Ou |
| File Transfer | | | | | Help |
| Dashboard Setup Network Switching | Transfer Protocol | Backup Transfer a file from the switch | Update Transfer a file to the switch | | |
| VLAN | HTTP | | Ŧ | | |
| LLDP | TFTP | (1) | • | | |
| Maintenance Password Manager Backup and Update | | | | | |
| Manager Dual Image Configuration | | | | | |
| Manager Dual Image Configuration | | | | | |
| Manager Dual Image Configuration | | | | | |
| Manager Dual Image Configuration | | | | | |
| Manager Dual Image Configuration | | | | | |

| 3 192.168.77.207/htdocs/pages/main/main.ls | ¢) | ⊽ C ^e Soogle | ▶ ☆ 自 | ↓ ☆ ⊕ |
|--|-------------------|-------------------------------|---------------------|--------------|
| teintenance > Backup and Update Man. | | | | |
| | | | | |
| Dashboard Sotup Hetwork Switching VLAN Trunks LDP | Transfer Protocol | Backup Update Transfer Update | stile to the switch | |
| | Status | Begin Transfer | | |
| | | Clos | | |
| | | | | |
| | | | | |
| | | | | |

8. Choose "Configuration" and click on "Begin Transfer"

- 9. Save the file with the extension.cfg to disk and keep it in a safe environment.
- 10. Press "Close" and go to "Maintenance", "Password Manager" and set a password as required (min. 8 characters):

| THE 1020-240 SWITCH J3300/A A | 199 | | | |
|--|---------------------------|-------------------------------|--------------------------------|--------------------|
| 192.168.77.207/htdocs/pages/main/m | ain.lsp | | ⊽ C' 🔡 * Google | ▶ ☆ 自 ↓ ☆ ❷ |
| Aaintenance > Password Manager | HP 1820-240 Switch J9886A | | | Save Configuration |
| | Password Manager | | | Help |
| Dashboard | Usemame | admin | (1 to 64 characters) | |
| Setup Network Switching | Current Password | aunin | (1 to 64) | |
| VLAN | New Password | | (8 to 64) | |
| LLDP | Confirm New Password | | (8 to 64) | |
| Diagnostics Maintenance Password Manager | | © Copyright 2014 Hewlett-Pack | kard Development Company, L.P. | |
| Backup and Update Manager Dual Image Configuration | | | and development company car | |
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11. Repeat all steps for second switch (tower) with different IPaddress.



4.2 Modem Configuration

To configure the modems a PC with a network interface card (NIC) and a browser must be connected to the switch. The NIC should be configured according to the subnet of the switch/modems. The default IP address for new modems is 192.168.0.235. The software TFTP-Server must be installed and running on the PC for the configuration of the modems with the configuration files.

Needed Files: mdm-a1, mdm-a2, mdm-b1, mdm-b2

- 1. Connect modem to switch with LAN1
- 2. Type the modem IP in your browser (new modem: 192.168.0.235)
- 3. Choose "Configuration" (on the left) and "Software & Configuration Update" (on top). Type IP address of the PC with TFTP-Server running and the name of the config-file. For example:

TFTP-Server IP :192.168.0.230Config file path:mdm-a1

| / □ IP: 192.168.77.217 × | |
|---|--|
| (← ⇒ C fi Q | |
| Logged in as ADMINI SUMMARY ALARMS DSL STATUS DSL STATISTICS NET STATISTICS LLDP NEIGHBOURS CONFIGURATION COMMAND REFERENCE | DSL Peylod theret MAC Filter RSTP SUMP LDP Aerros Device Management Contrig Update Firmware & Configuration Update |
| | |

- 4. Click on "Upload"
- 5. Don't forget to change the IP address of your PC after the upload. When the modem restarts it will have the IP address from the RHOTHETA-config-file.

- 6. Open your browser and connect to the modem. There are 2 different configurations coming from RHOTHETA:
 - modem mdm-a1 and mdm-b1 are configured as master-modems (dsl-parameter)
 - modem mdm-a2 and mdm-b2 are configured as slave-modems (dsl-parameter)
- 7. Do not use the same config-file for different modems as the MAC address is included in the config-file!
- 8. IP address table RHOTHETA config-files:

| • | shelter: | mdm-a1: | 192.168.77.217 | mdm-b1: | 192.168.77.218 |
|---|----------|---------|----------------|---------|----------------|
| • | tower: | mdm-a2: | 192.168.77.208 | mdm-b2: | 192.168.77.209 |

9. Changing IP settings:

Open your browser and connect to modem, for example mdm-a1 192.168.77.217.

10. Change IP settings as required an click on "Save":

| Logged in as ADMINI | DSL Payload Ethernet MAC Filter RSTP SNMP LLDP | Alarms Device Management | Software & Config Update |
|--|---|--------------------------|--------------------------|
| UMMARY LARMS SL STATUS SL STATISTICS ET STATISTICS | Ethernet settings | VLAN & QoS | |
| LDP NEIGHBOURS ONFIGURATION OMMAND REFERENCE | In address. 12:10:71217 Subnet mask: 256:256:265.0 Gateway: 192:168.77.1 MTU: 1500 | CoS settings | |
| | LAN settings Port Description Speed Flow control LAN1 LAN1 AUTO • Image: Control of the set | | |
| | Save | | |
| | | | |

11. There will be a warning to apply again and confirm the changes:



12. There will be again a warning and you'll have to logon to the modem within the next 5 minutes to confirm, the settings. Otherwise the old settings will be restored:

| Configuration will be reapplied from | startup configuration if |
|--------------------------------------|--------------------------|
| you wouldn't connect to modem via | telnet or WEB or |
| remotely with 'CONNECT' in 5 minut | es. |
| | ок |

13. After reconnect to the modem you have to confirm the configuration:

| ogged in as ADMINI | DSL Payload Ethernet | MAC Filter RS | FP SNMP | LLDP | Alarms Device Ma | nagement Software & Config Update | |
|--------------------|----------------------|---------------------------------|--------------|-------------|------------------|-----------------------------------|---------|
| MS | DCI settings | | | | | | |
| STATUS | DSL settings | | | | | | |
| STATISTICS | DSL mode | | _ | | | | |
| STATISTICS | Active channels: 1 | Multipair n | node:? OF | F 🔹 AUT | O Slave mode: | | |
| NEIGHBOURS | | | | | | | |
| AND REFERENCE | | DSL1 | ŝ | | | | |
| | Description: | DSL | 1 | | | | |
| | Master/Slave: | Master | * | | | | |
| | Baserate: | Auto | | | | | |
| | PAM: | AUTO | Ŧ | | | | |
| | ANNEX: | A/B | ¥ | | | | |
| | DSL sync: | Int | | | | | |
| | Noise Margin: | OFF dE | (OFF/025 |) | | | |
| | Line Attenuation: | OFF dE | (OFF/025 |) | | | |
| | | | | | | | |
| | | - | | | | | 1 |
| | Save | ACTIVE CON | FIGURATION 1 | IS NOT CONF | IRMED YET. CONF | IRM CONFIGURATION AND IT | Confirm |

14. After confirming the changes everything is written to the startup-config:

| current running configuration is con startup configuration in EEPROM | firmed and written to |
|---|-----------------------|
| | OK |

15.Don't forget to set a strong password and to back up the configuration after everything is configured!

5 Notes