Secure Terminal Server

STS ¼³¸í¼­

Version 1.3.2

2005-05-27
## Revision history

<table>
<thead>
<tr>
<th>Revision</th>
<th>Date</th>
<th>Name</th>
<th>Description</th>
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</thead>
<tbody>
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<td>V1.0.2</td>
<td>2003-12-3</td>
<td>O.J. Jung</td>
<td>Initial Release</td>
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<td>V1.1.0</td>
<td>2004-01-12</td>
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<td>O.J. Jung</td>
<td>µû¸¥</td>
</tr>
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<td>V1.2.0</td>
<td>2004-06-11</td>
<td>O.J. Jung</td>
<td>Æß¿þ¾î v1.2.0</td>
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<td>V1.3.0</td>
<td>2004-10-11</td>
<td>O.J. Jung</td>
<td>µû¸¥   v1.3.0</td>
</tr>
<tr>
<td>V1.3.1</td>
<td>2004-10-15</td>
<td>O.J. Jung</td>
<td>6</td>
</tr>
<tr>
<td>V1.3.2</td>
<td>2005-05-18</td>
<td>O.J. Jung</td>
<td>7, PC DTR/DSR</td>
</tr>
</tbody>
</table>
## Contents

1. 索引 ........................................................................................................................................... 7
   1.1. 索引 ...................................................................................................................................... 7
   1.2. 索引 ...................................................................................................................................... 8
   1.3. 索引 ...................................................................................................................................... 9
   1.4. 索引 ..................................................................................................................................... 10
2. 索引 ......................................................................................................................................... 12
   2.1. 索引 ...................................................................................................................................... 12
     2.1.1. STS800 索引 ................................................................................................................... 12
     2.1.2. STS1600 Panel Layout .................................................................................................. 13
   2.2. 索引 ..................................................................................................................................... 13
     2.2.1. 索引 ................................................................................................................................. 14
     2.2.2. 索引 ................................................................................................................................. 14
     2.2.3. 索引 .................................................................................................................................. 15
     2.2.4. 索引 .................................................................................................................................. 15
     2.2.5. 索引 .................................................................................................................................. 16
     2.2.6. 索引 .................................................................................................................................. 16
   2.3. 索引 ..................................................................................................................................... 18
3. 索引 ......................................................................................................................................... 21
   3.1. IP .......................................................................................................................................... 21
     3.1.1. Static IP .............................................................................................................................. 22
     3.1.2. DHCP ................................................................................................................................. 23
     3.1.3. PPPoE ................................................................................................................................. 24
   3.2. SNMP Configurations ............................................................................................................. 25
     3.2.1. MIB-II °´Ã¼ (MIB-II system objects) .............................................................................. 26
     3.2.2. ¾×¼¼½º Á¦¾î (Access control settings) .................................................................. 26
     3.2.3. Æ®·¦ ¼ö½Å±â (Trap receiver settings) ........................................................................... 27
     3.2.4. SNMP°¦ÀÌ¿ëÇÑ °ü¸® ................................................................................................... 27
   3.3. DNS(Dynamic DNS) .............................................................................................................. 28
   3.4. SMTP .................................................................................................................................. 29
   3.5. IP °ÊÅ͸µ ................................................................................................................................. 30
   3.6. SYSLOG °¹ö .......................................................................................................................... 31
   3.7. NFS °¹ö .................................................................................................................................. 32
   3.8. Ethernet .................................................................................................................................. 33
   3.9. Web server configuration ......................................................................................................... 33
   3.10. TCP °­ºñ½º ........................................................................................................................... 34
4. 索引 ......................................................................................................................................... 36
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1.</td>
<td>36</td>
</tr>
<tr>
<td>4.2.</td>
<td>40</td>
</tr>
<tr>
<td>4.2.1.</td>
<td>41</td>
</tr>
<tr>
<td>4.2.2.</td>
<td>41</td>
</tr>
<tr>
<td>4.2.3.</td>
<td>42</td>
</tr>
<tr>
<td>4.2.4.</td>
<td>43</td>
</tr>
<tr>
<td>4.2.5.</td>
<td>53</td>
</tr>
<tr>
<td>4.2.6.</td>
<td>54</td>
</tr>
<tr>
<td>4.2.7.</td>
<td>54</td>
</tr>
<tr>
<td>4.2.8.</td>
<td>60</td>
</tr>
<tr>
<td>4.2.9.</td>
<td>60</td>
</tr>
<tr>
<td>4.2.10.</td>
<td>63</td>
</tr>
<tr>
<td>4.2.11.</td>
<td>64</td>
</tr>
<tr>
<td>4.2.12.</td>
<td>66</td>
</tr>
<tr>
<td>4.3.</td>
<td>70</td>
</tr>
<tr>
<td>5.</td>
<td>72</td>
</tr>
<tr>
<td>5.1.</td>
<td>73</td>
</tr>
<tr>
<td>5.2.</td>
<td>74</td>
</tr>
<tr>
<td>5.3.</td>
<td>75</td>
</tr>
<tr>
<td>5.4.</td>
<td>75</td>
</tr>
<tr>
<td>6.</td>
<td>77</td>
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<tr>
<td>6.1.</td>
<td>77</td>
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<tr>
<td>6.2.</td>
<td>77</td>
</tr>
<tr>
<td>6.3.</td>
<td>79</td>
</tr>
<tr>
<td>6.4.</td>
<td>80</td>
</tr>
<tr>
<td>6.5.</td>
<td>80</td>
</tr>
<tr>
<td>6.6.</td>
<td>81</td>
</tr>
<tr>
<td>6.7.</td>
<td>82</td>
</tr>
<tr>
<td>6.8.</td>
<td>84</td>
</tr>
<tr>
<td>6.9.</td>
<td>86</td>
</tr>
<tr>
<td>7.</td>
<td>89</td>
</tr>
<tr>
<td>7.1.</td>
<td>89</td>
</tr>
<tr>
<td>7.2.</td>
<td>89</td>
</tr>
<tr>
<td>7.3.</td>
<td>90</td>
</tr>
<tr>
<td>7.4.</td>
<td>92</td>
</tr>
<tr>
<td>7.5.</td>
<td>94</td>
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<tr>
<td>7.6.</td>
<td>95</td>
</tr>
<tr>
<td>8.</td>
<td>96</td>
</tr>
</tbody>
</table>
1. 

1.1. 

STS 通过 Ethernet 传输数据。STS 通过 TCP/IP、UDP 等协议传输数据。STS 通过 PPPoE（PPP-over-Ethernet）传输数据。DSL 通过 PPPoE 传输数据。RS232 通过串行端口传输数据。

DHCP、PPPoE、DNS（DDNS：Dynamic DNS）等通过 PPPoE 传输数据。DSL 通过 PPPoE 传输数据。STS 通过 PPPoE 传输 DNS 数据。SSLv2、SSLv3、TLSv1 等通过 IP 传输数据。

- Telnet
- POS
- 
- 
- RS232 通过串行端口传输数据。
1.2. 系统规格

- STS
- 110V 230V
- CAT5
- Quick Start Guide
- Serial/IP Com Port Redirector, HelloDevice Manager
- CD-ROM
### 1.3. Specifications

<table>
<thead>
<tr>
<th>Feature</th>
<th>STS800</th>
<th>STS1600</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ports</strong></td>
<td>8-bit</td>
<td>16-bit</td>
</tr>
<tr>
<td><strong>Line Speed</strong></td>
<td>75bps ~ 230Kbps</td>
<td></td>
</tr>
<tr>
<td><strong>Network Interface</strong></td>
<td>RJ45 Ethernet</td>
<td>10/100 Base Ethernet</td>
</tr>
<tr>
<td><strong>IP</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PCMCIA</strong></td>
<td>ATA</td>
<td></td>
</tr>
<tr>
<td><strong>Modem emulation</strong></td>
<td>AT, telnet, HelloDevice Manager</td>
<td></td>
</tr>
<tr>
<td><strong>PC</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Modem emulation</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>L x W x H (mm)</strong></td>
<td>245 x 153 x 30</td>
<td>432 x 193 x 44.5</td>
</tr>
<tr>
<td><strong>Weight (kg)</strong></td>
<td>1.5</td>
<td>2.8</td>
</tr>
</tbody>
</table>

**Network Interface**: RJ45 Ethernet, DTR/DSR and RTS/CTS.

**PCMCIA**: ATA, 802.11b, 10/100 Base-TX.

**Modem emulation**: AT, telnet, HelloDevice Manager.

**LED**: Power, Ready, 10/100 Base Link, Act.

**Environmental**: 5°C ~ 50°C, -40°C ~ 66°C.

**Power Supply**: 5VDC, 1.5A @ 5VDC, 110 ~ 240VAC.

**Dimensions**: DIN-rail mount option, 19 in. rack mountable.
1.4. STS

- STS devices have a two-tiered MAC address. STS MAC addresses begin with "00-01-95-xx-xx-xx".

**MAC**

- LAN: Ethernet LAN is a type of Ethernet .
- MAC: OUI (Organization Unique Identifier) is a 6-digit MAC address used in 12-bit MAC addresses. STS MAC addresses are in the form 00-01-95-xx-xx-xx.

---

**Network Configuration**

- IP addresses are often represented in an octet notation (e.g., 192.168.1.1).
- Configuration information is typically stored in a configuration file such as `html/`.
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISP</td>
<td>Internet Service Provider</td>
</tr>
<tr>
<td>PC</td>
<td>Personal Computer</td>
</tr>
<tr>
<td>NIC</td>
<td>Network Interface Card</td>
</tr>
<tr>
<td>MAC</td>
<td>Media Access Control</td>
</tr>
<tr>
<td>LAN</td>
<td>Local Area Network</td>
</tr>
<tr>
<td>UTP</td>
<td>Unshielded Twisted Pair</td>
</tr>
<tr>
<td>ADSL</td>
<td>Asymmetric Digital Subscriber Line</td>
</tr>
<tr>
<td>ARP</td>
<td>Address Resolution Protocol</td>
</tr>
<tr>
<td>IP</td>
<td>Internet Protocol</td>
</tr>
<tr>
<td>ICMP</td>
<td>Internet Control Message Protocol</td>
</tr>
<tr>
<td>UDP</td>
<td>User Datagram Protocol</td>
</tr>
<tr>
<td>TCP</td>
<td>Transmission Control Protocol</td>
</tr>
<tr>
<td>DHCP</td>
<td>Dynamic Host Configuration Protocol</td>
</tr>
<tr>
<td>SMTP</td>
<td>Simple Mail Transfer Protocol</td>
</tr>
<tr>
<td>FTP</td>
<td>File Transfer Protocol</td>
</tr>
<tr>
<td>PPP</td>
<td>Point-To-Point Protocol</td>
</tr>
<tr>
<td>PPPoE</td>
<td>Point-To-Point Protocol over Ethernet</td>
</tr>
<tr>
<td>HTTP</td>
<td>HyperText Transfer Protocol</td>
</tr>
<tr>
<td>DNS</td>
<td>Domain Name Service</td>
</tr>
<tr>
<td>DDNS</td>
<td>Dynamic Domain Name Service</td>
</tr>
<tr>
<td>SNMP</td>
<td>Simple Network Management Protocol</td>
</tr>
<tr>
<td>RADIUS</td>
<td>Remote Access for Dial-In User Service</td>
</tr>
<tr>
<td>SSH</td>
<td>Secure Shell</td>
</tr>
<tr>
<td>NTP</td>
<td>Network Time Protocol</td>
</tr>
<tr>
<td>UART</td>
<td>Universal Asynchronous Receiver/Transmitter</td>
</tr>
<tr>
<td>Bps</td>
<td>Bits per second (baud rate)</td>
</tr>
<tr>
<td>DCE</td>
<td>Data Communications Equipment</td>
</tr>
<tr>
<td>DTE</td>
<td>Data Terminal Equipment</td>
</tr>
<tr>
<td>CTS</td>
<td>Clear to Send</td>
</tr>
<tr>
<td>DSR</td>
<td>Data Set Ready</td>
</tr>
<tr>
<td>DTR</td>
<td>Data Terminal Ready</td>
</tr>
<tr>
<td>RTS</td>
<td>Request To Send</td>
</tr>
<tr>
<td>DCD</td>
<td>Data Carrier Detect</td>
</tr>
</tbody>
</table>
2. STS800

- 2.1  System LED
- 2.2  STS 100Mbps LED
- 2.3  Telnet STS 100Mbps

2.1. STS800

2.1.1. STS800

| 2.1 | System, Ethernet Serial Ports, Power, Ready, PC Card Interface, Ethernet 100Mbps, Link, Act, Receive, Transmit, RJ45, Ethernet, STS400, RS232 |
2.1.2. STS1600 Panel Layout

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System</strong></td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td></td>
</tr>
<tr>
<td>Ready</td>
<td></td>
</tr>
<tr>
<td>PC card</td>
<td></td>
</tr>
<tr>
<td><strong>Ethernet</strong></td>
<td></td>
</tr>
<tr>
<td>100Mbps</td>
<td></td>
</tr>
<tr>
<td>LINK</td>
<td></td>
</tr>
<tr>
<td>Act</td>
<td></td>
</tr>
<tr>
<td><strong>Serial port</strong></td>
<td></td>
</tr>
<tr>
<td>InUse</td>
<td></td>
</tr>
<tr>
<td>Rx/Tx</td>
<td></td>
</tr>
</tbody>
</table>

### 2.1.2. STS1600 Panel Layout

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System</strong></td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td></td>
</tr>
<tr>
<td>Ready</td>
<td></td>
</tr>
<tr>
<td>PC card</td>
<td></td>
</tr>
<tr>
<td><strong>Ethernet</strong></td>
<td></td>
</tr>
<tr>
<td>100Mbps</td>
<td></td>
</tr>
<tr>
<td>LINK</td>
<td></td>
</tr>
<tr>
<td>Act</td>
<td></td>
</tr>
<tr>
<td><strong>Serial port</strong></td>
<td></td>
</tr>
<tr>
<td>InUse</td>
<td></td>
</tr>
<tr>
<td>Rx/Tx</td>
<td></td>
</tr>
</tbody>
</table>

2.2. 小节

- STS 面板布局
  - STS 电源
  - STS 就绪
  - PC 卡
  - 以太网 100Mbps
  - 连接
  - 使用
  - 串行口
  - 接收/发送

2.2. 小节

- STS 2-2 STS1600面板

2.2. 小节

- STS 2-1 STS LED面板

- STS 电源
- STS 就绪
- PC 卡
- 以太网 100Mbps
- 连接
- 使用
- 串行口
- 接收/发送
2.2.1. ステータス

STS 2-3 STS800 2-4 STS1600

2.2.2. イーサネット

Ethernet 2-3 STS800 2-4 STS1600

- [Link] 2-3 STS800 2-4 STS1600
- [Act] 2-3 STS800 2-4 STS1600
- STS 10Base-T 100Base-TX [100Mbps]
- STS 10Base-T [100Mbps]
2.2.3. STS800/1600

STS は、スタック可能でインタフェースが柔軟です。1つの機器を複数の機器にスワップして使用できます。STS システム内の各機器は独立で動作し、システム全体では信頼性が向上します。

2.2.4. STS800/1600

STS は、GUI(Graphic User Interface)と CLI(Command Line Interface)をサポートしています。GUIはグラフィカルなユーザーインターフェースを提供し、CLIは命令行の入力でシステムを操作します。
- はじめに

   - /Ethernet STS と お使いいただけます。これにより STS
     サービスを提供することが可能となります。

- サポート

   - STS サポートを提供しております。また、STStelnet(TCP 80 23) 
     や ネットワークに接続することも可能となります。

- 使い方

   - STS とインターネット Explorer または Netscape Navigator 
     を使用して STS の設定を行います。各設定においても同じ
     です。

2.2.5. 設定方法

   1) /Ethernet STS と お使いいただけます。

   2) RJ45-DB9 ケーブル (female adapter) と お使いいただけます。

   3) ケーブルを STS に接続して お使いいただけます。

   4) HyperTerminal を お使いいただけます。設定においても
      同じです。

      - 9600 Baud rate
      - Data bits 8
      - Parity None
      - Stop bits 1
      - No flow control

   5) [ENTER] として お使いいただけます。

   6) STS と お使いいただけます。設定においても同じです。

   Login: root  Password: root
Login: admin  Password: admin

192.168.161.5 login: root
Password:****
root@192.168.161.5:~#

7) CLI ＼ода  ＼ода  ＼ода  ＼oda  ＼oda  ＼oda  ＼oda  ＼oda  ＼oda  ＼oda  ＼oda  ＼oda  ＼oda  ＼oda  ＼oda
8) CLI ＼oda  ＼oda  ＼oda  ＼oda  ＼oda  ＼oda  ＼oda  ＼oda  ＼oda  ＼oda  ＼oda  ＼oda  ＼oda  ＼oda  ＼oda

8)  "ss.edit" ウォード ウォード ,  2-8 ウォード ウォード ウォード.

root@192.168.161.5:~#ss.edit

Welcome to STS-800 configuration page
Current time: 08/22/2003 21:52:36     F/W REV.: v1.0.1
Serial No.: STS800438349-42944       MAC address: 00-01-95-04-19-5a
IP mode: DHCP                      IP address: 192.168.14.7

Select menu:
1. Network configuration
2. Serial port configuration
3. PC Card configuration
4. System administration
5. Save changes
6. Exit without saving
7. Exit and apply changes
8. Exit and reboot
<Enter> Refresh

2-8 2-8 2-8 2-8 (STS800)

2-2.6.°ø°Ý ÄܼÖ

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°ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý
°ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý
°ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý
°ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý
°ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý
°ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý
°ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý
°ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý
°ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý
°ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý  °ø°Ý
The following instructions will assist in setting up the Remote Console functionality:

1) Telnet
   - telnet (TeraTerm-Pro or Hyper Terminal)
   - IP port number STS
   - IP [port number] STS
   - IP [port number] 23
   - IP [port number] root

   telnet 192.168.161.5

2) STS
   - admin

3) STS HTTP/HTTPS

2.3. STS HTTP/HTTPS
Login: root        Password: root
Login: admin      Password: admin

IP: 192.168.1.1   URL/Location
2-10 STS          IP: (Save to Flash)
2-18 STS          IP: (Save & apply)
2-111 STS         IP: (Configuration page)
2-100 STS         IP: (Save to flash)
2-18 STS          IP: (Save & apply)
2-111 STS         IP: (Cancel)
2-10 STS          IP: (Save & apply)
2-18 STS          IP: (Apply Changes)
2-111 STS         IP: (Save & Apply)
2-100 STS         IP: (Cancel)
2-18 STS          IP: (Apply Changes)
2-111 STS         IP: (Save & Apply)
2-100 STS         IP: (Cancel)
### IP configuration

<table>
<thead>
<tr>
<th>IP mode</th>
<th>Static</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP address</td>
<td>192.168.161.5</td>
</tr>
<tr>
<td>Subnet mask</td>
<td>255.255.0.0</td>
</tr>
<tr>
<td>Default gateway</td>
<td>192.168.1.1</td>
</tr>
<tr>
<td>Primary DNS (0.0.0.0 for auto)</td>
<td>192.168.162.1</td>
</tr>
<tr>
<td>Secondary DNS (optional)</td>
<td>192.168.162.2</td>
</tr>
<tr>
<td>PPPoE user name</td>
<td>whoever</td>
</tr>
<tr>
<td>PPPoE password</td>
<td>*********</td>
</tr>
<tr>
<td>Confirm PPPoE password</td>
<td>*********</td>
</tr>
</tbody>
</table>

---

**2-11 STS**

---
3. 3-1 3-1 3-1

3.1. IP 3-1

The STS Series is initially defaulted to **STATIC** mode, with a static IP address of **192.168.161.5**. **3-1** shows the configuration parameters for all three IP configurations. **3-1** shows the actual web-based GUI to change the user’s IP configuration.

<table>
<thead>
<tr>
<th>Static IP</th>
<th>IP address</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Subnet mask</td>
</tr>
<tr>
<td></td>
<td>Default gateway</td>
</tr>
<tr>
<td></td>
<td>Primary DNS/ Secondary DNS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DHCP</th>
<th>Primary DNS/ Secondary DNS (Optional)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>PPPoE</th>
<th>PPPoE Username</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PPPoE Password</td>
</tr>
<tr>
<td></td>
<td>Primary DNS/ Secondary DNS (Optional)</td>
</tr>
</tbody>
</table>
3.1.1. Static IP

Static IP is used when you have a static IP address assigned by your ISP (Internet Service Provider). This means that your IP address is fixed and does not change. STS stands for Service Terminal System, which is the device that connects your computer to the internet. You will need to provide your Static IP address, Subnet mask, and Default gateway.

- **IP address**: 192.168.1.x
- **Subnet mask**: Usually 255.255.255.0
- **Default gateway**: Your ISP will provide this information
- **DNS server**: Required for resolution of domain names to IP addresses
- **PPPoE user name and password**: Provided by your ISP

If you are not sure about any of these details, contact your ISP for assistance.
- **Default gateway**

  Default gateway is the gateway IP address to which IP packets are sent when the destination IP address is not in the same network. The gateway IP address is typically provided by the Internet Service Provider (ISP) or the network administrator. If the default gateway is not configured correctly, the system may not be able to communicate with the outside world. STS and other IP address configurations should be configured properly.

- **Primary and Secondary DNS**

  Primary and Secondary DNS servers are responsible for converting domain names into IP addresses. DNS (Domain Name System) resolves domain names into IP addresses. DNS servers cache IP addresses for faster lookup. For example, sena.com might be configured as a Primary DNS server, and another DNS server as a Secondary DNS server. STS might be configured as the Primary DNS server, and another DNS server as the Secondary DNS server.

  DNS servers cache IP addresses for faster lookup. STS might be configured as the Primary DNS server, and another DNS server as the Secondary DNS server.

  **3.1.2. DHCP**

  DHCP (Dynamic Host Configuration Protocol) assigns IP addresses to devices on a network. DHCP leases are typically assigned for a certain period of time, and automatically renew when the lease expires. Static IP addresses are assigned manually and do not automatically renew. The DHCP server assigns IP addresses to devices on the network. DHCP leases can be renewed manually or automatically. STS might be configured as the DHCP server.
1.3. PPPoE

PPPoE 用于在 Ethernet LAN(以太网) 和 ADSL 之间进行连接。PPPoe 用于 ADSL, DNS 用于 STS. PPPoE 用于 ADSL, STS 用于 PPPoE

DHCP 用于获取 IP, 用于 STS. DHCP 用于 ADSL, STS 用于 PPPoE, STS 用于 ADSL, DHCP 用于 IP, DHCP 用于 PPPoE

DNS IP 用于 STS, primary 用于 secondary DNS IP 用于 STS, primary 用于 secondary DNS IP 用于 0.0.0.0 (0.0.0.0)
3.2. SNMP Configurations

STS SnackBar SNMP v1 v2 NMS SNMP (Simple Network Management Protocol) STS SNMP GET, SET, GET-Next, TRAP. SNMP v1, v2 SNMP (TRAPs), SNMP v2 GET, TRAP SNMP v2 (GET), SNMP v2 (SET). SNMP v2 SNMP GET-Bulk.

SNMP MIB-II 3-2 SNMP.
3.2.1. MIB-II (MIB-II system objects)

MIB-II system objects such as the community strings, SNMP version, and traps are defined in the MIB-II system objects (Authentication-failure traps) of the RFCs 1066, 1067, 1098, 117, 1317, and 1213.

**OIDs: sysName, sysContact, sysLocation, sysService, enableAuthenTrap (OID)***

- **sysContact:** STS (Simple Text String) or IP address
- **sysName:** STS (Simple Text String) or FQDN (Fully Qualified Domain Name)
- **sysLocation:** (country, state, city, street)
- **sysService:** STS
- **EnableAuthenTrap:** SNMP
- **EnableLinkUpTraps:** SNMP
- **EnableLoginTrap:** SNMP

3.2.2. Access control settings

Access control settings in STS involve configuring the SNMP parameters to control access to the device. The settings include community strings, SNMP version, trap destinations, and access control rules. IP addresses used in these settings include IP addresses such as 0.0.0.0 and 127.0.0.1.
3.2.3. Trap receiver settings

(Trap receiver settings)

3.2.4. SNMP settings

NMS (Network Management System) uses SNMP to receive traps. SNMP相當は、SNMPでトラップを送信する。3-3 STSではSNMPでMIB-II OIDを使用し、SNMPの設定を行います。
3.3. **DNS (Dynamic DNS)**

Dynamic DNS services are provided by Dynamic DNS Network Services (www.dyndns.org). Dynamic DNS uses the following protocol:

1. Dynamic DNS Network Services
2. STS
3. Dynamic DNS Network Services Members NIC

Dynamic DNS Network Services

**Dynamic DNS Configuration**

<table>
<thead>
<tr>
<th>Setting</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynamic DNS :</td>
<td>Enabled</td>
</tr>
<tr>
<td>Domain Name :</td>
<td>ss800.dyndns.biz</td>
</tr>
<tr>
<td>User Name :</td>
<td>ss800-user</td>
</tr>
<tr>
<td>Password :</td>
<td>*********</td>
</tr>
<tr>
<td>Confirm password :</td>
<td>*********</td>
</tr>
</tbody>
</table>

**Save to flash**  **Save & apply**  **Cancel**
3.4. SMTP

smtp 
email  ·Î±×  STS  3

- SMTP
- POP-before-SMTP

3-6. SMTP

- SMTP server IP address
- SMTP user name
- SMTP user password
- Device mail address

<table>
<thead>
<tr>
<th>SMTP configuration</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>SMTP enable/disable</td>
<td>Enabled</td>
</tr>
<tr>
<td>SMTP server name</td>
<td>smtp.yourcompany.com</td>
</tr>
<tr>
<td>SMTP mode</td>
<td>SMTP without authentication</td>
</tr>
<tr>
<td>SMTP user name</td>
<td>admin</td>
</tr>
<tr>
<td>SMTP password</td>
<td>*****</td>
</tr>
<tr>
<td>Device mail address</td>
<td><a href="mailto:SSE00@yourcompany.com">SSE00@yourcompany.com</a></td>
</tr>
</tbody>
</table>

3-5 SMTP
3.5. IP

Timeslot Single Point in Time (TSIP): STS 155.125

Telnet, SSH: IP 255.255.255.255·Î Äè 0.0.0.0 À¸·Î ·Î Äè 3-2·Î ·Î “Any(¬ò¬±¬±)”·Î ·Î ·Î ·Î.
### IP Filtering

**Telnet IP filtering**
- Configuration via telnet: Enabled
- Allowed base host IP: 0.0.0.0
- Subnet mask to be applied: 0.0.0.0

**SSH IP filtering**
- Configuration via ssh: Enabled
- Allowed base host IP: 0.0.0.0
- Subnet mask to be applied: 0.0.0.0

**Web IP filtering**
- Configuration via web: Enabled
- Allowed base host IP: 0.0.0.0
- Subnet mask to be applied: 0.0.0.0

### Allowable Hosts

<table>
<thead>
<tr>
<th>Allowable Hosts</th>
<th>Input format</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Base Host IP address</td>
</tr>
<tr>
<td>Any host</td>
<td>0.0.0.0</td>
</tr>
<tr>
<td>192.168.1.120</td>
<td>192.168.1.120</td>
</tr>
<tr>
<td>192.168.1.1 ~ 192.168.1.254</td>
<td>192.168.1.0</td>
</tr>
<tr>
<td>192.168.0.1 ~ 192.168.255.254</td>
<td>192.168.0.0</td>
</tr>
<tr>
<td>192.168.1.1 ~ 192.168.1.126</td>
<td>192.168.1.0</td>
</tr>
<tr>
<td>192.168.1.129 ~ 192.168.1.254</td>
<td>192.168.1.128</td>
</tr>
</tbody>
</table>

*“Enabled”* or “Disabled” for IP filtering. For the SYSLOG service, the “Enabled” option allows for IP address or facility configuration.

### 3.6. SYSLOG

SYSLOG service configuration is included in the configuration. For IP filtering, the SYSLOG server configuration is also included.
SYSLOG server configuration

SYSLOG service: [Disabled]
SYSLOG server IP address: 192.168.200.100
SYSLOG facility: [Local0]

Save to flash  Save & apply  Cancel

3.8 SYSLOG

remote reception allowed

STS  local0  local7  SYSLOG Facility

SYSLOG service

NFS

3.7. NFS

NFS(Network File System)

NFS server configuration

NFS service: [Disabled]
NFS server IP address: 192.168.200.100
Mounting path on NFS server: 

Save to flash  Save & apply  Cancel

3.9 NFS
3.8. Ethernet

- Auto Negotiation
- 100 BaseT Half Duplex
- 100 BaseT Full Duplex
- 10 BaseT Half Duplex
- 10 BaseT Full Duplex

3.9. Web server configuration
Web server configuration

HTTP service: Enabled
HTTPS service: Enabled
Web page refresh rate for statistics display (0-1800, 0 for no refresh): 10 seconds
Default web page: Configuration page
Customer web start page: HTML (index.html)

Save to flash  Save & apply  Cancel

3.10. TCP

TCP lock-up, IP, ICMP, TCP lock-up, STS TCP keep-alive, STS TCP keep alive.

- TCP keepalive time (sec): 15
- TCP keepalive probes (times): 3
- TCP keepalive intervals (sec): 5

34


TCP service configuration

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCP keepalive time (sec)</td>
<td>15</td>
</tr>
<tr>
<td>TCP keepalive probes (times)</td>
<td>3</td>
</tr>
<tr>
<td>TCP keepalive intervals (sec)</td>
<td>5</td>
</tr>
</tbody>
</table>

Save to flash  Save & apply  Cancel

3-12 TCP keep alive
4. \( \text{host mode} \)

4.1. \( \text{host mode} \)

- TCP:
  - TCP
- UDP:
  - UDP
- Modem emulation:
  - AT

port logging, MEMORY, SYSLOG server, NFS server, PC, ATA/IDE fixed disk card

port event, SNMP trap, email

MEMORY, SYSLOG server, NFS server, PC, ATA/IDE fixed disk card

4-1
<table>
<thead>
<tr>
<th>Port Enable/Disable</th>
<th>Port title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apply all port settings (Individual serial port setting only)</td>
<td></td>
</tr>
</tbody>
</table>

### Port Parameters

<table>
<thead>
<tr>
<th>Host mode</th>
<th>TCP</th>
</tr>
</thead>
<tbody>
<tr>
<td>TCP listening port</td>
<td>Telnet protocol</td>
</tr>
<tr>
<td>Max allowed connection</td>
<td>Cyclic connection</td>
</tr>
<tr>
<td>Inactivity timeout (0 for unlimited)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>UDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accept UDP datagram from unlisted remote host or not</td>
</tr>
<tr>
<td>Send to recent unlisted remote host or not</td>
</tr>
<tr>
<td>Inactivity timeout (0 for unlimited)</td>
</tr>
</tbody>
</table>

### Modem emulation

<table>
<thead>
<tr>
<th>Remote host</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add or Edit a remote host</td>
</tr>
<tr>
<td>Primary host address</td>
</tr>
<tr>
<td>Primary host port</td>
</tr>
<tr>
<td>Secondary host address</td>
</tr>
<tr>
<td>Secondary host port</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Port IP filtering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allowed host IP</td>
</tr>
<tr>
<td>Subnet mask to be applied</td>
</tr>
</tbody>
</table>

### Cryptography

<table>
<thead>
<tr>
<th>Encryption method</th>
</tr>
</thead>
<tbody>
<tr>
<td>None/SSLv2/SSLv3/SSLv3 rollback to v2/TLSv1/3DES/RC4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cipher suite selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verify client (server mode only)</td>
</tr>
<tr>
<td>Verify certificate chain depth</td>
</tr>
<tr>
<td>Check the certificate CN</td>
</tr>
</tbody>
</table>

### Serial Port Parameters

<table>
<thead>
<tr>
<th>Baud rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data bits</td>
</tr>
<tr>
<td>Parity</td>
</tr>
<tr>
<td>Stop bits</td>
</tr>
<tr>
<td>Flow control</td>
</tr>
<tr>
<td>DTR behavior</td>
</tr>
<tr>
<td>DSR behavior</td>
</tr>
<tr>
<td>Inter-character timeout (ms)</td>
</tr>
</tbody>
</table>

### Modem

| Enable/Disable modem |
| DCD behavior |

### Port logging

| Enable/Disable Port logging |
| Port log storage location |
| Port log buffer size |
| Display port log |

### Port event handling

| Enable/Disable port event handling |
| Notification interval |

### Email notification

| Enable/Disable Email notification |
| Title of Email |
| Recipient’s Email address |

---

1. TCP/UDP mode only.
2. A secondary remote host is available for connection-fail backup in TCP mode.
3. TCP/UDP mode only.
4. TCP mode only.
| **SNMP notification** | Enable/Disable SNMP notification  
Title of SNMP trap  
SNMP trap receiver’s IP address  
SNMP trap community  
SNMP trap version |
|----------------------|------------------------------------------------|
| **Add/Edit a keyword** | Keyword string  
Email notification  
SNMP trap notification  
Port command |
| **Remove a keyword** | |

| **All serial ports setting** | Port Enable/Disable  
Port title  
Apply all port settings (individual serial port setting only) |
|-----------------------------|---------------------------------------------------------------|
| **Host mode** | TCP  
Max allowed connection  
Cyclic connection  
Inactivity timeout (0 for unlimited)  
UDP listening port  
Max allowed connection  
Send to recent unlisted remote host or not  
Inactivity timeout (0 for unlimited) |
| UDP | Accept UDP datagram from unlisted remote host or not  
Send to recent unlisted remote host or not  
Inactivity timeout (0 for unlimited) |

<table>
<thead>
<tr>
<th><strong>Modem emulation</strong></th>
<th></th>
</tr>
</thead>
</table>
| **Remote host** | Add or Edit a remote host  
Primary host address  
Primary host port  
Secondary host address  
Secondary host port |
| **Port IP filtering** | Allowed host IP  
Subnet mask to be applied |
| **Cryptography** | Encryption method  
None/SSLv2/SSLv3/SSLv3 rollback to v2/  
TLSv1/3DES/RC4  
Cipher suite selection  
Verify client (server mode only)  
Verify certificate chain depth  
Check the certificate CN  
Filter application arguments |
| **Serial Port Parameters** | Baud rate  
Data bits  
Parity  
Stop bits  
Flow control  
DTR behavior  
DSR behavior  
Inter-character timeout (ms) |
| **Modem** | Enable/Disable modem  
Modem init-string |

5. TCP/UDP
6. TCP § secondary remote host
7. TCP/UDP
8. TCP §
Port logging

<table>
<thead>
<tr>
<th>DCD behavior</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable/Disable Port logging</td>
</tr>
<tr>
<td>Port log storage location</td>
</tr>
<tr>
<td>Port log buffer size</td>
</tr>
<tr>
<td>Display port log</td>
</tr>
</tbody>
</table>

Port event handling

<table>
<thead>
<tr>
<th>Enable/Disable port event handling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Notification interval</td>
</tr>
</tbody>
</table>

**Email notification**

- Enable/Disable Email notification
- Title of Email
- Recipient’s Email address

**SNMP notification**

- Enable/Disable SNMP notification
- Title of SNMP trap
- SNMP trap receiver’s IP address
- SNMP trap community
- SNMP trap version

Add/Edit a keyword

- Keyword string
- Email notification
- SNMP trap notification
- Port command

Remove a keyword

<table>
<thead>
<tr>
<th>Host mode</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mode⁹</td>
</tr>
<tr>
<td>TCP</td>
<td>TCP</td>
</tr>
<tr>
<td>TCPs</td>
<td>TCP</td>
</tr>
<tr>
<td>TEL</td>
<td>TCP</td>
</tr>
<tr>
<td>TELs</td>
<td>TCP</td>
</tr>
<tr>
<td>UDP</td>
<td>UDP</td>
</tr>
<tr>
<td>Modem Emulation</td>
<td>Modem Emulation</td>
</tr>
</tbody>
</table>

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⁹ 4.2.4

¹⁰ 4.2.7

¹¹ 4.2.4.1

¹² 4.2.7

---

4-1

---

39
4.2. 

STS 

Individual port configuration

<table>
<thead>
<tr>
<th>Port#</th>
<th>Title</th>
<th>Host mode</th>
<th>Local port</th>
<th>Serial-settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Port #1</td>
<td>TCP</td>
<td>7001</td>
<td>RS232-9600-N-8-1-No</td>
</tr>
<tr>
<td>2</td>
<td>Port #2</td>
<td>TCP</td>
<td>7002</td>
<td>RS232-9600-N-8-1-No</td>
</tr>
<tr>
<td>3</td>
<td>Port #3</td>
<td>TEL</td>
<td>7003</td>
<td>RS232-9600-N-8-1-No</td>
</tr>
<tr>
<td>4</td>
<td>Port #4</td>
<td>UDP</td>
<td>7004</td>
<td>RS232-9600-N-8-1-No</td>
</tr>
<tr>
<td>5</td>
<td>Port #5</td>
<td>Modem emulation</td>
<td>7005</td>
<td>RS232-9600-N-8-1-No</td>
</tr>
<tr>
<td>6</td>
<td>Port #6</td>
<td>TCP</td>
<td>7006</td>
<td>RS232-9600-N-8-1-No</td>
</tr>
<tr>
<td>7</td>
<td>Port #7</td>
<td>TCP</td>
<td>7007</td>
<td>RS232-9600-N-8-1-No</td>
</tr>
<tr>
<td>8</td>
<td>Port #8</td>
<td>TELs</td>
<td>7008</td>
<td>RS232-9600-N-8-1-No</td>
</tr>
</tbody>
</table>

1. Port enable/disable
2. Port title
3. Apply all port settings
4. Host mode
5. Remote host: Available only when the host mode is set to TCP or UDP mode
6. Port IP filtering: Available only when the host mode is set to TCP or UDP mode
7. Cryptography: Available only when the host mode is set to TCP mode and Modem Emulation mode
8. Serial port parameters
9. Modem configuration
10. Port logging
11. Port event handling: Available only when the port-logging feature of the port is enabled
4.2.1. Port Enable/Disable

±×¸² 4-2 Serial port enable/disable

°¢ enable disable  ¶Ç disable  µÉ ¼ö ÀÖ½À´Ï´Ù . ¾ø½À´Ï´Ù . ¾ø½À´Ï´Ù . ¾ø½À´Ï´Ù . ¾ø½À´Ï´Ù .

°¢ stuck() ¾÷ü ¶Ç º¸¿©ÁÝ´Ï´Ù [Reset this port] ¾÷ü [Reset] ¾÷ü ¾ø½À´Ï´Ù , [Set this port as factory default] ¾÷ü [Set] ¾ø½À´Ï´Ù .

4.2.2. Port Title

°¢ °¢ ¶Ç º¸¿©ÁÝ´Ï´Ù .

°¢ ¾ø½À´Ï´Ù .

°¢ ¾ø½À´Ï´Ù .

°¢ ¾ø½À´Ï´Ù .

°¢ ¾ø½À´Ï´Ù .
### 4.2.3. Apply All Port Settings

| Apply all ports settings | Host mode configuration | Remote host configuration | Port IP filtering | Cryptography configuration | Serial port parameters | Modem configuration | Port logging | Port event handling |

**4-3 Port title configuration**

**4.2.3. Apply All Port Settings**

- **Apply all ports settings**
- **Host mode configuration**
- **Remote host configuration**
- **Port IP filtering**
- **Cryptography configuration**
- **Serial port parameters**
- **Modem configuration**
- **Port logging**
- **Port event handling**
4.2.4. Apply all port setting configuration.

STS : TCP, UDP, .

TCP

TCP, TCP, TCP, TCP, TCP, TCP, TCP, TCP, TCP, TCP, TCP, TCP, TCP.

UDP

UDP, UDP, TCP, TCP, TCP, TCP, TCP, TCP, TCP, TCP, TCP, TCP.

AT, AT, AT, AT, AT, AT, AT, TCP, TCP, TCP.
4.2.4.1. TCP

TCP (State Transition Diagram)  

- [ ] (Listen)
  TCP

- [ ] (Closed)
  STS

- [ ] (Sync-Received)
  STS

...
Received)[] STS [] (Established)] [] [] [] [] [] . [] [{} [] (Sync-Sent)]
STS [] [] [] [] [] [] [] [] [{} (Closed)] [] [] [{} [] (Sync-Sent)] [] [] . [] [] [] [] [] [] [] [] .
[{} [] (Established)]
"(open connection)"
STS [] [] [] [] [] [] [] [] [] [] [{} (Established)] [] [] .
[{} [] (Data)]
[{} (Established)] [] [] [] [] [] [] [] [] [] [] . TCP
[{} (Data)] [] [] . [] [{} (Data)] RFC 793 [TCP: Transmission Control Protocol] [] [] [] [] [] [] .
STS [] [] [] [] [] [] [] [] [] [] .

1) [{} (Listen)]
[{} (Listen)] --> [{}-{} (Sync-Received)] --> [{} (Established)] --> [{} (Data)] --> [{} (Closed)] --> [{} (Listen)]
Or
[{} (Listen)] --> [{}-{} (Sync-Sent)] --> [{} (Established)] --> [{} (Data)] --> [{} (Closed)] --> [{} (Listen)]

[{} (Listen)] [] . TCP
[{} (Listen)] [] . TCP
[{} (Listen)] [] . TCP
[{} (Listen)] [] . TCP

2) [{}]

[{}]

[{}]

[{}]

"(Inactivity timeout)"
3. **TCP Configuration**

TCP is configured for the STS 67 serial port, with a baud rate of 1200 baud. RFC 2217 provides information on the STS 67 port configuration.

**Steps**:

- **TCP Configuration**
  - TCP is configured for the STS 67 serial port, with a baud rate of 1200 baud. RFC 2217 provides information on the STS 67 port configuration.

**Options**

- **TCP Configuration**
  - TCP is configured for the STS 67 serial port, with a baud rate of 1200 baud. RFC 2217 provides information on the STS 67 port configuration.
29 (=32 – 3)  

4.2.5  

(Cyclic Connection)  

STS  

4-6 TCP  

47
Established

Inactivity time-out
TCP connection request rejected
Or internal TCP time-out

Incoming data via serial port

TCP connection request accepted

Incoming data from remote host

Sync-Sent

Sync-Recvd

Incoming TCP connection request

Reject
Incoming TCP Close request

Listen

Closed

Data

Accept

4.2.4.2. UDP

UDP STS
TCP STS
1)  ]]

```
UDP  []  []  STS  []  []  UDP  []  []  []  []  STS  []  []  []  []  UDP  []  []  []  []  UDP
datagram[]  []  (Accept UDP datagram from unlisted remote host)'  []  []  []  (Yes)'
        []  []  []  []  UDP  []  []  []  []  []  [] UDP  []  []  []  []  []  []  []  []  []  []  []  UDP
        []  []  []  []  UDP  []  []  []  []  []  []  UDP  []  []  []  []  UDP  []  []  []  []  UDP
datagram[]  []  (Send to recent unlisted remote host)'  []  []  []  (Yes)'
```

2)  ]]

```
UDP  []  []  []  TCP  []  []  []  []  4.2.4.1[]  []  TCP  []  []  []  []  []  []  []  []  []  []  []  []

TCP  []  []  []  []  4.2.4.1[]  []  TCP  []  []  []  []  []  []  []  []  []  []  []  []

UDP  []  []  []
TCP  []  []  []  []  4.2.4.1[]  []  TCP  []  []  []  []  []  []  []  []  []  []  []  []

UDP  []  []  []  UDP  []  []  []
UDP  datagram[]  []  (Accept UDP datagram from unlisted remote host)'  []  []  []  (No)'
        []  []  []  []  UDP  []  []  []  []  []  []  UDP  []  []  []  []  UDP  []  []  []  []  UDP
datagram[]  []  (Accept UDP datagram from unlisted remote host)'  []  []  []  (Yes)'
        []  []  []  []  UDP  []  []  []  []  []  []  UDP  []  []  []  []  UDP  []  []  []  []  UDP

UDP  []  []  []  UDP  []  []  []
!(Send to recent unlisted remote host)'  []  []  []  []  []  []  []  []  []  []  []  []
```

49
4.2.4.3. (Send to recent unlisted remote host) (No)

UDP (Inactivity Timeout)

UDP

4.2.4.3. (Send to recent unlisted remote host)
## 4-2 STS  4-3 STS  4-4 AT

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>+++</td>
<td>TCP CONNECT [CR][LF]</td>
<td>ERROR [CR][LF]</td>
</tr>
<tr>
<td>ATD(T)</td>
<td>TCP CONNECT</td>
<td>TCP NO CARRIER [CR][LF]</td>
</tr>
<tr>
<td>ATAT</td>
<td>TCP CONNECT</td>
<td>ERROR [CR][LF]</td>
</tr>
<tr>
<td>ATEn</td>
<td>TCP CONNECT</td>
<td>ERROR [CR][LF]</td>
</tr>
<tr>
<td>ATOn</td>
<td>TCP CONNECT</td>
<td>ERROR [CR][LF]</td>
</tr>
<tr>
<td>ATVn</td>
<td>TCP CONNECT</td>
<td>ERROR [CR][LF]</td>
</tr>
<tr>
<td>AT&amp;Dn</td>
<td>TCP CONNECT</td>
<td>ERROR [CR][LF]</td>
</tr>
<tr>
<td>AT&amp;Fn</td>
<td>TCP CONNECT</td>
<td>ERROR [CR][LF]</td>
</tr>
<tr>
<td>ATKn</td>
<td>TCP CONNECT</td>
<td>ERROR [CR][LF]</td>
</tr>
<tr>
<td>AT&amp;Srn</td>
<td>TCP CONNECT</td>
<td>ERROR [CR][LF]</td>
</tr>
<tr>
<td>ATIn</td>
<td>TCP CONNECT</td>
<td>ERROR [CR][LF]</td>
</tr>
<tr>
<td>AT&amp;Tn</td>
<td>TCP CONNECT</td>
<td>OK [CR][LF]</td>
</tr>
</tbody>
</table>

---

13 (verbose code)
### 4-3 AT Commands

#### (Verbose Code)

<table>
<thead>
<tr>
<th>Command</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OK</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>CONNECT</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>RING</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>NO CARRIER</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ERROR</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

#### (Numeric Code)

<table>
<thead>
<tr>
<th>Command</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OK</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>CONNECT</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>RING</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>NO CARRIER</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ERROR</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

#### Diagram

```
+---------------------------+---------------------------+---------------------------+
| HelloDevice               | Serial Device            |
| TCP connection            | TCP connection            |
| Request TCP disconnection | TCP disconnection         |
| Request TCP disconnection | TCP disconnection         |
| TCP connection            | TCP connection            |
| TCP connection            | TCP connection            |
| DATA….                   | DATA….                   |
| DATA….                   | DATA….                   |
| TCP disconnection         | TCP disconnection         |
| TCP disconnection         | TCP disconnection         |
| Command mode              | Command mode              |
| TCP mode                  | TCP mode                  |
```

---

ATBn, ATCn, ATLn, ATMn, ATNn, ATP, ATT, ATYn, AT%Cn, AT%En, AT&Bn, AT&Gn, AT&In, AT&Qn, AT&V, AT]Mn, AT\An, AT\Bn, AT\Nn

ATS?, ATSn=x, AT&Cn, AT&Wn, AT&Zn=x

ATFn [CR][LF]

ATWn, ATXn
### 4.2.5. Remote Host Configuration

<table>
<thead>
<tr>
<th>Check</th>
<th>Host #</th>
<th>Primary remote host IP</th>
<th>Port #</th>
<th>Secondary remote host IP</th>
<th>Port #</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>192.168.14.1</td>
<td>6001</td>
<td>192.168.13.1</td>
<td>5001</td>
</tr>
</tbody>
</table>

**Action on remote host:**

- Add
- Edit
- Remove

**Primary host address:**

- [ ]

**Primary host port:**

- [ ]

**Secondary host address:**

- [ ]

**Secondary host port:**

- [ ]

**Serial port configuration - 1 : Port #1**

- Enable/Disable this port
- Port title
- Apply all port settings
- Host mode configuration

--- Move to ---
4.2.6. Port IP filtering

STS 4.2.6. Port IP filtering ¼³Á¤ STS ½Ã¸®Áî ½Ã¸®¾ó Æ÷Æ®¿¡ Á¢¼ÓÀ» Çã¿ëÇÏ´Â ¿ø°Ý È£½ºÆ®´Â IP ÁÖ¼Ò filtering ±ÔÄ¢¿¡ ±âÃÊÇÏ¿© Áö.

Serial port configuration - 1 : Port #1

- Enable/Disable this port
- Port title
- Apply all ports settings
- Host mode configuration
- Remote host configuration
- Port IP filtering
  - Allowed host IP :
  - Subnet mask to be applied :
  - Save to flash
  - Save & apply
  - Cancel

Cryptography configuration
- Serial port parameters
- Modem configuration
- Port logging
- Port event handling

4-9 Port IP filtering for serial ports

4.2.7. ¾Ïȣȭ ±¸¼º

STS 4.2.7. Secure Sockets Layer(SSL) ¼­¸¸ Transport Layer Security(TLS) ¾ÖÇø®ÄÉÀ̼Ç ÇÁ·ÎÅäÄÝ ¿í ¼ºÀ»

4.2.7.1. Secure Sockets Layer(SSL) ¼­¸¸ Transport Layer Security(TLS) ¾ÖÇø®ÄÉÀ̼Ç ÇÁ·ÎÅäÄÝ

By setting the cryptography method as one of SSLv2, SSLv3, SSLv3 rollback to v2 or TLSv1, the STS ¼­¸¸ ¼­¸¸ SSL/TLS ¾ÖÇø®ÄÉÀ̼Ç ÇÁ·ÎÅäÄÝ ¼­¸¸ ¼­¸¸ SSL

SSL Netscapeº¸¾ÈÀü TCP/IP ¾ÅÄÝ ¿í Internet Engineering Task Force (IETF)º¸¾ÈÀü
SSL/TLS [Internet RFC][SSL][TLS] SSL/SSL [Internet RFC][SSL] [SSL] SSL/SSL [Internet RFC][SSL]

1. SSL/TLS [Internet RFC] SSL/SSL [Internet RFC]

2. SSL/TLS [Internet RFC] SSL/SSL [Internet RFC]

3. SSL/TLS [Internet RFC] SSL/SSL [Internet RFC]

4. SSL/TLS [Internet RFC] SSL/SSL [Internet RFC]

5. SSL/TLS [Internet RFC] SSL/SSL [Internet RFC]

6. SSL/TLS [Internet RFC] SSL/SSL [Internet RFC]
7. SSL/TLS で通信する際、セッションキー（session key）を共有します。セッションキーは SSL/TLS 中でのデータの暗号化に使用されます。

8. データのアインテグリティ（integrity）は、ServerHello、Certificate、ServerKeyExchange、CertificateRequest などによって確保されます。

9. SSL/TLS でデータを送信する際には、ServerHello、Certificate、ServerKeyExchange、CertificateRequest などが必要です。

10. SSL/TLS でデータを送信する際には、ServerHello、Certificate、ServerKeyExchange、CertificateRequest などが必要です。

STS は TCP を介して SSL/TLS を行います。STS は SSL/TLS のセッションキー（session key）を共有し、SSL/TLS は TCP を介して STS と通信します。同時に、SSL/TLS は TCP を介して STS と通信します。
SSL/TLS cipher suites are used in SSL/TLS connections.

- **Cipher suites**
  - SSL/TLS supports both symmetric and asymmetric cipher suites. SSL/TLS also supports identity (hash) and (asymmetric) identity (identity) cipher suites. SSL/TLS supports certificate chains for client authentication and server authentication. RSA and other cipher suites are supported. RSA is also supported for certificate signing with asymmetric, symmetric, and intermediate keys.

- **Certificate chain depth**
  - Certificate chain depth (peer) and client authenticated certificate chain depth (peer) support two levels of chain depth. Certificate chains for client authentication and server authentication support two levels of chain depth. CA certificates are added to the certificate chain. CA certificates (peer) are added to the certificate chain. STS supports client authentication with CA certificates.

- **CN**
  - CN supports key usage for client authentication. STS supports key usage for client authentication with CN.
The page contains a table titled "Serial port configuration - 1: Port #1". The table includes various configuration options such as Enable/Disable this port, Port title, Apply all ports settings, Host mode configuration, Remote host configuration, Port IP filtering, and Cryptography configuration.

The Cryptography configuration section includes options for encryption method, enable/disable cipher suites, verify client (server mode only), verify certificate chain depth, and check the certificate CN. The encryption method is set to SSLv2. The enable/disable cipher suites include various SSL and TLS protocols.

At the bottom of the page, there is a section titled "4.2.7.2. 3DES (168 bits)". It states that HelloDevice STS supports 3DES (168 bits).
4.2.7.3. RC4

Key Block(32-byte)

Key (24-byte)  IV(8-byte)

Key Block = MD5(KEY_STRING) + MD5(MD5(KEY_STRING)+KEY_STRING)
= (16 bytes) + (16 bytes)

Key = 24 bytes
IV(Initial Vector) = 8 bytes

4.2.7.3. RC4

RC4 STS RC4 STS RC4 STS RC4 STS RC4 STS RC4 STS TCP
RC4 STS RC4 STS RC4 STS RC4 STS RC4 STS RC4 STS
RC4 STS 3DES STS STS STS STS
4.2.8. Serial port parameters

4.2.9. RS232 parameter settings

Serial port parameters include STS, DTS, DCD, DSR, RTS, CTS, XOFF, XON, and others. The parameters include UART, baud rate, data bits, stop bits, parity, DTR/DSR, and inter-character wait time.

- **Baud rate (Baud rate)**
  STS, DTS, DCD, DSR, RTS, CTS, XOFF, XON, and others RS232 parameter settings are as follows:
  75, 150, 200, 300, 600, 1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, 115200, 230400

- **Data bits (Data bits)**
  7 bits or 8 bits. The default setting is 8 bits.
### Serial port configuration - 1: Port #1

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable/Disable this port</td>
<td></td>
</tr>
<tr>
<td>Port title</td>
<td></td>
</tr>
<tr>
<td>Apply all ports settings</td>
<td></td>
</tr>
<tr>
<td>Host mode configuration</td>
<td></td>
</tr>
<tr>
<td>Remote host configuration</td>
<td></td>
</tr>
<tr>
<td>Port IP filtering</td>
<td></td>
</tr>
<tr>
<td>Cryptography configuration</td>
<td></td>
</tr>
</tbody>
</table>

**Serial port parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baud rate</td>
<td>230400</td>
</tr>
<tr>
<td>Data bits</td>
<td>8 bits</td>
</tr>
<tr>
<td>Parity</td>
<td>None</td>
</tr>
<tr>
<td>Stop bits</td>
<td>1 bit</td>
</tr>
<tr>
<td>Flow control</td>
<td>Hardware</td>
</tr>
<tr>
<td>DTR behavior</td>
<td>Always High</td>
</tr>
<tr>
<td>DSR behavior</td>
<td>None</td>
</tr>
<tr>
<td>Inter character time-out</td>
<td>100</td>
</tr>
</tbody>
</table>

### 4-14 UART

- **Parity**
  - none, even, odd

- **Stop bits**
  - 1 bit, 2 bit

- **Flow control**
  - None, STS, XON/XOFF, RTS/CTS
  - XON/XOFF (0x11/0x13)
**RS232**

- **RS232**
- **RS422**
- **RS485**

**DTR/DSR**

- **DTR/DSR**
- **TCP**
- **write-only**
- **read-only**

- **Always high**
- **Always low**
- **High when open**
- **TCP**

- **None**
- **DSR**

- **TCP connection only by high**
  - **DSR**
  - **TCP**

- **modem emulation**

**Inter-character**

- **TCP/UDP**
- **STS**
- **TCP/UDP**

- **1024 bytes**
- **1024bytes**

- **0**
- **0**

**DTR/DSR**

- **DTR/DSR**
- **TCP/UDP**
- **modem emulation**
4.2.10. Modem Settings

**STS**
- *Enable/Disable modem (Enabled)*
- *Modem init-string* (initialization string)

**DCD**
- *Enable TCP connection only by HIGH*
- *Allow TCP connection only by HIGH*

**DTR/DSR/DCD**
- *Enable/Disable modem (Enabled)*
- *Dial-in modem mode*

**TCP**
- *TCP connection only by HIGH*
4.2.11. Port Logging

- Enable/disable (Enable/disable)
  - Memory, ATA/IDE, STS, NFS, SYSLOG

- Port log storage location
  - ATA/IDE (PCMCIA)
  - NFS
  - SYSLOG
  - STS
・ATA/IDE
ATA/IDE の場合、3200 Kbytes（4Kbytes）使用します。
SYSLOG
SYSLOG の場合、3200 Kbytes（4Kbytes）使用します。
NFS
NFS の場合、3200 Kbytes（4Kbytes）使用します。

ATA/IDE、SYSLOG、NFS の場合、3200 Kbytes（4Kbytes）を使用します。
4.2.12. Port event handling configurations

STS email/SNMP (notification) email (reaction) email, SNMP...
- Enables notification to email or SNMP (enable) or (disable) STS.

- **Notification interval**
  STS: Enables notification to email or SNMP. Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP).

- **Email** (Email notification)
  STS: Enables notification to email or SNMP. Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP).

- **Email**
  Enables notification to email or SNMP. Enables notification to email or SNMP. Enables notification to email or SNMP.

- **SNMP**
  Enables notification to email or SNMP. Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP).

- **SNMP**
  Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). 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Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNMP). Enables notification to email or SNMP (email or SNP...
- **SNMP** ఒ ࢩ ࣠ (SNMP trap community)

-  SNMPr ఒ ࢩ ࣠ ೆ ೆ ೆ ೆ ೆ ೆ ೆ ೆ ೆ ೆ ೆ ೆ ೆ ೆ ೆ ೆ ೆ ೆ ೆ ೆ ೆ ೆ ೆ
• **SNMP ³à ¹ö (SNMP trap version)**
  
• **TCP ³à ¹ö**
  
• **(Keyword string)**
  
• **Email ³à**
  
• **SNMP ³à ¹ö (SNMP trap notification)**
  
• **Port ³à**
  
• **Port ³à ¹ö (Port command string)**
**4.3. Port Configuration**

All port configuration 

“**apply all port setting**” 

“**all port configuration**” 

1. Port enable/disable 
2. Port title 
3. Host mode 
4. Remote host configuration 
5. Port IP filtering 
6. Cryptography configuration (Only valid and visible if host mode set to TCP or Modem Emulation mode) 
7. Serial port parameters 
8. Modem configuration (Only valid and visible if host mode set to TCP mode) 
9. Port logging 
10. Port event handling

### Serial port configuration - All ports : Port #

<table>
<thead>
<tr>
<th>Enable/Disable this port</th>
<th>Save to flash</th>
<th>Save &amp; apply</th>
<th>Cancel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable/Disable this port :</td>
<td>Enable</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Port enable/disable
- Port title
  "my server"  "my server#1"  "my server#2"

- Host mode
  TCP  UDP  (listening)  

  (listening port number + serial port number - 1)

- Remote host configuration, Port IP filtering, Cryptography configuration, Serial port parameters, Modem configuration, Port logging, Port event handling
  "all port configuration"  values set

5. **PC**

STS "Ä«µå Á¤³Á¤ ¿¬ÇØ PC Ä«µå ¾ò Á¦°øÇϰí ÀÖ½À´Ï´Ù. À¯¿¬¼º À¯ÇüÀÇ PC Ä«µå°¡ Áö¿øµË´Ï´Ù.

- LAN
- LAN
- ATA/IDE fixed disk card

ÀúÀåÇÒ ¼ö ÀÖ½À´Ï´Ù. ¸ðµ© Ä«µå¸¦ »ç¿ëÇÔÀ¸·Î½á ¿ÜÀåÇü ¸ðµ©¿¡ ¿¬°áÇÏ´Â ½Ã¸®¾ó Æ÷Æ® ¾øÀÌ STS ½Ã¸®Áî¿¡ (out-of-band) À££î Àµ £ê £ê.

### PC card configuration

<table>
<thead>
<tr>
<th>Currently configured PC card</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>Card type:</td>
<td></td>
</tr>
<tr>
<td>PC card service</td>
<td></td>
</tr>
<tr>
<td>Discover a new card</td>
<td></td>
</tr>
<tr>
<td>Stop card service</td>
<td></td>
</tr>
</tbody>
</table>

Save to flash  
Save & apply  
Cancel  

5-1 **PC**

PC "Ä«µå Á¤³Á¤ ¿¬ÇØ PC Ä«µå ¾ò Á¦°øÇϰí ÀÖ½À´Ï´Ù.

1. PC "Ä«µå Á¤³Á¤ ¿¬ÇØ PC Ä«µå ¾ò Á¦°øÇϰí ÀÖ½À´Ï´Ù.

2. Select PC "Ä«µå Á¤³Á¤ ¿¬ÇØ PC Ä«µå ¾ò Á¦°øÇϰí ÀÖ½À´Ï´Ù.

3. STS "Ä«µå Á¤³Á¤ ¿¬ÇØ PC Ä«µå ¾ò Á¦°øÇϰí ÀÖ½À´Ï´Ù. ATA/IDE fixed disk card (plug & play) "Ä«µå Á¤³Á¤ ¿¬ÇØ PC Ä«µå ¾ò Á¦°øÇϰí ÀÖ½À´Ï´Ù.

4. Save the configuration settings by selecting Save to flash  

5. [Apply changes]"Ä«µå Á¤³Á¤ ¿¬ÇØ PC Ä«µå ¾ò Á¦°øÇϰí ÀÖ½À´Ï´Ù.

STS "Ä«µå Á¤³Á¤ ¿¬ÇØ PC Ä«µå ¾ò Á¦°øÇϰí ÀÖ½À´Ï´Ù.
STS "show the actual button" PC ¾±ÅÃÇϽʽÀ. ¾±ÅÃÇÏ´Â PC ¾±ÅÃÇϽʽÀ.

1. [(Ban- show the actual button) Stop card service] ¾±ÅÃÇϽʽÀ.
2. [Save to flash] ¾±ÅÃÇÏ´Â PC ¾±ÅÃÇϽʽÀ.
3. [Apply changes] ¾±ÅÃÇÏ´Â PC ¾±ÅÃÇϽʽÀ.
4. PC ¾±ÅÃÇÏ´Â PC ¾±ÅÃÇϽʽÀ.

LAN "show the actual button" PC ¾±ÅÃÇϽʽÀ. PC ¾±ÅÃÇÏ´Â STS ¾±ÅÃÇÏ´Â 2°³ÀÇ ¾±ÅÃÇϽʽÀ. IP ¾±ÅÃÇÏ´Â PC ¾±ÅÃÇ黹 "show the actual button" PC ¾±ÅÃÇbilt.
5.2. LAN

LAN PC STS 2°ÀÚ¼¼ È÷ STS 3°ÀÚ¼¼ È÷ PC PC. Rè³ÀÇ ³×Æ®¿öÅ© ÀÎÅÍÆäÀ̽º¿Í IP À¯È¿ÇÑ °ÍÀ» ÁöÁ¤Çؾß ÇÕ´Ï´Ù.

PC card configuration

<table>
<thead>
<tr>
<th>Currently configured PC card</th>
<th>Wireless Network Card</th>
</tr>
</thead>
<tbody>
<tr>
<td>Card type</td>
<td>Wireless Network Card</td>
</tr>
<tr>
<td>Model</td>
<td>Cisco Systems 350 Series Wireless LAN Adapter</td>
</tr>
</tbody>
</table>

Network configuration

<table>
<thead>
<tr>
<th>IP mode</th>
<th>DHCP ▼</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP address</td>
<td>192.168.1.254</td>
</tr>
<tr>
<td>Subnet mask</td>
<td>255.255.255.0</td>
</tr>
<tr>
<td>Default gateway</td>
<td>192.168.1.1</td>
</tr>
<tr>
<td>Primary DNS</td>
<td>168.125.63.1</td>
</tr>
<tr>
<td>Secondary DNS</td>
<td>168.125.63.2</td>
</tr>
<tr>
<td>PPPoE user name</td>
<td>whoever</td>
</tr>
<tr>
<td>PPPoE password</td>
<td>**********</td>
</tr>
<tr>
<td>Confirm PPPoE password</td>
<td>**********</td>
</tr>
</tbody>
</table>

Wireless network card configuration

<table>
<thead>
<tr>
<th>SSID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use WEP key</td>
</tr>
<tr>
<td>WEP mode</td>
</tr>
<tr>
<td>WEP key length</td>
</tr>
<tr>
<td>WEP key string</td>
</tr>
</tbody>
</table>

PC card service

<table>
<thead>
<tr>
<th>Discover a new card</th>
<th>Stop card service</th>
</tr>
</thead>
</table>

Save to flash ▼ Save & apply ▼ Cancel ▼
5.3. Serial Modem

PC card configuration

<table>
<thead>
<tr>
<th>Currently configured PC card</th>
<th>Serial Modem Card Serial Modem Card</th>
</tr>
</thead>
<tbody>
<tr>
<td>Card type:</td>
<td>PCMCIA CARD 56KFaxModem FM56C-NFS 5.41</td>
</tr>
<tr>
<td>Model:</td>
<td></td>
</tr>
</tbody>
</table>

PC card service

- Discover a new card
- Stop card service

- Save to flash
- Save & apply
- Cancel

5.4. ATA/IDE Fixed Disk Card Configuration
Currently configured PC card

<table>
<thead>
<tr>
<th>Card type</th>
<th>ATA/IDE Fixed Disk Card</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>TOSHIBA TH-NC7054MBA</td>
</tr>
<tr>
<td>Size</td>
<td>64 MB</td>
</tr>
<tr>
<td>File system</td>
<td>ext2</td>
</tr>
</tbody>
</table>

ATA/IDE Fixed Disk Card configuration

Total data size to be used (0-64 MB) : 34
Delete all files in ATA/IDE Fixed Disk Card :
Format ATA/IDE Fixed Disk Card :

PC card service

Discover a new card  Stop card service

Save to flash  Save & apply  Cancel

5-6 PC ATA/IDE fixed disk card
6. System Administration

STS System Administration

6.1. System status

<table>
<thead>
<tr>
<th>System status</th>
<th>System information</th>
<th>IP information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model No.</td>
<td>SS800 Device</td>
<td>IP mode: STATIC</td>
</tr>
<tr>
<td>Serial No.</td>
<td>SS800-03079999</td>
<td>IP expiration: N/A</td>
</tr>
<tr>
<td>F/W Rev.</td>
<td>v0.4.0</td>
<td>IP address: 192.168.14.7</td>
</tr>
<tr>
<td>MAC address</td>
<td>00-01-95-04-19-5a</td>
<td>Subnetmask: 255.255.0.0</td>
</tr>
<tr>
<td>System logging</td>
<td>Enabled</td>
<td>Receive/Transmit errors: N/A</td>
</tr>
<tr>
<td>Send system log by email</td>
<td>Disabled</td>
<td>Primary DNS: 168.126.63.1</td>
</tr>
<tr>
<td>PC card type</td>
<td>NONE</td>
<td>Secondary DNS: 168.126.63.2</td>
</tr>
<tr>
<td>PC card model</td>
<td>NONE</td>
<td></td>
</tr>
</tbody>
</table>

6.2. System logging

STS System logging

system logging enable disable
- **System log storage location**
  
  System log storage location
  STS  STS  PC  ATA/IDE fixed disk card, NFS  SYSLOG  STS  ATA/IDE fixed disk card, NFS  ATA/IDE fixed disk card, SYSLOG  ATA/IDE fixed disk card, NFS

- **System log buffer size**
  
  System log buffer size
  
  System log buffer size
  ATA/IDE fixed disk card
  ATA/IDE fixed disk card
  NFS
  SYSLOG

  STS  STS  PC  ATA/IDE fixed disk card, NFS  SYSLOG  STS  ATA/IDE fixed disk card, NFS

  STS  STS  PC  ATA/IDE fixed disk card, NFS  SYSLOG  STS  ATA/IDE fixed disk card, NFS

  STS  STS  PC  ATA/IDE fixed disk card, NFS  SYSLOG  STS  ATA/IDE fixed disk card, NFS
6.2 System logging

6.3 Users logged on list

Users logged on list:

<table>
<thead>
<tr>
<th>Username</th>
<th>Terminal</th>
<th>Login Date and Time</th>
<th>From</th>
</tr>
</thead>
<tbody>
<tr>
<td>root</td>
<td>console</td>
<td>Jul 23 11:27</td>
<td></td>
</tr>
</tbody>
</table>

User name
Terminal type for the session
Time connected
IP address of the remote host
6.4. Device Name Configuration


6.5. Device Name Configuration

```
root@STS800_Device:~# hostname

Device name:
```

```
root@STS800_Device:~# ip addr

Device name:
```
6.6. Date and Time Settings

<table>
<thead>
<tr>
<th>Date and time</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Use NTP:</strong></td>
</tr>
<tr>
<td>NTP server (0.0.0.0 for Auto):</td>
</tr>
<tr>
<td>Date [mm/dd/yyyy]:</td>
</tr>
<tr>
<td>Time [hh:mm:ss]:</td>
</tr>
<tr>
<td><strong>[Standard time]</strong></td>
</tr>
<tr>
<td>Timezone:</td>
</tr>
<tr>
<td>Time offset from UTC (UTC + [x:]hours):</td>
</tr>
<tr>
<td><strong>[Daylight saving time]</strong></td>
</tr>
<tr>
<td>Enable/Disable daylight saving time:</td>
</tr>
<tr>
<td>Daylight saving timezone:</td>
</tr>
<tr>
<td>Time offset from UTC (UTC + [x:]hours):</td>
</tr>
<tr>
<td>Start date [mm/dd]:</td>
</tr>
<tr>
<td>Start time [hh:mm:ss]:</td>
</tr>
<tr>
<td>End date [mm/dd]:</td>
</tr>
<tr>
<td>End time [hh:mm:ss]:</td>
</tr>
</tbody>
</table>

Save to flash  Save & apply  Cancel
6.7. 

[Text content]

Configuration export
- Location: [Export]
- Encrypt: Yes / No
- File name

Configuration import
- Location: [Import]
- Factory default
- Configuration selection
- Encrypt: Yes / No
- File name
- Local: [Export]
### Configuration management

**Configuration export**

- Location:  
  - CF Card
  - NFS server
  - User space(/usr2)
  - Local machine

- Encrypt: [Yes]

- File name: 
  
  ![syscm]

  ![Export]

**Configuration import**

- Location:  
  - CF Card
  - NFS server
  - User space(/usr2)
  - Local machine
  - Factory default

- Configuration selection:
  - Select all
  - System configuration [Including IP configuration]
  - Serial port configuration

- Encrypt: [Yes]

- File selection: [Select file]

  ![Local: ]

  ![Import]

---

1. [Export] [Import]
2. [Export] [Import]
3. [Export]
4. [Export] [Import]

---

1. [Import] [Import]
2. [Import] [Import]
3. [Import] [Import] [Import] [Import]
4. [Import] [Import] [Import] [Import] [Import] [Import] [Import] [Import] [Import] [Import]
5. [Import] [Import] [Import] [Import] [Import] [Import] [Import] [Import] [Import] [Import]
6. [Import] [Import] [Import] [Import] [Import] [Import] [Import] [Import] [Import] [Import]
6.8. Firmware upgrade

Firmware upgrade

Select the new firmware binary file
This will take 5 minutes maximum

Upgrade  Reset

6.8. 6-8 6-10

1. 6-8 6-9

2. TELENT/SSH

   (Telnet SSH)

3. 6-10

4. 6-11
Login: admin
Password: ****

Welcome to STS-800 configuration page
Current time: 07/23/2003 15:04:07    F/W REV.: v1.0.0
Serial No.: STS800438349-42944    MAC address: 00-01-95-04-19-5a
IP mode: Static IP    IP address: 192.168.14.7

Select menu:
1. Network configuration
2. Serial port configuration
3. PC Card configuration
4. System administration
5. Save changes
6. Exit without saving
7. Exit and apply changes
8. Exit and reboot
9. Firmware upgrade

Do you want to upgrade firmware? (y/n): y
Transfer firmware by zmodem using your terminal application.
To escape, press Ctrl+X

**B0ff000005b157
Do you want to upgrade firmware? (y/n): y
Transfer firmware by zmodem using your terminal application.
To escape, press Ctrl+X

Firmware upgrade failed!
Now reboot...

6.9. System administration --> 6. User file upload
2. TELNET/SSH

3. 6-12

4. 6-10

5. 6-12

6. STS 6-13

Welcome to STS-800 configuration page
Current time: 08/14/2003 11:56:13     F/W REV. : v1.0.0
Serial No. : STS800438349-42944      MAC address: 00-01-95-04-d3-03
IP mode  : DHCP                     IP address : 192.168.222.206

Select menu:
1. Network configuration
2. Serial port configuration
3. PC Card configuration
4. System administration
5. Save changes
6. Exit without saving
7. Exit and apply changes
8. Exit and reboot
<Enter> Refresh

System administration

Select menu:
1. System status
2. System logging
3. Device name: STS800 Device
4. Date and time
5. Change password
6. User file upload
7. Reload factory default settings
8. Reload factory default settings except IP settings
9. Firmware upgrade
<ESC> Back, <Enter> Refresh

Do you want to upload a file to user space? (y/n): y
Enter a filename: test.txt
The file will be saved as /usr2/test.txt.
Transfer a file by zmodem using your terminal application.
To escape, press Ctrl+X.
**B01ff000005b157

Uploading a file is completed.
Do you want to upload a file to user space? (y/n): y
Enter a filename: test.txt
The file will be saved as /usr2/test.txt.
Transfer a file by zmodem using your terminal application.
To escape, press Ctrl+X.

**B0ff000005b157

Uploading a file failed.

### 6-13 8-4 8-4 8-4 8-4
7. \textit{(Network Interfaces)}

7.1. \textit{(Network Interfaces)}

<table>
<thead>
<tr>
<th>Interface</th>
<th>lo</th>
<th>eth0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bytes</td>
<td>680</td>
<td>7448961</td>
</tr>
<tr>
<td>Packets</td>
<td>8</td>
<td>8057</td>
</tr>
<tr>
<td>Errors</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Drop</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>FIFO</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Frame</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Compressed</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Multicast</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Transmit</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bytes</td>
<td>680</td>
<td>766794</td>
</tr>
<tr>
<td>Packets</td>
<td>8</td>
<td>3991</td>
</tr>
<tr>
<td>Errors</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Drop</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>FIFO</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Frame</td>
<td>0</td>
<td>330</td>
</tr>
<tr>
<td>Compressed</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Multicast</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

7.2. \textit{(Network Interfaces)}

32\textdegree Baud rate, On, Off.
### 7.3. IP Forwarding

<table>
<thead>
<tr>
<th>Port</th>
<th>Baud Rate</th>
<th>Tx</th>
<th>Rx</th>
<th>RTS</th>
<th>CTS</th>
<th>DTR</th>
<th>DSR</th>
<th>CD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>38400</td>
<td>0</td>
<td>0</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>2</td>
<td>38400</td>
<td>0</td>
<td>0</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>3</td>
<td>38400</td>
<td>0</td>
<td>0</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>4</td>
<td>38400</td>
<td>0</td>
<td>0</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>5</td>
<td>38400</td>
<td>0</td>
<td>0</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>6</td>
<td>38400</td>
<td>0</td>
<td>0</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>7</td>
<td>38400</td>
<td>0</td>
<td>0</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>8</td>
<td>38400</td>
<td>0</td>
<td>0</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

#### 7-2 Serial ports statistics

- **Forwarding**: IP forwarding is enabled by default.
- **Default TTL**: TTL (Time To Live) is 64.
- **In Receives**: All incoming data is received.
- **In Hdr Errors**: Errors in header are discarded.
- **In Addr Errors**: Errors in address are discarded.
- **Forw Datagrams**: Forwarding of datagrams is enabled.
- **In Unknown Protos**: Unknown protocol data is discarded.
- **In Discard**: Discarded data is sent to the discard buffer.
- **In Delivers**: Data is delivered to the correct process.
OutRequests:

Forwarding .

OutDiscards:

OutNoRoutes:

destination IP .

ReasmTimeout:

ReasmReqds:

ReasmOKs:

ReasmFails:

FragOKs:

FragFails:

FragCreates:
### 7.4. ICMP

ICMP is a protocol used for error reporting and control in the Internet. It provides support for network troubleshooting and resource discovery.

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>InMsgs, OutMsgs</td>
<td></td>
</tr>
<tr>
<td>InErrors, OutErrors</td>
<td></td>
</tr>
<tr>
<td>InDestUnreachs, OutDestUnreachs</td>
<td></td>
</tr>
<tr>
<td>InTimeExcds, OutTimeExcds</td>
<td></td>
</tr>
<tr>
<td>InParmProbs, OutParmProbs</td>
<td></td>
</tr>
<tr>
<td>InSrcQuenches, OutSrcQuenches</td>
<td></td>
</tr>
<tr>
<td>InRedirects, OutRedirects</td>
<td></td>
</tr>
<tr>
<td>InEchos, OutEchos</td>
<td></td>
</tr>
</tbody>
</table>
NEchoReps, OutEchoReps:

InTimestamps, OutTimestamps:

InTimestampReps, OutTimestampReps:

InAddrMasks, OutAddrMasks:

InAddrMaskReps, OutAddrMaskReps:

| ICMP statistics |
|-----------------|--------|
| InMsgs          | 4      |
| InErrors        | 0      |
| InDestUnreachs  | 4      |
| InTimeExcds     | 0      |
| InParmProbs     | 0      |
| InSrcQuenchts   | 0      |
| InRedirects     | 0      |
| InEchos         | 0      |
| InEchoReps      | 0      |
| InTimestamps    | 0      |
| InTimestampReps | 0      |
| InAddrMasks     | 0      |
| InAddrMaskReps  | 0      |
| OutMsgs         | 4      |
| OutErrors       | 0      |
| OutDestUnreachs | 4      |
| OutTimeExcds    | 0      |
| OutParmProbs    | 0      |
| OutSrcQuenchts  | 0      |
| OutRedirects    | 0      |
| OutEchos        | 0      |
| OutEchoReps     | 0      |
| OutTimestamps   | 0      |
| OutTimestampReps| 0      |
| OutAddrMasks    | 0      |
| OutAddrMaskReps | 0      |

7-4 ICMP
7.5. TCP

TCP retransmission time-out (RTO) is crucial for maintaining effective network communication. The retransmission algorithm determines how the time-out is calculated. There are three main algorithms:

0: CONSTANT - Constant Time-out
1: RSRE - MIL-STD-1778 B
2: VANJ - Van Jacobson's Algorithm
3: OTHER - Other

RtoMin:
- RTO (ms)

RtoMax:
- RTO (ms)

MaxConn:
- Maximum connections

ActiveOpens:
- Active opening connections

PassiveOpens:
- Passive opening connections

AttemptFails:
- Failed attempts

EstabResets:
- Established resets

CurrEstab:
- Current established connections

InSegs:
- Input segments

OutSegs:
- Output segments

RetransSegs:
- Retransmitted segments

OutRsts:
- Output resets

Reset:
- Reset connection
TCP statistics

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>RtoAlgorithm</td>
<td>0</td>
</tr>
<tr>
<td>RtoMin</td>
<td>0</td>
</tr>
<tr>
<td>RtoMax</td>
<td>0</td>
</tr>
<tr>
<td>MaxConn</td>
<td>0</td>
</tr>
<tr>
<td>ActiveOpens</td>
<td>0</td>
</tr>
<tr>
<td>PassiveOpens</td>
<td>0</td>
</tr>
<tr>
<td>AttemptFails</td>
<td>0</td>
</tr>
<tr>
<td>EstabResets</td>
<td>0</td>
</tr>
<tr>
<td>CurrEstab</td>
<td>2</td>
</tr>
<tr>
<td>InSegs</td>
<td>1051</td>
</tr>
<tr>
<td>OutSegs</td>
<td>1485</td>
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<tr>
<td>RetransSegs</td>
<td>0</td>
</tr>
<tr>
<td>InErrs</td>
<td>0</td>
</tr>
<tr>
<td>OutRelts</td>
<td>5</td>
</tr>
</tbody>
</table>

7.6. UDP

UDP statistics

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>InDatagrams</td>
<td>3859</td>
</tr>
<tr>
<td>NoPorts</td>
<td>4</td>
</tr>
<tr>
<td>InErrors</td>
<td>0</td>
</tr>
<tr>
<td>OutDatagrams</td>
<td>3863</td>
</tr>
</tbody>
</table>
8. CLI

8.1. root System admin Telnet/SSH

root System admin Telnet/SSH

8.2. STS

<table>
<thead>
<tr>
<th>Block</th>
<th>Type</th>
<th>Mount point</th>
<th>Size (KB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mtdblock0</td>
<td>Bootloader</td>
<td>None</td>
<td>128</td>
</tr>
<tr>
<td>Mtdblock1</td>
<td>Kernel</td>
<td>None</td>
<td>768</td>
</tr>
<tr>
<td>Mtdblock2</td>
<td>CRAMFS (Read only)</td>
<td>/</td>
<td>6080</td>
</tr>
<tr>
<td>Mtdblock3</td>
<td>Ram disk image (4MB)</td>
<td>/etc, /var, /tmp</td>
<td>64</td>
</tr>
<tr>
<td>Mtdblock4</td>
<td>EXT2 (R/W)</td>
<td>/cnf (normally unmounted)</td>
<td>64</td>
</tr>
<tr>
<td>Mtdblock5</td>
<td>JFFS2 (R/W)</td>
<td>/usr2</td>
<td>1024</td>
</tr>
<tr>
<td>Mtdblock6</td>
<td>Reserved</td>
<td>None</td>
<td>64</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>8192</td>
</tr>
</tbody>
</table>
8.3. Linux

8.3.1. Shell shell utilities:
sh, ash, bash, echo, env, false, grep, more, sed, which, pwd

8.3.2. File disk utils:
ls, cp, mv, rm, mkdir, rmdir, ln, mknod, chmod, touch, sync,
gunzip, gzip, zcat, tar, dd, df, du, find, cat, vi, tail,
mkdosfs, mke2fs, e2fsck, fsck, mount, umount, scp

8.3.3. system admin:
date, free, hostname, sleep, stty, uname, reset,
insmod, rmmod, lsmod, modprobe,
kill, killall, ps, halt, shutdown, poweroff, reboot, telinit, init,
useradd, userdel, usermod, whoami, who, passwd, id, su, who

8.3.4. CLI:
ifconfig, iptables, route, telnet, ftp, ssh, ping

8.4. root system admin CLI

1) PC STS _ip_address.
2) PC STS.
3) PC 9600-8-N-1 No flow control.
4) <enter>.
5) STS root admin.

Telnet:
1) telnet STS _ip_address
8.5.  

8.5.1.  

**telnet disable**  

STS ¿¹Á¦ (SSH · TCP ¿ë 22 · telnet · TCP ¿ë 23) ¿½º·ºóú ²º®·ÅÀÀ. Áö¿øÇÏÁö (Telnet/SSH), Áö¿øÇÏÁö (telnet/SSH) ¿½º·ºóú ²º®·ÅÀÀ.  

Example1. 'inetd.conf'  

1. /etc/inetd.conf (telnet ¿ë ¿ë comment out ²º®·ÅÀÀ)  
2. /etc/inetd.conf /usr2/inetd.conf  
3. /usr2/rc.user script  

```bash  
#!/bin/bash  
# rc.user : Sample script file for running user programs at boot time  
#PATH=/bin:/usr/bin:/sbin:/usr/sbin  
# Add shell command to execute from here  
cp -a /usr2/inetd.conf /etc/inetd.conf  
ps -ef  
while killall inetd 2>/dev/null;  
do sleep 1;  
ps -ef  
done  
ps -ef  
exit 0  
```

Example2.  

```bash  
#!/bin/bash  
# rc.user : Sample script file for running user programs at boot time  
#PATH=/bin:/usr/bin:/sbin:/usr/sbin  
# Add shell command to execute from here  
```

2. iptables rule  

1. /usr2/rc.user script  

```bash  
#!/bin/bash  
# rc.user : Sample script file for running user programs at boot time  
```
#!/bin/bash

# rc.user : Sample script file for running user programs at boot time
#
#PATH=/bin:/usr/bin:/sbin:/usr/sbin

# Add shell command to execute from here

# if user wants to disable telnet service from all host
iptables -A INPUT -p tcp -s --dport 23 -j DROP

# if user wants to enable telnet service only from specific hosts (192.168.0.0 ~ 192.168.0.255)
iptables -A INPUT -p tcp -s ! 192.168.0.1/255.255.255.0 --dport 23 -j DROP

exit 0

8.5.2.  Factory Reset

Factory Reset  is used to reset the Device to default settings. To factory reset the Device, /usr2/rc.user script will be executed when /usr2/rc.user.old# script file is executed.

1. /usr2/* /usr2/rc.user.old# and /usr2/rc.user script files.

SHELL=/bin/bash

# Sample crontab job
# Run every two minutes
*
*
*
*
*
* echo 'date' > /tmp/current_date

2. crontab user@device:/usr2

root@STS800_Device:/usr2# crontab samplecrontab_file

3. crontab user@device:/usr2

#rc.user : Sample script file for running user programs at boot time
#PATH=/bin:/usr/bin:/sbin:/usr/sbin
# Add shell command to execute from here

crontab /usr/samplecrontab_file

exit 0

STS

vi /usr/samplecrontab_file

(crontab).

crontab /usr/samplecrontab_file

(5 man crontab).
1. Ethernet Pin outs

A 1.1 Ethernet Pin outs

STX AT&T 258 Ethernet RJ45. A-1

RJ 45 pinout:

<table>
<thead>
<tr>
<th>Pin</th>
<th>RS232 (console and serial ports)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CTS</td>
</tr>
<tr>
<td>2</td>
<td>DSR</td>
</tr>
<tr>
<td>3</td>
<td>RXD</td>
</tr>
<tr>
<td>4</td>
<td>GND</td>
</tr>
<tr>
<td>5</td>
<td>DCD</td>
</tr>
<tr>
<td>6</td>
<td>TXD</td>
</tr>
<tr>
<td>7</td>
<td>DTR</td>
</tr>
<tr>
<td>8</td>
<td>RTS</td>
</tr>
</tbody>
</table>

A 1.2 Pin out

STX RJ45 A-3

RJ 45 pinout:

<table>
<thead>
<tr>
<th>Pin</th>
<th>RJ 45</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tx+</td>
</tr>
<tr>
<td>2</td>
<td>Tx-</td>
</tr>
<tr>
<td>3</td>
<td>Rx+</td>
</tr>
<tr>
<td>4</td>
<td>NC</td>
</tr>
<tr>
<td>5</td>
<td>NC</td>
</tr>
<tr>
<td>6</td>
<td>Rx-</td>
</tr>
<tr>
<td>7</td>
<td>NC</td>
</tr>
<tr>
<td>8</td>
<td>NC</td>
</tr>
</tbody>
</table>
A 1.3 Ethernet

HelloDevice
Rx+(1)  Rx-(2)  Tx+(3)  Tx-(6)
Remote Host
Rx+(1)  Rx-(2)  Tx+(3)  Tx-(6)

A-2 Ethernet direct connection using crossover Ethernet cable

HelloDevice
Rx+(1)  Rx-(2)  Tx+(3)  Tx-(6)
Hub
Rx+(1)  Rx-(2)  Tx+(3)  Tx-(6)
Remote Host
Rx+(1)  Rx-(2)  Tx+(3)  Tx-(6)

A-3 Ethernet connection using straight through Ethernet cable

A 1.4 RS232

RJ45-DB9 female adapter

Using RJ45 to DB9(Female) Cross-over Cable

<table>
<thead>
<tr>
<th>Description (RJ45)</th>
<th>Internal Cable Color</th>
<th>RJ45 Pin No.</th>
<th>DB9 Pin No.</th>
<th>Description (DB9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTS</td>
<td>Blue</td>
<td>1</td>
<td>7</td>
<td>RTS</td>
</tr>
<tr>
<td>DSR</td>
<td>Orange</td>
<td>2</td>
<td>4</td>
<td>DTR</td>
</tr>
<tr>
<td>RXD</td>
<td>Black</td>
<td>3</td>
<td>3</td>
<td>TXD</td>
</tr>
<tr>
<td>GND</td>
<td>Red</td>
<td>4</td>
<td>5</td>
<td>GND</td>
</tr>
<tr>
<td>DCD</td>
<td>Green</td>
<td>5</td>
<td>1</td>
<td>DCD</td>
</tr>
<tr>
<td>TXD</td>
<td>Yellow</td>
<td>6</td>
<td>2</td>
<td>RXD</td>
</tr>
<tr>
<td>DTR</td>
<td>Brown</td>
<td>7</td>
<td>6</td>
<td>DSR</td>
</tr>
<tr>
<td>RTS</td>
<td>White</td>
<td>8</td>
<td>8</td>
<td>CTS</td>
</tr>
</tbody>
</table>
### RJ45-DB25 female adapter

**Using RJ45 to DB25(Female) Cross-over Cable**

<table>
<thead>
<tr>
<th>Description (RJ45)</th>
<th>Internal Cable Color</th>
<th>RJ45 Pin No.</th>
<th>DB25 Pin No.</th>
<th>Description (DB25)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTS</td>
<td>Blue</td>
<td>1</td>
<td>4</td>
<td>RTS</td>
</tr>
<tr>
<td>DSR</td>
<td>Orange</td>
<td>2</td>
<td>20</td>
<td>DTR</td>
</tr>
<tr>
<td>RXD</td>
<td>Black</td>
<td>3</td>
<td>2</td>
<td>TXD</td>
</tr>
<tr>
<td>GND</td>
<td>Red</td>
<td>4</td>
<td>7</td>
<td>GND</td>
</tr>
<tr>
<td>DCD</td>
<td>Green</td>
<td>5</td>
<td>8</td>
<td>DCD</td>
</tr>
<tr>
<td>TXD</td>
<td>Yellow</td>
<td>6</td>
<td>3</td>
<td>RXD</td>
</tr>
<tr>
<td>DTR</td>
<td>Brown</td>
<td>7</td>
<td>6</td>
<td>DSR</td>
</tr>
<tr>
<td>RTS</td>
<td>White</td>
<td>8</td>
<td>5</td>
<td>CTS</td>
</tr>
</tbody>
</table>

### RJ45-DB25 male adapter

**Using RJ45 to DB25(Male) Cross-over Cable**

<table>
<thead>
<tr>
<th>Description (RJ45)</th>
<th>Internal Cable Color</th>
<th>RJ45 Pin No.</th>
<th>DB25 Pin No.</th>
<th>Description (DB25)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTS</td>
<td>Blue</td>
<td>1</td>
<td>4</td>
<td>RTS</td>
</tr>
<tr>
<td>DSR</td>
<td>Orange</td>
<td>2</td>
<td>20</td>
<td>DTR</td>
</tr>
<tr>
<td>RXD</td>
<td>Black</td>
<td>3</td>
<td>2</td>
<td>TXD</td>
</tr>
<tr>
<td>GND</td>
<td>Red</td>
<td>4</td>
<td>7</td>
<td>GND</td>
</tr>
<tr>
<td>DCD</td>
<td>Green</td>
<td>5</td>
<td>8</td>
<td>DCD</td>
</tr>
<tr>
<td>TXD</td>
<td>Yellow</td>
<td>6</td>
<td>3</td>
<td>RXD</td>
</tr>
<tr>
<td>DTR</td>
<td>Brown</td>
<td>7</td>
<td>6</td>
<td>DSR</td>
</tr>
<tr>
<td>RTS</td>
<td>White</td>
<td>8</td>
<td>5</td>
<td>CTS</td>
</tr>
</tbody>
</table>

### RJ45-DB25 male adapter

**Using RJ45 to DB25(Male) Straight Cable**

<table>
<thead>
<tr>
<th>Description (RJ45)</th>
<th>Internal Cable Color</th>
<th>RJ45 Pin No.</th>
<th>DB25 Pin No.</th>
<th>Description (DB25)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CTS</td>
<td>Blue</td>
<td>1</td>
<td>5</td>
<td>CTS</td>
</tr>
<tr>
<td>DSR</td>
<td>Orange</td>
<td>2</td>
<td>6</td>
<td>DSR</td>
</tr>
<tr>
<td>RXD</td>
<td>Black</td>
<td>3</td>
<td>3</td>
<td>RXD</td>
</tr>
<tr>
<td>GND</td>
<td>Red</td>
<td>4</td>
<td>7</td>
<td>GND</td>
</tr>
<tr>
<td>DCD</td>
<td>Green</td>
<td>5</td>
<td>8</td>
<td>DCD</td>
</tr>
<tr>
<td>TXD</td>
<td>Yellow</td>
<td>6</td>
<td>2</td>
<td>TXD</td>
</tr>
<tr>
<td>DTR</td>
<td>Brown</td>
<td>7</td>
<td>20</td>
<td>DTR</td>
</tr>
<tr>
<td>RTS</td>
<td>White</td>
<td>8</td>
<td>4</td>
<td>RTS</td>
</tr>
</tbody>
</table>
### 2. STS םינטס תעוב אופטיקלי PC

STS תוחלת תעם בדיקת PC.

#### A-2 בדיקת תכונות PC

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Model/Name</th>
<th>STS probed Model name</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>3COM</td>
<td>3CXE589ET-AP</td>
<td>3Com Megahertz 589E TP/BNC LAN PC Card</td>
<td>10 Mbps LAN card</td>
</tr>
<tr>
<td>Linksys</td>
<td>Linksys EtherFast 10/100 Integrated PC Card (PCM100)</td>
<td>Linksys EtherFast 10/100 Integrated PC Card (PCM100) Ver 1.0</td>
<td>10/100 Mbps LAN card</td>
</tr>
<tr>
<td>Corega</td>
<td>FetherII PCC-TXD</td>
<td>corega K.K. corega F EtherII PCC-TXD</td>
<td>10/100 Mbps LAN card</td>
</tr>
<tr>
<td>Netgear</td>
<td>16bit PCMCIA Notebook Adapter FA411</td>
<td>NETGEAR FA411 Fast Ethernet</td>
<td>10/100 Mbps LAN card</td>
</tr>
</tbody>
</table>

#### A-3 בדיקת תכונות PC

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Model/Name</th>
<th>STS probed Model name</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lucent Technologies</td>
<td>PC24E-H-FC/Orinoco Silver</td>
<td>Lucent Technologies WaveLAN/IEEE Version 01.01</td>
<td>11 Mbps Wireless LAN Adapter</td>
</tr>
<tr>
<td>Buffalo</td>
<td>AirStation (WLI-PCM-L11GP)</td>
<td>MELCO WLI-PCM-L11 Version 01.01</td>
<td>11 Mbps Wireless LAN Adapter</td>
</tr>
</tbody>
</table>

#### A-4 ATA/IDE Fixed

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Model/Name</th>
<th>STS probed Model name</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advantech</td>
<td>CompactFlash</td>
<td>CF 48M</td>
<td>48 MB Storage card</td>
</tr>
<tr>
<td>SanDisk</td>
<td>SDP series</td>
<td>SunDisk SDP 5/3 0.6</td>
<td>64 MB Storage card</td>
</tr>
<tr>
<td>SanDisk</td>
<td>SDP series</td>
<td>SanDisk SDP 5/3 0.6</td>
<td>256 MB Storage card</td>
</tr>
<tr>
<td>Kingston</td>
<td>CompactFlash Storage Card</td>
<td>TOSHIBA THNCF064MAA</td>
<td>64 MB Storage card</td>
</tr>
<tr>
<td>Viking</td>
<td>CompactFlash</td>
<td>TOSHIBA THNCF064MBA</td>
<td>64 MB Storage card</td>
</tr>
<tr>
<td>Manufacturer</td>
<td>Model/Name</td>
<td>STS probed Model name</td>
<td>Specification</td>
</tr>
<tr>
<td>------------------------------</td>
<td>-----------------------------</td>
<td>--------------------------------------------</td>
<td>---------------------------------------</td>
</tr>
<tr>
<td>Billington Systems Inc.</td>
<td>FM56C series</td>
<td>PCMCIA CARD 56KFaxModem FM56C-NFS 5.41</td>
<td>Ambient (Intel) V.90 FAX/MODEM PC Card</td>
</tr>
<tr>
<td>Viking</td>
<td>PC Card Modem 56K</td>
<td>Viking V.90 K56flex 021 A</td>
<td>MODEM PC Card</td>
</tr>
<tr>
<td>KINGMAX</td>
<td>KIT PCMCIA 56K Fax/Modem Card</td>
<td>CIRRUS LOGIC 56K MODEM CL-MD56XX 5.41</td>
<td>V.90 FAX/MODEM PC Card</td>
</tr>
<tr>
<td>TDK</td>
<td>TDK DH6400</td>
<td>TDK DH6400 1.0</td>
<td>64Kbps</td>
</tr>
<tr>
<td>NTT DoCoMo</td>
<td>Mobile Card Triplex N</td>
<td>NTT DoCoMo Mobile Card Triplex N</td>
<td>64Kbps</td>
</tr>
</tbody>
</table>
# 3. STS

A 3.1 System.cnf

```bash
# # system.cnf
# # system configuration which exist only one place on this file.
#
# kind of IP configuration mode
# 1 - static ip, 2 - dhcp, 3 - pppoe
ipmode = 1

# system ip address
ipaddr = 192.168.161.5

# system subnet mask
subnet = 255.255.0.0

# system gateway
gateway = 192.168.1.1

# dns configuration
# 'p_dns' is a primary dns ip address and 's_dns' is a secondary dns ip address
# if you want to set dns automatically in case of dhcp or pppoe,
# you can set 'manual_dns' to 0.
p_dns = 168.126.63.1
s_dns = 168.126.63.2

# pppoe configuration
# 'ppp_usr' is pppoe account name and 'ppp_pwd' is a password for that account
ppp_usr = whoever
ppp_pwd = pppoepwd

# Email logging configuration
# if you want to send log via E-mail, set 'emaillog' to 1
# 'emaillog_num' trigger sending email.
# The number of logs are greater than 'emaillog_num', then send it.
emaillog = 0
emaillog_num = 5

# SMTP configuration
# 'smtpsvr' is a SMTP server.
# 'sysmailaddr' is a sender address.
# 'recvmailaddr' is a receiver address.
# 'smtp_mode' means a SMTP server authentication mode.
# 1 - smtp w/o authentication, 2 - pop before smtp, 3 - smtp w/ authentication
# If 'smtp_mode' is 2 or 3, you need SMTP account information.
# 'smtp_user' is a SMTP account name and 'smtp_pwd' is a password.
bsmtp = 0
smtpsvr = smtp.yourcompany.com
sysmailaddr = STS800@yourcompany.com
recvmailaddr = admin@yourcompany.com
smtp_mode = 1
smtp_user = admin
smtp_pwd = admin

# 'device_name' mean a unit name assigned. A unit name will be a identifier
# among PS products.
device_name = STS800 Device

# IP filtering configuration
```
# By setting 'btelnet' to 1, you can use remote console.
# Similarly by setting 'bweb' to 1, you can use remote console.
# 0 means that protect any access.
# 'enable_ip', 'enable_netmask' pair is a source rule specification for remote
# console filtering.
# 'enable_webip', 'enable_webnetmask' pair is for web filtering.
btelnet = 1
bweb = 1
enable_ip = 0.0.0.0
enable_netmask = 0.0.0.0
enable_webip = 0.0.0.0
enable_webnetmask = 0.0.0.0

# dynamic DNS(DDNS) configuration
# dynamic dns can be enabled by setting 'bdyndns' to 1. 0 for disable.
# 'dyn_dn' is a domain name for your DDNS.
# 'dyn_user' is a account name for DDNS and 'dyn_pwd" is a password for it.
bdyndns = 0
dyn_dn = ss800.dyndns.biz
dyn_user = ss800-user
dyn_pwd = ss800-pwd

# NTP configuration
# 'ntp_enable' set to 1 for using NTP or set to 0.
# 'ntp_serverip' is the IP address of NTP server and 'ntp_offset' is a your
# offset from UTC.
# If you don't know any NTP server IP, then set 'ntp_auto_conf' to 1.
ntp_enable = 0
ntp_auto_conf = 1
ntp_offset = 0.0
ntp_serverip = 192.168.200.100

# Log configuration
# system logging is enabled by 'log_enable' to 1.
# 'logbuf_size' is a variable for representing log buffer size by KB.
# 'log_stoloc' is a location to save log.
# 1 = memory 2 = CF card 3 = NFS 4 = SYSLOGD
# If you choose log location to SYSLOGD, 'logbuf_size' you've set will loose his
# role = limiting log file size.
log_enable = 1
logbuf_size = 4
log_stoloc = 1

# syslog configuration
# You can run or kill syslogd by setting 'bsyslog_service' to 1 or 0.
# 'syslog_ip' is a IP addresss of a remote syslog server.
# 'syslog_2ndip' is a IP address of a secondary syslogd server which will get
# the same logs.
# 'syslog_facility' specify what type of program is logging. 0 ~ 7 for LOCAL0 to
# LOCAL7
bsyslog_service = 0
syslog_ip = 192.168.200.100
syslog_facility = 0

# NFS configuration
# You can mount or unmount NFS by setting 'bnfs_service' to 1 or 0.
# 'nfs_ip' is a NFS server IP addressss and 'nfs_path' is a mount path.
bnfs_service = 0
nfs_ip = 192.168.200.100
nfs_path = /

# WEB configuration
# If you want to support HTTP, then set 'bweb_http' to 1. If not, set tot 0.
# 'bweb_https' is for HTTPS.
# 'web_refresh_rate' is for refresh the changing page when you see the system
# status page.
bweb_http = 1
bweb_https = 1
web_refresh_rate = 10

# TCP configuration
# 'keepalive_time' is a time before keep alive takes place.
# 'keepalive_probes' is the number of allowed keep alive probes.
# 'keepalive_intvl' is a time interval between keep alive probes.
keepalive_time = 15
keepalive_probes = 3
keepalive_intvl = 5

# Ethernet configuration
# 'ethernet_mode' is a ethernet mode.
# 0 = Auto Negotiation, 1 = 100BaseT Half Duplex, 2 = 100BaseT Full Duplex, 
# 3 = 10BaseT Half Duplex, 4 = 10BaseT Full Duplex
ethernet_mode = 0

# PCMCIA configuration
# 'pcmcia_card_type' shows a pcmcia card type.
# 0 for empty, -1 for unsupported card, 1 for CF card, 2 for Network card,
# 3 for Wireless Network card, 4 for Serial Modem card
pcmcia_card_type = 0

# PCMCIA ipconfiguration
# same with system ip configuration
pcmcia_ipmode = 2
pcmcia_ip = 192.168.1.254
pcmcia_subnet = 255.255.255.0
pcmcia_gateway = 192.168.1.1
pcmcia_ppp_usr = whoever
pcmcia_ppp_pwd = pppoepwd
pcmcia_bmanual_dns = 0

# In case of serial modem card, 'pcmcia_modem_initstr' means a modem init string.
pcmcia_modem_initstr = q1e0s0=2

# Wireless network card configuration
# To enable or disable Wired Equivalent Privacy(WEP), set 'pcmcia_wep_enb' to 1
# or 0.
# 'pcmcia_web_mode' is a WEP mode. 1 for encrypted, 2 for shared
# 'pcmcia_wep_length' is a length for WEP. 1 for 40 bits, 2 for 128 bits
# 'pcmcia_wep_key_str' is a key string for WEP.
pcmcia_wep_enb = 0
pcmcia_wep_mode = 1
pcmcia_wep_length = 1

# 'pcmcia_cf_conf_max' is a maximum size to use in case of CF card.
pcmcia_cf_conf_max = 0

A 3.2 Redirect.cnf

# redirect.cnf
# Port configuration is placed on this file.
# Basically keys followed by 'port' key are data for those port.
# Port number is zero base index and the maximum value for port is used as all
# port configuration
# Data followed by all port are default values and will NOT be applied.

# 'port' key notify the port data follow.
# If you want to activate the port, set 'benable' to 1. If not, set to 0.
# If you set 'bmanual' to 1, you don't want to change the port data by changing
all port configuration.
# If you want to change the port data by changing all port configuration, set to 0.
port = 0
benable = 0
bmanset = 0
port = 1
benable = 0
bmanset = 0
port = 2
benable = 0
bmanset = 0
port = 3
benable = 0
bmanset = 0
port = 4
benable = 0
bmanset = 0
port = 5
benable = 0
bmanset = 0
port = 6
benable = 0
bmanset = 0
port = 7
benable = 0
bmanset = 0
port = 8
benable = 0
bmanset = 0

# As referred, maximum port (in case 8 port machine, 8) represents the defaults values for all port configuration.
port = 8
benable = 0
bmanset = 0

# Serial parameter configuration
# 'uarttype' is for UART type. But PS only support RS232.
# So set 'uarttype' to 0 and DO NOT CHANGE.
# 'baudrate' is for baudrate. From 1200 to 230400 is available.
# 'stopbits' is for stop bits. 1 for 1 bit, 2 for 2 bits
# 'databits' is for data bits. 7 for 7 bits, 8 for 8 bits.
# 'parity' is for parity. 0 for none, 1 for even, 2 for odd parity.
# 'flowcontrol' is for flow control. 0 for none, 1 for XON/XOFF, 2 for hardware flow control
# 'dtropt' is for DTR pin option. 1 = Always HIGH, 2 = Always LOW, 3 = High when open
# 'dsropt' is for DSR pin option. 0 = None, 1 = Allow TCP connection only by HIGH 2 = open/close TCP connection
# 'interchartimeout' is for inter-character timeout. It works ONLY FOR RAWTCP mode.
uarttype = 0
baudrate = 9600
stopbits = 1
databits = 8
parity = 0
flowcontrol = 0
dtropt = 0
dsropt = 0
interchartimeout = 100

# Host mode configuration
# 'hostmode' means a host mode.
# 0 = TCP mode, 1 = UDP mode, 2 = Mode emulation
hostmode = 0

# In TCP mode, 'localport' is a listening port.
localport = 0

# 'max_connection' is a maximum allowed number of remote host
max_connection = 32
# 'remotehost' is a remote host list
# (Primary IP address:port Secondary IP address:port)
remotehost = 192.168.0.135:7000 192.168.0.135:7001
# 'cyclictime' is a cyclic connection time in seconds
# 'inactivitytimeout' is an inactivity timeout in seconds.
cyclictime = 10
inactivitytimeout = 100

# Cryptography Options
# 'encryptionmode' is encryption mode
# 0 = None, 1 = SSLv2, 2 = SSLv3, 3 = SSLv3 rollback v2, 4 = TLSv1
# 'encryptionkey' is encryption key file name
# 'key_password' is password for encryption key file
# 'cipher_suite' represents a combination of cipher suite.
# 'verify_client' is Verify client (server mode only) option
# 0 = No, 1 = Yes
# 'verify_chain_depth' is a number of chain depth to be searched
# 'verify_cn' is Compare the certificate CN and hostname option
# 0 = No, 1 = Yes
encryptionmode = 2
cipher_suite = 524287
verify_client = 1
verify_chain_depth = 3
verify_cn = 1

# In UDP mode,
# 'accept_unlisted' is Accept UDP datagram from unlisted remote host option
# 0 = No, 1 = Yes
# 'send_to_unlisted' Send to recent unlisted remote host option
# 0 = No, 1 = Yes
accept_unlisted = 1
send_to_unlisted = 1

# IP filtering configuration
# 'allow_ip', 'allow_netmask' pair is a source rule specification for serial
# port access filtering.
allow_ip = 0.0.0.0
allow_netmask = 0.0.0.0

# 'porttitle' is a port title.
porttitle = Port Title

# Mode configuration option
# 'modem_mode' is modem mode option
# 0 = Disable, 1 = Enable
# 'modem_initstr' is a modem initialization string
# 'modem_dcd_option' is modem DCD pin option
# 0 = None, 1 = Allow TCP connection only by HIGH
modem_mode = 0
modem_initstr =
modem_dcd_option = 0

# Event notification configuration
# Enable of disable Event notification by setting 'event_enable' to 1 or 0.
# 'notification_interval' is interval of event notification.
# 'bmail_handle' is a Enable/Disable E-mail notification option
# 0 = Disable, 1 = Enable
# 'mail_title' is a title of email notification.
# 'mail_address' is a mail recipient’s address
# 'bsnmp_handle' is a Enable/Disable SNMP notification option
# 0 = Disable, 1 = Enable
# 'snmp_title' is a title of SNMP trap notification.
# 'snmp_trap_receiver_ip' is a IP address of SNMP Trap receiver
# 'snmp_trap_receiver_community' is community of SNMP Trap
# 'snmp_trap_receiver_version' is SNMP trap version
# 0 = v1, 1 = v2c
event_enable = 1
notification_interval = 0
bmail_handle = 1
mail_title = jungoj@sena.com
mail_address = jung@sss.com
bsnmp_handle = 1
snmp_title = khfgj
snmp_trap_receiver_ip = 192.168.0.8
snmp_trap_receiver_community = public
snmp_trap_receiver_version = 0

# Event Keyword option
# 'keyword_index' is a index of keyword event
# 'keyword_str' is a event keyword
# 'snmp_enable' is a SNMP notification option for keyword
# 0 = Disable, 1 = Enable
# 'mail_enable' is a email notification option for keyword
# 0 = Disable, 1 = Enable
# 'command_enable' is a port command option for keyword
# 0 = Disable, 1 = Enable
# 'port_command' is a port command string for keyword
keyword_index = 0
keyword_str = test
snmp_enable = 1
mail_enable = 1
command_enable = 1
port_command = fghfg

# Port buffering configuration
# Enable of disable port buffering by setting 'pb_enable' to 1 or 0.
# 'pb_size' is a maximum port buffering size. Maximum value are different by location.
# 'pb_loc' is a location to store port buffer data.
# 1 = memory 2 = CF card 3 = NFS 4 = SYSLOGD
pb_enable = 0
pb_size = 4
pb_loc = 1
4. Well-known Port Numbers

Port numbers are divided into three categories: Well Known Port, Registered Port, and Dynamic Port. Well Known Port is a port number that is well-known and globally accepted. Registered Port is a port number that is registered with IANA. Dynamic Port is a port number that is dynamically assigned to a host. The port numbers range from 0 to 1023 for Well Known Port, 1024 to 49151 for Registered Port, and 49152 to 65535 for Dynamic Port.

IANA is responsible for assigning port numbers, and the list of well-known ports can be found at [http://www.iana.org/assignments/port-numbers](http://www.iana.org/assignments/port-numbers).

### A-6 Well-known port numbers

<table>
<thead>
<tr>
<th>Port number</th>
<th>Protocol</th>
<th>TCP/UDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
<td>FTP (File Transfer Protocol)</td>
<td>TCP</td>
</tr>
<tr>
<td>22</td>
<td>SSH (Secure SHell)</td>
<td>TCP</td>
</tr>
<tr>
<td>23</td>
<td>Telnet</td>
<td>TCP</td>
</tr>
<tr>
<td>25</td>
<td>SMTP (Simple Mail Transfer Protocol)</td>
<td>TCP</td>
</tr>
<tr>
<td>37</td>
<td>Time</td>
<td>TCP, UDP</td>
</tr>
<tr>
<td>39</td>
<td>RLP (Resource Location Protocol)</td>
<td>UDP</td>
</tr>
<tr>
<td>49</td>
<td>TACACS, TACACS+</td>
<td>UDP</td>
</tr>
<tr>
<td>53</td>
<td>DNS</td>
<td>UDP</td>
</tr>
<tr>
<td>67</td>
<td>BOOTP server</td>
<td>UDP</td>
</tr>
<tr>
<td>68</td>
<td>BOOTP client</td>
<td>UDP</td>
</tr>
<tr>
<td>69</td>
<td>TFTP</td>
<td>UDP</td>
</tr>
<tr>
<td>70</td>
<td>Gopher</td>
<td>TCP</td>
</tr>
<tr>
<td>79</td>
<td>Finger</td>
<td>TCP</td>
</tr>
<tr>
<td>80</td>
<td>HTTP</td>
<td>TCP</td>
</tr>
<tr>
<td>110</td>
<td>POP3</td>
<td>TCP</td>
</tr>
<tr>
<td>119</td>
<td>NNTP (Network News Transfer Protocol)</td>
<td>TCP</td>
</tr>
<tr>
<td>161/162</td>
<td>SNMP</td>
<td>UDP</td>
</tr>
<tr>
<td>443</td>
<td>HTTPS</td>
<td>TCP</td>
</tr>
</tbody>
</table>
5. Guide to the Bootloader

5.1

Bootloader, BOOTP/TFTP, STS, firmware.

5.2

Bootloader, STS, firmware.

Bootloader 1.1.0 (May 23 2003 - 22:48:25)
CPU : XPC855xxZPnnD4 (50 MHz)
DRAM : 64 MB
FLASH : 8 MB
PC CARD : No card
EEPROM : A Type exist
Ethernet : AUTO-NEGOTIATION
Autoboot Start: 0
Welcome to Boot Loader Configuration page
Select menu
1. RTC configuration [ Feb 14 2003 - 11:00:26 ]
2. Hardware test
3. Firmware upgrade [S/W Version : v1.0.0]
4. Exit and boot from flash
5. Exit and reboot
<ESC> Back, <ENTER> Refresh
----->

5.3 RTC

RTC, STS.
RTC configuration

Select menu
1. Date(mm/dd/yy) : 02/14/03
2. Time(hh:mm:ss) : 13:27:12
<ESC> Back, <ENTER> Refresh

----> 1
Enter Current Date (mm/dd/yy) : 02/15/03
press the ENTER key to continue

RTC configuration

Select menu
1. Date(mm/dd/yy) : 02/15/03
<ESC> Back, <ENTER> Refresh

----> 2
Enter Current Time (hh:mm:ss) : 13:25:00
press the ENTER key to continue

RTC configuration

Select menu
1. Date(mm/dd/yy) : 02/15/03
2. Time(hh:mm:ss) : 13:25:01
<ESC> Back, <ENTER> Refresh

---->

A 5.4 Bootloader

±×¸²
A-5
Hardware Test

Select menu
0. Test Mode - One time
1. Auto test
2. DRAM test
3. FLASH test
4. LED test
5. EEPROM test
6. UART test
7. PC card test
8. Ethernet test
<ESC> Back, <ENTER> Refresh

Hardware Test

Select menu
0. Test Mode - Looping(without External test in Auto test)
1. Auto test
2. DRAM test
3. FLASH test
4. LED test
5. EEPROM test
6. UART test
7. PC card test
8. Ethernet test
<ESC> Back, <ENTER> Refresh

Hardware Test

Select menu
0. Test Mode - Looping(with External test in Auto test)
1. Auto test
2. DRAM test
3. FLASH test
4. LED test
5. EEPROM test
6. UART test
7. PC card test
8. Ethernet test
<ESC> Back, <ENTER> Refresh

Hardware Test

Select menu
0. Test Mode - One time
1. Auto test
2. DRAM test
3. FLASH test
4. LED test
5. EEPROM test
6. UART test
7. PC card test
8. Ethernet test

<ESC> Back, <ENTER> Refresh

--->

```
±×¸²
A-6
±×¸²
Bootloader ¸Þ´º ÇÁ·Î±×·¥ ³»ÀÇ Çϵå¿þ¾î Å×½ºÆ® ¸Þ´º
»ç¿ëÀÚ°¡
[Auto test]
À»
¼±ÅÃÇÑ
°æ¿ì,
¸ðµç
Çϵå¿þ¾î
±¸¼º
¿ä¼Ò¿¡
´ëÇÑ
Å×½ºÆ®°¡
ÀÚµ¿À¸·Î
¼öÇàµË´Ï

--->

*******  Hardware auto-detect and auto-test *******
[DRAM]
DRAM Test in progress ----------------------------------------[65536KB]
DRAM Test ----------------------------------------------------[SUCCESS]

[FLASH]
Flash Test Status---------------------------------------------[  100 %]
Flash Test ---------------------------------------------------[SUCCESS]

[FAN]
Fan Status --------------------------------------------------[7020 RPM]

[LED]
SERIAL READY LED ON/OFF---------------------------------------3 time(s)

[EEPROM]
EEPROM   :  A Type exist
EEPROM Test -------------------------------------------------[SUCCESS]

[UART]
<--Internal loop test-->
Port # 1 test in progressing(Read/Write)---------[SUCCESS]
Port # 2 test in progressing(Read/Write)---------[SUCCESS]
.
.
.
Port # 7 test in progressing(Read/Write)---------[SUCCESS]
Port # 8 test in progressing(Read/Write)---------[SUCCESS]

<--External loop test-->
Port # 1 test in progressing(Read/Write)---------[SUCCESS]
(RTS/CTS)---------[SUCCESS]
(DTR/DSR)---------[SUCCESS]
```
Port # 2 test in progressing (Read/Write)----------[SUCCESS]
  (RTS/CTS)-----------------[SUCCESS]
  (DTR/DSR)-----------------[SUCCESS]

Port # 7 test in progressing (Read/Write)----------[SUCCESS]
  (RTS/CTS)-----------------[SUCCESS]
  (DTR/DSR)-----------------[SUCCESS]

Port # 8 test in progressing (Read/Write)----------[SUCCESS]
  (RTS/CTS)-----------------[SUCCESS]
  (DTR/DSR)-----------------[SUCCESS]

[PCMCIA]
5V CARD
5.0V card found: Lucent Technologies WaveLAN/IEEE Version 01.01
    Network Adapter Card

[Ethernet]
Ethernet chip test---------------------------------------------[SUCCESS]
PING 192.168.0.135 from 192.168.161.5 : 64 bytes of ethernet packet.
64 bytes from 192.168.0.135 : seq=0 ttl=255 timestamp=11172879 (ms)
64 bytes from 192.168.0.135 : seq=1 ttl=255 timestamp=11173874 (ms)
64 bytes from 192.168.0.135 : seq=2 ttl=255 timestamp=11174875 (ms)
64 bytes from 192.168.0.135 : seq=3 ttl=255 timestamp=11175876 (ms)

*******  Hardware auto-detect and auto-test SUMMARY *******
1. DRAM Test -----------------------------------------------[SUCCESS]
2. FLASH Test -----------------------------------------------[SUCCESS]
3. FAN Test -----------------------------------------------[SUCCESS]
4. EEPROM Test-----------------------------------------------[SUCCESS]
5. UART Test Summary
  Port NO | exist status  | exist status  | exist status  | exist status
-----------------------------------------------------------------------------
  Port 01-04|  YES  SUCCESS  |   YES  SUCCESS  |  YES  SUCCESS  |  YES  SUCCESS
  Port 05-08|  YES  SUCCESS  |   YES  SUCCESS  |  YES  SUCCESS  |  YES  SUCCESS

6. PC CARD Test Summary
5V CARD
5.0V card found: Lucent Technologies WaveLAN/IEEE Version 01.01
    Network Adapter Card

7. PING Test ---------------------------------------------[SUCCESS]

PRESS any key to continue!!

A-7 Bootloader

 Hardware Test

Select menu
0. Test Mode - One time
1. Auto test
2. DRAM test
3. FLASH test
4. LED test
5. EEPROM test
6. UART test
7. PC card test
8. Ethernet test
<ESC> Back, <ENTER> Refresh
Hardware auto-detect and auto-test

[DRAM]
DRAM Test in progress ----------------------------------------[  640KB]
DRAM Test ----------------------------------------------------[SKIPPED]

[FLASH]
Flash Test Status---------------------------------------------[    2 %]
FLASH Test ---------------------------------------------------[SKIPPED]


InUse LED]  InUse LED]  InUse LED]  InUse LED]  InUse LED]  InUse LED]  InUse LED]  InUse LED]  InUse LED]  InUse LED]
<ctrl-c>  InUse LED]  InUse LED]  InUse LED]  InUse LED]  InUse LED]  InUse LED]  InUse LED]

A 5.5 Firmware upgrade

Firmware upgrade

Select menu
1. Protocol [BOOTP]
2. IP address assigned to Ethernet interface [192.168.161.5]
3. Server's IP address [192.168.0.128]
4. Firmware File Name [sts800.bin]
5. Start firmware upgrade
<ESC> Back, <ENTER> Refresh

Select protocol ( 1 = BOOTP, 2 = TFTP) : 2

Firmware upgrade
5. Start firmware upgrade
<ESC> Back, <ENTER> Refresh
-----> A-9 Bootloader firmware upgrade

Start firmware upgrade
[Start firmware upgrade] Enter, Firmware upgrade Press <y> for [Start firmware upgrade].

Firmware upgrade
Select menu
1. Protocol [BOOTP]
2. IP address assigned to Ethernet interface [192.168.161.5]
3. Server's IP address [192.168.0.128]
4. Firmware File Name [sts800.bin]
5. Start firmware upgrade

Firmware upgrade cannot be stopped until finished.
And all configuration parameters are restored to default values.
Do you really want to start firmware upgrade(y/n)?y

BOOTP broadcast 1
ARP broadcast 1
TFTP from server 192.168.0.128; our IP address is 192.168.161.5
Filename 'sts800.bin'.
Load address: 0x100000
Loading: ####################################################################
done
Bytes transferred = 5838194 (591572 hex)

Erase Flash Sectors 9-20 in Bank # 1
BLOCK 1 : Copy to Flash... done
Erase Flash Sectors 21-115 in Bank # 1
BLOCK 2 : Copy to Flash... done
Erase Flash Sectors 116-116 in Bank # 1
BLOCK 3 : Copy to Flash... done
BLOCK 4 : Erase Flash Sectors 117-117 in Bank # 1
Firmware upgrade is finished successfully.
Select menu
1. Protocol [BOOTP]
2. IP address assigned to Ethernet interface [192.168.161.5]
3. Server's IP address [192.168.0.128]
4. Firmware File Name [sts800.bin]
5. Start firmware upgrade
   <ESC> Back, <ENTER> Refresh

firmware upgrade

  A-10 firmware upgrade

firmware upgrade
## 6. Serial/IP vs. STS

### A 6.1 STS vs. Serial/IP

<table>
<thead>
<tr>
<th>Serial Port Configuration of STS Series</th>
<th>Serial/IP Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Host mode Configuration</td>
<td>Cryptography Configuration</td>
</tr>
<tr>
<td>Host mode</td>
<td>Telnet Protocol</td>
</tr>
<tr>
<td>TCP</td>
<td>Disabled</td>
</tr>
<tr>
<td>TCP</td>
<td>Enabled</td>
</tr>
<tr>
<td>TCP</td>
<td>Disabled</td>
</tr>
<tr>
<td>TCP</td>
<td>Disabled</td>
</tr>
<tr>
<td>TCP</td>
<td>Disabled</td>
</tr>
<tr>
<td>TCP</td>
<td>Enabled</td>
</tr>
<tr>
<td>TCP</td>
<td>Enabled</td>
</tr>
<tr>
<td>TCP</td>
<td>Enabled</td>
</tr>
</tbody>
</table>

STS “SSLv3 rollback to v2” Serial/IP “Negotiate SSLv3/TSLv1”

“SSLv3” STS “Negotiate SSLv3/TSLv1” Serial/IP “Negotiate SSLv3/TSLv1”
A 6.2 erts - Telnet  SSLv3 encryption

1. erts 10 ets ets ets ets ets ets ets ets ets ets ets ets ets ets ets ets ets ets.
   
   *Host mode = TCP,*
   *TCP listening port = 7001,*
   *Telnet protocol = Enabled*

2. erts 10 ets ets ets ets ets ets ets ets ets ets ets ets ets ets ets ets ets ets (Cryptography configuration)
   erts.

   *Encryption method = SSLv3*
4. Enter IP (ISuper IP) or COM (1 COM Port) to connect with the panel.

- Credentials = No Login Required,
- Connection Protocol = Telnet,
- Security = SSL Version 3 (SSLv3)

5. Select the correct COM port and STS port on the PC and COM port on the STS panel to connect.

A-16 Serial/IP Trace Window
7. SSL

A 7.1 OpenSSL

Step 1. Download the latest OpenSSL package. (http://www.openssl.org)
Step 2. Install the OpenSSL package.
  <For Windows user>
  Download OpenSSL for Windows binary file and run it.
  (http://www.slproweb.com/products/Win32OpenSSL.html)
  <For Linux user>
  Download OpenSSL source code and compile it.
    # cd /work/
    # tar –xvzf openssl-0.9.7d.tar.gz
    # cd openssl-0.9.7d
    # ./config
    # make
    # make test
    # make install

A 7.2 root CA (for Self-signed)

Step 1. Editing openssl configuration file.
  Default configuration file location is as follows,
  < Windows >
    C:\Program Files\OpenSSL\bin
  < Linux >
    /usr/share/ssl/openssl.cnf

Modify [req_distinguished_name] section as follows,

<table>
<thead>
<tr>
<th>countryName</th>
<th>Country Name (2 letter code)</th>
</tr>
</thead>
<tbody>
<tr>
<td>countryName_default</td>
<td>KR</td>
</tr>
<tr>
<td>countryName_min</td>
<td>2</td>
</tr>
<tr>
<td>countryName_max</td>
<td>2</td>
</tr>
<tr>
<td>stateOrProvinceName</td>
<td>State or Province Name (full name)</td>
</tr>
<tr>
<td>#stateOrProvinceName_default</td>
<td>Some-State</td>
</tr>
<tr>
<td>localityName</td>
<td>Locality Name (eg, city)</td>
</tr>
<tr>
<td>localityName_default</td>
<td>Seoul</td>
</tr>
</tbody>
</table>
### Step 2. Making self-signed Root CA (Certificate Authority)

#### < Windows >

```
# cd /work/openssl-0.9.7d/
```

#### < Linux >

```
# cd /work/openssl-0.9.7d/
# mkdir CA
# cd CA
# sh /usr/local/ssl/misc/CA.sh –newca
```

### CA certificate filename (or enter to create)

```
; (Press Enter to use default value)
```

Making CA certificate ...  

; openssl is called here as follow from CA.sh  
; openssl req -new -x509 -keyout ./demoCA/private/.cakey.pem  
; -out ./demoCA/.cacert.pem -days 365  
Using configuration from /usr/local/ssl/lib/ssleay.cnf  
Generating a 1024 bit RSA private key  
```
.........++++++
...............++++++
```
writing new private key to './demoCA/private/.cakey.pem'

Enter PEM pass phrase: ; CA Password (Enter password and remember this)

Verifying pass phrase: ; CA Password

-----

You are about to be asked to enter information that will be incorporated into your certificate request.

What you are about to enter is what is called a Distinguished Name or a DN.
There are quite a few fields but you can leave some blank.
For some fields there will be a default value,
If you enter ".", the field will be left blank.

----- ; CA's Information

Country Name (2 letter code) [AU]: KR

State or Province Name (full name) [Some-State] (Enter): 

Locality Name (eg, city) []: Seoul

Organization Name (eg, company) [Internet Widgits Pty Ltd]: Sena Technologies

Organizational Unit Name (eg, section) [] (Enter):

Common Name (eg, YOUR name) []: Sena Technologies

```
2-3. Check whether CA key file (demoCA/private/cakey.pem) and CA certificate (demoCA/cacert.pem) is generated

```bash
# ls demoCA/
```

cacert.pem certs crl index.txt newcerts
```
# ls demoCA/private
```
cakey.pem

A 7.3 🌐 🌐 🌐 🌐 (certificate request) 🌐 🌐 🌐 🌐

To make new certificates, you should make a certificate request first.

```bash
# cd /work/openssl-0.9.7c/CA
```

Run following commands,

```bash
# openssl genrsa -out key.pem 1024
# openssl req -new -key key.pem -out req.pem
```

(It is assumed that you are using sample configuration file - "openssl.conf.sena")

Using configuration from /usr/share/ssl/openssl.cnf

You are about to be asked to enter information that will be incorporated into your certificate request.

What you are about to enter is what is called a Distinguished Name or a DN.

There are quite a few fields but you can leave some blank.

For some fields there will be a default value, If you enter ".", the field will be left blank.

```
-----
Country Name (2 letter code) [US]: (Enter)
State or Province Name (full name) [Minnesota]: (Enter)
Locality Name (eg, city) [Minneapolis]: (Enter)
Organization Name (eg, company) [Digi International]: (Enter)
Organizational Unit Name (eg, section) []: (Enter)
Common Name (eg, your name or your server's hostname) []: Sena VTS
Email Address []: (Enter)
```

Please enter the following 'extra' attributes to be sent with your certificate request.

A challenge password []: (Press Enter - Do not enter any other characters)

An optional company name []: (Press Enter - Do not enter any other characters)

A 7.4 🌐 🌐 🌐 🌐 (certificate request) 🌐 🌐 🌐 🌐

4-1. Signing a certificate request
# cd /work/openssl-0.9.7c/CA
# cp req.pem newreq.pem
# sh /usr/local/ssl/misc/CA.sh -sign

Using configuration from /usr/share/ssl/openssl.cnf
Enter PEM pass phrase: CA Password (Enter CA password in step 2-2)
Check that the request matches the signature
Signature ok
The Subjects Distinguished Name is as follows
countryName :PRINTABLE:'US'
stateOrProvinceName :PRINTABLE:'Minnesota'
localityName :PRINTABLE:'Minneapolis'
organizationName :PRINTABLE:'Digi International'
commonName :PRINTABLE:'Digi PortServer CM'
Certificate is to be certified until Oct 6 09:39:59 2013 GMT (3653 days)
Sign the certificate? [y/n]::y

1 out of 1 certificate requests certified, commit? [y/n]::y
Write out database with 1 new entries
Data Base Updated
Certificate:
   Data:
      Version: 3 (0x2)
      Serial Number: 1 (0x1)
      Signature Algorithm: md5WithRSAEncryption
      Issuer: C=US, ST=Minnesota, L=Minneapolis, O=Digi International, CN=Digi International
   Validity
      Not Before: Oct 6 09:39:59 2003 GMT
      Not After : Oct 6 09:39:59 2013 GMT
      Subject: C=US, ST=Minnesota, L=Minneapolis, O=Digi International, CN=Digi PortServer CM
   Subject Public Key Info:
      Public Key Algorithm: rsaEncryption
      RSA Public Key: (1024 bit)
      ....
      ----BEGIN CERTIFICATE-----
      ....
      ----END CERTIFICATE-----

Signed certificate is in newcert.pem

4-2. Check whether signed certificate(newcert.pem) is generated.

   # ls
   demoCA  key.pem  newcert.pem  newreq.pem  req.pem

A 7.5STS

5-1. Removing headings in newcert.pem file

   # cd /work/openssl-0.9.7c/CA
   # cp newcert.pem server.pem
   # vi server.pem

Certificate:
5-2. Concatenating key.pem file to server.pem

    # cat key.pem >> server.pem