PEPPERCON

a Raritan® company

0801IP/1601IP
Installation and User Guide

Based on Firmware 03.05.02

Last update: February 3, 2005

Document ID: `p_1601ip_00en_manualv2`

Scheringerstr. 1
08056 Zwickau (Saxony)
Germany

Authors: Peppercon Team

This document was created on February 3, 2005.

The 0801IP/1601IP ™(8/16-port KVM and KVMIP) provides server management capabilities. You can use 0801IP/1601IP to manage and monitor components in your servers through a modem, an ISDN line or LAN, even if your network is down(Modem/ISDN). 0801IP/1601IP offers a comprehensive hardware solution to server management.

Limited Warranty

The buyer agrees that if this product proves to be defective, Peppercon AG is only obligated to repair or replace this product at Peppercon AG's discretion according to the terms and conditions of the warranty registration card that accompanies this product. Peppercon AG shall not be held liable for any loss, expenses or damage, direct, incidental or consequential resulting from the use of this product. Please see the Warranty Information shipped with this product for full warranty details.

Limitations of Liability

Peppercon AG shall in no event be held liable for any loss, expenses or damages of any kind whatsoever, whether direct, indirect, incidental, or consequential (whether arising from the design or use of this product or the support materials provided with the product). No action or proceeding against Peppercon AG may be commenced more than two years after the delivery of the product to the licensee of Licensed Software.

The licensee agrees to defend and indemnify Peppercon AG from any and all claims, suits, and liabilities (including attorney's fees) arising out of or resulting from any actual or alleged act or omission on the part of Licensee, its authorized third parties, employees, or agents, in connection with the distribution of Licensed Software to end-users, including, without limitation, claims, suits, and liability for bodily or other injuries to end-users resulting from use of Licensee's product not caused solely by faults in Licensed Software as provided by Peppercon AG to Licensee.

Technical Support

If you need help installing, configuring, or running 0801IP/1601IP, call your Peppercon OEM or VAD Technical Support representative.

We invite you to access Peppercon's Web site at:

http://www.peppercon.com/

There you shall find all modifications made after the editorial deadline.

Contents

List of Figures

List of Tables

1 The Quick Installation Guide

Installation

The 0801IP/1601IP redirects local keyboard, mouse and video data to a remote administration console. All data is transmitted via IP. The 0801IP/1601IP can be used in a multi administrator and multi server environment as well. Besides this, the 0801IP/1601IP is a KVM switch which can also be used with a local console.

This manual applies to both 0801IP and 1601IP devices unless otherwise noted.

Connectors

Front Side (Figure 1.1)

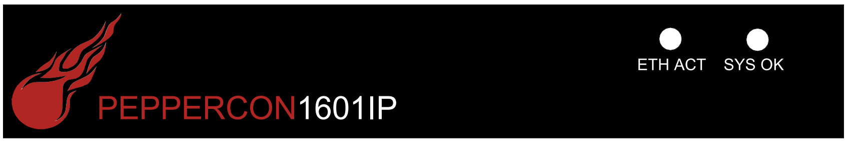


Figure 1.1: Front Side

ETH ACT Indicates activity on the Ethernet connection

SYS OK Indicates whether the 0801IP/1601IP system is running or not

Rear Side (Figure 1.2)

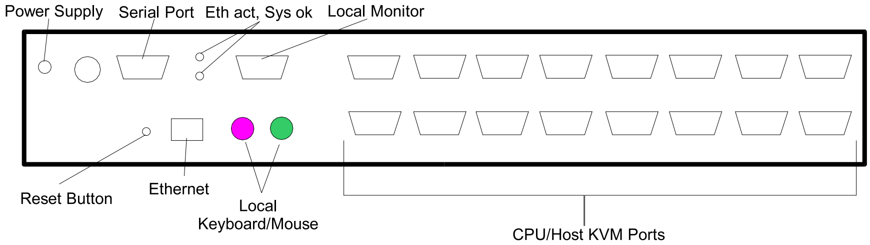


Figure 1.2: Rear Side

SUB-D 9 Serial The standard serial connector is used in multiple ways:

- Serial output for modem dial in connection
- Serial pass-through via Telnet
- Power switch option

- Initial configuration

SUB-D KVM 16 KVM connectors for keyboard, video, mouse signals

Power supply A power supply with the following parameters must be attached:

- Voltage: 12 V
- Current: >= 2 A

RJ 45 Ethernet UTP3/5 cables may be used to connect the 0801IP/1601IP to an Ethernet LAN

Reset Button Use a ballpoint pen or a similar sharp device to reset the 0801IP/1601IP

ETH ACT Indicates activity on the Ethernet connection

SYS OK Indicates whether the 0801IP/1601IP system is running or not

In case you want to connect a local console to the host system besides the 0801IP/1601IP or when using 0801IP/1601IP as a KVM switch, you can attach monitor, keyboard and mouse to the according connectors on its rear.

Connecting the 0801IP/1601IP to the host system

In order to connect the KVM signals of the host systems to the 0801IP/1601IP perform the following steps:

1. Connect the power supply on 0801IP/1601IP
2. Connect the 1-to-3 KVM cable to PS2/PS2/Video cable to one of the KVM connectors on 0801IP/1601IP
3. Connect the (purple) PS/2 Keyboard jack to the keyboard connector of the host system
4. Connect the (green) PS/2 mouse plug to the mouse connector of the host system
5. Connect the VGA HD-15 connector to the VGA monitor output of the host system
6. Connect Ethernet and/or modem, depending how you want to access 0801IP/1601IP

In case you want to connect a local console to the host system besides 0801IP/1601IP or you want to use 0801IP/1601IP as a KVM switch, you may attach monitor, keyboard and mouse to the connectors on the rear side.

ATTENTION! Do not plug a KVM cable into the local monitor port of 0801IP/1601IP. Doing so may damage the system.

Video modes

The 0801IP/1601IP recognizes a limited number of common video modes. When running X11 on the host system, please don't use any custom modelines with special video modes. If done so, the 0801IP/1601IP may not be able to detect these. You are on the safe side with all standard VESA video modes. Please refer to Appendix B on page 67 for a list of all known modes.

KVM Switch Function

The 0801IP/1601IP may be used as a KVM switch. Press the left <CTRL> key twice followed by ('1'~'8'[1]). If the left <CTRL> key is pressed three times an On-Screen Display (OSD) with various options is displayed.

Initial IP configuration

Initially the 0801IP/1601IP network interface is configured with the parameters shown in Table 1.1.

Table 1.1: Initial configuration

parameter	**value**
IP auto configuration	DHCP
IP address	-
Netmask	255.255.255.0
Gateway	none
IP access control	disabled

If this initial configuration does not meet your local requirements, you need to do the initial IP configuration.

> Note:
> If the DHCP connection fails on boot up, the 0801IP/1601IP will not have an IPv4 address.

Use one of the following ways:

1. Connect the enclosed Null Modem Cable to the serial interface on the rear side.

   The serial interface needs to be adjusted with the parameters shown in table Table 1.2:

   Table 1.2: Serial parameters

parameter	**value**
Bits/second	115200
Data bits	8
Parity	No
Stop bits	1
Flow Control	None

   Use a terminal software (e.g. hyperterm or minicom) to connect to the 0801IP/1601IP. Reset the 0801IP/1601IP and immediately press the < *ESC* > key. You will see some device information and a '=>' prompt. Enter the command 'config' and press the < *Enter* > key. After waiting a few moments you may configure IP auto configuration, IP address, net mask and default gateway. Pressing < *Enter* > without entering values does not change settings. The gateway value must be set to 0.0.0.0 (for no gateway) or any other value. You will be asked if the values are correct and get a chance to correct them. After confirming, the 0801IP/1601IP performs a reset.

[1] for 1601IP also 'A'~'H'

2. Use an Ethernet cable to connect the 0801IP/1601IP to a subnet where a DHCP server is available. After the DHCP server has assigned an IP address to the 0801IP/1601IP you can use the web interface to configure the device (see Section 4.1.1 on page 15 for details).

Web interface

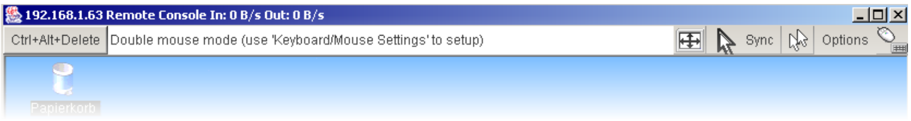
The 0801IP/1601IP may be accessed using a standard web browser. You may use the HTTP protocol or a secure encrypted connection via HTTPS. Just enter the configured IP address of the 0801IP/1601IP into your web browser. Initially there is only one user configured who has unrestricted access to all the 0801IP/1601IP features:

Login name	super
Password	0801ip/1601ip (depending on the actual device)

Please login and change the password immediately according to your own policies.

The Remote Console

The Remote Console is the redirected screen, keyboard and mouse of the remote host system to which 0801IP/1601IP is attached. The web browser which is used for accessing the 0801IP/1601IP has to supply a Java Runtime Environment version 1.1 or higher. The Remote Console will behave exactly the same way as if you were sitting directly in front of the screen of your remote system. That means keyboard and mouse can be used in the usual way. Open the console by choosing the appropriate link in the navigation frame of the HTML frontend. Figure 1.3 shows the top of the Remote Console.

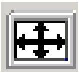


192.168.1.63 Remote Console In: 0 B/s Out: 0 B/s

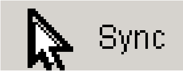
Double mouse mode (use 'Keyboard/Mouse Settings' to setup)

Figure 1.3: Top part of the Remote Console

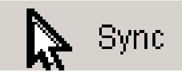
There are some options to choose from, the important ones are the following:

Auto Adjust button 

If the video displayed is of bad quality or distorted in some way, press this button and wait a few seconds while the 0801IP/1601IP tries to adjust itself for the best possible video quality.

Sync Mouse 

Choose this option in order to synchronize the local with the remote mouse cursor. This is especially necessary when using accelerated mouse settings on the host system. In general there is no need to change mouse settings on the host.

Video Settings in Options Menu 

This opens a new window with elements to control the the 0801IP/1601IP Video Settings. You can change some values, for instance related to brightness and contrast of the picture displayed, which may improve the video quality. It is also possible to revert to the default settings for all video modes or only the current one.

2 Introduction

Features

The 0801IP/1601IP defines a new class of remote KVM access devices (see Figure 2.1). 0801IP/1601IP [1] combines a 8/16-port KVM switch with digital remote KVM access via IP networks and comprehensive system management.

The 0801IP/1601IP offers convenient, remote KVM access and control via LAN or Internet. It captures, digitizes, and compresses video and transmits it with keyboard and mouse signals to and from a remote computer. The 0801IP/1601IP provides a non-intrusive solution for remote access and control. Remote access and control software runs on its embedded processors only but not on mission-critical servers, so that there is no interference with server operation or impact on network performance.

Figure 2.1: Total view

Furthermore, the 0801IP/1601IP is complete KVM switch and offers additional remote power management with the help of optional available devices.

Features of the 0801IP/1601IP are:

- KVM (keyboard, video, mouse) access over IP or analogous telephone line.
- No impact on server or network performance
- Automatically senses video resolution for best possible screen capture
- High-performance mouse tracking and synchronization
- Port to connect a user console for direct analogous access to KVM switch

[1] 0801IP/1601IP— 8/16-port KVM and KVMIP

- Local Mouse suppression (only when using SUN's Java Virtual Machine)

0801IP/1601IP supports consoles consisting of PS/2 style keyboards, PS/2 style mouse and HD 15 video output. Please refer to Appendix D.1 on page 71 for more details. 0801IP/1601IP will automatically detect the current video mode of the console, however manual fine tuning is recommended to receive the best video quality. 0801IP/1601IP will accept video streams up to 110 MHz dot clock. This results in a screen resolution of 1280x1024 dots with a frame rate of 60 Hz.

Additionally supported is the use of an external ePowerSwitch to switch power of the connected hosts.

0801IP/1601IP System Components

0801IP/1601IP is a fully configured stand-alone product consuming a 1U 19" rack mount chassis space.

Each 0801IP/1601IP (8420051/8420064) is shipped with:

1. Base unit
2. External power supply
3. Power cord
4. Rack mount kit incl. screws
5. Installation and User Manual on CD-ROM
6. Quick installation guide
7. NULL modem cable

Each 1601IP (Item No: 8420061) package contains additionally:

1. 4 CPU cables 3m
2. 12 CPU cables 1.8m

Each 0801IP (Item No: 8420063) package contains additionally:

1. 8 CPU cables 1.8m

2.1 When the server is up and running

0801IP/1601IP gives you full control over the remote server. The Management Console allows you to access the remote server's graphics, keyboard and mouse and to send special commands to the server.

You can also perform periodic maintenance of the server. Using the Console Redirection Service, you are able to do the following:

- Reboot the system (a graceful shutdown).
- Watch the boot process.
- Boot the system from a separate partition to load the diagnostic environment.

- Run special diagnostic programs.

2.2 When the server is dead

Obviously, fixing hardware defects is not possible using a remote management device. Nevertheless 0801IP/1601IP gives the administrator valuable information about the type of a hardware failure.

Serious hardware failures can be categorized into five different categories with different chances to happen [2]:

1.	Hard disk failure	50%
2.	Power cable detached, power supply failure	28%
3.	CPU, Controller, main board failure	10%
4.	CPU fan failure	8%
5.	RAM failure	4%

Using 0801IP/1601IP, administrators can determine which kind of serious hardware failure has occurred (see Table 2.1).

Table 2.1: Host system failures and how they are detected

Type of failure	**Detected by**
Hard disk failure	Console screen, CMOS set-up information
Power cable detached, power supply failure	Server remains in power off state after power on command has been given.
CPU, Controller, main board failure	Power supply is on, but there is no video output.
CPU fan failure	By server specific management software
RAM failure	Boot-Sequence on boot console

[2] According to a survey made by the Intel Corp.

3 Installation

3.1 Operation Overview

Figure 3.1 shows the connections of 0801IP/1601IP to its host, to peripheral devices, to the power source and to the local area network.

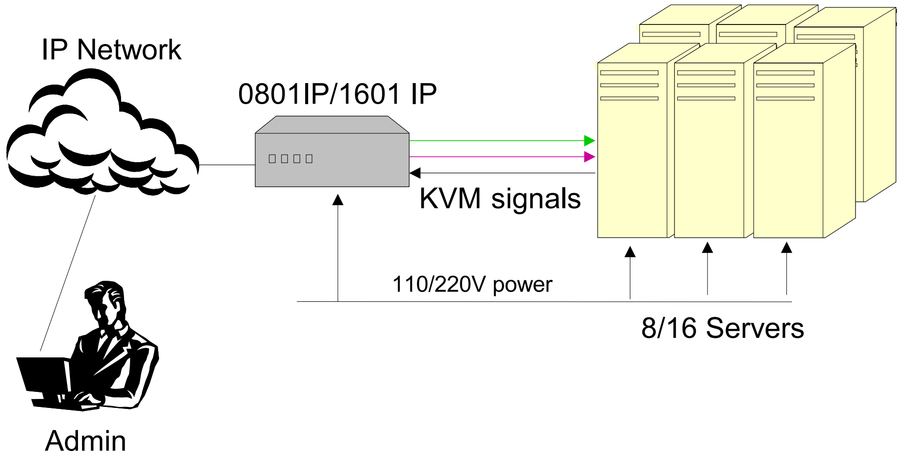


Figure 3.1: 0801IP/1601IP usage scenario

0801IP/1601IP redirects local keyboard, mouse, and video data to a remote administration console. All data is transmitted via IP.

3.2 Connectors and Jumpers

3.2.1 Front Side Connectors

Figure 3.2 shows the connectors on the front side.

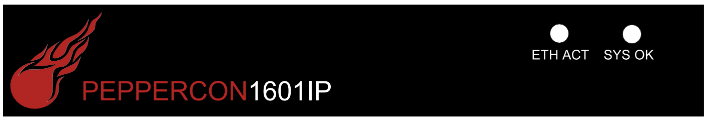


Figure 3.2: 0801IP/1601IP Front Side Connectors

ETH ACT Indicates activity on the 0801IP/1601IP Ethernet connection

SYS OK Indicates whether the 0801IP/1601IP system is running or not

3.2.2 Rear Side Connectors

Figure 3.3 shows the connectors on the rear side.

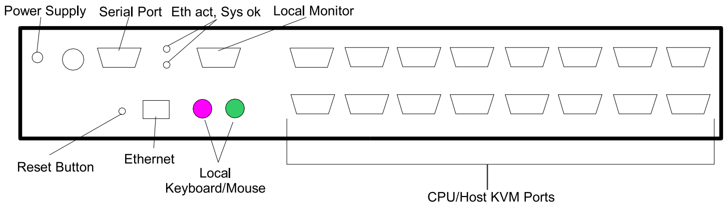


Figure 3.3: Rear Side Connectors

In case you want to connect a local console to the host system besides 0801IP/1601IP or when using 0801IP/1601IP as a KVM switch, you can attach monitor, keyboard and mouse to the according connectors on its rear.

SUB-D 9 Serial The standard serial connector is used in multiple ways:

- Serial output for modem dial in connection
- Serial pass-through via Telnet
- Power switch option
- Initial configuration

SUB-D KVM 16 KVM connectors for keyboard, video, mouse signals

Power supply A power supply with the following parameters can be attached:

- Voltage: 12 V
- Current: >= 2 A

RJ 45 Ethernet UTP3/5 cables can be connected to 0801IP/1601IP using this standard RJ 45 Jack

Reset Button Use a ballpoint or a similar sharp device to reset 0801IP/1601IP

ETH ACT Indicates activity on the 0801IP/1601IP Ethernet connection

SYS OK Indicates whether the 0801IP/1601IP system is running or not

3.3 Connecting 0801IP/1601IP to the host system

In order to connect the KVM signals of the host systems to 0801IP/1601IP perform the following steps:

1. Connect the power supply on 0801IP/1601IP
2. Connect the 1-to-3 KVM cable to PS2/PS2/Video cable to one of the KVM connectors on 0801IP/1601IP
3. Connect the (purple) PS/2 Keyboard jack to the keyboard connector of the host system
4. Connect the (green) PS/2 mouse plug to the mouse connector of the host system

5. Connect the VGA HD-15 connector to the VGA monitor output of the host system
6. Connect Ethernet and/or modem, depending how you want to access 0801IP/1601IP

In case you want to connect a local console to the host system besides 0801IP/1601IP or you want to use 0801IP/1601IP as a KVM switch, you may attach monitor, keyboard and mouse to the connectors on the rear side. Figure 3.4 shows the resulting connections to the host systems and the local console.

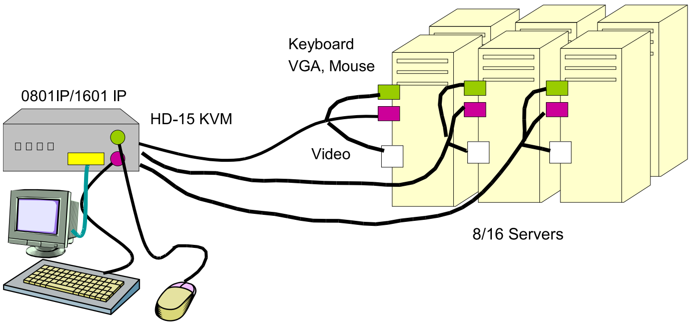


Figure 3.4: Connections of 0801IP/1601IP KVM signals to the controlled and local systems

ATTENTION! Don't plug a KVM cable into the local monitor port of 0801IP/1601IP. Doing so may damage the system.

3.3.1 Connecting the External Power Switch Option

Please refer to the manual of the Peppercon external power switch option or a third party external power option to connect those external devices to one of the serial interface on the rear side of 0801IP/1601IP. By the date of printing this manual supported options are:

- ePowerSwitch

3.3.2 Connecting Ethernet

The rear side of 0801IP/1601IP provides a RJ45 connector for Ethernet. The connector is used either for a 100 Mbps 100BASE-TX connection or for a 10 Mbps 10BASE-T connection. The adapter can sense the connection speed and will adjust to the appropriate operation mode automatically.

3.3.2.1 10 Mbps Connection

For 10BASE-T Ethernet networks, the Fast Ethernet adapter uses Category 3, 4, or 5 UTP cable. To establish a 10 Mbps connection, the cable must be connected to a 10BASE-T hub.

1. Make sure that the cable is wired appropriately for a standard 10BASE-T adapter.
2. Align the RJ45 plug with the notch on the adapter's connector and insert it into the adapter's connector.

3.3.2.2 100 Mbps Connection

For 100BASE-TX Fast Ethernet networks, 0801IP/1601IP supports Category 5 UTP cabling. To establish a 100 Mbps connection, the cable must be connected to a 100BASE-TX hub.

1. Make sure that the cable is wired appropriately for a standard 100BASE-TX adapter.
2. Align the RJ45 plug with the notch on the adapter's connector and insert it into the adapter's connector.

> Note:
> The UTP wire pairs and configuration for 100BASE-TX cable are identical to those for 10BASE-T cable when used with Category 5 UTP cable.

4 Configuration

4.1 Initial Configuration

0801IP/1601IP's communication interfaces are all based on TCP/IP. It comes pre-configured with the IP configuration listed in Table 4.1.

Table 4.1: Initial IP configuration

Parameter	**Value**
IP auto configuration	DHCP
IP-Address	-
Net-mask	-
Default-Gateway	none
IP access control	disabled
LAN interface speed	auto
LAN interface duplex mode	auto

In case this initial configuration doesn't meet your requirements there is an initial IP configuration necessary in order to access 0801IP/1601IP for the first time. This chapter describes different possibilities to accomplish that.

4.1.1 Initial configuration via DHCP server

By default, 0801IP/1601IP will try to contact a DHCP server in the subnet to which it is physically connected. If a DHCP server is found it may provide a valid IP address, gateway address and net mask. Before you connect the device to your local subnet be sure to complete the corresponding configuration of your DHCP server. It is recommended to configure a fixed IP assignment to the MAC address of 0801IP/1601IP. You can find the MAC address on the outside of the shipping box and labelled on the bottom side. If the DHCP connection fails on boot up, 0801IP/1601IP will not have an IPv4 address.

4.1.2 Initial configuration via serial interface

0801IP/1601IP has a serial line interface at its rear side (refer to Section 3.2 on page 11). The connector is compliant to RS 232 serial line standard. The serial interface has to be configured with the parameters given in Table 4.2 on the following page.

To actually configure 0801IP/1601IP via the serial interface, reset 0801IP/1601IP and immediately press *ESC*. You will see some device information and a '=>' prompt. Enter 'config', press *Enter* and wait a few seconds for the configuration questions to appear.

As you go along you will see the following lines, which you have to answer or to which you may provide the default value by pressing *Enter*.

Table 4.2: Serial line parameters

Parameter	**Value**
Bits/second	115200
Data bits	8
Parity	No
Stop bits	1
Flow Control	None

```
IP auto configuration (none/dhcp/bootp) [none]:
IP [192.168.1.22]:
NetMask [255.255.255.0]:
Gateway (0.0.0.0 for none) [0.0.0.0]:
Enable IP Access Control (yes/no) [no]:
LAN interface speed (auto/10/100) [auto]:
LAN interface duplex mode (auto/half/full) [auto]:
```

- **IP auto-configuration**
  With this option you can specify whether 0801IP/1601IP should fetch it's network settings from a DHCP or BOOTP server. For DHCP you have to enter *dhcp* and for BOOTP supply *bootp* accordingly. If you specify *none* then IP auto-configuration is disabled and you will subsequently be asked for the following network settings.

- **IP address**
  The IP address the 0801IP/1601IP should use. This option is only available if IP auto-configuration is disabled.

- **Subnet mask**
  The mask of the connected IP subnet. This option is only available if IP auto-configuration is disabled.

- **Gateway address**
  The IP address of the default router of the connected IP subnet. If you have no default router, you may enter *0.0.0.0*. This option is only available if IP auto-configuration is disabled.

- **Enable IP Access Control**
  'Enable IP Access Control' allows you to switch IP packet filtering on or off. It is mainly intended to re-enable access to 0801IP/1601IP after a faulty IP access control configuration has been activated. Refer to Section 5.6.9.3 on page 54 for more information about IP access control.

- **LAN interface speed**
  'LAN interface speed' allows you to switch the LAN Ethernet interface speed to autosensing/autonegotiation (auto), 10Mbps (10) or 100Mbps (100).

- **LAN interface duplex mode**
  The last question 'LAN interface duplex mode' allows you to switch LAN interface mode to autosensing/autonegotiation (auto), half duplex (half) or full duplex (full).

There may be default values which are enclosed in brackets. If you want to use the default value of an option then you just need to press the *Enter* key.

You will be asked if the values are correct and get a chance to correct them. After confirming, 0801IP/1601IP performs a reset.

4.1.3 Mouse, Keyboard and Video configuration

There are two interfaces between 0801IP/1601IP and the host for transmitting keyboard and mouse data: USB and PS/2. The correct operation of the remote mouse depends on several settings which will be discussed in the following:

4.1.3.1 0801IP/1601IP mouse settings

The 0801IP/1601IP settings for the host's keyboard type must be correct in order to make remote keyboard work properly. Check the settings in the 0801IP/1601IP front-end. See Section 5.5.2 on page 38 for details.

4.1.3.2 Host system mouse settings

> Note:
> The following limitations do not apply in case of USB and Mouse Type *MS Windows 2000 and newer.*

While 0801IP/1601IP works with accelerated mice and is able to synchronize the local with the remote mouse pointer (see Section 5.4.3 on page 31), there are the following limitations which may prevent this synchronization from working properly:

- **Special Mouse Driver**
  There are mouse drivers, which influence the synchronization process leading to desynchronized mouse pointers. If this happens, make sure you don't use a special vendor-specific mouse driver on your host system.

- **Windows XP Mouse Settings**
  Windows XP knows a setting to *improve mouse acceleration*, which has to be deactivated.

4.1.3.3 0801IP/1601IP Video Modes

0801IP/1601IP recognizes a limited number of common video modes. When running X11 on the host system, please don't use any custom modelines with special video modes. If done so, 0801IP/1601IP may not be able to detect these. You are on the safe side with all standard VESA video modes. Please refer to Appendix B on page 67 for a list of all known modes.

5 Usage

5.1 Prerequisites

The 0801IP/1601IP features an embedded operating system and the according applications offering a variety of standardized interfaces. The functionality is exposed to the user via these interfaces. This chapter will describe all of these interfaces and how to use them in detail. All the interfaces are accessed using the TCP/IP protocol family, thus they can be used equally over the built-in Ethernet adapter or over modem.Additionally it is possible to use 0801IP/1601IP as a normal 8/16-port KVM switch, explained in section 5.2 on the next page. The following interfaces are supported:

1. **HTTP/HTTPS**
   The most complete access is provided by an embedded web server. Thus the 0801IP/1601IP environment can be entirely controlled by a standard web browser. Depending on the web browser you can access the 0801IP/1601IP using the unsecured HTTP protocol or, in case the browser supports it, the encrypted HTTPS protocol. It is recommended to use HTTPS whenever possible.

2. **Telnet**
   A standard Telnet client can be used to access an arbitrary device connected to 0801IP/1601IP's serial port via a terminal mode.

Since the primary interface of 0801IP/1601IP is the HTTP interface this chapter is mainly concerning this topic. Other interfaces are explained in their according subtopics.

In order to use the Remote Console window of your managed host system the browser has to come with a Java Runtime Environment version 1.1 or higher. But even if the used browser has no Java support, for instance on small handheld devices, you are still able to maintain your remote host system using the administration forms displayed by the browser itself.

We recommend the following browsers for an unsecured connection to 0801IP/1601IP.

- Microsoft Internet Explorer version 5.0 or higher on Windows 98, Windows ME and Windows 2000, Windows XP

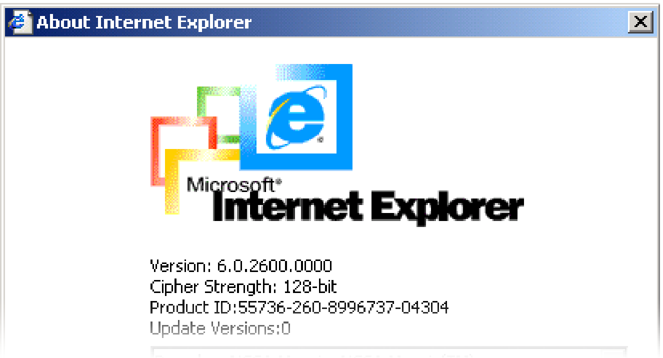
- Netscape Navigator 7.0 or Mozilla 1.0 on Windows 98, Windows ME, Windows 2000, Windows XP, Linux and other UNIX like Operating Systems

In order to access the remote host system using a securely encrypted connection you need a browser that supports the HTTPS protocol. Strong security is only assured by using key length of at least 128 Bit. Many old browsers don't have a strong 128 Bit encryption algorithm due to former export regulations of US authorities. For instance Internet Explorer 5.0, that comes as part of Windows ME and Windows 2000 supports a key length of 56 Bit only. You can read about the key length of your Internet Explorer under the menu points *?* and *Info*. The dialog box shows also a hyperlink that leads you to information on how to upgrade your browser to a state of the art encryption scheme. Figure 5.1 on the following page shows the dialog presented by Internet Explorer 6.0.

However the US export regulations have been declared obsolete recently. Therefore, new browser versions do support strong encryption.

We recommend the following browser for a secured connection to 0801IP/1601IP.

- Microsoft Internet Explorer version 5.5 or higher on Windows 98, Windows ME and Windows 2000 and Windows XP
- Netscape Navigator 7.0 or Mozilla 1.0 on Windows 98, Windows ME, Windows 2000, Windows XP, Linux and other UNIX like Operating Systems



Version: 6.0.2600.0000
Cipher Strength: 128-bit
Product ID:55736-260-8996737-04304
Update Versions:0

Figure 5.1: Internet Explorer showing the encryption key length

5.2 Using 0801IP/1601IP as a KVM switch

0801IP/1601IP may be used as a KVM switch without remote functionality. Just connect a local monitor, keyboard and mouse as described in Section 3.3 on page 12.

This operation mode is available via an OSD[1], accessible by hitting the <CTRL> key twice (for the Hotkey menu) or three times (for the KVM menu as shown in Figure 5.2.

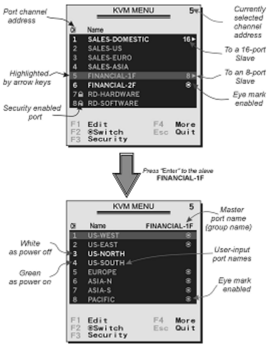


Figure 5.2: 0801IP/1601IP KVM menu

In the KVM menu you will see a list of the computers with corresponding port numbers, names and status. The port number of the currently selected computer is displayed in red, same as the front indicator, at the upper-right corner of the OSD menu. The color of a device name is green if it has power and is ready for operation, or white as it has no power. OSD menu

[1] OSD – On-Screen-Display

updates the color when it is activated. Press the <PageUp> and <PageDown> keys to view 8 other computers.

Use the '↑', '↓', '1'∼'8'[2] keys to highlight a computer and the <ENTER> key to select it. Or, you may press <ESCAPE> to exit OSD and remove the OSD menu from the display; the status window returns to the display and indicates the currently selected computer or operating status.

A triangle mark ('▷') to the right of a name indicates that the port is cascaded to a Slave; the number at the left of the triangle mark shows the number of ports the Slave has, i.e. 8▷ for an 8-port Switch. <ENTER> key brings you one level down and another screen pops up listing the names of the computers on that Slave. The name of the Slave will be shown at the upper right corner of the OSD menu. It is useful to group computers and still be able to see the group name.

An eye mark on the right of a name indicates that this computer is selected and monitored in Scan mode. In OSD, this mark can be switched on or off by function key <F2>.

Press <ESCAPE> key to exit OSD and to return to the selected computer; the computer name is also shown on the screen.

OSD Function Keys

- **Function key <F1>**
  To edit name entry of a computer or a slave with up to 14 characters. First, highlight a port then press <F1> followed by name entry. Valid characters are 'A'∼'Z', '0'∼'9' and the dash character. Lowercase letters are converted to uppercase ones. Press <BACKSPACE> to delete a letter one at a time. Non-volatile memory stores all name entries until you change, even if the unit is powered down.

- **Function key <F2>**
  Function key <F2>: To switch the eye mark of a computer on or off. First, use the '↑' and '↓' arrow keys to highlight it, then press <F2> to switch its eye mark on or off. If Scan Type is 'Ready PC', only the power-on and eye mark selected computers will be displayed sequentially in Scan mode.

- **Function key <F3>**
  Function key <F3>: To lock a computer from unauthorized access. To lock a device, highlight it then press <F3>. Now, enter up to 4 characters ('A'∼'Z', '0'∼'9, '-') followed by <ENTER> as new password. A Security-enabled device is marked with a lock following its port number. To permanently disable the security function from a locked device, highlight it, press <F3> then enter the password.

  If you want to access the locked device temporarily, simply highlight it and press <ENTER>, the OSD will ask you for the password. After entering the correct password, you are allowed to use the device. This device is automatically re-locked once you switch to another port. During Scan mode, OSD skips the password-protected devices.

- **Function key <F4>**
  Function key <F4>: More functions are available by hitting <F4>. A new screen pops up displaying more functions as described below. Most of them are marked with a triangle ('▷') indicating there are options to choose from. Using the '↑' and '↓' arrow keys, select the functions and press <ENTER>. Available options will be shown in the middle of the

[2] also 'A'∼'H' for 1601IP

screen. Again, use the '↑' and '↓' arrow keys to view options then press <ENTER> to select it. You can press <ESCAPE> to exit at any time.

- *Auto scan*
  In this mode, the KVM switch automatically switches from one power-on computer to the next sequentially in a fixed interval. During Auto Scan mode, the OSD displays the name of the selected computer. When Auto Scan detects any keyboard or mouse activity, it suspends the scanning till activity stops; it then resumes with the next computer in sequence. To abort the Auto Scan mode, press the left <CTRL> twice, or, press any front button. Scan Type and Scan Rate set the scan pattern. Scan Type (<F4>, More, Scan Type) determines if scanned computers must also be eye mark selected. Scan Rate (<F4>, More, Scan Rate) sets the display interval when a computer is selected before selecting the next one.

- *Manual scan*
  Scan through power-on computers one by one by keyboard control. You can type (<F4>, More, Scan Type) to determine if scanned computers must also be eye mark selected. Press the up arrow key '↑' to select the previous computer and the down arrow key '↓' to select the next computer. Press any other key to abort the Manual Scan mode.

- *Scan Type*
  Ready PC +Eye symbol: In Scan mode, scan through power-on and eye mark selected computers. Ready PC: In Scan mode, scan through power-on computers. Eye symbol only: In Scan mode, scan through any selected computer regardless of computer power status. The non-volatile memory stores the Scan Type setting.

- *Scan Rate*
  Sets the duration of a computer displayed in Auto Scan mode. The options are 3 seconds, 8 seconds, 15 seconds and 30 seconds. The non-volatile memory stores the Scan Rate setting.

- *Keyboard Speed*
  It is possible to override the typematic settings in BIOS and in the operating system on the connected hosts. Available speed options are Low, Middle, Fast and Faster as 10, 15, 20 and 30 characters/sec respectively. The non-volatile memory stores the Keyboard Speed setting.

- *Hotkey Menu*
  When you hit the left <CTRL> key twice within two seconds, the "Hotkey Menu" appears displaying a list of hotkey commands if the option is On. The 'Hotkey Menu' can be turned Off if you prefer not to see it when the left <CTRL> key is hit twice. The non-volatile memory stores the Hotkey Menu setting.

- *CH Display*
  Auto Off: After you select a computer, the port number and name of the computer will appear on the screen for 3 seconds then disappear automatically. Always On: The port number and name of a selected computer and/or OSD status displayed on the screen all the time. The non-volatile memory stores the CH Display setting.

- *Position*
  The position of the selected computer and/or OSD status displays on screen during operation. The actual display position shifts due to different VGA resolution, the higher the resolution the higher the displayed position. The non-volatile memory

stores the Position setting.

- **<ESC>**
  To exit the OSD, press the <ESCAPE> key.

Hotkey Commands Hotkey command is a short keyboard sequence to select a computer, to activate computer scan, etc. The KVM switch interprets keystrokes for hotkeys all the time. A hotkey sequence starts with two left <CTRL> keystrokes followed by one or two more keystrokes. A built-in buzzer generates a high-pitch beep for correct hotkey command; otherwise, one low-pitch beep for error will occur and the bad key sequence will not be forwarded to the selected computer.

The short form hotkey menu can be turned on as an OSD function every time the left <CTRL> key is pressed twice.

- **Switching ports**
  To select a computer by hotkey command, you must know its port number, which is determined by the KVM Switch connection ('1'∼'8'[3]). Press the left <CTRL> key twice, followed by one of the port numbers to switch to this port.

- **Auto scan**
  To start Auto Scan, automatically scan power-on computers one by one at a fixed interval. Press the left <CTRL> key twice, followed by <F1>. When Auto Scan detects any keyboard or mouse activity, it suspends the scanning till activity stops; it then resumes with the next computer in sequence. The length of the Auto Scan interval (Scan Rate) is adjustable. To abort the Auto Scan mode, press the left <CTRL> key twice. Note: Scan Type determines whether an eye-marked computer is to be displayed during Auto Scan.

- **Manual scan**
  Manual Scan enables you to manually switch back and forth between power-on computers. Press the left <CTRL> key twice, followed by <F2>. Press '↑', '↓' to select the previous or the next computer in sequence. And, press any other key to abort the Manual Scan. Note: Scan Type determines whether an eye-marked computer is to be displayed during Auto Scan.

- **Scan Rate**
  To adjust Scan Rate that sets the duration before switching to the next computer in Auto Scan press the left <CTRL> key twice, followed by <F3>. The KVM switch beeps one to four times indicating the scan interval of 3, 8, 15 and 30 seconds respectively.

- **Typematic Rate**
  To adjust keyboard typematic rate (characters/sec) press the left <CTRL> key twice, followed by <F4>. This setting overrides that of BIOS and any operating system. The KVM switch beeps 1 to 4 times corresponding to 10, 15, 20 and 30 characters/sec respectively.

[3] also 'A'∼'H' for 1601IP

5.3 Login into 0801IP/1601IP and logout

5.3.1 Login into 0801IP/1601IP

Start your web browser and direct it to the address of your 0801IP/1601IP that has been configured during installation. The address used might be a plain IP address or a host and domain name, in case you have given your 0801IP/1601IP a symbolic name in the DNS.

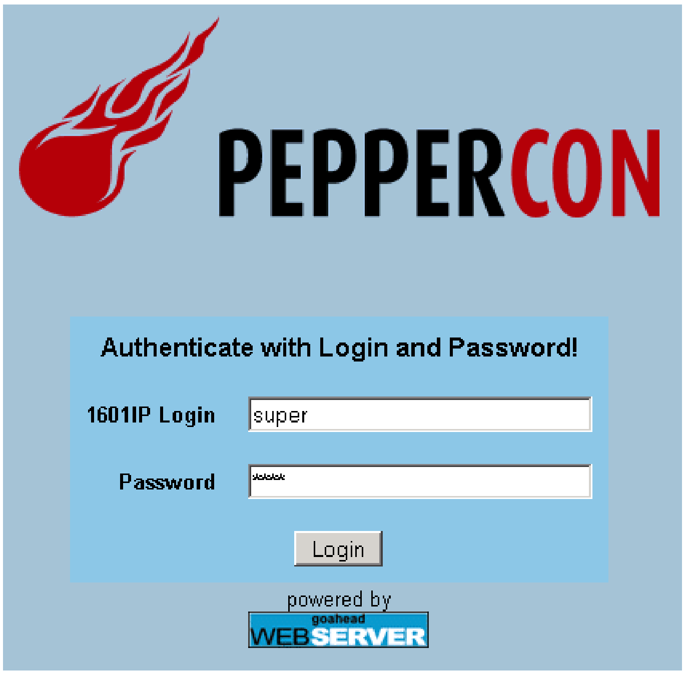
For instance, you have to type the following into the address line of your browser for establishing an unsecured connection:

```
    http://<IP address of 0801IP/1601IP >/
```

or in case you like to use a secure connection:

```
    https://<IP address of 0801IP/1601IP >/
```

This leads you to the 0801IP/1601IP login page as shown in Figure 5.3.



Authenticate with Login and Password!

1601IP Login: super

Password: ****

Figure 5.3: 0801IP/1601IP login screen

The 0801IP/1601IP has a built-in super user that has all permissions to administrate your 0801IP/1601IP:

Login name	super
Password	0801ip/1601ip (depending on the actual device)

Attention:
Please make sure to change the super user password immediately after you have installed and firstly accessed your 0801IP/1601IP. Not changing the super user password is a severe security risk and might result in unauthorized access to 0801IP/1601IP and the host system with all possible consequences!

Hints:
The browser must be configured to accept cookies, otherwise login is not possible. The user *super* can not be used to login via the serial interface of 0801IP/1601IP.

5.3.2 Main Screen

After a successful login, 0801IP/1601IP will present its main screen consisting of three frames (see Figure 5.4 on the following page)

The upper left frame contains a home link that brings you instantly back to the home page after you stepped down to one of the administration menu points. The logout link logs you out of 0801IP/1601IP. That means the current session will be terminated and you have to type username and password again to login.

Note:
The 0801IP/1601IP will log you out automatically after there is no administration activity for half an hour. In this case each click on one of the links will lead you to the login screen where you have to provide the login information again.

The lower left frame of the 0801IP/1601IP main window, called the menu frame, contains the main menu that leads you to the pages for various administration tasks. The functions of the menu frame will be described in detail during the following sections.

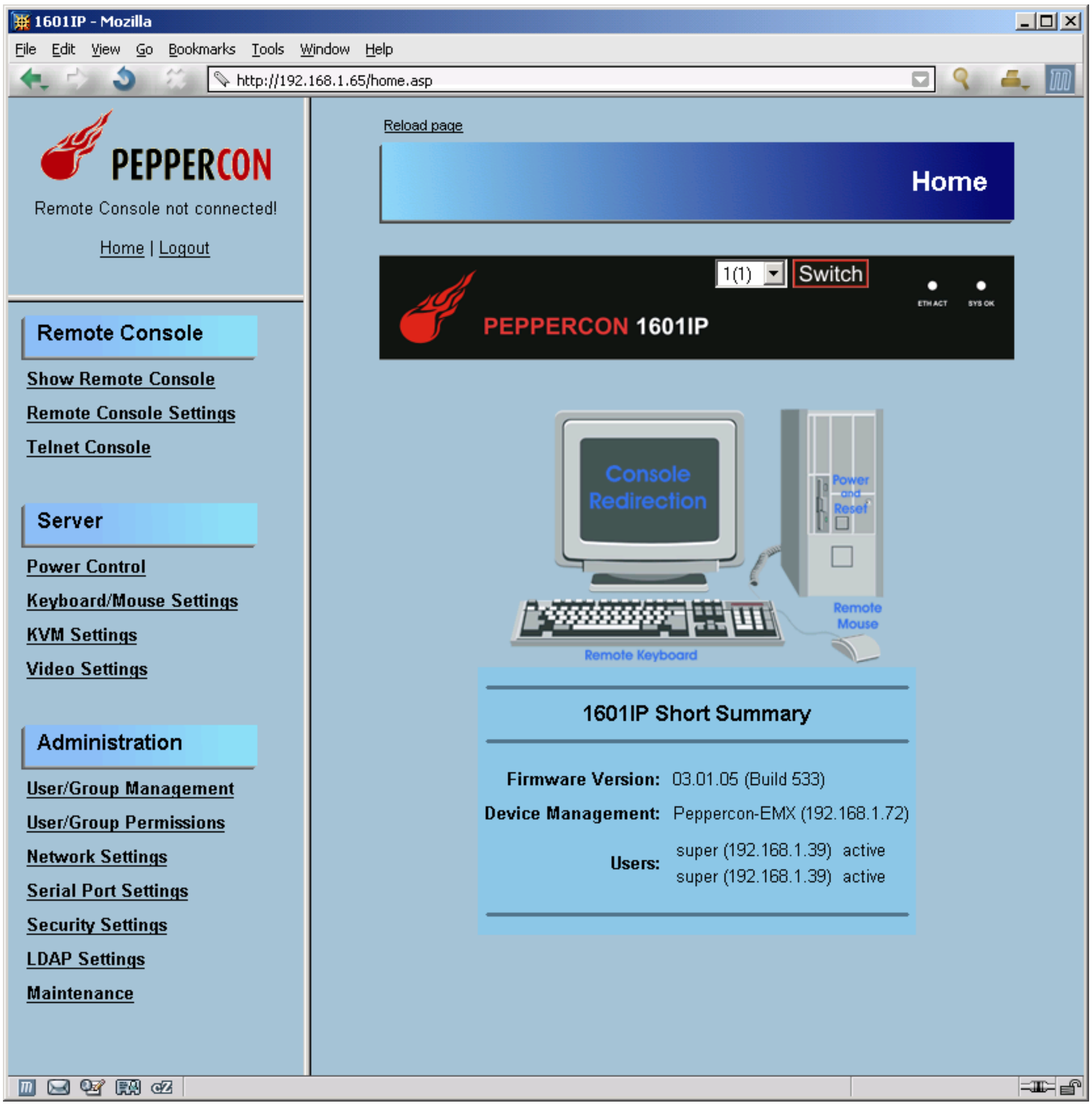
The different function pages selected by one of the menu links will be presented in the big right frame, called the function frame.

On the top of the function frame you will notice a select box with port numbers and a switch button in a schematic picture of 0801IP/1601IP. Choose one of the ports and press switch to change the currently selected KVM port. The user logged in is only allowed to switch to ports displayed with a green text. Ports shown in red are not accessible for the user. Have a look at 5.6.3 for details on port access permissions.

Initially the function frame contains a short summary of your 0801IP/1601IP. Table 5.1 gives you a description of the meaning of each point.

Table 5.1: Meaning of the main menu 0801IP/1601IP features

Feature	**Description**
Server Power Status	Shows whether the host system is switched on or off
Firmware Version	Version number of the firmware installed on your 0801IP/1601IP
Device Management	Shows, if 0801IP/1601IP is entirely self-managed or if its connected to a management device.
Users	Shows all currently logged in users with their identity and the IP address from where they are logged in (note: in case a user connected his web browser over a proxy server the IP address field will show the IP address of the proxy server and not that of the user machine itself). RC means that the user has opened the Remote Console. Exclusive is a sign that the Remote Console is opened in exclusive mode. Idle is the time since last access during the current session.



1601IP Short Summary

Firmware Version: 03.01.05 (Build 533)

Device Management: Peppercon-EMX (192.168.1.72)

Users: super (192.168.1.39) active
super (192.168.1.39) active

Figure 5.4: 0801IP/1601IP home menu window

5.3.3 Logout from 0801IP/1601IP

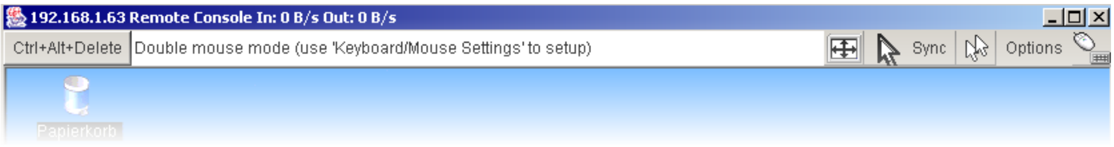
This link logs out the current user and presents a new login screen. Please note that an automatic logout will be performed in case there is no activity for half an hour.

5.4 Remote Console

5.4.1 Show Remote Console

The Remote Console is the redirected screen, keyboard and mouse of the remote host system 0801IP/1601IP controls.

Starting the Remote Console causes an additional window popping up that contains a copy of the screen of your host system (see Figure 5.5 on the facing page). The Remote Console will behave exactly in the same way as if you were sitting directly in front of the screen of your remote system. That means keyboard and mouse can be used in the usual way. However, be aware of the fact that the remote system will react to keyboard and mouse actions with a slight delay. The delay depends on the bandwidth of the line over which you are connected to 0801IP/1601IP.



192.168.1.63 Remote Console In: 0 B/s Out: 0 B/s

Double mouse mode (use 'Keyboard/Mouse Settings' to setup)

Figure 5.5: Remote Console window showing a desktop screen

With respect to the keyboard, the very exact remote representation might lead to some confusion as your local keyboard changes its keyboard layout according to the remote host system.

For instance, special keys on the German keyboard won't work anymore as expected but will result in their US English counterpart if you are using a German administration system but your host system uses a US English keyboard layout.

You can circumvent such problems by adjusting the keyboard of your remote system to the same mapping as your local one or by using the Soft-Keyboard that is part of the Remote Console applet.

The Remote Console window is a Java Applet that tries to establish its own TCP connection to 0801IP/1601IP. The protocol that is run over this connection is not HTTP or HTTPS but a protocol called RFB (Remote Frame Buffer Protocol). Currently RFB tries to establish a connection to port number 443. Your local network environment must allow this connection to be made, i.e. your firewall and, in case you have a private internal network, your NAT (Network Address Translation) settings must be configured accordingly.

In case 0801IP/1601IP is connected to your local network environment and your connection to the Internet is available using a proxy server only without NAT being configured, the Remote Console is very unlikely to be able to establish the according connection. This is because today's web proxies are not capable of relaying the RFB protocol.

In case of problems, please consult your network administrator in order to provide an appropriate network environment.

The Remote Console window always tries to show the remote screen with its optimal size. That means it will adapt its size to the size of the remote screen initially and after the screen resolution of the remote screen has been changed. However, you can always resize the Remote Console window in your local window system as usual.

> Hint:
> In difference to the remote host system, the Remote Console window on your local window system is just one window among others. In order to make keyboard and mouse work, your Remote Console window must have the local input focus.

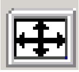
The upper part of the Remote Console window contains a control bar. Using its elements you can see the state of the Remote Console and influence the local Remote Console settings. The following section describes the meaning of each control.

5.4.1.1 Description of Remote Console Options

- **Ctrl+Alt+Delete**
  Special button key to send the 'Control Alt Delete' key combination to the remote system (see also Section 5.4.5 on page 35 for defining new button keys).

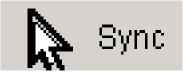
- **State line**
  Shows console and connection state. Normally it displays the size of the remote screen in pixels. The value in round brackets describes the connection to the remote system: Norm stands for a standard connection without encryption; SSL stands for a secured connection. In case there is a connection error, it will be displayed in this line as well. You can double click the state line in order to see a history of all the state messages.

- **Auto adjust**

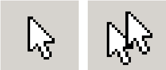
  Starts the auto adjustment procedure to determine the settings for best visual quality of the grabbed image. This may take a few moments. During the process the display is turned off and you will see a notification message.

- **Sync mouse**

  Activates the mouse synchronization process. Have a look at Section 5.4.3 on page 31 for further information about this topic.

- **Single/Double mouse mode**

  Switches between the Single Mouse Mode (where only the remote mouse pointer is visible) and the Double Mouse Mode (where remote and local mouse pointers are visible and need to be synchronized). Single mouse mode is only available if using SUN JVM 1.3 or higher.

- **Options**
  →Exclusive Access
  If a user has the appropriate permission, he can force the Remote Consoles of all other users to close. No one can open the Remote Console at the same time again until this user disables the exclusive access or logs off.

- **Options**
  →Scaling
  Allows you to scale down the Remote Console. You can still use mouse and keyboard, however the scaling algorithm won't preserve all display details.

- **Options**
  →Readability Filter
  Toggles the Readability Filter on or off. If the filter is switched on in scaling mode, it will preserve most of the screen details even if the image is substantially scaled down. This option will be available only with a Java Virtual Machine version number of 1.3 or higher.

- **Options**
  →Chat Window

Opens up the 0801IP/1601IP Chat Frame. See Section 5.4.2 for a detailed description!

- **Options**
  →Soft Keyboard
  Opens up the Menu for the Soft-Keyboard.

- **Options**
  →Soft Keyboard
  →Show
  Pops up the Soft-Keyboard. The Soft-Keyboard is necessary in case your host system runs a completely different language and country mapping than your administration machine.

- **Options**
  →Soft Keyboard
  →Mapping
  Used for choosing the according language and country mapping of the Soft-Keyboard.

- **Options**
  →Local Keyboard
  Used to change the language mapping of your browser machine running the Remote Console Applet. Normally the Applet determines the correct value automatically. However, depending on your particular JVM and your browser machine settings this is not always possible. A typical example is a German localized system that uses an US-English keyboard mapping. In this case you have to change the Local Keyboard setting manually to the right language

- **Options**
  →Video Settings
  Opens a panel for changing the 0801IP/1601IP video settings. Have a look at Section 5.4.4 on page 32 for a detailed description of the available options.

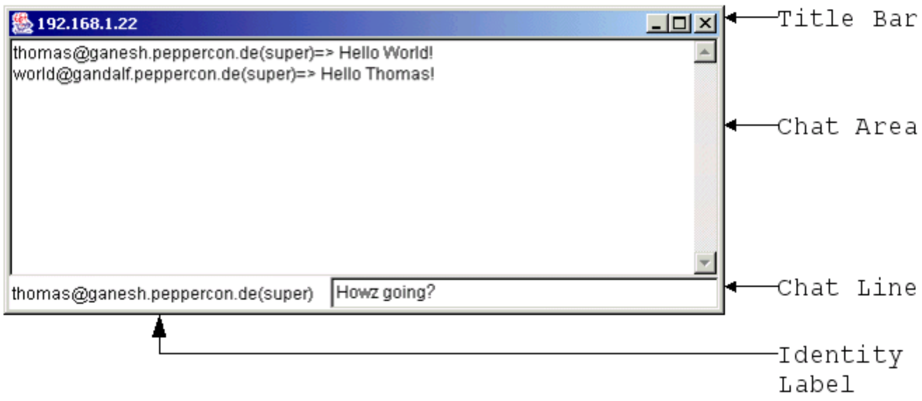
- **Options**
  →Mouse handling
  The submenu for mouse handling offers two options for synchronizing the local and the remote mouse pointer, explained in Section 5.4.3 on page 31. The option for 'Fast Sync' shows the hotkey in parentheses in case you defined one using the Remote Console Settings. It is also possible to activate the 'Exclusive Mouse Mode' (see Section 5.4.5 on page 35 for an explanation).

- **Options**
  →Local cursor
  Offers a list of different cursor shapes to choose from for the local mouse pointer. The selected shape will be saved for the current user and activated again next time this user opens the Remote Console. The number of available shapes depends on the Java Virtual Machine, only a version of 1.2 or higher offers the full list.

The Remote Console status bar shows some information about the incoming ('In:') and outgoing network traffic ('Out:').

5.4.2 Remote Chat Frame

The 0801IP/1601IP Remote Console features a Chat Frame that allows you to communicate with other parties logged into the same device. Figure 5.6 on the next page shows an example of the Chat Frame.



thomas@ganesh.peppercon.de(super)=> Hello World!
world@gandalf.peppercon.de(super)=> Hello Thomas!

thomas@ganesh.peppercon.de(super)

Howz going?

Figure 5.6: Example for the Chat window

The Chat Frame is helpful especially for discussing problems and questions among logged in 0801IP/1601IP users in case the remote host's screen should not be changed or misused for that purpose.

Below all Chat Frame elements are listed together with their meaning and usage. The elements will be referred to by the terms introduced in Figure 5.6.

Chat Frame element description

- **Title Bar**
  Shows the IP address of the 0801IP/1601IP you are connected to.
- **Chat Area**
  Read-only text area showing the messages, which have been received so far, inclusive your own messages sent to others. The identity string of the sender precedes each message.
- **Identity Label**
  Shows the identity string used to precede messages sent by this Chat Frame. The first part of the identity string is the user ID that has been used to log into the client system, i.e. the system the browser runs on. The second part, behind '@', is the hostname of the client system. The last part in round brackets is the user name that was used to log into 0801IP/1601IP ('super' in the example).

- **Chat Line**
  This is an editable text line, where a new message can be entered. Once the Enter key is hit the message is broadcasted to every other connected party. In case a connected user has not yet opened the Chat Frame it will be opened automatically in order to deliver the message.

Note:
Any message sent to the Chat will be broadcasted to ALL connected users, which are using the Remote Console at the time the message was sent. There is no option to direct a message to a particular user only.
The Chat has no message history. That means, messages will be received only after opening the Remote Console. Messages that possibly have been sent among other users will be lost for a user who opens up his Remote Console afterwards.

5.4.3 0801IP/1601IP Mouse Synchronization

5.4.3.1 Introduction

A common problem with KVM devices is the synchronization between the local and remote mouse cursors. 0801IP/1601IP addresses this situation with an intelligent synchronization algorithm. There are two mouse modes available on 0801IP/1601IP.

- **Auto mouse speed**
  The *automatic mouse speed* mode tries to detect the speed and acceleration settings of the host system automatically. See the section below for a more detailed explanation.

- **Fixed mouse speed**
  This mode just translates the mouse movements from the Remote Console in a way that one pixel move will lead to n pixel moves on the remote system. This parameter n is adjustable with the *scaling*. It should be noted that this works only when mouse acceleration is turned off on the remote system.

5.4.3.2 Auto mouse speed and mouse synchronization

The *automatic mouse speed* mode performs the speed detection during mouse synchronization. Whenever the mouse doesn't move correctly, there are two ways for re-synchronizing local and remote mouse:

- **Fast Sync**
  The fast synchronization is used to correct a temporary, but fixed skew. Choose the option using the Remote Console options menu (see Section 5.4 on page 26) or press the mouse synchronization hotkey sequence in case you defined one (refer to Section 5.4.5 on page 35).

- **Intelligent Sync**
  If the fast sync doesn't work or the mouse settings have been changed on the host system, use the intelligent resynchronization. This method takes more time than the fast one and can be accessed with the appropriate item in the Remote Console options menu. The intelligent synchronization requires a correctly adjusted picture. Use the auto adjustment function or the manual correction in the Video Settings panel (refer to Section 5.4.4 on the next page) to setup the picture.

The 'Sync mouse' button on top of the Remote Console can behave differently, depending on the current state of mouse synchronization. Usually pressing this button leads to a fast sync, except in situations where the KVM port or the video mode changed recently.

5.4.3.3 Limitations of the mouse synchronization

While the intelligent algorithm works fine for common cases, there are some special limitations which may prevent the synchronization from working properly:

- **Special Mouse Driver**
  There are mouse drivers, which influence the synchronization process leading to desynchronized mouse pointers. If this happens, make sure you don't use a special vendor-specific mouse driver on your host system.

- **Windows XP Mouse Setting**
  Windows XP knows a setting to 'improve mouse acceleration', which has to be deactivated

- **Badly adjusted picture**
  To have the intelligent sync working, a correctly adjusted picture is necessary. Use the auto adjustment function or the manual correction in the Video Settings panel (refer to Section 5.4.4) to setup the picture. The video also has to be of sufficiently good quality.

- **Active Desktop**
  Check if you have the Active Desktop feature of Microsoft Windows enabled. If so, don't use a plain background, use some kind of wallpaper. You could also disable the Active Desktop entirely.

5.4.3.4 Single and Double Mouse Mode

The information above applies to the *Double Mouse Mode*, where remote and local mouse pointers are visible and need to by synchronized. 0801IP/1601IP also features another mode, the *Single Mouse Mode*, where only the remote mouse pointer is visible. Activate this mode in the open Remote Console (see Section 5.4 on page 26) and click into the window area. The local mouse pointer will be hidden and the remote one can be controlled directly. To leave this mode, it is necessary to define a mouse hotkey in the Remote Console Settings Panel (Section 5.4.5 on page 35). Press this key to free the captured local mouse pointer.

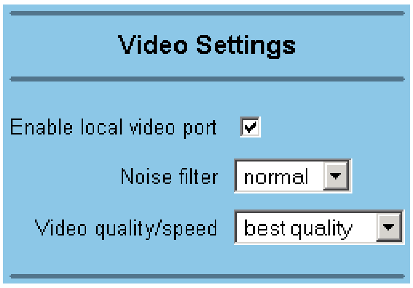
Single Mouse mode needs at least a Sun Java Virtual Machine 1.3.

5.4.4 0801IP/1601IP Video Settings

0801IP/1601IP features two different dialogs which influence the video settings.

5.4.4.1 Video Settings through the HTML-Frontend

One side is the video options panel in the 0801IP/1601IP HTML-Frontend (see Figure 5.7 on the next page)



Video Settings

Enable local video port ☑

Noise filter: normal

Video quality/speed: best quality

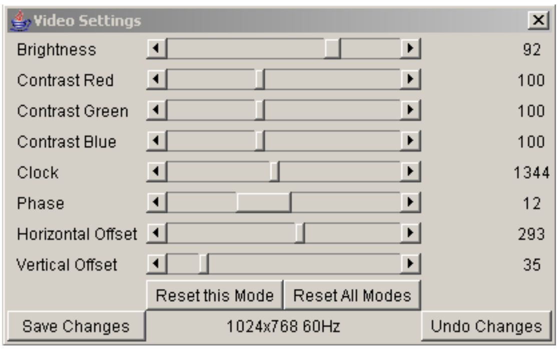
Figure 5.7: Video Settings in HTML frontend

Enable local video port: This option decides if the local video output of 0801IP/1601IP is active and passing through the incoming signal from the host system.

Noise filter: This option defines how 0801IP/1601IP reacts to small changes in the video input signal. A large filter setting needs less network traffic and leads to a faster video display, but small changes in some display regions may not be recognized immediately. A small filter displays all changes instantly but may lead to a constant amount of network traffic even if display content is not really changing (depending on the quality of the video input signal). All in all the default setting should be suitable for most situations.

5.4.4.2 Video Settings through the remote console

0801IP/1601IP features a panel to setup the following video options (see Figure 5.8), available in the Remote Console Options menu.



Video Settings

Brightness 92

Contrast Red 100

Contrast Green 100

Contrast Blue 100

Clock 1344

Phase 12

Horizontal Offset 293

Vertical Offset 35

1024x768 60Hz

Figure 5.8: Video Settings Panel

Brightness — Controls the brightness of the picture

Contrast — Controls the contrast of the picture

Clock — Defines the horizontal frequency for a video line and depends on the video mode. Different video card types may require different values here. The default settings in conjunction with the auto adjustment procedure should be adequate for all common configurations. If the picture quality is still bad after auto adjustment you may try to change this setting together with the sampling phase to achieve a better quality.

Phase Defines the phase for video sampling, used to control the display quality together with the setting for sampling clock.

Horizontal Position Use the left and right buttons to move the picture in horizontal direction while this option is selected

Vertical Position Use the left and right buttons to move the picture in vertical direction while this option is selected

Reset this Mode Resets mode specific settings to their factory defaults

Reset all Modes Resets all settings to their factory defaults

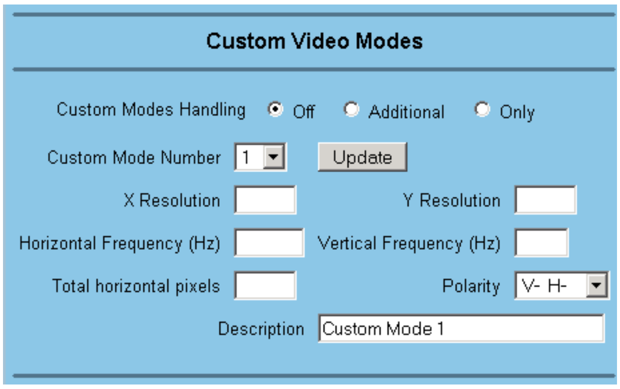
Save changes Save changes permanently

Undo changes Restore last settings

5.4.4.3 Custom Video Modes

Using this option (see Figure 5.9) it is possible to add video modes to 0801IP/1601IP, which are not recognized using the factory settings. This may be useful when using special modelines in a X-Window configuration on the host or with uncommon hosts or operating systems.

> This option is for advanced users only, it is possible to influence the correct video transmission by using this option, so use it with care!



Custom Video Modes

Custom Modes Handling ● Off ○ Additional ○ Only

Custom Mode Number 1

X Resolution

Y Resolution

Horizontal Frequency (Hz)

Vertical Frequency (Hz)

Total horizontal pixels

Polarity V- H-

Description Custom Mode 1

Figure 5.9: Custom Video Modes

The maximum number of custom video resolutions is 4. Using the option ”‘Custom Modes Handling”’ custom modes may be disabled (”‘Off”’), used additional to the standard video resolutions or used exclusive (”‘Only”’). With the last option it is also possible to force a special video mode for 0801IP/1601IP.

To change the parameters for a mode, choose the number and press ”‘Update”’. It is necessary to provide some information so the video mode may be correctly recognized:

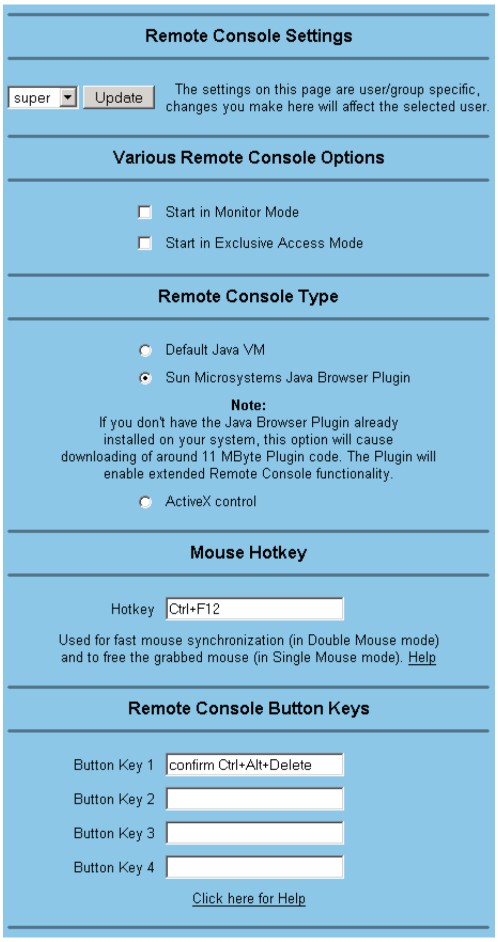
- **X Resolution** Visible number of horizontal pixels.
- **Y Resolution** Visible number of vertical pixels.
- **Horizontal Frequency (Hz)** The horizontal (line) frequency in Hz.
- **Vertical Frequency (Hz)** The vertical (refresh) frequency in Hz.

- **Total horizontal pixels** The total amount of pixels per line, including the non-visible and blanking area.
- **Polarity** The polarity (positive/negative) of the synchronization signals. V means vertical, H means horizontal.
- **Description** Here you can provide a mode name which is displayed in the Remote Console if this custom mode is activated.

5.4.5 Remote Console Settings

The Remote Console settings allow you to customize the Remote Console window prior to its start. Some of the parameters you might still change while the Remote Console is running while others have to be set in the Remote Console settings.

All the settings for the Remote Console window are user specific. That means, each user can individually customize the Remote Console for his needs. Changing the settings for one user does not affect the settings for others.



Remote Console Settings

super ▾ [Update] The settings on this page are user/group specific, changes you make here will affect the selected user.

Various Remote Console Options

□ Start in Monitor Mode

□ Start in Exclusive Access Mode

Remote Console Type

○ Default Java VM

● Sun Microsystems Java Browser Plugin

Note:
If you don't have the Java Browser Plugin already installed on your system, this option will cause downloading of around 11 MByte Plugin code. The Plugin will enable extended Remote Console functionality.

○ ActiveX control

Mouse Hotkey

Hotkey: Ctrl+F12

Used for fast mouse synchronization (in Double Mouse mode) and to free the grabbed mouse (in Single Mouse mode). Help

Remote Console Button Keys

Button Key 1: confirm Ctrl+Alt+Delete

Button Key 2:

Button Key 3:

Button Key 4:

Click here for Help

Figure 5.10: Example of Remote Console settings

- **User select box**
  This control will show the user ID for which the values are shown and for which changes will take effect. You might change the settings of other users in case you have the necessary access rights.

- **Start in Monitor Mode**
  Sets the initial value for the monitor mode. By default the monitor mode is off. In case you switch it on, the Remote Console window will be started in a read only mode.

- **Exclusive Access**
  Enables the exclusive access mode immediately at Remote Console startup. This forces the Remote Consoles of all other users to close. No one can open the Remote Console at the same time again until this user disables the exclusive access or logs off.

- **Remote Console Type**
  Specifies, which Remote Console Viewer to use.

  - **Default Java-VM**
    Uses the default Java Virtual Machine of your Browser. This may be the Microsoft JVM for the Internet Explorer or the Sun JVM if it is configured this way. Use of the Sun JVM may also be forced (see below).

  - **Sun Microsystems Java Browser Plugin**
    Instructs the web browser of your administration system to use the JVM (Java Virtual Machine) of Sun Microsystems. The JVM in the browser is used to run the code for the Remote Console window, which is actually a Java Applet. If you check this box for the first time on your administration system and the appropriate Java plug-in is not already installed on your system, it will be downloaded and installed automatically. However, in order to make the installation possible, you still need to answer the according dialogs with YES. The download volume is around 11 Mbytes. The advantage of downloading Sun's JVM lays in providing a stable and identical Java Virtual Machine across different platforms. The Remote Console software is optimized for this JVM versions and offers wider range of functionality when run in SUN's JVM. (Hint: If you are connected over a slow connection to the Internet you can also pre-install the JVM on your administration machine. The software is available on the CD that is delivered along with 0801IP/1601IP.)

  - **ActiveX control**
    This option instructs the web browser to use the ActiveX-Control of the KVM Vision Viewer, an application available separately. You have to install this program on your local system, please refer to the manual of the KVM vision viewer for further information. This option only works with Microsoft Internet Explorer on Win32 Systems.

- **Mouse hotkey**
  Allows to specify a hotkey combination which starts either the mouse synchronization process if pressed in the Remote Console (see Section 5.4.3 on page 31 for more information) or is used to leave the single mouse mode. The key codes are listed in Appendix C on page 69.

- **Button Keys**
  Button Keys are meant for simulating keystrokes on the remote system that cannot be generated locally. The reason for this might be a missing key or the fact, that the local operating system of the Remote Console is unconditionally catching this keystroke already. Typical examples are 'Control Alt Delete' on Windows and DOS, what is always caught or 'Control Backspace' on Linux for terminating the X-Server. The syntax to define a new Button Key is as follows:
  $[confirm] < keycode > [+|-[*] < keycode >]*$

confirm requests confirmation by a dialog box before the key strokes will be sent.
keycode is the key to be sent. Multiple key codes can be concatenated with a + or a − sign. The + sign builds key combinations, all keys will be pressed until a − sign or the end of the combination is encountered. In this case all pressed keys will be released in reversed sequence. So the − sign builds single, separate keypresses and -releases. The ∗ inserts a pause with a user-definable duration(see Section 5.5.3 on page 39). For a list of key codes and aliases 0801IP/1601IP recognizes refer to Appendix C on page 69. If you need more button keys than shown, hit the *More entries* button.

Pressing the Apply button finally changes the values permanently in 0801IP/1601IP.

5.4.6 Telnet Console

This option offers a Java applet for the Telnet protocol (Figure 5.11) to open a connection to 0801IP/1601IP. Its main use is the passthrough option for the serial port 1 (see also Section 5.6.5 on page 49). The Telnet access has to be enabled in the security settings as well (see Section 5.6.9 on page 53). Of course it is also possible to connect with a standard Telnet client. For details regarding the Telnet interface please refer to Section 5.7 on page 60.

```
LARA Terminal Server (c) PEPPERCON AG 2000-2002

Login:
```

Figure 5.11: Telnet Console

5.5 Server

5.5.1 Power Control

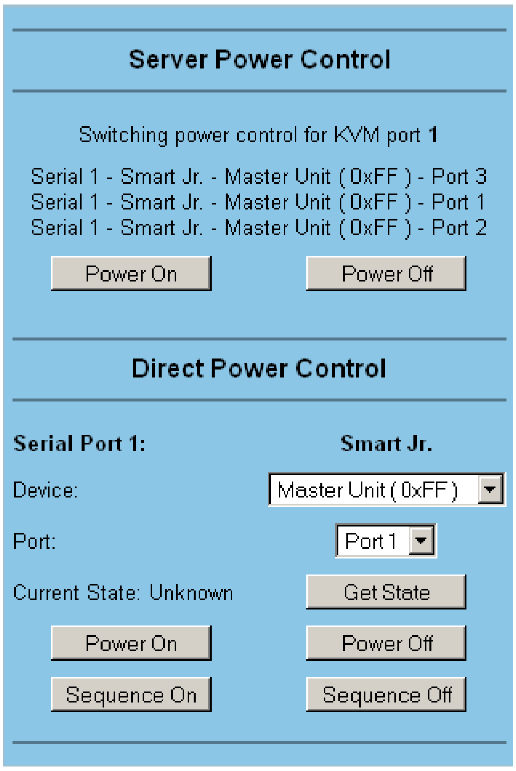
5.5.1.1 External power option

If Serial Port is set to “External power option” and an external power switch is selected the Power Control page shows two areas (Figure 5.12 on the following page).

The upper half called “Server Power Control” is used to switch the power for the KVM port currently active. Use the KVM settings to assign ports of external power switches to a KVM port. A list of all assigned power ports is shown above the switch buttons. If no assignment exists, the option is disabled.

The lower half offers controls for switching each port of the external power switch directly. Select the appropriate port and if there is more than one Smart Start Jr. configured in Serial Settings select the appropriate device as well. Then decide whether to switch a single port or all ports of one device as a sequence. The order of the sequence and the delay between two switched ports are configurable in the Smart Start Jr. setup tool.

Warning: Power ports that are manually switched to “off” state via single port switch can not be re-activated by using “Sequence On”!



Server Power Control

Switching power control for KVM port **1**

Serial 1 - Smart Jr. - Master Unit (0xFF) - Port 3
Serial 1 - Smart Jr. - Master Unit (0xFF) - Port 1
Serial 1 - Smart Jr. - Master Unit (0xFF) - Port 2

Direct Power Control

Serial Port 1: **Smart Jr.**

Device: Master Unit (0xFF)

Port: Port 1

Current State: Unknown

Figure 5.12: External Power Switch Option

Note: While sequence switch is in progress there are no other actions possible on the power switch including get state and single port switch. The web frontend will show a notification in this case.

5.5.1.2 Power Switch Status

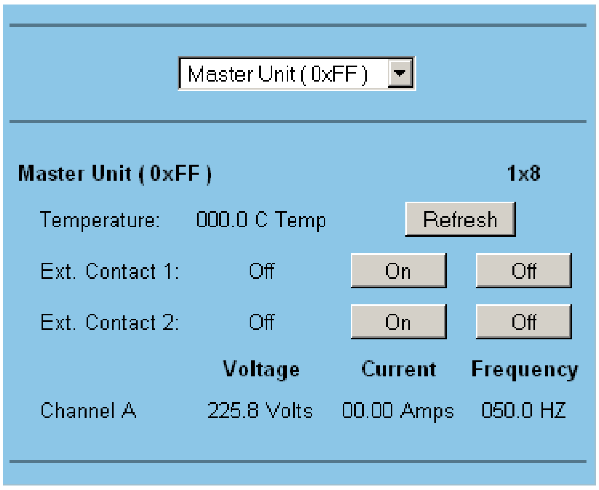
If and only if Smart Start Jr. is selected in “External Power Switch Options” (Serial Settings), there will be a new option in the navigation bar called “Power Switch Status”. Perhaps you have to reload the navigation bar until the new option is shown.

The “Power Switch Status” page itself shows various information about Voltage, Current, optionally installable temperature probes and the state of switchable external contacts (Figure 5.13 on the next page). If there is more than one Smart Start Jr. configured, you can choose the currently shown device from the select box on the top of the page.

External contacts can be switched on or off through the frontend. Additionally you can set these external contacts to monitor several conditions like over voltage etc. This can be done only with the Smart Start Jr. setup tool or manually with a serial terminal.

5.5.2 Keyboard/Mouse Settings

0801IP/1601IP supports different keyboard and mouse models. The panel shown in Figure 5.14 on page 40 is used to adjust those settings as well as some other ones. Their meaning is listed below:



Master Unit (0xFF)

Master Unit (0xFF) **1x8**

Temperature:	000.0 C Temp		
Ext. Contact 1:	Off		
Ext. Contact 2:	Off		
	Voltage	**Current**	**Frequency**
Channel A	225.8 Volts	00.00 Amps	050.0 HZ

Figure 5.13: Power Switch Status

- **Targeted KVM port**
  Selects the KVM port the settings made below will be applied to. Choosing update will display the current values for this port and select it for alteration of its settings.

- **Keyboard Model**
  Selects the keyboard model used on the remote host system.

- **Mouse Model**
  Selects the mouse model that is used on the remote system. A wrongly selected mouse model may result in strange mouse effects.

- **Mouse Mode**
  →Direct (1:n) mouse mode
  Use a direct translation of mouse movements between the local and the remote pointer. You may also set a fixed *Scaling* which determines the amount the remote mouse pointer moved when the local mouse pointer is moved by one pixel. This option only works when the mouse settings on host are linear, means that there is no mouse acceleration involved.

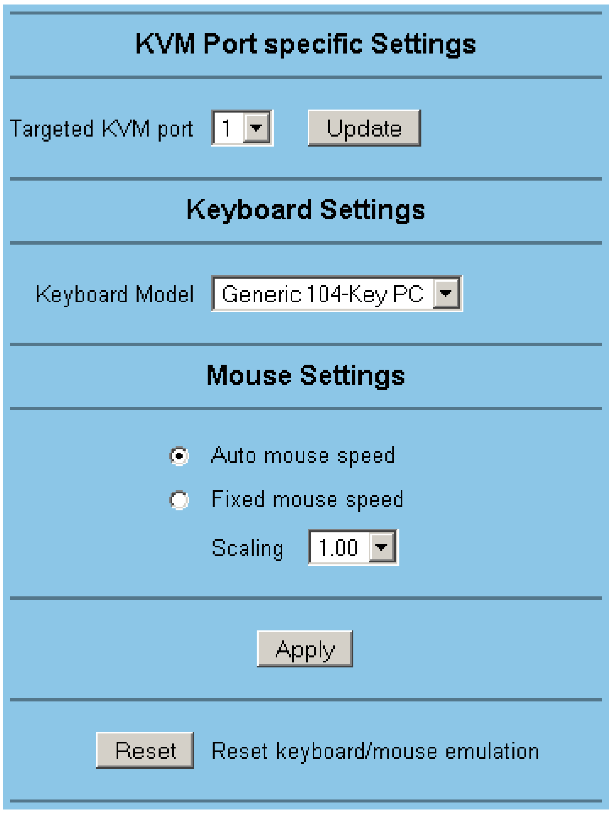
- **Mouse Mode**
  →Automatic speed detection
  Use this option if the mouse settings on host use an additional acceleration setting. 0801IP/1601IP tries to detect the acceleration and speed of the mouse during the mouse sync process.

- **Reset mouse/keyboard emulation**
  This option will reset the 0801IP/1601IP keyboard and mouse emulation for the host system. Use it if the keyboard or mouse seems to react irrationally. Its just like pulling out the keyboard and mouse connectors and plugging them in again.

5.5.3 KVM Settings

The 0801IP/1601IP KVM settings (Figure 5.15 on page 41) allow to setup the ports of the integrated KVM switch.

It is possible to assign a name to each port and to decide whether to show a button for selecting this port in the Remote Console or not.



KVM Port specific Settings

Targeted KVM port: 1

Keyboard Settings

Keyboard Model: Generic 104-Key PC

Mouse Settings

● Auto mouse speed

○ Fixed mouse speed

Scaling: 1.00

Figure 5.14: Keyboard/Mouse settings

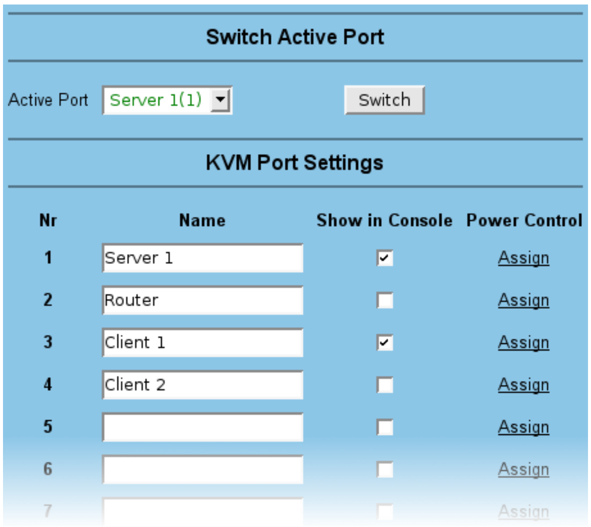
The 'Switch active port' option allows to switch the current port of the integrated KVM switch. It is also possible to do so using the 0801IP/1601IP home page (Section 5.3.2 on page 25).

> Note: It is still possible to apply the necessary key combinations for switching KVM ports through the Remote Console, however, in this case video and mouse synchronization settings will be shared among the ports and may unintentionally be changed for one of those ports.

KVM Power Port Assignment It is possible to assign single or multiple power switch ports to each KVM port. Once the reference between KVM port and power switch ports is made you can always switch the power state of a KVM port on the “Power Control” page.

Unlike previous 0801IP/1601IP firmware versions this version has a separate page for assigning power switch ports to KVM ports (Figure 5.16 on page 42). This page can be reached through the KVM Settings page by clicking on the “Assign” link beneath the KVM Port Settings.

On this page you can select and append several power ports to the list, delete items from the list or resort the order of the items. Once done all ports from this list can be switched successively with one click from the “Power Control” page.



Switch Active Port

Active Port: Server 1(1) — Switch

KVM Port Settings

Nr	Name	Show in Console	Power Control
1	Server 1	☑	Assign
2	Router	☐	Assign
3	Client 1	☑	Assign
4	Client 2	☐	Assign
5		☐	Assign
6		☐	Assign
7		☐	Assign

Figure 5.15: KVM Settings

5.6 Administration

5.6.1 User/Group Management

The user and group management of 0801IP/1601IP is based on configurable users and groups. Each user or group may have different permissions.

Upon delivery, each 0801IP/1601IP is pre-configured with a supervisor user called ‘super’ having the password 0801ip/1601ip. Make sure to change the super user password immediately after you have installed and firstly accessed your 0801IP/1601IP.

Figure 5.17 on page 43 shows the User/Group Management panel of the front-end. Its use will be described in the following text.

- **Existing user**
  Select an existing user for modification or deletion. Once a user has been selected, click the lookup button to see the complete user information.

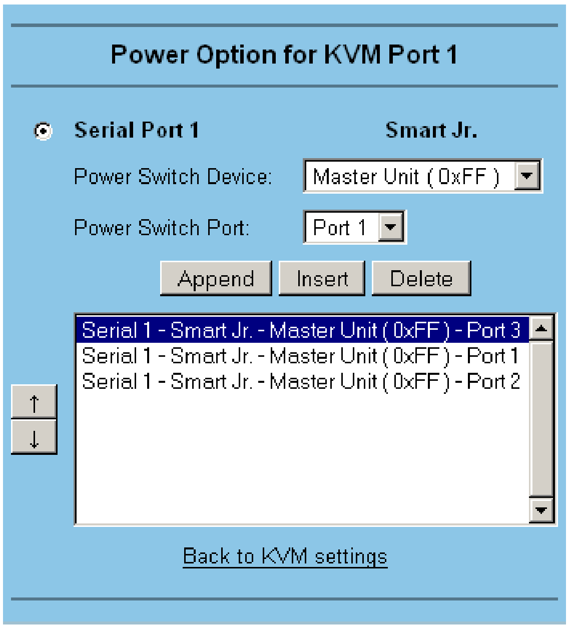
- **New user name**
  In order to create a new user, enter a new login name in this field. The new name must not yet exist as user or group. In case it does, an error message will be displayed on top of the panel.

- **Full user name**
  This name is the full name belonging to the login name.

- **Password**
  The password for the login name. It must be at least four characters long.

- **Confirm password**
  Confirmation of the password above.

- **Email address**
  This is optional.



Power Option for KVM Port 1

● Serial Port 1 Smart Jr.

Power Switch Device: Master Unit (0xFF)

Power Switch Port: Port 1

Serial 1 - Smart Jr. - Master Unit (0xFF) - Port 3
Serial 1 - Smart Jr. - Master Unit (0xFF) - Port 1
Serial 1 - Smart Jr. - Master Unit (0xFF) - Port 2

Figure 5.16: Assigning power ports to KVM ports

- **Mobile number**
  This information may be optionally provided.
- **Group membership**
  Each user can be a member of one or more groups.
- **Existing groups**
  Selects an existing group for copying, modification or deletion.
- **New group name**
  In order to create a new group, enter a new and unused group name.

The user management of 0801IP/1601IP allows many different users. The following sections will describe how to add, change and delete users.

5.6.1.1 Add User

Fill out the fields ‘New user name’, ‘Full user name’, ‘Password’ and ‘Confirm password’ as shown in Figure 5.17 on the next page. Optionally select the groups the new user should become a member of. Click the ’Create user’ button.

5.6.1.2 Delete User

Select a user in the ‘Existing user’ control. Click the ‘Lookup’ button. The complete user information will be shown. Click the ‘Delete user’ button.

Hint:
The pre-configured supervisor user ‘super’ can’t be deleted. This user can be renamed only.

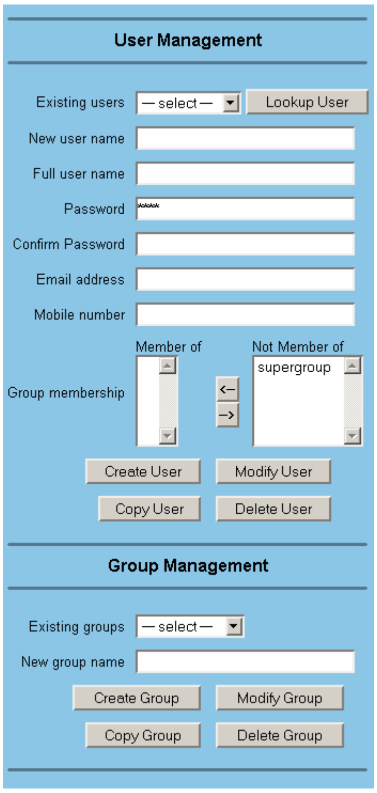


Figure 5.17: User/Group Management

5.6.1.3 Modify User

Select a user in the 'Existing user' control. Click the lookup button to get all the user's information. All fields can be modified as required. The old password is not displayed, but can be modified. If all changes are done click the 'Modify user' button.

5.6.1.4 Copy User

Select a user in the 'Existing user' control. Enter a new user name in the field 'New user name'. Click the 'Copy User' button. This will create a new user with the given name. All properties of the selected user will be copied to the new one, except user specific permissions.

5.6.1.5 Add Group

Type the name of the new group into the field 'New group name' and click the 'Create group' button.

5.6.1.6 Delete Group

Select a group in the 'Existing group' control. Click the 'Delete group' button.

5.6.1.7 Modify Group

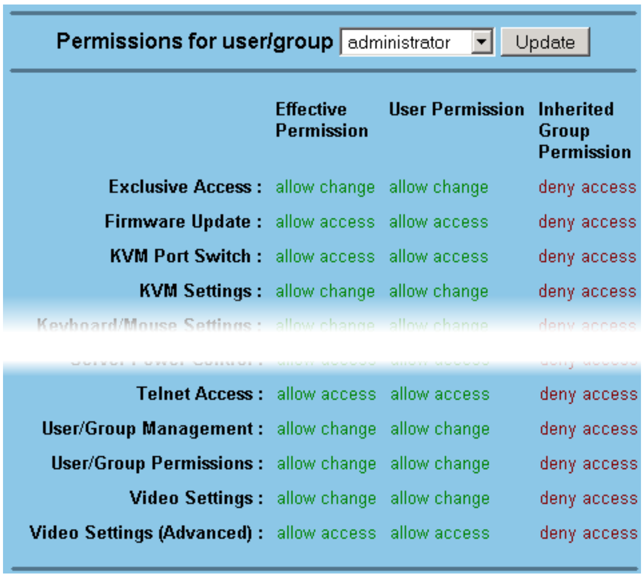
To modify an existing group select the group in the ‘Existing group’ control. The group’s name field can be modified. Finally click the ‘Modify group’ button.

5.6.1.8 Copy Group

Select a group in the ‘Existing group’ control and type the name of the new group into the field ‘New group name’. Click the ‘Copy Group’ button. This will create a new group and copy all properties and permissions of the selected group to the newly created group.

5.6.2 User/Group Permissions

A set of permissions is assigned to each user or group. Those rights are used to authorize access to certain 0801IP/1601IP functionalities for a particular user. By default the user ’super’ has all permissions. His permissions cannot be shrunk. A newly created user or group has no permissions. A user will inherit the permissions of all groups he belongs to.



	Effective Permission	User Permission	Inherited Group Permission
Exclusive Access :	allow change	allow change	deny access
Firmware Update :	allow access	allow access	deny access
KVM Port Switch :	allow access	allow access	deny access
KVM Settings :	allow change	allow change	deny access
Keyboard/Mouse Settings :	allow change	allow change	deny access
Server Power Control :	allow access	allow access	deny access
Telnet Access :	allow access	allow access	deny access
User/Group Management :	allow change	allow change	deny access
User/Group Permissions :	allow change	allow change	deny access
Video Settings :	allow change	allow change	deny access
Video Settings (Advanced) :	allow access	allow access	deny access

Figure 5.18: User/Group Permissions panel

The User/Group Permissions panel as shown in Figure 5.18 allows you to change the permissions of a certain user or group. The right of one user for changing another user’s or group’s access rights is determined by the parent/child relationship between them. When one user is creating another user, he will implicitly become the parent of that new user and hence has the right to change his permissions. More general, a certain user has the right to change another user’s or group’s permissions in case he stands higher in the ancestry than the other one. The ’super’ user stands at the top (or the root) of the ancestry, hence has the right to change everybody’s permissions.

Additionally, there is the restriction that a user can never give more permission to others than those he has. For example, if a user has no permission to change the network settings he won’t be able to grant this right to somebody else. However, a user has always the right to reduce the set of permissions of his descendants.

In order to change the permissions of a user/group you have to select the user/group first. This is done using the selection list at the top of the User/Group Permissions panel (see Figure 5.18 on the preceding page). The selection list will show only users and groups for which you have the right to change their permissions. Next, clicking the 'Update' button will show the permission list of that user. Every right in the list has a permission value, which is explained in Table 5.2.

The displayed columns differ, depending on the user/group selected and the one logged in:

- **Effective Permission**
  The final permission which decides if a user may access a specific 0801IP/1601IP function or not.

- **User Permission**
  Permission for the currently selected user/group. If the user selected equals to the one logged in it is only possible to view the value, otherwise a select box appears to change it.

- **Inherited Group Permission**
  Permission value inherited from the groups a user belongs to. This column is not available while a group is selected.

Table 5.2: 0801IP/1601IP user and group permissions

Field	**Description**
deny access	The user cannot use this function.
allow view	The user can view the entry.
deny change	The user cannot change the entry's settings.
allow change	The user can change the entry settings.
allow access	The user can use this function.
group setting	No permission, use the one inherited from the group(s) the user belongs to. Default is to deny access.

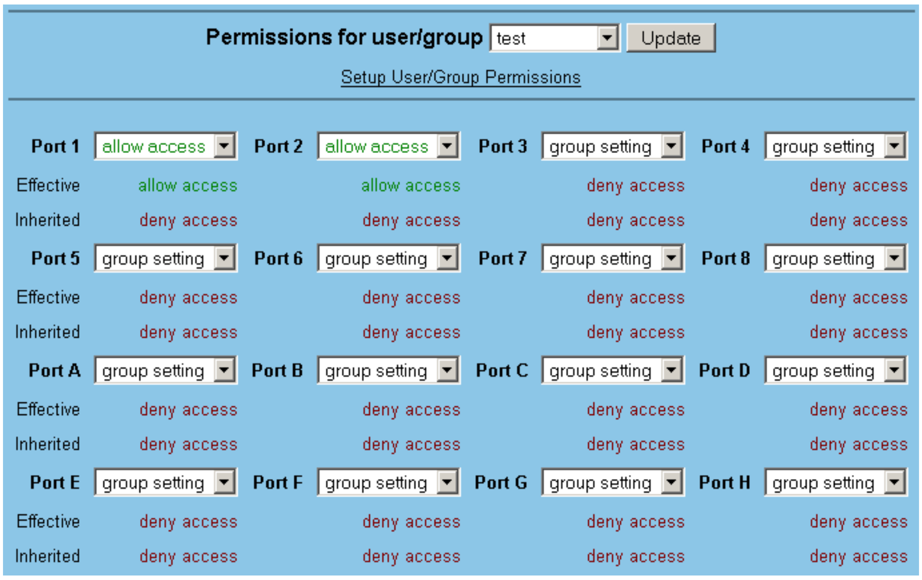
5.6.3 Port Access Permissions

A users ability to look at certain KVM ports may be limited using the port access permission settings (see Figure 5.19 on the next page). It works similar to the normal User/Group permissions (Section 5.6.2 on the facing page) settings, so most of these instructions also apply here. Each port uses an "'allow access"' permission.

If the user is not allowed to access a certain port, it influences the behaviour of 0801IP/1601IP in some ways:

- The KVM port switch box on the home page will display the non-accessible ports in red, the allowed ones in green. It will not be possible to switch to a forbidden port this way. The same applies to the KVM settings page.

- If a switch to a non-accessible port occurs, all users which are not allowed to view this port will be disconnected. It will not be possible for these users to open a new connection until an allowed port is activated again.



Permissions for user/group test ▼ Update

Setup User/Group Permissions

Port 1	allow access ▼	Port 2	allow access ▼	Port 3	group setting ▼	Port 4	group setting ▼
Effective	allow access		allow access		deny access		deny access
Inherited	deny access		deny access		deny access		deny access
Port 5	group setting ▼	Port 6	group setting ▼	Port 7	group setting ▼	Port 8	group setting ▼
Effective	deny access		deny access		deny access		deny access
Inherited	deny access		deny access		deny access		deny access
Port A	group setting ▼	Port B	group setting ▼	Port C	group setting ▼	Port D	group setting ▼
Effective	deny access		deny access		deny access		deny access
Inherited	deny access		deny access		deny access		deny access
Port E	group setting ▼	Port F	group setting ▼	Port G	group setting ▼	Port H	group setting ▼
Effective	deny access		deny access		deny access		deny access
Inherited	deny access		deny access		deny access		deny access

Figure 5.19: Port Access Permissions panel

5.6.4 Network Settings

The Network Settings panel as shown in Figure 5.20 on the next page allows changing network related parameters. Each parameter will be explained below. Once applied the new network settings will immediately come into effect.

Note:
The initial IP configuration is usually done directly at the host system using the special procedure described in Section 4.1 on page 15.

Attention:
Changing the network settings of 0801IP/1601IP might result in losing connection to it. In case you change the settings remotely make sure all the values are correct and you still have an option to access the 0801IP/1601IP.

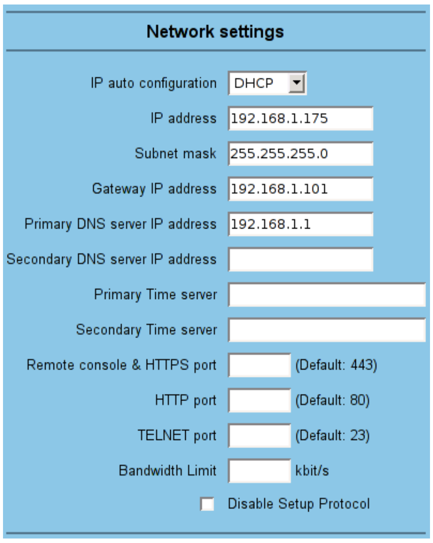
- **IP auto configuration**
  With this option you can control if 0801IP/1601IP should fetch it's network settings from a DHCP or BOOTP server. For DHCP you have to enter *dhcp* and for BOOTP supply *bootp* accordingly. If you specify *none* then IP auto-configuration is disabled.

- **IP address**
  IP address in the usual dot notation.

- **Subnet mask**
  The net mask of the local network.

- **Gateway IP address**
  In case the 0801IP/1601IP should be accessible from networks other than the local one, this IP address must be set to the local network router's IP address.

- **Primary DNS Server IP address**
  IP address of the primary Domain Name Server in dot notation. This option may be left empty, however 0801IP/1601IP won't be able to perform name resolution.



Network settings

IP auto configuration	DHCP
IP address	192.168.1.175
Subnet mask	255.255.255.0
Gateway IP address	192.168.1.101
Primary DNS server IP address	192.168.1.1
Secondary DNS server IP address	
Primary Time server	
Secondary Time server	
Remote console & HTTPS port	(Default: 443)
HTTP port	(Default: 80)
TELNET port	(Default: 23)
Bandwidth Limit	kbit/s

□ Disable Setup Protocol

Figure 5.20: 0801IP/1601IP network settings

- **Secondary DNS Server IP address**
  IP address of the secondary Domain Name Server in dot notation. It will be used in case the Primary DNS Server can't be contacted.

- **Primary Time Server**
  IP address of the primary NTP (Network Time Protocol) compliant timeserver in dot notation. 0801IP/1601IP will synchronize its own absolute time with the timeserver's one. This is important for writing log entries and for the Dynamic DNS Service.

- **Secondary Time Server**
  IP address of the secondary NTP compliant timeserver in dot notation. It will be used in case the Primary Time Server can't be contacted.

- **Remote Console & HTTPS port**
  Port number at which 0801IP/1601IP's Remote Console server and HTTPS server are listening. If left empty the default value will be used.

- **HTTP port**
  Port number at which 0801IP/1601IP's HTTP server is listening. If left empty the default value will be used.

- **Telnet port**
  Port number at which 0801IP/1601IP's Telnet server is listening. If left empty the default value will be used.

- **Bandwidth limitation**
  The maximum network traffic generated through the 0801IP/1601IP Ethernet device. Unit is Kbit/s.

- **Disable Setup Protocol**
  With this option you may exclude this 0801IP/1601IP from setup protocol.

5.6.4.1 Dynamic DNS

A freely available Dynamic DNS service (dyndns.org) can be used in the following scenario (see Figure 5.21):

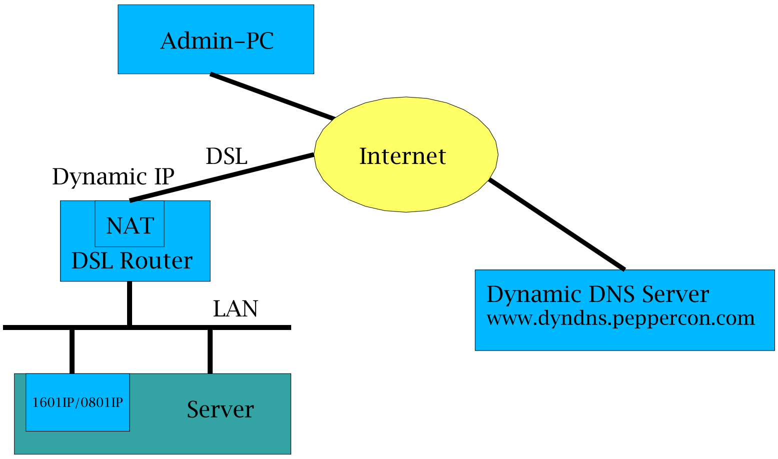
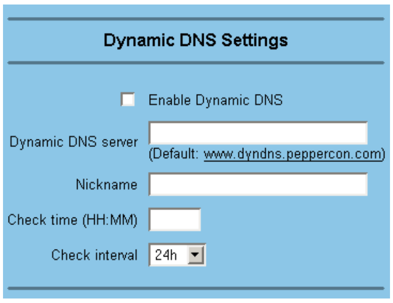


Figure 5.21: Dynamic DNS Scenario

0801IP/1601IP is reachable via the IP address of the DSL router, which is dynamically assigned by the provider. Since the administrator doesn't know the IP address assigned by the provider, 0801IP/1601IP connects to a special dynamic DNS server in regular intervals and registers its IP address there. The administrator may contact this server as well and pick up the same IP address belonging to his card.

The administrator has to register a 0801IP/1601IP that is supposed to take part in the service with the Dynamic DNS Server and assign a certain hostname to it. He will get a nickname and a password in return to the registration process. This account information together with the hostname is needed in order to determine the IP address of the registered 0801IP/1601IP.



Dynamic DNS Settings

□ Enable Dynamic DNS

Dynamic DNS server (Default: www.dyndns.peppercon.com)

Nickname

Check time (HH:MM)

Check interval 24h

Figure 5.22: Dynamic DNS configuration panel

You have to perform the following steps in order to enable Dynamic DNS:

1. Make sure the LAN interface of 0801IP/1601IP is properly configured.
2. Enter the Dynamic DNS Settings configuration dialog as shown in Figure 5.22 (Menu → Network Settings → Dynamic DNS Settings)
3. Enable Dynamic DNS and change the settings according to your needs (see below).

- **Enable Dynamic DNS**
  This enables the Dynamic DNS service. This requires a configured DNS server IP address.

- **Dynamic DNS server**
  This is the server name where 0801IP/1601IP registers itself in regular intervals. Currently this is a fixed setting since only dyndns.org is supported for now.

- **Hostname**
  This is the hostname of 0801IP/1601IP, provided by the Dynamic DNS Server. (use the whole name including the domain, e.g. testserver.dyndns.org, not just the actual hostname)

- **Username**
  You have registered this username during your manual registration with the Dynamic DNS Server. Spaces are not allowed in the Nickname!

- **Password**
  You have used this password during your manual registration with the Dynamic DNS Server. Spaces are not allowed in the Nickname!

- **Check time**
  0801IP/1601IP card registers itself in the Dynamic DNS server at this time.

- **Check interval**
  This is the interval for reporting again to the Dynamic DNS server by 0801IP/1601IP.

Note:
0801IP/1601IP has its own independent real time clock. Make sure the time setting of 0801IP/1601IP is correct. This can be achieved by configuring a timeserver (see Figure 5.20 on page 47)

5.6.5 Serial Settings

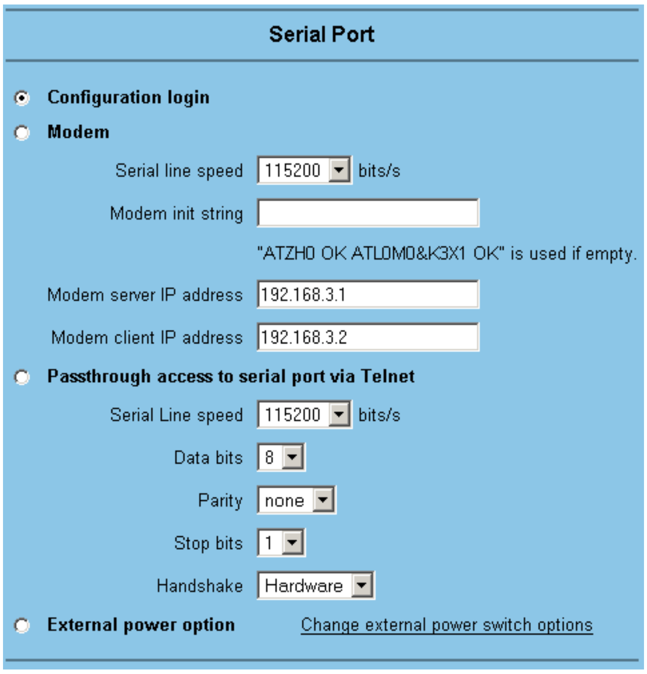
The 0801IP/1601IP Serial Settings (Figure 5.23 on the following page) allow you to specify, what device is connected to the serial port and how to use it.

- **Configuration login**
  Don't use the serial port for any special function, use it only for the initial configuration (see Section 4.1 on page 15).

- **Modem**
  Allows to access 0801IP/1601IP via modem, see Section 5.6.7 on the following page for details.

- **Passthrough**
  Using this option, it is possible to connect an arbitrary device to the serial port and access it (assuming it provides terminal support) via Telnet. Select the appropriate options for the serial port and use the Telnet Console (see Section 5.4.6 on page 37) or a standard Telnet client to connect to 0801IP/1601IP. For more information about the Telnet interface have a look at Section 5.7 on page 60.

- **External power option**
  This serial port provides the power control options for 0801IP/1601IP (see also Section 5.5.1 on page 37).



Serial Port

● Configuration login

○ Modem

Serial line speed 115200 bits/s

Modem init string

"ATZH0 OK ATL0M0&K3X1 OK" is used if empty.

Modem server IP address 192.168.3.1

Modem client IP address 192.168.3.2

○ Passthrough access to serial port via Telnet

Serial Line speed 115200 bits/s

Data bits 8

Parity none

Stop bits 1

Handshake Hardware

○ External power option Change external power switch options

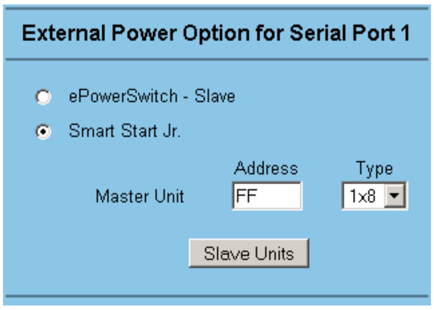
Figure 5.23: Serial Settings

5.6.6 External Power Options

Choose a suitable setting and fill in additional required options. By the date of printing this manual 0801IP/1601IP supports the following options

- **ePowerSwitch - Slave**
  The ePowerSwitch-S is a cascade of up to 4 power sockets with 8 ports. 0801IP/1601IP has to be connected to the first socket of the cascade via a serial connection.

- **Smart Start Jr.**
  The Smart Start Jr. is a cascade of up to 8 power sockets with 8 ports. 0801IP/1601IP has to be connected to the first socket of the cascade via a serial connection.



External Power Option for Serial Port 1

○ ePowerSwitch - Slave

● Smart Start Jr.

	Address	Type
Master Unit	FF	1x8

Figure 5.24: External Power Option Settings

5.6.7 Modem Settings

0801IP/1601IP offers remote access using a telephone line in addition to the standard access over the built-in Ethernet adapter. The modem needs to be connected to the serial interface of

0801IP/1601IP.

Logically, connecting to 0801IP/1601IP using a telephone line means nothing else than building up a dedicated point to point connection from your console computer to the 0801IP/1601IP. With other words, 0801IP/1601IP acts as an Internet Service Provider (ISP) to which you can dial in. The connection is established using the Point-to-Point Protocol (PPP). Before you connect to 0801IP/1601IP, make sure to configure your console computer accordingly. For instance on Windows based operating systems you can configure a dial-up network connection, which defaults to the right settings like PPP.

The Modem Settings panel allows you to configure the remote access to 0801IP/1601IP using a modem. The meaning of each parameter will be described below. The modem settings are part of the serial settings panel (Figure 5.23 on the facing page).

- **Serial line speed**
  The speed 0801IP/1601IP is communicating with the modem. Most of all modems available today will support the default value of 115200 bps. In case you are using an old modem and discovering problems try to lower this speed.

- **Modem Init String**
  The initialization string used by 0801IP/1601IP to initialize the modem. The default value will work with all modern standard modems directly connected to a telephone line. In case you have a special modem or the modem is connected to a local telephone switch that requires a special dial sequence in order to establish a connection to the public telephone network, you can change this setting by giving a new string. Refer to the modem's manual about the AT command syntax.

- **Modem server IP address**
  This IP address will be assigned to the 0801IP/1601IP itself during the PPP handshake. Since it is a point-to-point IP connection virtually every IP address is possible but you must make sure, it is not interfering with the IP settings of 0801IP/1601IP and your console computer. The default value will work in most cases.

- **Modem client IP address**
  This IP address will be assigned to your console computer during the PPP handshake. Since it is a point-to-point IP connection virtually every IP address is possible but you must make sure, it is not interfering with the IP settings of 0801IP/1601IP and your console computer. The default value will work in most cases.

5.6.8 Authentication Settings

With 0801IP/1601IP you have the possibility to keep authentication information in a central LDAP directory or a RADIUS server. Generally only authentication information are handled by this central server, all authorization information is handled by 0801IP/1601IP itself which means that all user accounts must exist twice: one on 0801IP/1601IP side with all permission data and one on the central server which only requires a user name and a password. The user name of these two accounts has to be identical.

If you want to use LDAP or RADIUS for authentication purposes you have to specify some information in the Authentication settings panel (Figure 5.25). You can choose between *local*,

Figure 5.25: Authentication settings panel

LDAP and *RADIUS* authentication. For more information regarding the LDAP and RADIUS settings see below.

5.6.8.1 LDAP

- **User LDAP Server**
  Here you enter the name or IP address of the LDAP server containing all the user entries. If you choose a name instead of an IP address you need to configure a DNS server in the network settings.
- **Base DN of User LDAP Server**
  Here you specify the distinguished name (DN) where the directory tree starts in the user LDAP server.
- **Type of external LDAP Server**
  With this option you set the type of the external LDAP server. This is necessary since some server types require special handling. Additionally the default values for the LDAP schema are set appropriately. You can choose between *Generic LDAP Server*, *Novell Directory Service* and *Microsoft Active Directory*. If you have neither Novell Directory Service nor Microsoft Active Directory then choose *Generic LDAP Server* and edit the LDAP schema used (see below).
- **Name of login-name attribute**
  This is the name of the attribute containing the unique login name of a user. To use the default leave this field empty. The default depends on the selected LDAP server type.
- **Name of user-entry object class**
  This is the object class that identifies a user in the LDAP directory. To use the default leave this field empty. The default depends on the selected LDAP server type.
- **User search subfilter**
  Here you can refine the search for users that should be known to the 0801IP/1601IP.
- **Active Directory Domain**
  This option represents the active directory domain that is configured in the Microsoft Active Directory server. This option is only valid if you have chosen *Microsoft Active Directory* as the LDAP server type.

5.6.8.2 RADIUS

RADIUS authentication may use up to 10 servers in case that one or more of them are down or not reachable. If no server is reachable you will get an ”Authentication failed” message at log-in even if user name and password are valid.

- **Server**
  The Server text field is either an IP address or, in case that a valid DNS server is set in ”Network Settings”, a server name. This field is mandatory.
- **Shared Secret**
  The Shared Secret is a text string which is comparable with a server password. This Shared Secret is optionally configured on the RADIUS servers and has a maximum length of 128 characters.

- **Auth. Port**
  The port for authentication requests. These type of requests are performed if a user tries to login or logout. The port for this request is by default 1812 and normally there is no reason to change it on the server. If you leave this field blank the default value will be used.

- **Acc. Port**
  The port for accounting requests which is only needed on 0801IP/1601IP to write authentication data to the servers log file. The default value for this port is 1813 and it will be used if the Acc. Port text field is left blank.

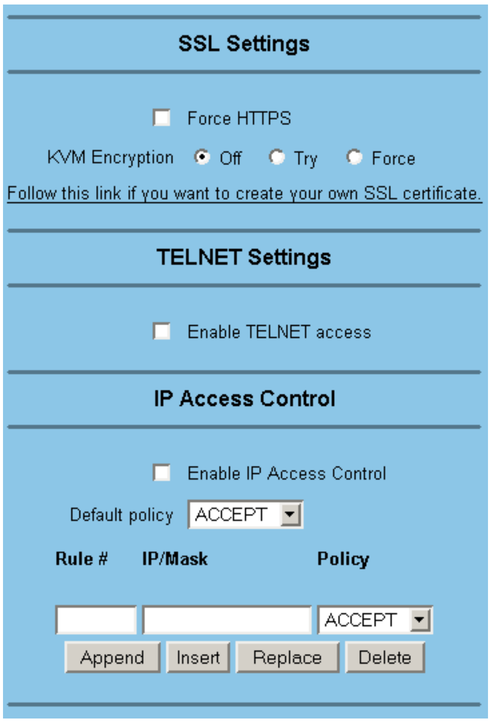
- **Timeout**
  The timeout in seconds for each request.

- **Retries**
  The number of retries for each request and server. (i.e. if you have specified all 10 servers and each with 3 retries then there are up to 30 requests until authentication succeeds or fails)

- **More servers**
  If this button was clicked the page reloads with more table rows to enter up to 10 RADIUS servers.

5.6.9 Security Settings

Figure 5.26 shows the panel for security related SSL, Telnet and IP address settings. Each of those categories will be explained in the following subsections.



SSL Settings

□ Force HTTPS

KVM Encryption ● Off ○ Try ○ Force

Follow this link if you want to create your own SSL certificate.

TELNET Settings

□ Enable TELNET access

IP Access Control

□ Enable IP Access Control

Default policy: ACCEPT

Rule #	IP/Mask	Policy
		ACCEPT

Figure 5.26: Security settings

5.6.9.1 SSL Settings

The following section explains the possible adjustments related to the usage of SSL.

- **Force HTTPS**
  If this option is enabled access to the web front-end is only possible using an HTTPS connection. 0801IP/1601IP won't listen on the HTTP port for incoming connections.

  In case you want to create your own SSL certificate that is used to identify this 0801IP/1601IP refer to Section 5.6.10 on page 56.

- **KVM encryption**
  This option controls the encryption of the RFB protocol, the protocol used by the Remote Console to transmit the screen data to the administrator machine and keyboard and mouse data back to the host.

  If set to 'Off' no encryption will be used.

  If set to 'Try' the applet tries to make an encrypted connection. In case connection establishment fails for any reason an unencrypted connection will be used.

  If set to 'Force' the applet tries to make an encrypted connection. An error will be reported in case connection establishment fails.

5.6.9.2 Telnet Settings

- **Enable Telnet access**
  If this option is enabled, access over Telnet client is possible. For higher security we recommend to disable Telnet access.

5.6.9.3 IP Access Control

This section explains the settings related to IP access control. It is used to limit access to a distinguished number of clients only. These clients will be identified by their IP address, from which they are trying to build up a connection. Refer also to Figure 5.26 on the preceding page.

> Note:
> The IP access control settings apply to the LAN interface only!

- **Enable IP Access Control**
  Enables access control based on IP source addresses.

- **Default policy**
  This option controls what to do with arriving IP packets that don't match any of the configured rules. They can be accepted or dropped.

> ATTENTION:
> If you set this to DROP and you have no ACCEPT rules configured, access to the web front-end over LAN is actually disabled! To enable access again you can change the security settings via modem or by temporarily disabling IP access control with the initial configuration procedure (see Section 4.1 on page 15).

- **Rule Number**
  This should contain the number of a rule for which the following commands will apply. This field will be ignored, in case of appending a new rule.

- **IP/Mask**
  Specifies the IP address or IP address range for which the rule applies.

  Examples (the number concatenated to an IP address with a '/' is the number of valid bits that will be used of the given IP address):

  192.168.1.22/32 matches the IP Address 192.168.1.22

  192.168.1.0/24 matches all IP packets with source addresses from 192.168.1.0 to 192.168.1.255

  0.0.0.0/0 matches any IP packet

- **Policy**
  The policy determines what to do with matching packets. They can be accepted or dropped.

> Note:
> The order of the rules is important. The rules are checked in ascending order until a rule matches. All the rules below the matching one will be ignored. The default policy applies if no match has been found.

- **Appending a rule**
  Enter the IP/Mask and set the policy. Finally, press 'Append'.

- **Inserting a rule**
  Enter the rule number, the IP/Mask and set the policy. Finally, press 'Insert'.

- **Replacing a rule**
  Enter the rule number, the IP/Mask and set the policy. Finally, press 'Replace'.

- **Deleting a rule**
  Enter the rule number and press 'Delete'.

5.6.9.4 Anti Brute Force Setting

The Anti Brute Force user blocking mechanism allows to disable the login of a certain user if his password was entered incorrectly a specific number of times. The duration of the blocking is also configurable.

- **Max. number of failed logins**
  Enter the maximum number of failed login attempts after which it should not be possible for this user to login anymore. Leave this field empty to deactivate the user blocking feature.

- **Block time**
  The number of minutes the user is blocked after he exceeded his maximum number of failed login attempts. Leave this field empty to block him for an infinite amount of time until he is manually unblocked again.

Unblocking users There are two possibilities to unblock a blocked user. A parent user may go to the user management settings (Section 5.6.1 on page 41) and press the unblock button for the user.

It is also possible to use the serial console as for the initial configuration (see Section 4.1 on page 15) and login as 'unblock'. 0801IP/1601IP will ask for the superuser password and present a list of blocked users which may be unblocked.

5.6.10 SSL Certificate Management

0801IP/1601IP uses the SSL[4] protocol for any encrypted network traffic between itself and a connected client. During connection establishment 0801IP/1601IP has to expose its identity to a client using a cryptographic certificate. Upon delivery, this certificate and the underlying secret key is the same for all 0801IP/1601IPs ever produced and certainly won't match the network configuration that will be applied to the devices by its user. The certificate's underlying secret key is also used for securing the SSL handshake. Hence, this is a security risk (but far better than no encryption at all).

However, it is possible to generate and install a new certificate that is unique for a particular device. In order to do that, 0801IP/1601IP is able to generate a new cryptographic key and the associated so called Certificate Signing Request that needs to be certified by a so called certification authority (CA). A certification authority verifies that you are who you claim you are and signs and issues a SSL certificate to you.

The following steps are necessary to create and install a 0801IP/1601IP SSL certificate:

1. Create a SSL Certificate Signing Request using the panel shown in Figure 5.27 on the facing page (Security Settings → SSL Settings → Create your own SSL certificate). You need to fill out a number of fields that are explained below. Once this is done, click 'Create CSR' which will initiate the Certificate Signing Request generation. The CSR can be downloaded to your administration machine with the 'Download CSR' button (see Figure 5.28 on page 58).

2. Send the saved CSR to a CA for certification. You will get the new certificate from the CA after a more or less complicated traditional authentication process (depending on the CA).

3. Upload the certificate to 0801IP/1601IP using the 'Upload' panel as shown in Figure 5.28 on page 58.

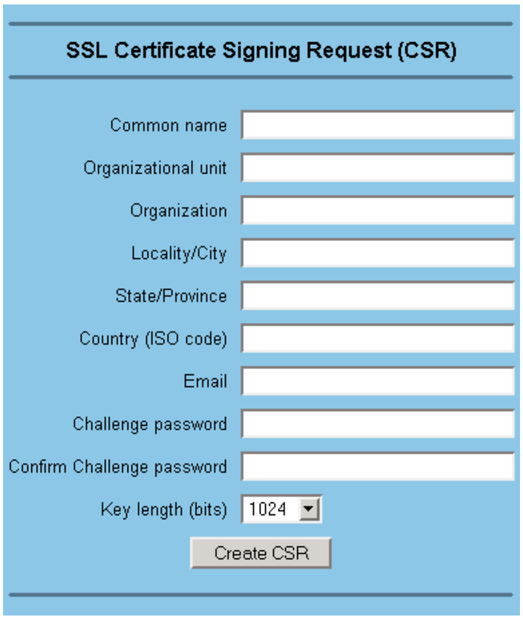
After completing these three steps, 0801IP/1601IP has its own certificate that is used for identifying the device to its clients.

> Important Note:
> If you destroy the CSR on 0801IP/1601IP there is no way to get it back! In case you deleted it by mistake, you have to repeat the three steps.

In the following the various options of the dialogs are described:

- **Common name**
  This is the network name of 0801IP/1601IP once it is installed in the user's network (usually the fully qualified domain name). It is identical to the name that is used to access the device with a web browser (without the 'http://' prefix). In case the name

[4] SSL — Secure Socket Layer



SSL Certificate Signing Request (CSR)

Common name

Organizational unit

Organization

Locality/City

State/Province

Country (ISO code)

Email

Challenge password

Confirm Challenge password

Key length (bits) 1024

Figure 5.27: SSL Certificate Signing Request

given here and the actual network name differ, the browser will pop up a security warning when the device is accessed over HTTPS.

- **Organizational unit**
  This field is used for specifying to which department within an organization 0801IP/1601IP belongs.

- **Organization**
  The name of the organization to which 0801IP/1601IP belongs.

- **Locality/City**
  The city where the organization is located.

- **State/Province**
  The state or province where the organization is located.

- **Country**
  The country where the organization is located. This is the two-letter ISO code, e.g. DE for Germany or US for the USA.

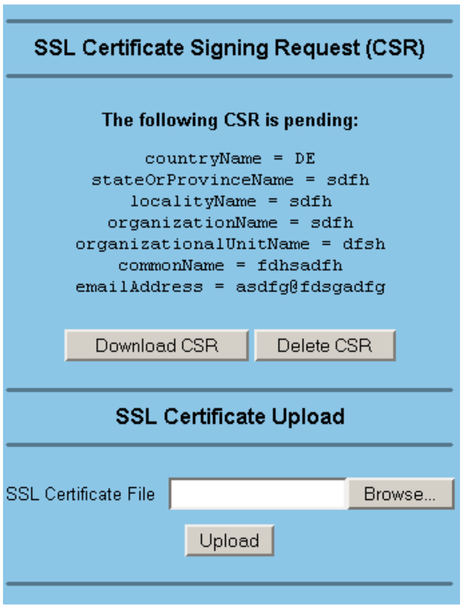
- **Challenge Password**
  Some certification authorities require a challenge password to authorize later changes on the certificate (e.g. revocation of the certificate). The minimal length of this password is 4 characters.

- **Confirm Challenge Password**
  Confirmation of the Challenge Password

- **Email**
  The email address of a security contact person that is responsible for 0801IP/1601IP.

- **Key length**
  This is the length of the generated key in bits. 1024 Bits are supposed be sufficient for most cases. Larger keys may result in slower response time of 0801IP/1601IP during

connection establishment.



SSL Certificate Signing Request (CSR)

The following CSR is pending:

```
countryName = DE
stateOrProvinceName = sdfh
localityName = sdfh
organizationName = sdfh
organizationalUnitName = dfsh
commonName = fdhsadfh
emailAddress = asdfg@fdsgadfg
```

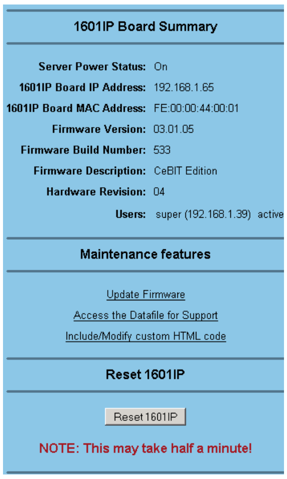
SSL Certificate Upload

SSL Certificate File

Figure 5.28: SSL Certificate Upload

5.6.11 Maintenance

5.6.11.1 Maintenance Features



1601IP Board Summary

Server Power Status: On
1601IP Board IP Address: 192.168.1.65
1601IP Board MAC Address: FE:00:00:44:00:01
Firmware Version: 03.01.05
Firmware Build Number: 533
Firmware Description: CeBIT Edition
Hardware Revision: 04
Users: super (192.168.1.39) active

Maintenance features

Update Firmware
Access the Datafile for Support
Include/Modify custom HTML code

Reset 1601IP

NOTE: This may take half a minute!

Figure 5.29: Maintenance

0801IP/1601IP Board Summary This section contains a summary with various information about this 0801IP/1601IP and its current firmware and allows you to reset the device. Have a look at Figure 5.29 for an example.

Data file for support This link allows you to download the 0801IP/1601IP data file with support information. This is an XML file with certain customized support information like the serial number etc. You may send this information along together with a support request. It will help us troubleshooting your problem.

Reset Functions This section allows you to reset specific parts of the device. Currently this involves the video engine and the 0801IP/1601IP itself. Resetting the card itself is mainly needed to activate a newly updated firmware. It will close all current connections to the administration console and to the Remote Console. The whole process will take about half a minute. Resetting sub-devices (e.g. video engine) will take some seconds only and do not result in closing connections.

5.6.11.2 Update Firmware

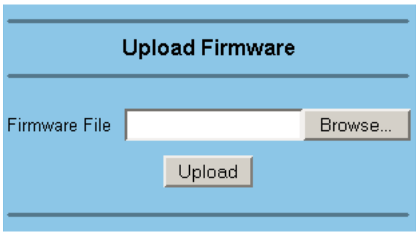
0801IP/1601IP is a complete standalone computer. The software it runs is called the firmware. The firmware of 0801IP/1601IP can be updated remotely in order to install new functionality or special features.

A new firmware update is a binary file which will be sent to you by email or which you can download from the Peppercon web site. If the firmware file is compressed (file suffix .zip) then you must unzip it before you can proceed. Under the Windows operating system you may use WinZip from http://www.winzip.com/ for decompression. Other operating systems might provide a program called unzip.

Before you can start updating the firmware of your 0801IP/1601IP the new uncompressed firmware file must be accessible on the system that you use for connecting to 0801IP/1601IP.

Updating the firmware is a three-stage process:

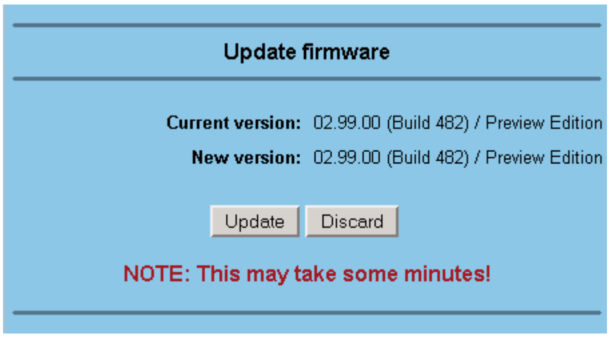
- Firstly the new firmware file is uploaded onto 0801IP/1601IP. In order to do that you need to select the file on your local system using the Browse button of the Upload Firmware panel (see Figure 5.30). Once the firmware file has been uploaded, it is checked whether it is a valid firmware file and whether there were any transmission errors. In case of any error the Upload Firmware function will be aborted.



Upload Firmware

Figure 5.30: Panel for uploading a new firmware

- Secondly, if everything went well, you see the Update Firmware panel (see Figure 5.31 on the next page). The panel shows you the version number of the currently running firmware and the version number of the uploaded firmware. Pressing the update button will store the new version over the old one. Attention: this process is not reversible and might take some minutes. Make sure the 0801IP/1601IP's power supply won't be interrupted during the update process, because this may cause an unusable device.
- Thirdly, after the firmware has been stored, the panel will request you to reset 0801IP/1601IP manually. Half a minute after the reset, 0801IP/1601IP will run with the new firmware version and should be accessible. However, you are requested to login once again.



Update firmware

Current version: 02.99.00 (Build 482) / Preview Edition

New version: 02.99.00 (Build 482) / Preview Edition

NOTE: This may take some minutes!

Figure 5.31: Panel to update a new firmware that was previously uploaded

Attention:
The three-stage firmware update process and complete consistency check are making a mistake in updating the firmware almost impossible. However, only experienced staff members or administrators should perform a firmware update. Make sure 0801IP/1601IP's power supply won't be interrupted!

5.7 Access via Telnet

The 0801IP/1601IP firmware features a Telnet server that enables a user to connect via a standard Telnet client. It is used for passthrough access to a device possibly connected to the serial port 1. This means you may connect any serial device which offers terminal access via its serial port to 0801IP/1601IP and access it using the Telnet interface. Set the serial settings (see Section 5.6.5 on page 49) according to the requirements of the device.

Connecting to 0801IP/1601IP is done as usual and as required by the Telnet client, for instance in a UNIX shell:

```
telnet 192.168.1.22
```
[5]

This will prompt for username and password in order to log into the device. The credentials that need to be entered for authentication are identical to those of the web interface. That means, the user management of the Telnet interface is entirely controlled with the according functions of the web interface.

Once you have successfully logged in 0801IP/1601IP will present you the command line where you can enter according management commands.

In general, the Telnet interface supports two operation modes: the command line mode and the terminal mode. The command line mode is used to control or display some parameters. In terminal mode the pass-through access to serial port 1 is activated (if the serial settings were made accordingly). All inputs are redirected to the device on serial port 1 and its answers are displayed at the Telnet interface.

The following list shows the according command mode command syntax and their usage.

- **help**
  Shows the list of the following commands
- **cls**
  Clear screen

[5] The IP address has to be replaced by the one that is actually assigned to 0801IP/1601IP.

- **logout**
  Logs out the current user and disconnects from the client
- **version**
  Shows a compound string off all available version numbers
- **terminal**
  Starts the terminal passthrough mode for serial port . The key sequence '<esc> exit' switches back to command mode.

6 Frequently Asked Questions

Q 001: The remote mouse doesn't work or is not synchronous.

A 001: Make sure the mouse settings in 0801IP/1601IP match the mouse model. There are some circumstances where the mouse synchronization process could behave incorrectly, refer to Section 5.4.3 on page 31 for further explanation.

Q 002: The video quality is bad or the picture is grainy.

A 002: Try to correct the brightess and contrast settings (see Section 5.4.4 on page 32) until they are out of a range where the picture looks grainy. Use the auto adjustment feature to correct a flickering video.

Q 003: Login on 0801IP/1601IP fails.

A 003: Was the correct combination of user and password given? On delivery, the user *super* has the password *0801ip/1601ip* depending on the actual device. Moreover your browser must be configured to accept cookies.

Q 004: The Remote Console window can't connect to 0801IP/1601IP.

A 004: Possibly a firewall prevents access to the Remote Console. Make sure the TCP port numbers 443 and 80 are open for incoming TCP connection establishments.

Q 005: No connection can be established to 0801IP/1601IP.

A 005: Check whether the network connection is working in general (ping the IP address of 0801IP/1601IP). If not, check network hardware. Is 0801IP/1601IP powered on? Check whether the IP address of 0801IP/1601IP and all other IP related settings are correct! Also verify that all the IP infrastructure of your LAN, like routers etc., are correctly configured. Without a ping functioning, 0801IP/1601IP can't work either.

Q 006: Special key combinations, e.g. ALT+F2, ALT+F3 are intercepted by the console system and not transmitted to the host.

A 006: You have to define a so-called 'Button Key'. This can be done in the Remote Console settings.

Q 007: In the browser the 0801IP/1601IP pages are inconsistent or chaotic.

A 007: Make sure your browser cache settings are feasible. Especially make sure the cache settings are not set to something like "never check for newer pages". Otherwise 0801IP/1601IP pages may be loaded from your browser cache and not from the card.

Q 008: Windows XP doesn't awake from standby mode

A 008: This is possibly a Windows XP problem. Try not to move the mouse while XP goes in standby mode.

Q 009: Using MacOS X a HTTPS connection fails

A 009: You have to install the Peppercon certificate using our certificate installer, available on the utility CD. Please refer to the instructions on this CD for further information how to install the certificate.

Q 010: Can't upload the signed certificate in MacOS X

A 010: If an 'internal error' occurs while uploading the signed certificate either change the extension of the file to .txt or add a file helper using the Internet Explorer preferences for this type of file. Make sure that the encoding is plain text and the checkbox 'use for outgoing' is checked. Another possibility is to use a Mozilla based browser.

Q 011: Everytime I open a dialog box with some buttons the mouse pointers are not synchronous anymore

A 011: Please check, if you have an option like *Automatically move mouse pointer to the default button of dialog boxes* enabled in the mouse settings of the operating system. This option needs to be disabled.

Q 012: Remote Console doesn't open with Opera in Linux

A 012: Some versions of Opera don't grant enough permissions if the signature of the applet can't be verified. You can add the lines

```
grant codeBase "nn.pp.rc.RemoteConsoleApplet" {
     permission java.lang.RuntimePermission "accessClassInPackage.sun.*";
};
```

to the java policy file of opera (e.g. /usr/share/opera/java/opera.policy) to solve the problem.

A Glossary

ACPI A specification that enables the operating system to implement power management and system configuration.

ATX Advanced Technology Extended: A particular specification of a motherboard introduced by Intel in 1995.

DHCP Dynamic Host Configuration Protocol: protocol for dynamically assigning IP configurations in local networks.

DNS Domain Name System: protocol used to locate computers on the Internet by their name.

FAQ Frequently Asked Questions

HTTP Hypertext Transfer Protocol: the protocol used between web browsers and servers.

HTTPS Hyper Text Transfer Protocol Secure: secure version of HTTP.

LED Light Emitting Diode

PS/2 The PS/2 device interface was developed by IBM and is used by many mice and keyboards.

SNMP Simple Network Management Protocol: a widely used network monitoring and control protocol.

SSL Secure Socket Layer: encryption technology for the Internet used to provide secured data transmissions.

SVGA Super VGA: A refinement of Video Graphics Array (VGA) that provides increased pitch and resolution performance.

UTP Unshielded Twisted Pair: a cable with two conductors twisted as a pair and bundled within the same outer PVC covering.

B 0801IP/1601IP Video Modes

Table B.1 lists the video modes 0801IP/1601IP supports. Please don't use other custom video settings besides of these. If done so, 0801IP/1601IP may not be able to detect them.

Table B.1: 0801IP/1601IP Video Modes

Resolution (x,y)	**Refresh Rates (Hz)**
640x350	70, 85
640x400	56, 70, 85
640x480	60, 67, 72, 75, 85, 90, 100, 120
720x400	70, 85
800x600	56, 60, 70, 72, 75, 85, 90, 100
832x624	75
1024x768	60, 70, 72, 75, 85, 90, 100
1152x864	75
1152x870	75
1152x900	66
1280x960	60
1280x1024	60, 75

C Key Codes

Table C.1 shows the key codes used to defines key strokes or hotkeys for several functions. Please note that these key codes do not represent necessarily key characters that are used on international keyboards. They name a key on a standard 104 key PC keyboard with an US English language mapping. The layout for this keyboard is shown in Figure C.1. However, most modifier keys and other alphanumeric keys used for hotkey purposes in application programs are on an identical position, no matter what language mapping you are using. Some of the keys have aliases also, means they can be named by 2 key codes (separated by comma in the table).

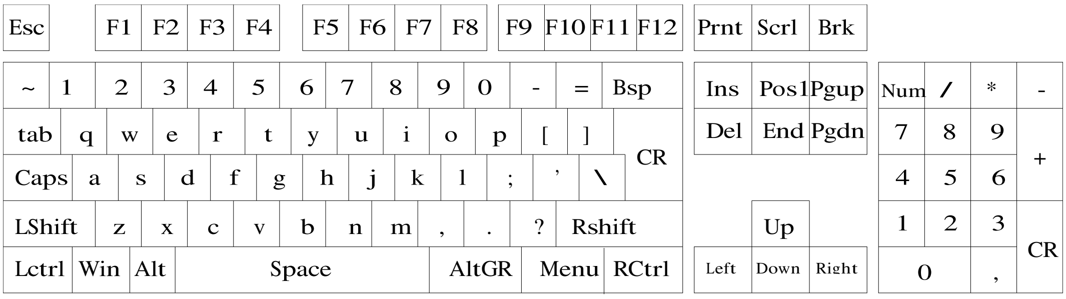


Figure C.1: English (US) Keyboard Layout, used for key codes

Table C.1: Key Names

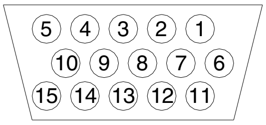
Key (and aliases)
0 - 9
A - Z
, TILDE
-, MINUS
=, EQUALS
;
’
<, LESS
,
.
/, SLASH
BACK_SPACE
TAB
[
]
ENTER
CAPS_LOCK
\, BACK_SLASH
LSHIFT, SHIFT
Continued on next page

Table C.1 – continued from previous page

Key (and aliases)
RCTRL
RSHIFT
LCTRL, CTRL
LALT, ALT
SPACE
ALTGR
ESCAPE, ESC
F1
F2
F3
F4
F5
F6
F7
F8
F9
F10
F11
F12
PRINTSCREEN
SCROLL_LOCK
BREAK
INSERT
HOME
PAGE_UP
DELETE
END
PAGE_DOWN
UP
LEFT
DOWN
RIGHT
NUM_LOCK
NUMPAD0
NUMPAD1
NUMPAD2
NUMPAD3
NUMPAD4
NUMPAD5
NUMPAD6
NUMPAD7
NUMPAD8
NUMPAD9
NUMPADPLUS,NUMPAD_PLUS
NUMPAD/
NUMPADMUL,NUMPAD_MUL
NUMPADMINUS,NUMPAD_MINUS
NUMPADENTER
WINDOWS
MENU

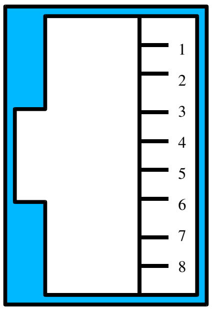
D Pin Assignments

D.1 VGA HD-15



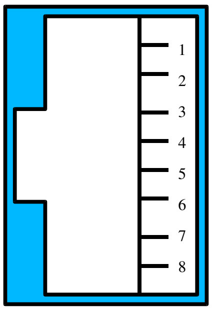
Pin	Assignment	Pin	Assignment
1	Red	9	5 V
2	Green	10	GND sync
3	Blue	11	Not connected
4	Not connected	12	SDA, DDC, ...
5	GND	13	HSYNC
6	GND red	14	VSYNC
7	GND green	15	DATA_CLOCK
8	GND blue		

D.2 RJ 45 Connector Ethernet



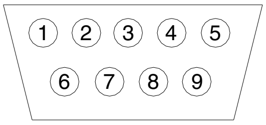
Pin	Assignment	Pin	Assignment
1	TX +	5	Not connected
2	TX -	6	RX -
3	RX +	7	Not connected
4	Not connected	8	Not connected

D.3 RJ 45 Connector ISDN



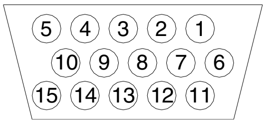
Pin	Assignment	Pin	Assignment
1	Not connected	5	RX -
2	Not connected	6	TX -
3	TX +	7	Not connected
4	RX +	8	Not connected

D.4 Serial SUB-D 9 Connector 1



Pin	Assignment	Pin	Assignment
1	DCD	6	DSR
2	RX	7	RTS
3	TX	8	CTS
4	DTR	9	RI
5	GND		

D.5 KVM 15 pin connector



Pin	Assignment	Pin	Assignment
1	VGA Red	9	MS Data
2	VGA Green	10	KBD VCC
3	VGA Blue	11	MS Clock
4	KBD Data	12	SDA, DCC, ...
5	KBD Clock	13	HSYNC
6	GND	14	VSYNC
7	GND	15	DATA_CLOCK
8	GND		

E Peppercon Warranty information

LIMITED WARRANTY

Peppercon AG (”Peppercon”) manufactures its hardware products from parts and components that are new or equivalent to new in accordance with industry-standard practices. Peppercon warrants that the hardware products including the firmware will be free from defects in materials and workmanship under normal use. Any implied warranties on the Peppercon firmware and hardware are limited to 24 months, respectively, beginning on the date of invoice. Some states/jurisdictions do not allow limitations on duration of an implied warranty, so the above limitation may not apply to you. Additional Peppercon AG grants a special warranty for 6 month.

CUSTOMER REMEDIES

Peppercon's entire liability and exclusive remedy shall be, at Peppercon's option, either (a) return of the price paid, or (b) repair or replacement of the firmware or hardware that does not meet this Limited Warranty and which is returned to Peppercon with a copy of your receipt. Damage due to shipping the products to you is covered under this warranty. Otherwise warranty does not cover damage due to external causes, including accident, abuse, misuse, problems with electrical power, servicing not authorized by Peppercon, usage not in accordance with product instructions, failure to perform required preventive maintenance and problems caused by use of parts and components not supplied by Peppercon. Any replacement hardware will be warranted for the remainder of the original period or thirty (30) days, whichever is longer.

Peppercon will repair or replace products returned to Peppercon's facility. To request warranty service you must inform Peppercon within the warranty period. If warranty service is required, Peppercon will issue a Return Material Authorization Number. You must ship the products back to Peppercon in their original or an equivalent packaging, prepay shipping charges, and insure the shipment or accept the possibility of loss or damage during shipment.

NO OTHER WARRANTIES

To the maximum extend permitted by applicable law, Peppercon disclaim all other warranties, either express or implied, including, but not limited to implied warranties of merchantability and fitness for a particular purpose, with regard to the firmware, the accompanying written materials, and any accompanying hardware. This limited warranty gives you specific legal rights. You may have others, which vary from state/jurisdiction to state/jurisdiction.

NO LIABILITY FOR CONSEQUENTIAL DAMAGES

To the maximum extent permitted by applicable law, in no event shall Peppercon be liable for any damages whatsoever (including without limitation, special, incidental, consequential or indirect damages for personal injury, loss of business information, or any other pecuniary loss) arising out of the use of or inability to use this product, even if Peppercon has been advised of the possibility of such damages. In any case, Peppercon entire liability under any provision of this agreement shall be limited to the amount actually paid by you for the firmware and/or hardware. Because some states/jurisdictions do not allow the exclusion or limitation of liability for consequential or incidental damages, the above limitation may not apply to you.

F Specifications

F.1 Size and Weight

Height:	44 mm
Width:	215 mm
Length (Box):	405 mm
Weigth:	3500 g

F.2 Environmental

Temperature	
Operating	0°C to 40°C (32°F to 131°F)
Storage	-18°C to 70°C (-20°F to 158°F)

Humidity	
Operating	10% to 90% (non-condensing)
Storage	5% to 95% (non-condensing)

G Operation advices

- This device has to be operated with the provided power supply 'PEPPERCON UP0451E-12P' only. Use of other power supplies voids the product liability of the manufacturer. If the power supply shows a malfunction, it must not be opened. Instead a replacement has to be requested from the manufacturer or the vender.
- The power cord of the power supply is the point of junction to the supply network AC 230 V. Therefore the power supply and socket have to be easily accessible to disconnect them quickly if it is necessary.
- The device contains a lithium battery CR 1632. Gladly we exchange this battery for you. When changing the battery yourself, please notice: 'Attention, explosion hazard while exchanging the battery improperly. Disposal of old batteries has to be done as mentioned on the package of the new one.'

PEPPERCON

a Raritan® company