Single Port IP KVM

IKVM-1000

User's Guide

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FCC

This equipment has been tested and found to comply with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference

(2) This device must accept any interference received. Including interference that may cause undesired operation.

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This equipment is in compliance with the requirements of the following regulations: EN 55 022: CLASS B

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Revision

User's Manual for PLANET Single Port IP KVM

Model: IKVM-1000

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Part No. EM-IKVMv1

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Chapter 1
Introduction

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With the innovative IP-based technology, PLANET has turned the conventional KVM switches into networking devices. The IKVM-1000 captures, digitizes and compresses video signal, then transmits it with keyboard and mouse signals through IP network. Multiple remote sites can monitor the same PC server simultaneously. With SSL authentication and data encryption, the IKVM-1000 provides a non-intrusive solution for remote access and control. The remote access and control software operates on its embedded processors only, but not on mission-critical servers, so that there is no interference with server operation or decrease on the network performance.

1.1 Features

➢ Locally attaches to an analog KVM, Server or PC and remote login for administration
➢ Ethernet port interface for LAN/WAN access
➢ Controls any PC/Server anywhere from anyplace
➢ Local console and fast remote Web browser access, Fast redirection and Animation
➢ Remote VGA resolution up to 1280 X 1024
➢ Cascade to regular non-IP based KVM switch to share the same TCP/IP port
➢ SSL authentication connection and video data encryption
➢ Single or multiple user access one target server
➢ Easy to set-up and non-intrusive Installation

1.2 Package Contents

The following items should be included:

- • IKVM-1000
- • Null Modem Cable
- • Mounting Bracket
- • Quick Installation Guide
- • CD-ROM
- • Power Adapter

If any of the above items are damaged or missing, please contact your dealer immediately.

1.3 Specifications

Model	IKVM-1000
Supported Protocol	HTTP, HTTPS, SSL, TCP/IP, Telnet, SNMP
Local Console Connectors (all female type)	PS/2 keyboard port
	PS/2 mouse port
	DB-15 VGA port
Remote Console	RJ-45 port

|	
Host Connectors (all female type)	PS/2 keyboard port
	PS/2 mouse port
	DB-15 VGA port
VGA Resolution	Local console: 1920 x 1440
	Remote console: 1280 x 1024
Client Software	Microsoft Java VM, Sun Java VM (Plug in), Netscape Java VM
Dimensions (L x W x H)	140 x 157 x 26mm
Weight	645g
Environmental Specification	Operating temperature: 0 – 40 degree C Storage temperature: -20 – 60 degree C Relative humanity: 0% – 90% (non-condensing)
Power Requirement	5V DC, 2.5A
Electromagnetic Compatibility	FCC, CE

Chapter 2
Hardware Installation

2

2.1 Operation Overview

The IKVM-1000 supports two operation scenarios. It can directly connect to one server or to a KVM switch matrix for allowing multiple servers access on a single remote console.
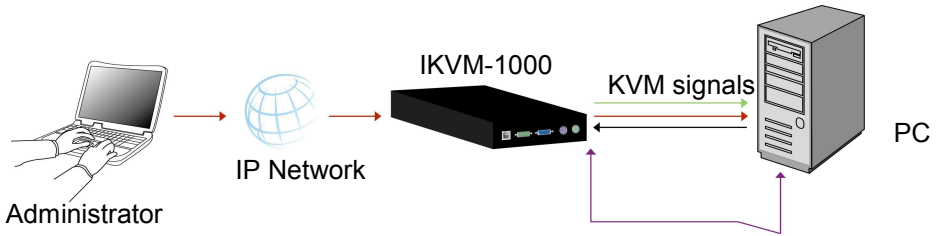
Scenario 1
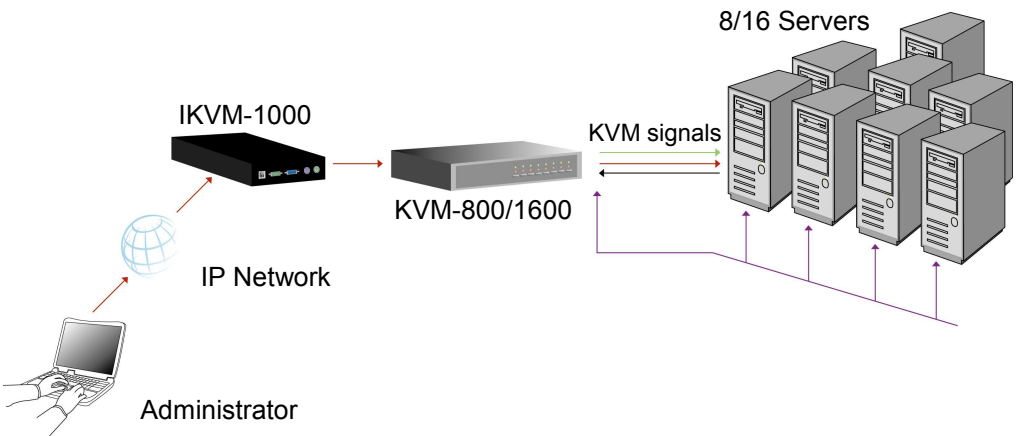
Scenario 2

2.2 System Requirement

Local Console: one PS/2 Keyboard, one PS/2 Mouse and one monitor
Remote Console: computers installed with TCP/IP

For an insecure connection to the IKVM-1000, the following browsers can be used:

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

• Netscape Navigator 7.0 or Mozilla 1.6 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 a key length of 128 Bit. Some of the old browsers do not have a strong 128 Bit encryption algorithm.

For using the Remote Console window of your managed host system, the browser must come with a Java Runtime Environment version 1.1 or higher. If the browser has no Java support (such as on a small handheld device), you are still able to maintain your remote host system using the administration forms displayed by the browser itself. The recommended environment is Sun JVM 1.4.

Host: one PC or server or a traditional KVM switch

2.3 Installation Procedures

1. Connect the power supply to IKVM-1000.
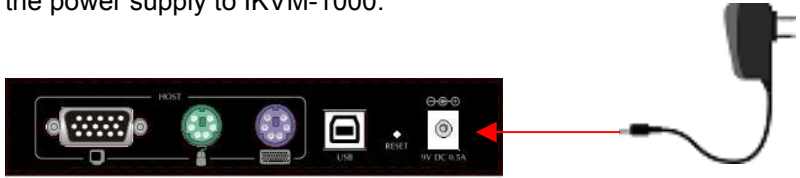
2. Connect a monitor to the VGA connector in LOCAL CONSOLE side.
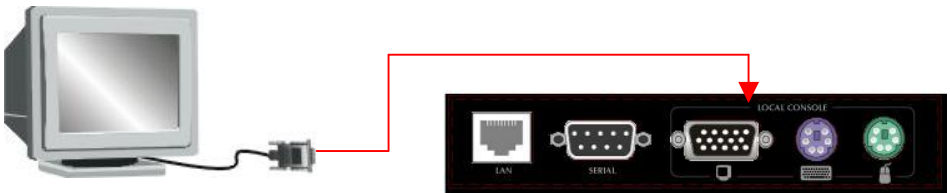
3. Connect a keyboard to the purple PS/2 connector in LOCAL CONSOLE side.
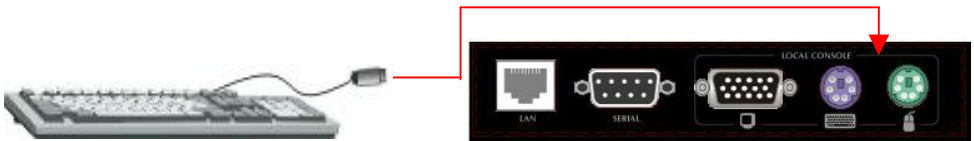
4. Connect a mouse to the green PS/2 connector in LOCAL CONSOLE side.
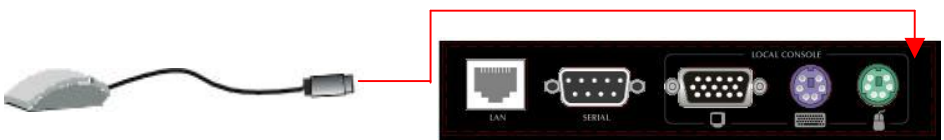
For Single PC or Server Conncention

5. Connect a VGA cable (15-pin HDDB Male / Male) with the Male side to both of the PC and the HOST side of the IKVM-1000.
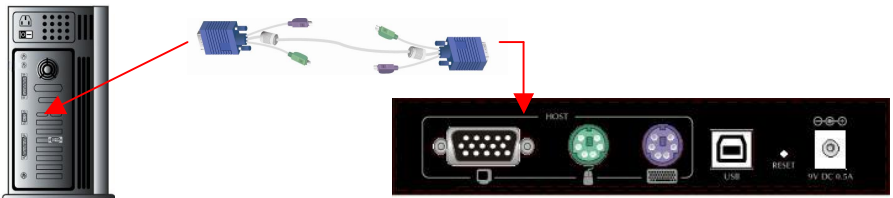
6. Connect one end to the PS/2 mouse port on the computer, and the other end to the green PS/2 connector on the HOST side of IKVM-1000.
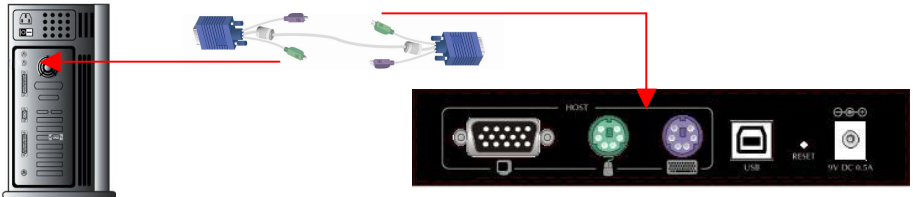
7.	Connect one end to the PS/2 keyboard port on the computer, and the other end to the purple PS/2 connector on the HOST side of IKVM-1000.
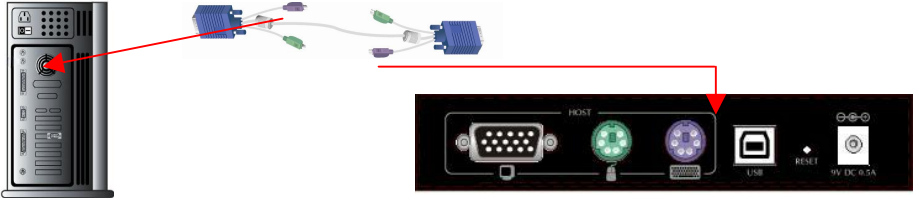
8.	You can also use an USB cable (type A to type B) to connect the computer and the USB port on IKVM-1000. By using USB connection, you can skip step 6 and 7 because the mouse and keyboard signals will be transferred through USB cable.

For Traditional KVM Conncetion

9.	Use a three-in-1 cable to connect the HOST side of IKVM-1000 and the console connectors of traditional KVM. The illustration below is using KVM-800 to connect IKVM-1000.

10.	Connect Ethernet cable and/or modem or both communication ports simulta-neously, depending on how you want to access IKVM-1000.

LAN connection ⎯⎯➤ To Modem
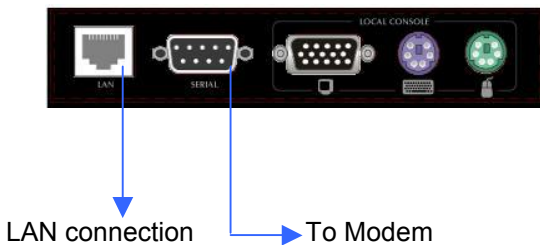
Now, you have finished the hardware installation of IKVM-1000.

Chapter 3

Initial Configuration

3

3.1 Default Settings

The communication interfaces of IKVM-1000 are all based on TCP/IP. It comes with the default settings as below.

Parameter	Value
IP auto configuration	DHCP
IP-Address	192.168.1.1 (disabled)
Net-mask	255.255.255.0
Default-Gateway	none
Super user name	super
Super user password	pass

Note: although there is a pre-configured IP address in IKVM-1000, it is disabled by default. To make the IP effective, you must use psetup.exe to locate the IKVM-1000 and change the "IP auto configuration" from "DHCP" to "None". Please refer to next subsection for detailed information.

3.2 Configuration via Setup Utility

By default, the IKVM-1000 will obtain its IP address from a DHCP server in the network. If a DHCP server is found, it may provide a valid IP address, gateway address and net mask. Before you connect IKVM-1000 to your local network, please make sure the corresponding configuration of your DHCP server is completed. It is recommended to reserve a fixed IP assignment to the MAC address of the IKVM-1000. You can find the MAC address labeled on the bottom side of the metal housing.

If this initial configuration does not meet your local requirements, use the setup tool to adjust the values to your needs. The setup tool can be found on the CD-ROM delivered with this package. You can follow the procedure described below.

1. Connect the IKVM-1000 to the same network as your administrative PC, or you can use an USB cable (type A to type B) to connect administrative PC and

IKVM-1000 directly. The USB connectivity only supported in windows 2000/XP/server 2003 and the response time of USB connection would be longer than LAN connection.

2. Insert the bundled CD-ROM into the CD-ROM drive to initiate the autorun program. Click on "Setup Utility" hyperlink in the menu screen to execute the program.

   If the menu screen is not shown, you can click "Start" button and choose "Run…". When the dialog box appears, enter "E:\utility\psetup.exe" (suppose "E" is your CD-ROM drive) and click "OK".

3. Once the utility is executed, it will search for available IKVM-1000 automatically.
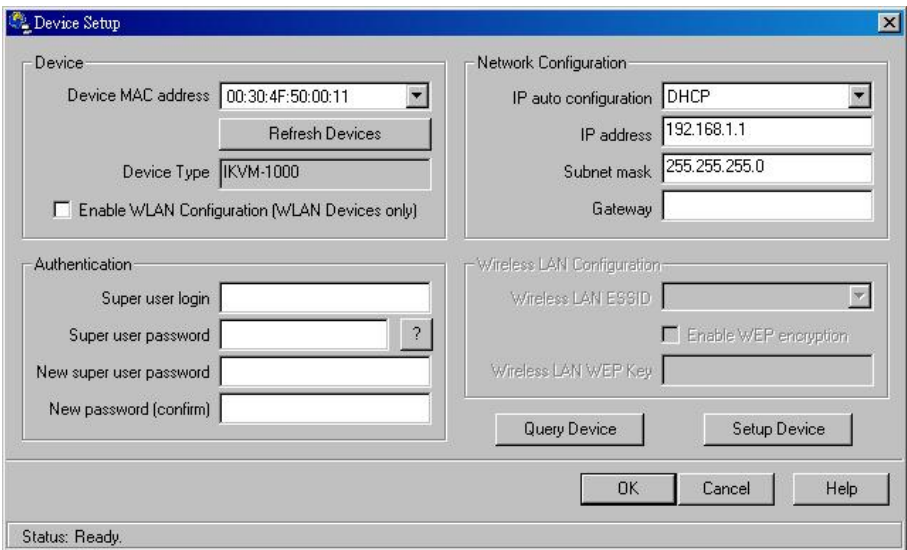
4. On the upper left corner, the MAC address of the IKVM-1000 is displayed. To manually detect the MAC address again, press the button "Refresh Devices". The displayed MAC address is the same MAC address printed on the sticker placed on the bottom of the IKVM-1000. If the IKVM-1000 is connected via USB, it is classified as an USB device and an appropriate drive letter is chosen for this device.

5. On the lower right corner of the window, there are two buttons: "Query Device" and "Setup Device". Press the "Query Device" button to display the preconfigured values of the network configuration. The values are displayed in the text fields located above. If necessary, adjust the network settings according to your requirement. To save the changes, enter "super" in the "Super user login" field and "pass" in the "Super user password" field. Then press the " Setup Device " button.

6. On the lower left Authentication field, you can change the super user password here. However, the super user name is fixed to "super" and can't be modified.

The default super user password is "pass". It is recommended to change the super user password as soon as you get this device.

The Wireless LAN Configuration field is left for future enhancement.

3.3 Configuration via Serial Port

Using a serial terminal, the IKVM-1000 has a serial line interface (host side). This connector is compliant with the RS 232 serial line standard. The serial line has to be configured with the parameters given as below.

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

When configuring with a serial terminal, press the reset button of IKVM-1000 and immediately press the " ESC " key on the keyboard of administrative PC. You will see some device information, and a " => " prompt. There are four commands available.

config: start configuration tool after boot up

defaults: set the device settings to factory defaults

help: print online help

reset: perform a soft reset

When using "config" command, the following interactive options will appear:

IP auto configuration (non/dhcp/bootp) [dhcp]:

With this option, you can specify whether the IKVM-1000 should get its network settings from a DHCP or BOOTP server. For DHCP, enter "dhcp", and for BOOTP enter "bootp". If you do not specify any of these, the IP auto configuration is disabled and subsequently you will be asked for the following network settings.

IP [192.168.1.1]:

This is the current IP address of the IKVM-1000. This option is only available if IP auto configuration is disabled.

Net mask [255.255.255.0]:

This is the net mask of the connected IP subnet. This option is only available if IP auto configuration is disabled.

Gateway (0.0.0.0 for none) [0.0.0.0]:

This is the IP address of the default router for the connected IP subnet. If you do not have a default router, enter 0.0.0.0. This option is only available if IP auto configuration is disabled.

3.4 Keyboard, Mouse, and Video Configuration

Between the IKVM-1000 and the host, there are two interfaces available for transmitting keyboard and mouse signals: USB and PS/2. The correct operation of the remote mouse depends on several settings, which will be discussed in the following subsections.

3.4.1 Keyboard Settings

The IKVM-1000 settings for the host's keyboard type must be corrected in order to make the remote keyboard work properly. See Section 5.4.2 in details.

3.4.2 Remote Mouse Settings

A common issue with KVM devices is the synchronization between the local and remote mouse cursors. The IKVM-1000 addresses this situation with an intelligent synchronization algorithm. There are two mouse modes available on the IKVM-1000.

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.

3.4.3 Auto Mouse Speed and Mouse Synchronization

The automatic mouse speed mode performs the speed detection during mouse synchronization. Whenever the mouse does not 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 or press the mouse synchronization hotkey sequence if you already defined one.

Intelligent Sync

If the fast sync does not work or the mouse settings have been changed on the host system, use the intelligent resynchronization. This method takes more time than Fast Sync and can be accessed with the appropriate item in the Remote Console option menu. The intelligent synchronization requires a correctly adjusted picture. Use the auto adjustment function or the manual correction in the Video Settings panel to setup the picture. The Sync mouse button on top of the Remote Console may 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.

Note: At first start, if the local mouse pointer is not synchronized with the remote mouse pointer, press the Auto Adjust Button once.

3.4.4 Host System Mouse Settings

While the IKVM-1000 works with accelerated mice and is able to synchronize the local with the remote mouse pointer, there are the following limitations, which may prevent this synchronization from working properly: (the following limitations do not apply in case of USB and Mouse Type "MS Windows 2000 and newer".)

Special Mouse Driver

There are mouse drivers which influence the synchronization process and lead to desynchronized mouse pointers. If this happens, make sure you do not use a special vendor-specific mouse driver on your host system.

Windows XP Mouse Settings

Windows XP knows a setting named "improve mouse acceleration", which has to be deactivated.

Active Desktop

If the Active Desktop feature of Microsoft Windows is enabled, do not use a plain background. Instead, use some kind of wallpaper. As an alternative, you could also disable the Active Desktop completely.

Navigate your mouse pointer into the upper left corner of the applet screen and move it slightly forth and back. Thus the mouse will be resynchronized. If re-synchronizing fails, disable the mouse acceleration and repeat the procedure.

3.4.5 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 be synchronized. The IKVM-1000 also features another mode, the Single Mouse Mode, where only the remote mouse pointer is visible. Activate this mode in the open Remote Console 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. Press this hotkey to free the captured local mouse pointer.

3.4.6 Recommended Mouse Settings

For the different operating systems we can give the following advice:

MS Windows 2000/XP/2003 (Professional and Server)
In general, we recommend the usage of a mouse via USB. Choose USB without Mouse Sync. For a PS/2 mouse, choose Auto Mouse Speed. For XP disable the option enhance pointer precision in the Control Panel.

SUN Solaris
Adjust the mouse settings either via xset m 1 or use the CDE Control Panel to set the mouse to 1:1, no acceleration. As an alternative you may also use the Single Mouse Mode.

MAC OS X
We recommend using the Single Mouse Mode.

3.4.7 Video Modes

The IKVM-1000 recognizes a limited number of common video modes. When running X11 on the host system, please do not use any custom mode lines with special video modes. If you do, the IKVM-1000 may not be able to detect them. We recommend using any of the standard VESA video modes, instead.

Chapter 4

Remote Usage

4

4.1 Prerequisite

The IKVM-1000 features an embedded operating system and applications offering a variety of standardized interfaces. This chapter will describe both these interfaces, and the way to use them in a more detailed manner. The interfaces are accessed using the TCP/IP protocol family, thus they can be accessed using the built-in Ethernet port.

The following interfaces are supported:

HTTP/HTTPS

The IKVM-1000 can be entirely managed using a standard web browser. You can access the IKVM-1000 using the insecure HTTP protocol, or using the encrypted HTTPS protocol. Whenever possible, use HTTPS.

Telnet

A standard Telnet client can be used to access an arbitrary device connected to the IKVM-1000's serial port via a terminal mode.

The primary interface of the IKVM-1000 is the HTTP interface. This is covered extensively in this chapter. Other interfaces are addressed in 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. If the browser has no Java support (such as on a small handheld device), you are still able to maintain your remote host system using the administration forms displayed by the browser itself.

Important: We recommend installing a Sun JVM 1.4.

For an insecure connection to the IKVM-1000, we can recommend the following browsers:

- Microsoft Internet Explorer version 6.0 or higher on Windows 98, Windows ME, Windows 2000 and Windows XP

- Netscape Navigator 7.0 or Mozilla 1.6 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 a key length of 128 Bit. Some of the old browsers do not have a strong 128 Bit encryption algorithm.

Using the Internet Explorer, open the menu entry "?" and "Info" to read about the key length that is currently activated. The dialog box contains a link that leads you to information on how to upgrade your browser to a state of the art encryption scheme. The picture below shows the dialog box presented by the Internet Explorer 6.0.

Newer web browsers do support strong encryption on default.

4.2 Login and Logout

4.2.1 Login

Note: Your web browser has to accept cookies, or else login is not possible.

Launch your web browser. Direct it to the address of your IKVM-1000, which you configured during the initial configuration. The address used might be a plain IP address or a host and domain name, in the case where you have given your IKVM-1000 a symbolic name in the DNS. For instance, type the following in the address line of your browser when establishing an unsecured connection:

<div align="center">http://<IP address of IP-KVM></div>

When using a secure connection, type in:

<div align="center">https://<IP address of IP-KVM></div>

This will lead you to the IP-KVM switch login page.

The IKVM-1000 has a built-in super user that has all permissions to administrate the device:

Login name	super (factory default)

Password	pass (factory default)

Warning: Please make sure to change the super user password immediately after you have installed and accessed your IKVM-1000 for the first time. Not changing the pass phrase for the super user is a severe security risk and might result in unauthorized access to the IKVM-1000 and to the host system including all possible consequences!

Having logged into the IKVM-1000 successfully, the main page of the IKVM-1000 appears.

This page consists of three parts; each of them contains specific information. The buttons on the upper side allow you to navigate within the front end.

Return to the main page of the IKVM-1000 .

Open the IKVM-1000 remote console.

Exit from the IKVM-1000 front end.

The lower left frame contains a navigation bar and allows you to switch between the different sections of the IKVM-1000. Within the right frame, task-specific information is displayed that depends on the section you have chosen before.

Warning: If there is no activity for half an hour, the IKVM-1000 will log you out, automatically. A click on one of the links will bring you back to the login screen.

4.2.2 Logout

This button 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.

4.3 The Remote Console

Clicking on the icon opens an additional Remote Console window. The Remote Console window is a Java Applet that tries to establish its own TCP connection to the IKVM-1000. The protocol that is run over this connection is neither HTTP or HTTPS, but RFB (Remote Frame Buffer Protocol). Currently, RFB tries to establish a connection to port number 443. Your local network environment has to 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 have to be configured accordingly.

In case the IKVM-1000 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.

Once the Remote Console is connected, it displays the screen content of your host system. 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 network which you use to connect to the IKVM-1000.

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. If you use a German administration system, and your host system uses a US English keyboard layout, for instance, special keys on the German keyboard will not work as expected. Instead, the keys will result in their US English counterpart. You can circumvent such problems by adjusting the keyboard of your remote system to the same mapping as your local one.

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.

4.3.1 Remote Console Control Bar

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. A description for each control follows.
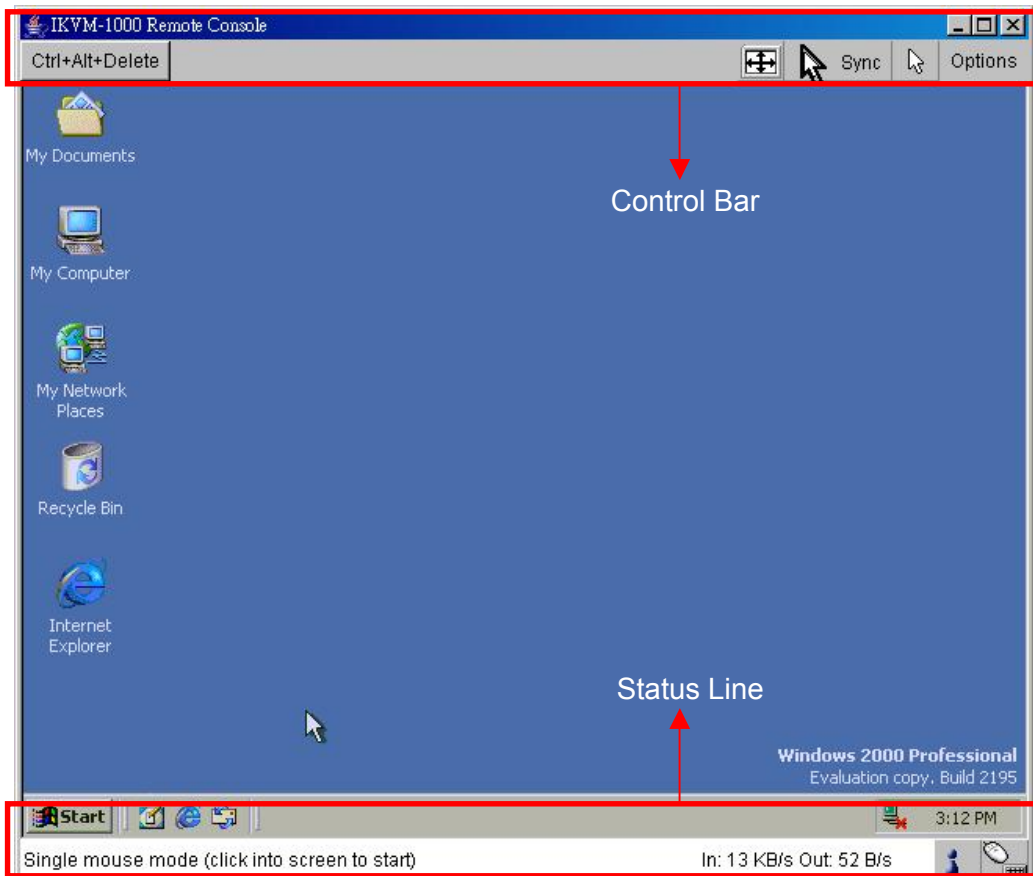
Ctrl+Alt+Delete

Special button to send the "Control+Alt+Delete" key combination to the remote system.

Auto Adjust Button

If the video display is of bad quality or distorted in some way, press this button and wait a few seconds while the IKVM-1000 tries to adjust itself for the best possible video quality.

Sync Mouse Synchronize Button

Pressing this button to activate the mouse synchronization process. 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.

 Single/Double Mouse Mode
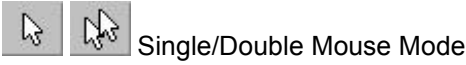
Switches between the Single Mouse Mode (where only the remote mouse pointer is visible) and the Double Mouse Mode (where remote and local mouse pointers are visible and need to be synchronized). Single mouse mode is only available if using SUN JVM 1.3 or higher.
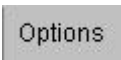
Click on this button, an Options menu will appear:
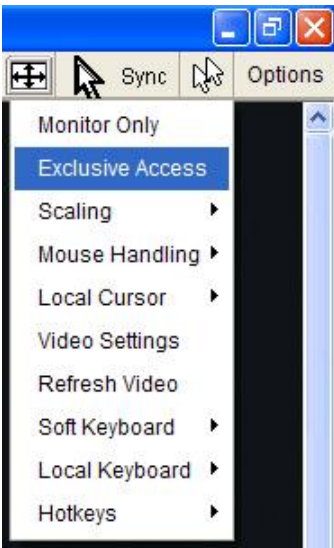
A short description of the options follows.

- **Monitor Only**

    Toggles the Monitor only filter on or off. If the filter is switched on, no remote console interaction is possible, and monitoring is possible.

- **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.

A change in the access mode is also visible in the status line.

- **Scaling**

  Allow you to scale down the Remote Console. You can still use both mouse and keyboard, however the scaling algorithm will not preserve all display details.
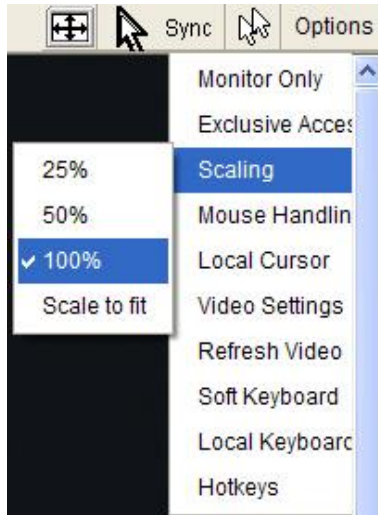
- **Mouse Handling**

  The submenu for mouse handling offers two options for synchronizing the local and the remote mouse pointer.

 Fast Sync--The fast synchronization is used to correct a temporary, but fixed skew.

  Intelligent Sync--Use this option if the fast sync does not work or the mouse settings have been changed on the host system.

  This method takes more time than the fast one and requires a correctly adjusted picture. Use the auto adjustment function or the manual correction in the Video Settings panel to setup the picture.

- **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 the next time this user opens the Remote Console. The number of available

shapes depends on the Java Virtual Machine; a version of 1.2 or higher offers the full list.
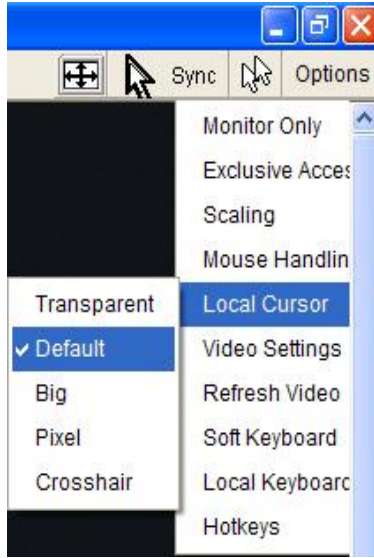
- **Video Settings**

    Opens a panel for changing the IKVM-1000 video settings.
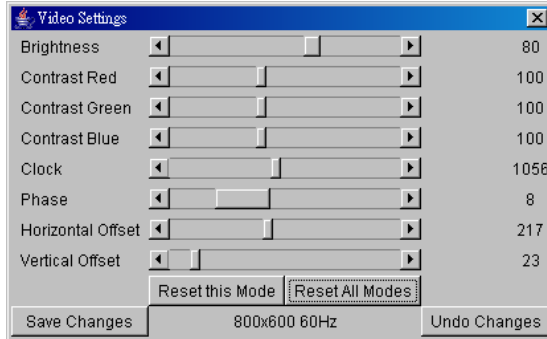
    Brightness--Controls the brightness of the picture.

    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 conjuction 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--Reset mode specific settings to the factory-made defaults.

Reset all Modes--Reset all settings to the factory-made defaults.

Save Changes--Save changes permanently.

Undo Changes--Restore last settings.

- **Soft Keyboard**

Opens up the Menu for the 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.

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

- **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 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 to the right language, manually.

- **Hotkeys**

Opens a list of hotkeys defined previously. Choose one entry, the command will be sent to the host system.

A confirmation dialog can be added that will be displayed before sending the selected command to the remote host. Select "OK" to perform the command on the remote host.

4.3.2 Remote Console Status Line

The Remote Console Status Bar shows both console and the connection state. The size of the remote screen is displayed. The value in brackets describes the connection to the Remote Console. "Norm" means a standard connection without encryption, "SSL" indicates a secure connection. Furthermore, both the incoming ("In:") and the outgoing ("Out:") network traffic are visible (in B/s). If compressed encoding is enabled, a value in brackets displays the compressed transfer rate.

Chapter 5

Advanced Configuration

This chapter describes all options on the web interface of IKVM-1000.

5.1 Remote Control

5.1.1 KVM Console

Clicking on this option opens an additional Remote Console window. The Remote Console window is a Java Applet that tries to establish its own TCP connection to the IKVM-1000. Please refer to section 4.3 for details of Remote Console window.

5.1.2 Telnet Console

Before using the Telnet Console, please make sure the related configurations of IKVM-1000 are completed first.

The IKVM-1000 features a Telnet server that enables a user to connect via a standard Telnet client. In case the Telnet program is using a VT 100, VT 102 or VT 220 terminal or an according emulation, it is even possible to perform a console redirection as long as the IKVM-1000 host machine is using a text mode screen resolution.

Connecting to the IKVM-1000 is done as usual and as required by the Telnet client, for instance in a UNIX shell:

<div align="center">telnet 192.168.1.1</div>

Replace the IP address by the one that is actually assigned to the IKVM-1000. 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 into the IKVM-1000, a command line will be presented and 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 of IKVM-1000. In terminal mode, the pass-through access to serial port is activated (if the serial settings were made accordingly). All inputs are redirected to the device on serial port and its answers are displayed on the Telnet interface.

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

help

Displays the list of possible commands

cls

Clears the screen

quit

Exits the current session and disconnects from the client

version

Displays the release information

terminal

Starts the terminal passthrough mode for serial port. The key sequence "Esc" exit switches back to the command mode.

5.2 Virtual Media

5.2.1 Floppy Disk

Upload a Floppy Image

Within two simple steps working on the basis of a certain (floppy) image can be achieved.

•   First, the path of the image has to be specified. You can do that either by hand, or by using the file selection dialog of your web browser. To open the file selection dialog, click on the button "Browse" and select the desired image file.

The maximum image size is limited to 1.44MB. To use a larger image, mount this image via CD-ROM Image option.

•   Second, click on the button "Upload" to initiate the transfer of the chosen image file into the IKVM-1000's onboard memory. This image file is kept in the

onboard memory of the IKVM-1000 until the end of the current session, until you logged out, or initiated a reboot of the IKVM-1000.

Create a Floppy Image

UNIX and UNIX-like OS

To create an image file, make use of "dd". This is one of the original UNIX utilities and is included in every UNIX-like OS (UNIX, Sun Solaris, Linux).

To create a floppy image file, copy the contents of a floppy to a file. You can use the following command:

 dd [*if=/dev/fd0*] [*of=/tmp/floppy.image*]

dd reads the entire disc from the device /dev/fd0 , and saves the output in the specified output file /tmp/floppy.image. Adjust both parameters exactly to your needs (input device etc.)

MS Windows

You can use the tool "RawWrite for Windows" (it is downloadable in http://uranus.it.swin.edu.au/~jn/linux/).
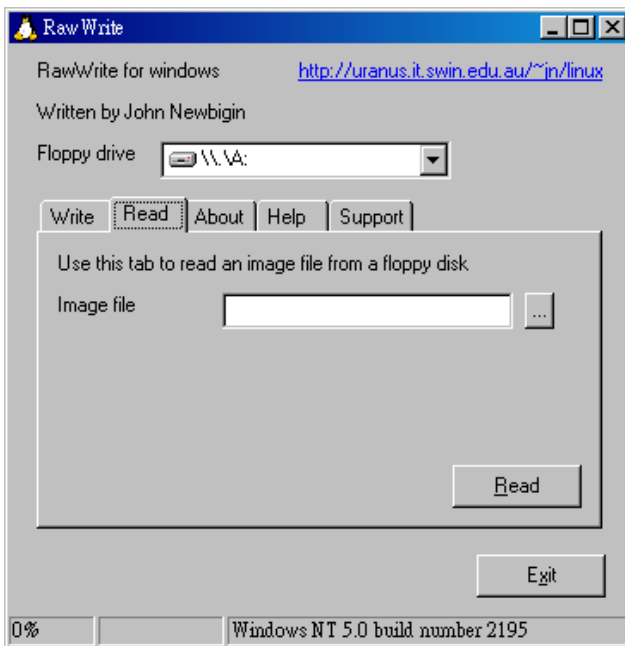
From the menu, select the tab "Read". Enter (or choose) the name of the file in which you would like to save the floppy content. Click on the button "Copy" to initiate the image creation process.

5.2.2 CD-ROM Image

```
┌─Active Image──────────────────────┐
│         No disk emulation set.     │
└────────────────────────────────────┘


┌─Image on Windows Share────────────┐
│       Share host [              ]  │
│      Share name  [              ]  │
│    Path to image [              ]  │
│    User (optional) [            ]  │
│ Password (optional) [           ]  │
│            ( Set )                 │
└────────────────────────────────────┘
```

Use Image on Windows Share (SAMBA)

To include an image from a Windows share, select "CD-ROM Image" from the submenu.

The following information has to be given to mount the image properly:

Share host: the server name, or its IP address.

Share name: the name of the share to be used.

Path to image: the path of the image file on the share.

User (optional): if necessary, specify the user name for the share named before. If unspecified, and a guest account is activated, this guest account information will be used as your login.

Password (optional): if necessary, specify the password for the given user name.

To register the specified file image and its location click on the button "Set".

Configure Share Host

The specified image file is supposed to be accessible from the IKVM-1000. The information above has to be given from the point of view of the IKVM-1000. It is important to specify correct IP addresses, and device names. Otherwise, IKVM-1000 may not be able to access the referenced image file.

Furthermore, the specified share has to be configured correctly. Therefore, administrative permissions are required. As a regular user you may not have these permissions. You should either login as a system administrator (or as " root " on UNIX systems), or ask your system administrator for help to complete this task.

Windows 2000/XP

Open the Explorer, navigate to the directory (or share), and press the right mouse button to open the context menu.

Select "Sharing" to open the configuration dialog.
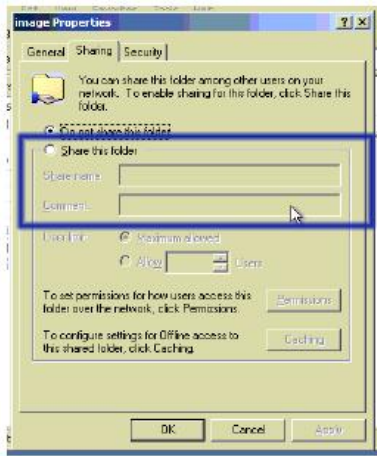
Adjust the settings for the selected directory.

• Activate the selected directory as a share. Select "Sharing this folder".

• Choose an appropriate name for the share. You may also add a short description for this folder (input field "Comment").

• If necessary, adjust the permissions (button "permissions").

• Click " OK " to set the options for this share.

UNIX and UNIX-like OS (UNIX, Solaris, Linux)

If you like to access the share via SAMBA, SAMBA has to be set up properly. You may either edit the SAMBA configuration file /etc/samba/smb.conf, or use the Samba Web Administration Tool (SWAT) or WebMin to set the correct parameters.

Create a CD-ROM Image

UNIX and UNIX-like OS

To create an image file, make use of "dd". This is one of the original UNIX utilities and is included in every UNIX-like OS (UNIX, Sun Solaris, Linux).

To create a CDROM image file, copy the contents of the CDROM to a file. You can use the following command:

 dd [if=/dev/cdrom] [of=/tmp/cdrom.image]

dd reads the entire disc from the device /dev/cdrom, and saves the output in the specified output file /tmp/cdrom.image. Adjust both parameters exactly to your needs (input device etc.).

MS Windows

To create the image file, use your favorite CD imaging tool. Copy the whole contents of the disc into one single image file on your hard disk.

For example, with "Nero" you choose "Copy and Backup". Then, navigate to the "Copy Disc " section. Select the CD-ROM or DVD drive you would like to create an image from. Specify the filename of the image, and save the CD-ROM content in that file.

5.2.3 Drive Redirection
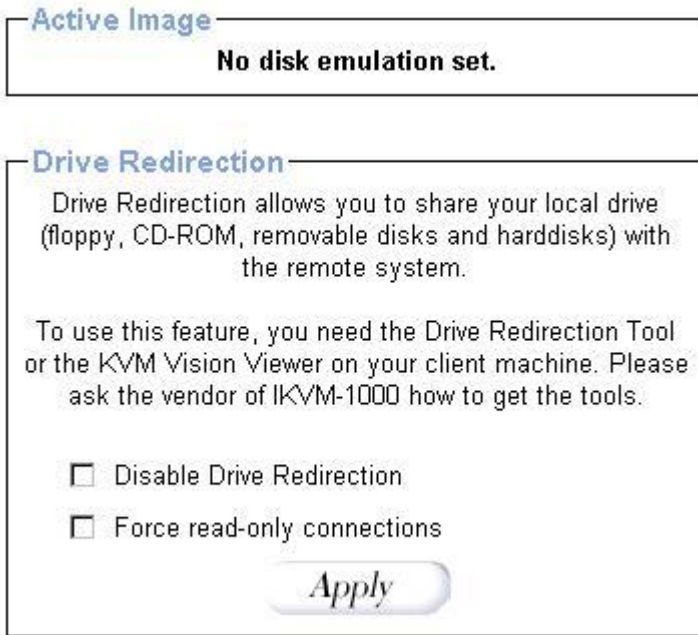
To use this feature, you need to install KVM Vision Viewer on the client machine. The KVM Vision Viewer can be found in the bundled CD-ROM. Please follow the KVM Vision Viewer Setup Wizard step by step to install the software.

Warning:

1. Drive Redirection is only possible with Windows 2000 and the latter version.

2. The Drive Redirection works on a low SCSI level and the SCSI protocol cannot recognize partitions; therefore the whole drive selected will be shared instead of any particular partition.

3. While connecting to a legacy KVM switch, please select PS/2 mouse for **Keyboard/Mouse setting** from webpage. Otherwise you will be not be able to use Hot-key.

  Create a New Device in KVM Vision Viewer

   1. Start KVM Vision Viewer

   2. Click on "Device" and select "New Device" to create a new device

3. Fill in the information:

Device Name: Enter a name to your device.

Network Address: Enter an IP address the IKVM-1000 uses.

Authentication Port: This is a fixed number "443".

Username: The factory default Username is "super"

Password: The factory default Password is "pass".

Connection Mode: With this option, you can specify whether the connection mode is "LAN", "DSL", "UMTS", "ISDN 128k' or "ISDN/Modem V9.0".
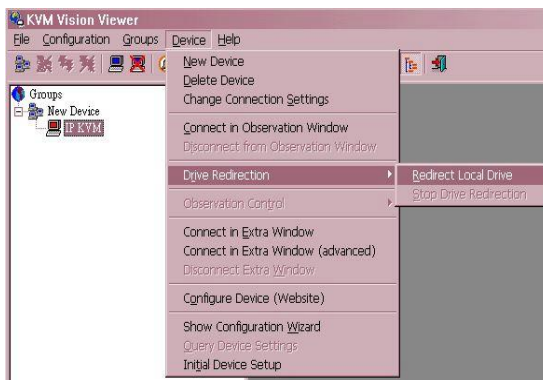

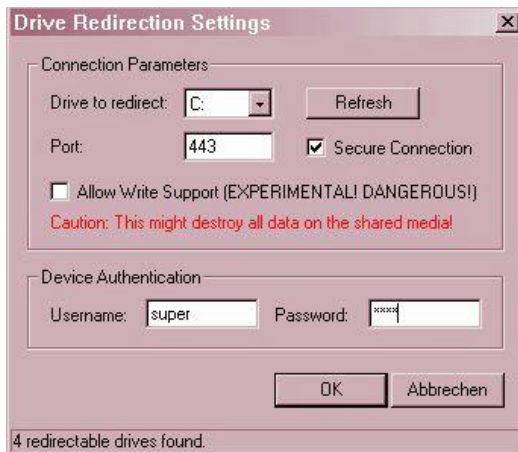4. Click Ok, the new device will be added as below,

Drive Redirection Settings

1. Move the cursor to the new device that has been created.

2. Click on "Device" then select "Drive Redirection" and "Redirect local drive".

3. In the "Drive to redirect" option, select the local drive you want to share with the remote computer, which could be Floppy disc, CD-ROMs, USB-Sticks and hard drives. The "Port" is fixed to 443. Then enter the correct username and password in the "Device Authentication" field. The factory default Username is "super" and the default Password is "pass".

   Warning: if "Allow Write Support" is selected, all data on the shred media might be destroyed.

4. Click Ok, the new device icon will be changed as below,

5.2.4 Options

Set this option to disable the mass storage emulation (and hide the virtual drive) if no image file is currently loaded. If unset, and no file image will be found, it may happen that the host system will hang on boot due to changes in the boot order, or the boot manager (LILO, GRUB). This case was reported for some Windows versions (2000, XP), other OS might not be fully excluded. This behavior depends on the BIOS version used in that machine.

To set this option, press the button "Apply".
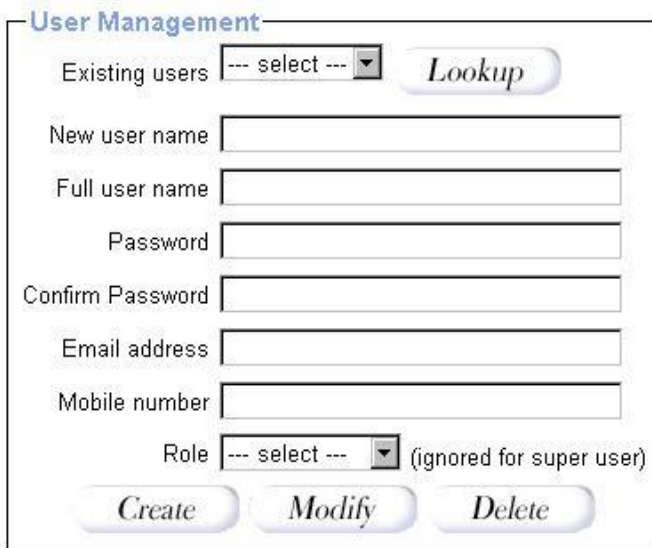
5.3 User Management

5.3.1 Change Password

To change your password, enter the new password in the upper entry field. Retype the password in the filed below. Click "Apply" to submit your changes.

5.3.2 Users

The IKVM-1000 comes with a pre-configured user account "super" which has all possible rights to configure the device and to use all functions IKVM-1000 offers.

Create a new user

Just fill in all data in corresponding fields, select appropriate "Role" setting for the user. There are two Role options: Administrator and User. Administrator will be granted limited privileges on managing IKVM-1000. User will have less management privileges than Administrator. After all necessary configurations are done, click on "Create" button to add a new user.

Modify an existing user

Select a user from "Existing users" list, then click "Lookup" button. The information of this user will show on corresponding fields. After finishing the modification, click "Modify" button and the changes will be updated immediately.

Delete an existing user

Select a user from "Existing users" list, then click "Delete" button. The specified user will be removed from the list immediately.

5.4 KVM Settings

5.4.1 User Console

The following settings are user specific. That means, the super user can customize these settings for every users separately. Changing the settings for one user does not affect the settings for the other users.

User select box

This selection box displays the user ID for which the values are shown and for which the changes will take effect. You may change the settings of other users if you have the necessary access rights.

Transmission Encoding

The Transmission Encoding setting allows changing the image-encoding algorithm that is used to transmit the video data to the Remote Console window. It is possible to optimize the speed of the remote screen depending on the number of users working at the same time and the bandwidth of the connection line (Modem, ISDN, DSL, LAN, etc.).

Automatic detection

The encoding and the compression level is determined automatically from the available bandwidth and the current content of the video image.

Pre-configured

> The pre-configured settings deliver the best result because of optimized adjustment of compression and colour depth for the indicated network speed.

Manually

> Allows to adjust both compression rate and the colour depth individually. Depending on the selected compression rate the data stream between the IKVM-1000 and the Remote Console will be compressed in order to save bandwidth. Since high compression rates are very time consuming, they should not be used while several users are accessing the IKVM-1000 simultaneously.
>
> The standard color depth is 16 Bit (65536 colors). The other color depths are intended for slower network connections in order to allow a faster transmission of data. Therefore compression level 0 (no compression) uses only 16 Bit color depth. At lower bandwidths only 4 Bit (16 colors) and 2 Bit (4 gray scales) are recommended for typical desktop interfaces. Photo-like pictures have best results with 4 Bit (16 gray scales). 1 Bit color depth (black/white) should only be used for extremely slow network connections.

```
┌─ Remote Console Type ──────────────────────┐
│  ⦿ Default Java VM                          │
│                                             │
│  ○ Sun Microsystems Java Browser Plugin     │
│                                             │
│     If you do not 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.           │
└─────────────────────────────────────────────┘

┌─ Miscellaneous Remote Console Settings ─────┐
│        ☐ Start in Monitor Mode              │
│        ☐ Start in Exclusive Access Mode     │
└─────────────────────────────────────────────┘
```

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.

Sun Microsystems Java Browser Plugin

Instructs the web browser of your administration system to use the JVM 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.

Miscellaneous Remote Console Settings

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.

Start in Exclusive Access Mode

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.

Mouse hotkey

> Allows to specify a hotkey combination which starts either the mouse synchronization process if pressed in the Remote Console, or is used to leave the single mouse mode.

Remote Console Button Keys

> Button Keys allow 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 to the remote host.
>
> "keycode" is the key to be sent. Multiple key codes can be concatenated with a plus, or a minus sign. The plus sign builds key combinations, all keys will be pressed until a minus sign or the end of the combination is encountered. In this case all pressed keys will be

released in reversed sequence. So the minus sign builds single, separate keypresses and -releases. The star inserts a pause with duration of 100 milliseconds.

5.4.2 Keyboard/Mouse

Host Interface

Enables a certain interface the mouse is connected to. You can choose between "Auto" for automatic detection, "USB" for an USB mouse, and "PS/2" for a PS/2 mouse.

Warning: to use the USB and/or PS/2 interface, you need a correct cabling between the managed host and the managing device. If the managed host has no USB keyboard support in the BIOS and you have connected the USB cable only then you will have no remote keyboard access during the boot process of the host. If USB and PS/2 are both connected and you selected " Auto " as host interface, then the card will select " USB " if available or otherwise falls back to " PS/2 ".

To get USB remote keyboard access during the boot process of the host, the following conditions must be fulfilled:

•   The host bios must have USB keyboard support

- The USB cable must be connected or must be selected in the Host interface option

PS/2 Keyboard Model

Enables a certain keyboard layout. You can choose between "Generic 101-Key PC" for a standard keyboard layout, "Generic 104-Key PC" for a standard keyboard layout extendend by three additional windows keys, "Generic 106-Key PC" for a japanese keyboard, and "Apple Macintosh" for the Apple Macintosh.

USB Mouse Type

Enables USB mouse type. Choose between "MS Windows 2000 or newer" for MS Windows 2000 or Windows XP, or "Other Operating Systems" for MS Windows NT, Linux, or OS X. In "MS Windows 2000 or newer" mode the remote mouse is always synchronized with the local mouse.

Mouse Speed

- Auto mouse speed

    Use this option if the mouse settings on host use an additional acceleration setting. The IKVM-1000 tries to detect the acceleration and speed of the mouse during the mouse sync process.

- Fixed mouse speed

    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 is moved when the local mouse pointer is moved by one pixel. This option only works when the mouse settings on the host are linear. This means that there is no mouse acceleration involved.

    To set the options, click on the button "Apply".

5.4.3 Video

- **Noise filter**

  This option defines how the IKVM-1000 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 the 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.

- **Force Composite Sync (Required for Sun Computers)**

  To support signal transmission from a Sun machine, enable this option. If not enabled the picture of the remote console will not be visible.

  To set the options, click on the button "Apply".

5.5 Device Settings

5.5.1 Network

The Network Settings panel allows changing network related parameters. Each parameter will be explained below. Once applied the new network settings will immediately come into effect.

Warning: the initial IP configuration is usually done directly at the host system using the initial configuration procedure. Changing the network settings of the IKVM-1000 might result in losing connection to it. In case you change the settings remotely, make sure that all the values are correct and you still have an option to access the IKVM-1000.

IP auto configuration

> With this option you can control if the IKVM-1000 should fetch its network settings from a DHCP or BOOTP server. For DHCP, select "dhcp" , and for BOOTP select "bootp" accordingly. If you choose "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 IKVM-1000 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 the IKVM-1000 will not be able to perform name resolution.

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 cannot be contacted.

Remote Console And HTTPS port

Port number at which the IKVM-1000's Remote Console server and HTTPS server are listening. If left empty the default value will be used.

HTTP port

Port number at which the IKVM-1000's HTTP server is listening. If left empty the default value will be used.

Telnet port

Port number at which the IKVM-1000's Telnet server is listening. If left empty the default value will be used.

Bandwidth limitation

The maximum network traffic generated through the IKVM-1000 ethernet device. Value in Kbit/s.

Enable Telnet access

Set this option to allow accessing the IKVM-1000 using the Telnet protocol.

Disable Setup Protocol

Enable this option to exclude the IKVM-1000 from the setup protocol.

5.5.2 Dynamic DNS

A freely available Dynamic DNS service (dyndns.org) can be used in the following scenario.
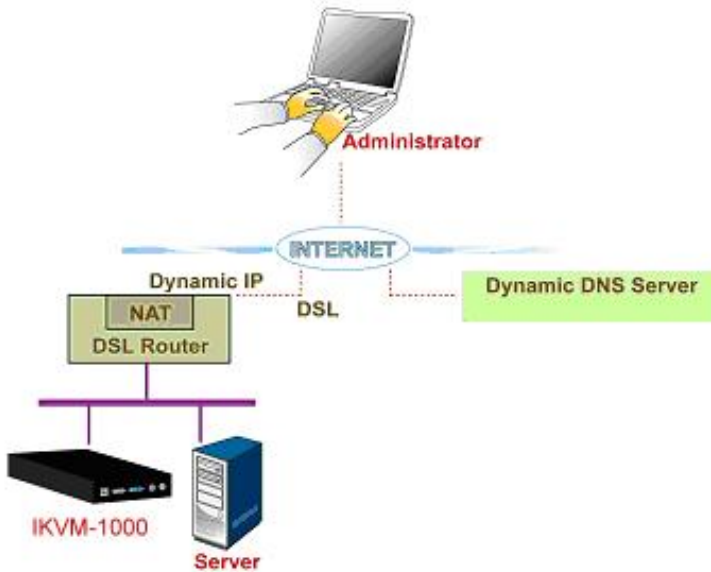
The IKVM-1000 is reachable via the IP address of the DSL router, which is dynamically assigned by the provider. Since the administrator does not know the IP address assigned by the provider, the IKVM-1000 connects to a special dynamic DNS server in regular intervals and registers its IP address there. The administrator may contact this server as well and pick up the same IP address belonging to his card.

The administrator has to register an IKVM-1000 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 IKVM-1000.

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

• Make sure that the LAN interface of the IKVM-1000 is properly configured.

• Enable Dynamic DNS and change the settings according to your needs.

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 IKVM-1000 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 the IKVM-1000 that is 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.

Check time

>   The IKVM-1000 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 the IKVM-1000.

Warning: the IKVM-1000 has its own independent real time clock. Make sure the time setting of the IKVM-1000 is correct.

5.5.3 Security

Force HTTPS

If this option is enabled, access to the web front-end is only possible using an HTTPS connection. The IKVM-1000 will not listen on the HTTP port for incoming connections.

In case you want to create your own SSL certificate that is used to identify the IKVM-1000, refer to next Certificate section.

KVM encryption

This option controls the encryption of the RFB protocol. RFB is used by the Remote Console to transmit both 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.

5.5.4 Certificate

The IKVM-1000 uses the Secure Socket Layer (SSL) protocol for any encrypted network traffic between itself and a connected client. During the connection establishment the IKVM-1000 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 IKVM-1000 ever produced and certainly will not match the network configuration that will be applied to the IKVM-1000 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 IKVM-1000. In order to do that, the IKVM-1000 is able to generate a new cryptographic key and the associated Certificate Signing Request (CSR) that needs to be certified by a certification authority (CA). A certification authority verifies that you are the person who you claim you are, and signs and issues a SSL certificate to you.

The following steps are necessary to create and install a SSL certificate for the IKVM-1000:

• Create a SSL Certificate Signing Request using the panel shown in Certificate page. You need to fill out a number of fields that are explained below. Once this is done, click on the button " Create " which will initiate the Certificate Signing

Request generation. The CSR can be downloaded to your administration machine with the "Download CSR" button.

• 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).

• Upload the certificate to the IKVM-1000 using the " Upload " button.

After completing these three steps, the IKVM-1000 has its own certificate that is used for identifying the card to its clients.

Warning: if you destroy the CSR on the IKVM-1000, there is no way to get it back! In case you deleted it by mistake, you have to repeat the three steps as described above.

Common name

> This is the network name of the IKVM-1000 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 IKVM-1000 with a web browser (without the "http://" prefix). In case the name given here and the actual network name differ, the browser will pop up a security warning when the IKVM-1000 is accessed using HTTPS.

Organizational unit

This field is used for specifying to which department within an organization the IKVM-1000 belongs.

Organization

The name of the organization to which the IKVM-1000 belongs.

Locality/City

The city where the organization is located.

State/Province

The state or province where the organization is located.

Country (ISO code)

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 contact person that is responsible for the IKVM-1000 and its security.

Key length

This is the length of the generated key in bits. 1024 Bits are supposed to be sufficient for most cases. Longer keys may result in slower response time of the IKVM-1000 during connection establishment.

5.5.5 Serial Port

┌─ **Serial Port 1 Settings** ─────────────────────────────────┐

○ **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 1 via Telnet**

Speed	Data bits	Parity	Stop Bits	Handshake
`38400 ▼`	`8 ▼`	`none ▼`	`1 ▼`	`None ▼`

└──┘

Apply

The IKVM-1000 Serial Settings allows you to specify what device is connected to the serial port and how to use it.

Configuration or console login

Use the Serial Port only for the initial configuration.

Modem

The IKVM-1000 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 the IKVM-1000 .

Logically, connecting to the IKVM-1000 using a telephone line means nothing else than building up a dedicated point-to-point connection from your console computer to the IKVM-1000. In other words, the IKVM-1000 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 the IKVM-1000, 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 the IKVM-1000 using a modem. The meaning of each parameter will be described below. The modem settings are part of the serial settings panel.

Serial line speed

The speed the IKVM-1000 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 the IKVM-1000 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 IKVM-1000 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 the IKVM-1000 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 the IKVM-1000 and your console computer. The default value will work in most cases.

Passthrough access to serial port via Telnet

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, or a standard Telnet client to connect to the IKVM-1000 .

5.5.6 Date/Time

This link refers to a page, where the internal real-time clock of the IKVM-1000 can be set up. You have the possibility to adjust the clock manually, or to use a NTP timeserver. Without a timeserver, your time setting will not be persistent, so you have to adjust it again, after IKVM-1000 loses power for more than a few minutes. To avoid this, you can use a NTP timeserver, which sets up the internal clock automatically to the current UTC time. Because NTP server time is always UTC, there is a setting that allows you to set up a static offset to get your local time.

Warning: there is currently no way to adjust the daylight saving time automatically. So you have to set up the UTC offset twice a year properly to the local rules of your country.

5.5.7 Event Log

Important events like a login failure or a firmware update are logged to a selection
of logging destinations. Each of those events belongs to an event group, which can
be activated separately.

The common way to log events is to use the internal log list of the IKVM-1000. To show the log list, click on "Event Log" on the "Maintenance" page. In the Event Log Settings you can choose how many log entries are shown on each page. Furthermore, you can clear the log file here.

List logging enabled

The common way to log events is to use the internal log list of the IKVM-1000. To show the log list, click on "Event Log" on the "Maintenance" page.

Since the IKVM-1000's system memory is used to save all the information, the maximum number of possible log list entries is restricted to 1.000 events. Every entry that exceeds this limit overrides the oldest one, automatically.

Warning: if the reset button on the HTML front-end is used to restart the IKVM-1000, all logging information is saved permanently and is available after the IKVM-1000 has been started. If the IKVM-1000 loses power or a hard reset is performed, all logging data will be lost. To avoid this, use one of the following log methods.

NFS Logging enabled

Define a NFS server, where a directory or a static link have to be exported, to write all logging data to a file that is located there. To write logging data from more than one IKVM-1000 devices to only one NFS share, you have to define a file name that is unique for each device. When you change the NFS settings and press the button "Apply" , the NFS share will be mounted immediately. That means, the NFS share and the NFS server must be filled with valid sources or you will get an error message.

SMTP Logging enabled

With this option, the IKVM-1000 is able to send Emails to an address given by the Email address text field in the Event Log Settings. These mails contain the same description strings as the internal log file and the mail subject is filled with the event group of the occurred log event. In order to use this log destination you have to specify a SMTP server, that has to be reachable from the IKVM-

1000 device and that needs no authentication at all (<serverip>:<port>).

SNMP Logging enabled

If this is activated, the IKVM-1000 sends a SNMP trap to a specified destination IP address, every time a log event occurs. If the receiver requires a community string, you can set it in the appropriate text field. Most of the event traps only contain one descriptive string with all information about the log event. Only authentication and host power events have an own trap class that consists of several fields with detailed information about the occurred event. To receive this SNMP traps, any SNMP trap listener may be used.

Warning: in contrast to the internal log file on the IKVM-1000, the size of the NFS log file is not limited. Every log event will be appended to the end of the file so it grows continuously and you may have to delete it or move it away from time to time.

5.6 Maintenance

5.6.1 Device Information

─Device Information─────
Product Name: IKVM-1000
Serial Number: BE2F830908819121
Device IP Address: 210.66.155.65
Device MAC Address: FE:00:00:50:00:11
Firmware Version: 04.00.02
Firmware Build Number: 1363
Firmware Description: Beta Edition
Hardware Revision: 0E

View the datafile for support.

─Connected Users─────
super (211.75.117.114) active

Board Summary

This section contains a summary with various information about this IKVM-1000 and it's current firmware.

The Data file for support allows you to download the IKVM-1000 data file with specific support information. This is an XML file with certain customized support information like the serial number etc. You may send us this information together with a support request. It will help us to locate and solve your reported problem.

The Connected Users field shows the IP address (from which host the user comes from) and activity status of the connected users. RC means that the Remote Console is open. If the Remote Console is opened in exclusive mode, the term (exclusive mode) is added. To display the user activity, the last column contains either the term active for an active user or 20 min idle for an user who is inactive for a certain amount of time.

5.6.2 Even log

This page displays the log list including the events that are logged by the IKVM-1000.

5.6.3 Update Firmware

The IKVM-1000 is a complete standalone computer. The software it runs is called the firmware. The firmware of the IKVM-1000 can be updated remotely in order to install new functionality or special features.

Before you can start updating the firmware of your IKVM-1000, the new uncompressed firmware file has to be accessible on the system that you use for connecting to the IKVM-1000.

Updating the firmware is a three-stage process:

• Firstly, the new firmware file is uploaded onto the IKVM-1000. In order to do that, you need to select the file on your local system using the button "Browse" of the Upload Firmware panel. 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.

• Secondly, if everything went well, you see the Update Firmware panel. The panel shows you the version number of the currently running firmware and the version number of the uploaded firmware. Pressing the button "Update" will store the new version and substitute the old one completely.

  Warning: this process is not reversible and might take some minutes. Make sure the IKVM-1000 's power supply will not be interrupted during the update process, because this may cause a permanent damage.

• Thirdly, after the firmware has been stored, the panel will request you to reset the IKVM-1000 manually. Half a minute after the reset, the IKVM-1000 will run with the new firmware version and should be accessible. However, you are requested to login once again.

  Warning: 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 the IKVM-1000 's power supply will not be interrupted!

5.6.4 Unit Reset
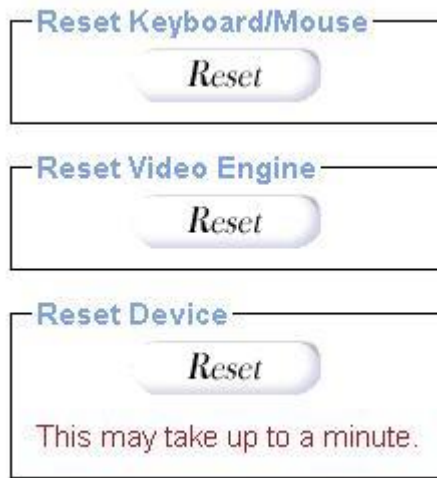
This section allows you to reset specific parts of the device. This involves the both keyboard and mouse, the video engine and the IKVM-1000 itself. Resetting the device itself is mainly needed to activate a newly updated firmware. It will close all current connections to the administration console and 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 does not result in closing connections. To reset a certain IKVM-1000 functionality, click on the button Reset as displayed above.

Note: Only the super user is allowed to reset the IKVM-1000.

Chapter 6
Troubleshooting

<div style="text-align: right">**6**</div>

Q. 1: The remote mouse doesn't work or is not synchronous

A. 1: Make sure the mouse settings in IKVM-1000 match the mouse model. There are some circumstances where the mouse synchronization process could behave incorrectly, refer to Section 3.4.3 for further explanation.

Q. 2: The video quality is bad or the picture is grainy

A. 2: Try to correct the brightness and contrast settings (see section 4.3.1) until they are out of a range where the picture looks grainy. Use the auto adjustment feature to correct a flickering video.

Q. 3: Login on IKVM-1000 fails.

A. 3: Was the correct combination of user and password given? On delivery, the user "super" has the password "pass". Moreover your browser must be configured to accept cookies.

Q. 4: The Remote Console window can't connect to IKVM-1000.

A. 4: Possibly a firewall prevents access to the Remote Console. Make sure the TCP port numbers 443 or 80 are open for incoming TCP connection establishments.

Q. 5: No connection can be established to IKVM-1000.

A. 5: Check whether the network connection is working in general (ping the IP address of IKVM-1000). If not, check network hardware. Is IKVM-1000 powered on? Check whether the IP address of IKVM-1000 and all other IP related settings are correct! Also verify that all the IP infrastructure of your LAN, like routers etc., is correctly configured. Without a ping functioning, IKVM-1000 can't work either.

Q. 6: Special key combinations, e.g. ALT+F2, ALT+F3 are intercepted by the console system and not transmitted to the host.

A. 6: You have to define a so-called 'Button Key'. This can be done in the Remote Console settings.

Q. 7: In the browser the IKVM-1000 pages are inconsistent or chaotic.

A. 7: 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 IKVM-1000 pages may be loaded from your browser cache and not from the card.

Q. 8: Windows XP doesn't awake from standby mode

A. 8: This is possibly a Windows XP problem. Try not to move the mouse while XP goes in standby mode.

Q. 9: Can't upload the signed certificate in MacOS X

A. 9: 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. 10: Every time I open a dialog box with some buttons the mouse pointers are not synchronous anymore

A. 10: 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.
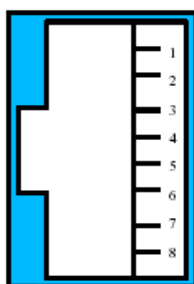
Appendix A
Pin Assignments

A.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		

A.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

A.3 RJ 45 Connector ISDN
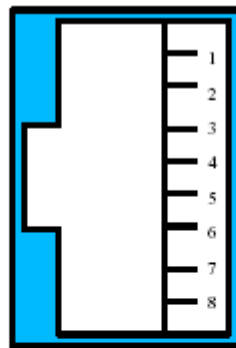
Pin	Assignment	Pin	Assignment
1	Not connected	5	RX -
2	Not connected	6	TX -
3	TX +	7	Not connected
4	RX +	8	Not connected

A.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		

A.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		

Appendix B
Key Codes

Table B.1 shows the key codes used to defines keystrokes 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 B.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 B.1: English (US) Keyboard Layout, used for key codes

Key (and aliases)
0 - 9
A - Z
, TILDE
-, MINUS
=, EQUALS
;
,
<, LESS
,
.
/, SLASH
BACK SPACE
TAB
[
]
ENTER
CAPS LOCK
\, BACK SLASH
LSHIFT, SHIFT

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

Table B.1: Key Names

Appendix C
Video Modes

The table below lists the video modes IKVM-1000 supports. Please don't use other custom video settings besides of these. If done so, IKVM-1000 may not be able to detect them.

Resolution (x, y)	Refresh Rates (Hz)
640 x 350	70, 85
640 x 400	56, 70, 85
640 x 480	60, 67, 72, 75, 85, 90, 100, 120
720 x 400	70, 85
800 x 600	56, 60, 70, 72, 75, 85, 90, 100
832 x 624	75
1024 x 768	60, 70, 72, 75, 85, 90, 100
1152 x 864	75
1152 x 870	75
1152 x 900	66
1280 x 960	60
1280 x 1024	60, 75