Smart 216 / 232 IP

User Guide

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1. Welcome

Thank you for buying the Smart 216 / 232 IP system. This system is produced by Minicom Advanced Systems Limited.

This document provides installation and operation instructions for Minicom's Smart 216 / 232 IP. It is intended for system administrators and network managers, and assumes that readers have a general understanding of networks, hardware and software.

Technical precautions

This equipment generates radio frequency energy and if not installed in accordance with the manufacturer's instructions, may cause radio frequency interference.

This equipment complies with Part 15, Subpart J of the FCC rules for a Class A computing device. This equipment also complies with the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of the Canadian Department of Communications. These above rules are designed to provide reasonable protection against such interference when operating the equipment in a commercial environment. If operation of this equipment in a residential area causes radio frequency interference, the user, and not Minicom Advanced Systems Limited, will be responsible.

Changes or modifications made to this equipment not expressly approved by Minicom Advanced Systems Limited could void the user's authority to operate the equipment.

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Section I

This section explains how to configure and operate the Smart 216 / 232 IP system remotely over IP.

Section II on page 39, explains how to operate the Smart 216 / 232 IP switching system locally through the On Screen Display (OSD).

2. Introduction

All references throughout this guide to the Smart 216 IP refer equally to the Smart 232 IP. The two units are functionally the same. The Smart 216 IP has 16 Server ports and the Smart 232 IP has 32 Server ports.

The Smart 216 IP extends your KVM (keyboard, video, and mouse) from any computer or server over TCP/IP via LAN, WAN or Internet connection. Now 2 remote users can control, monitor and manage up to 16 remote (PS/2, USB) servers simultaneously from wherever they are, inside or outside the organization. Simultaneously 1 local user can also access the servers. Simultaneously 2 more remote users can operate serial devices such as routers or managed network switches. Alternatively, 1 more user can use a PDU.

The Smart 216 IP is a cost-effective hardware solution, for secure remote KVM access & control of 16 (32 for the Smart 232 IP) computers/servers from the BIOS level - independent of the OS.

The Smart 216 IP is based on Minicom's innovative ROC technology in which each computer/server is directly connected to the switch via ROC dongles using only standard CAT5 cable at a distance of up to 30m/100ft in a star configuration. No external power is needed at the remote ROC.

3. Key features

BIOS level control to any server's brand and model, regardless of the server condition and network connectivity, covering the entire spectrum of crash scenarios.

Compatible with all major operating systems. Supports many hardware and software configurations for the remote client and the Target server computers, as well as the KVM switch in use

Web-based control - Browser Control to a Target server, from any location via secured standard IP connection.

Security - Supports the highest security standards for encryption (128 bit SSL and HTTPS) and authentication for remote user and advanced OSD management with multi-layer security for local user.

KVM.net - Can be controlled by the Minicom's KVM.net system for centralized over-IP management of distributed data center locations.

Seamless power control – with Minicom's Serial Remote Power Switch.

4. System components

The system consists of:

- 1 Smart 216 IP (p/n 1SU70036) or 1 Smart 232 IP (p/n 1SU70037)
- Rack mounting set (p/n 5AC20247)
- ROCS - PS/2, USB

5. Compatibility

The Smart 216 IP is compatible with:

- PS/2 and USB computers/servers
- VGA, SVGA, or XGA monitors
- Windows, Linux, UNIX and other major operating systems

6. Terminology

Below are some terms and their meanings used in this guide.

Term	Meaning
Target server	The computers/servers that are accessed remotely via the Smart 216 IP.
Client computer	The PC running a remote Smart 216 IP session
Remote session	The process of remotely accessing and controlling Target servers connected to Smart 216 IP from a user workstation

7. The Smart 216 IP unit

Figure 1 illustrates the front panel of the Smart 216 IP.

Figure 1 Smart 216 IP ports – side 1

7.1 LED and button table

LED	Function
Power	Power Indicator
Link	Unit is connected to the network
Remote 1 & 2	Illuminates when a remote session is active

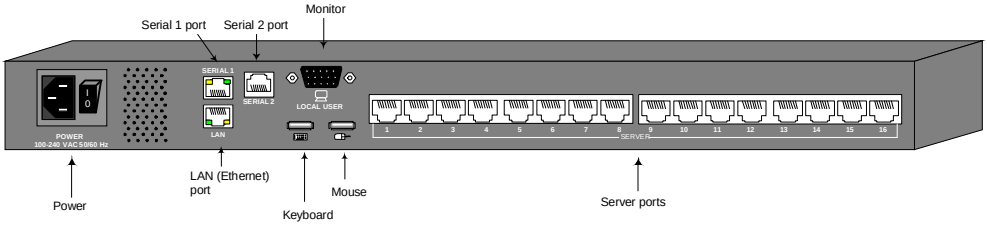


Figure 2 Smart 216 IP ports – side 2

7.2 Connector table

Connector	Function
Console KVM	Connect a keyboard, video and mouse to operate the Smart 216 IP locally
Serial 1	Connect any Serial device. Note! Minicom's Serial Remote Power Switch must be connected to Serial 1
Serial 2	Connect any Serial device.
LAN	Connect to 10/100 Mbit Ethernet. Yellow Led illuminates when connected to LAN. Green LED illuminates when a remote session is in progress
Server ports	Connect to servers via ROCs

8. Pre-installation guidelines

- Place cables away from fluorescent lights, air conditioners, and machines that are likely to generate electrical noise
- Place the Smart 216 IP on a flat, clean and dry surface
- The Smart 216 IP is not intended for connection to exposed outdoor lines
- Ensure that the maximum distance between each computer and the Smart 216 IP, does not exceed 30m/100ft for ROCs.

8.1 Avoiding general rack mounting problems

Elevated operating ambient temperature

The operating ambient temperature of the rack environment may be greater than the room ambient when installing into a closed or multi-unit rack assembly. So install the equipment in an environment compatible with the maximum rated ambient temperature.

Reduced airflow

Install the equipment in a rack in such a way that the amount of airflow required for safe operation is not compromised. Leave a gap of at least 5cm/2” each side of the Smart 216 IP.

Mechanical loading

Mount the equipment in the rack in such a way that a hazardous condition is not achieved due to uneven mechanical loading.

Circuit overloading

When connecting the equipment to the supply circuit, consider the effect that overloading of circuits might have on over-current protection and supply wiring.

Reliable earthing of rack-mounted equipment should be maintained. Give attention to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

8.2 Rack mounting the Smart 216 IP

Rack mount the Smart 216 IP using the supplied Rack-mount kit. The brackets can be placed in 2 possible positions, see Figure 3.

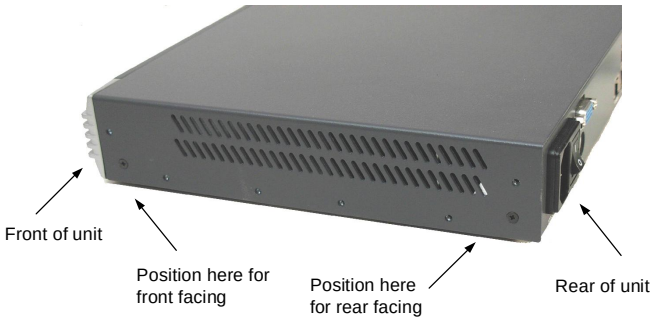


Figure 3 Bracket positions

Place the brackets towards the front of the unit so that the unit can be mounted front facing, or place the brackets towards the rear of the unit so that the unit can be mounted rear facing. Figure 4 illustrates the bracket connected for rear facing. Screw the bracket to the Smart 216 IP using the screws provided.

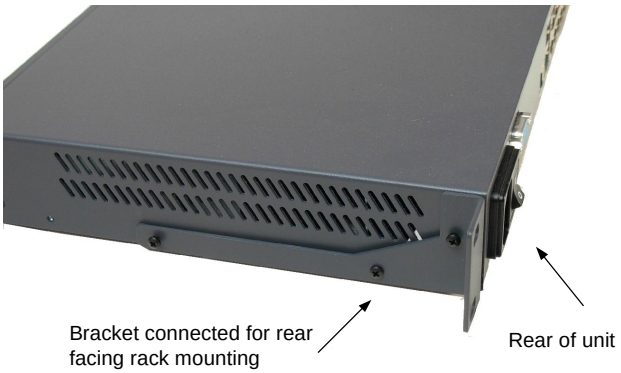


Figure 4 Bracket connected

9. Connecting the system

Figure 5 illustrates the Smart 216 IP system overview.

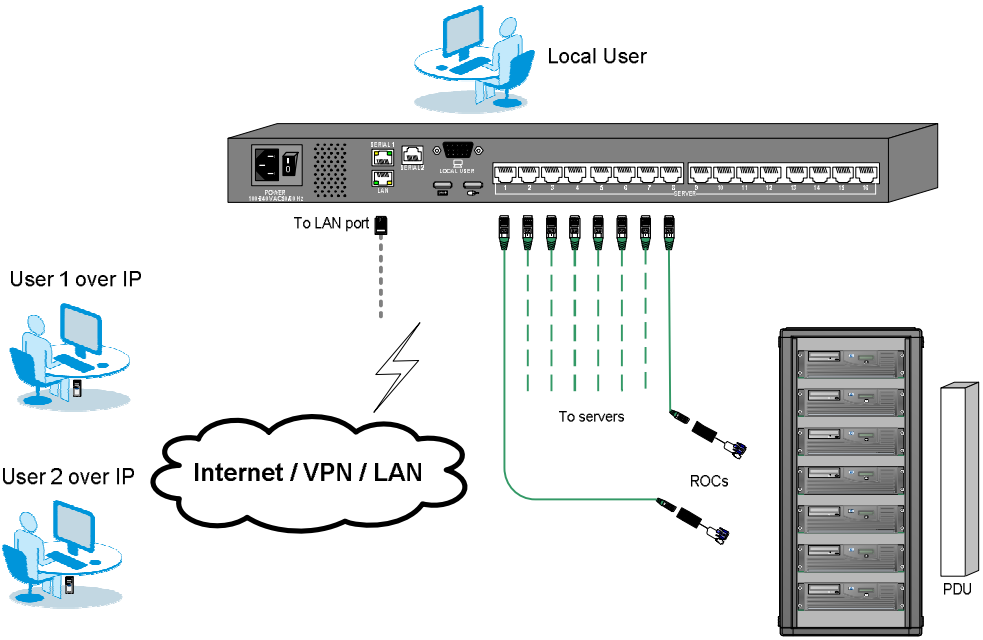


Figure 5 Smart 216 IP system overview

9.1 The ROCs

Each computer/ server is directly connected to the Smart 216 IP via the appropriate RoC using CAT5 cable in a star configuration. No external power is needed at the remote ROCs. The ROCs draw their power from the computer's keyboard port (ROC PS/2) or from the USB port (ROC USB). The figures below illustrate the ROC PS/2 and ROC USB.

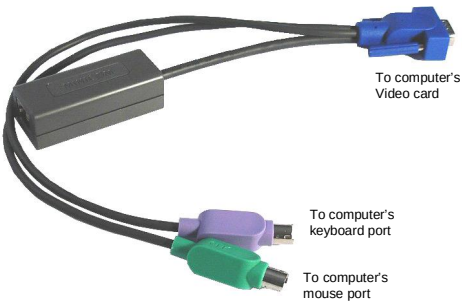


Figure 6 ROC PS/2

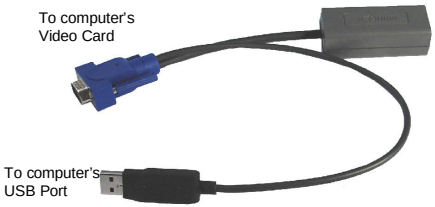


Figure 7 ROC USB

9.1.1 Connecting a ROC PS/2

Figure 8 illustrates the ROC PS/2 connections.

You can connect the ROC PS/2 to a powered on computer, but it must be in the following order:

1. Connect the Mouse connector to the computer's Mouse port.
2. Connect the Keyboard connector to the computer's Keyboard port.
3. Connect the Screen connector to the computer's Video port.

Failure to connect in the above order while the server is running, may lead to the mouse malfunctioning until the server is rebooted.

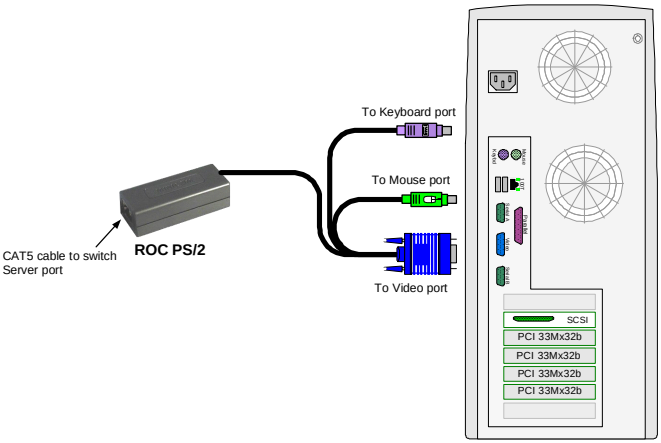


Figure 8 ROC PS/2 connections

9.1.2 Connecting a ROC USB

The ROC USB supports Windows 98 SE and later, MAC, SUN and SGI, and all modern Linux distributions. The connections for ROC USB are exactly the same. Figure 9 illustrates the ROC USB and its connections.

To connect the ROC USB:

1. Connect the Screen connector to the computer's Video port.
2. Connect the USB connector to the computer's USB port.

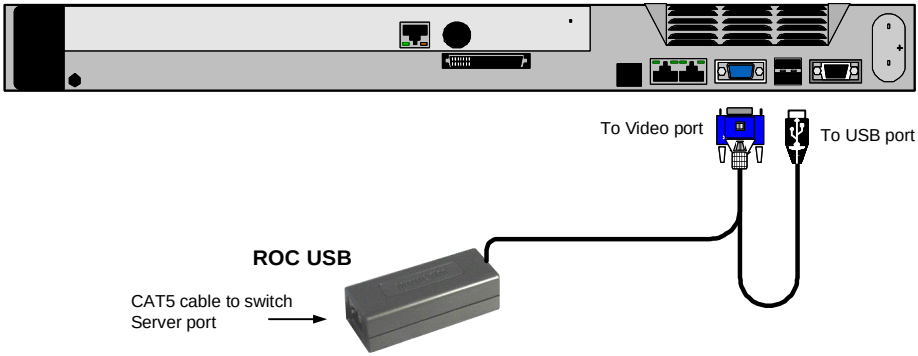


Figure 9 ROC USB

9.2 Connecting to the network

Connect the network cable to the LAN port of the Smart 216 IP. This must be done before powering on the Smart 216 IP.

9.3 Connecting the CAT5 cables

1. Connect one connector to the ROCs RJ45 port.
2. Connect the other connector to one of the Smart 216 IP's Computer ports.
3. Follow the above 2 steps for each computer.

9.4 Connecting a KVM console

To operate the system locally, connect a KVM console to the Smart 216 IP:

1. Connect the monitor's connector to the Smart 216 IP's Monitor port.
2. Connect the keyboard's connector to the Smart 216 IP's Keyboard port.
3. Connect the mouse's connector to the Smart 216 IP's Mouse port.

9.5 Connecting the power supply

1. Using the Power cord provided, connect the Smart 216 IP to a socket outlet with grounding connection. Only use the power cord supplied with the unit.
2. Switch on the Smart 216 IP.

10. Setting the IP address

By default, Smart 216 IP boots with an automatically assigned IP address from a DHCP (Dynamic Host Configuration Protocol) server on the network. The DHCP server provides a valid IP address, gateway address and subnet mask.

You can identify the IP address from the OSD at the local position. Also where there is no DHCP server, set the IP address locally via the OSD as follows:

1. From the local keyboard, press **Shift** twice. The OSD Main window appears. See Figure 10.

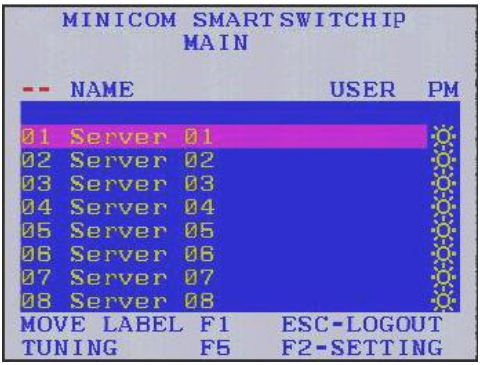


Figure 10 OSD Main window

2. Press **F2**. The Settings window appears see Figure 11.

Figure 11 Settings window

In the Settings window navigate downwards using the Tab key. At the bottom of the window, press tab to go to the top of the window. Change settings by typing in the selected area or by pressing the spacebar – whichever is relevant.

Changing the Network parameters

Enable DHCP – When a DHCP server is active on the same network to which Smart 216 IP is connected, DHCP provides automatic IP assignment.

When DHCP is disabled – (Recommended) – You can assign a fixed IP address to the Smart 216 IP.

Consult your Network Administrator regarding the use of the DHCP.

When DHCP is disabled, enter the **IP Address, Subnet Mask,** and **Gateway** as given by your Network Administrator.

Once the IP address is satisfactory login to the web interface to complete the configuration, as explained in section 11 below.

(Network parameters can also be changed from the remote GUI as explained on page 16).

11. Logging into the web interface

Client computer operating system. Windows 2000 or higher, with Internet Explorer 6.0 or later version. 128 bit encryption support is required.

Windows Vista Note! To login to the web configuration interface with Windows Vista, run Internet Explorer as Administrator. To do this, right-click the Internet Explorer icon on the Taskbar and select Run as administrator. See figure below.

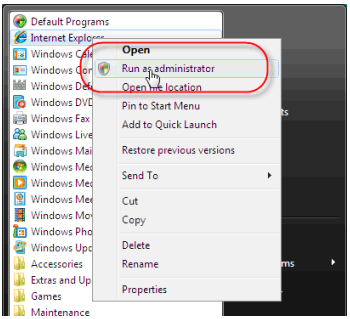


Figure 12 Select Run as administrator

11.1 SSL Certificate notes

When first connecting, 2 browser security warnings appear. Click **Yes** to proceed.

The first warning disappears upon first Smart 216 IP client installation, when Minicom's root certificate is installed.

On first connection install the Minicom certificate and ActiveX control. You must login as an Administrator to your computer to install the ActiveX control. Once the ActiveX control is installed, all types of users can login.

11.2 Logging in

To complete the initial setup via the web configuration interface:

1. Open your web browser (Internet Explorer version 6.0 or higher).
2. Type the Smart 216 IP system IP address – http or https://*IP address*/ - and press **Enter**. The login page appears, see Figure 13.

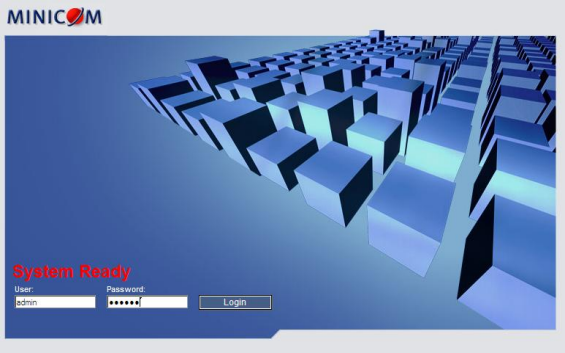


Figure 13 Login page

3. Type the default Administrator user name **- admin -** and password **- access -** (both lower case).
4. Press **Enter**. The web interface opens at the Targets page. See Figure 14.
5. Bookmark the page for easy reference.

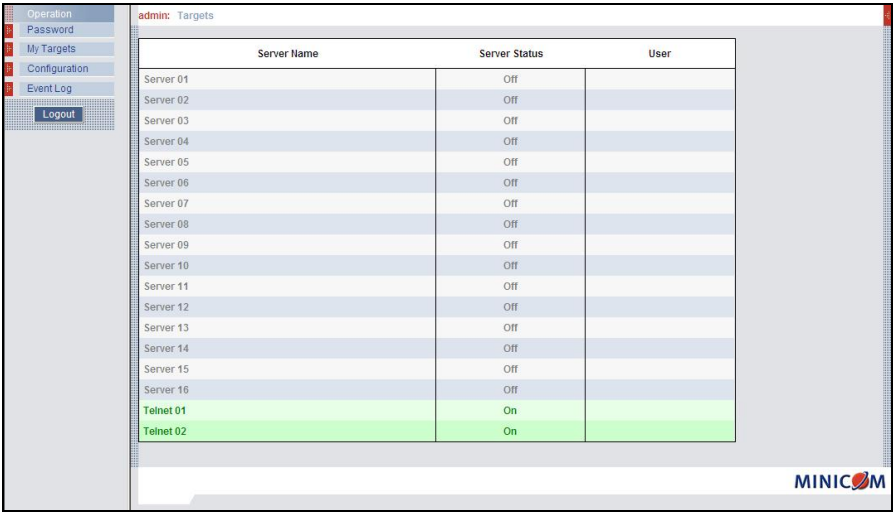


Figure 14 Targets page

By default an Administrator can access all connected Targets, so they all appear on the Targets page.

Columns:

Server name - The server name can be changed in the configuration settings to give the server an identifiable name.

Server Status - Server Status can be on, off or busy (i.e. another user is accessing the server).

User – The current user (if any) accessing the Target.

11.3 Connecting to a Target server

To connect to a Target you click the desired Target in the Server Name Column. The screen of the Target appears side the remote console. Section 26 on page 27 explains how to conduct a remote session. The sections below first explain how to configure the system.

12. Configuring the system

Configure the system includes setting network parameters, user and security settings and maintenance.

From the menu, click Configuration. The Network >Configuration page including the Configuration menu appears, see

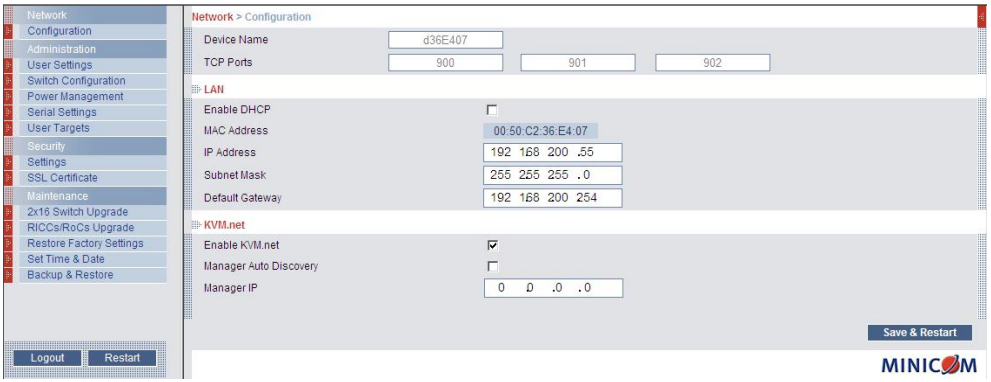


Figure 15 Network >Configuration page

12.1 Network > Configuration

Consult your Network Administrator for the network settings.

Device name - Type a name for the Smart 216 IP.

TCP Ports - Choose any 3 TCP ports from port #800 to 65535. (When managed by KVM.net® II, the port numbers can be changed from KVM.net GUI if needed).

Notes

Firewall or router security access list must enable inbound communication through the selected TCP ports for the Smart 216 IP's IP address.

For Client computer access from a secured LAN, the selected ports should be open for outbound communication.

12.1.1 LAN

In the LAN section – see Figure 15 – is the following:

Enable DHCP – When a DHCP server is active on the same network to which Smart 216 IP is connected, DHCP provides automatic IP assignment.

When DHCP is disabled – (Recommended) – You can assign a fixed IP address to the Smart 216 IP.

Consult your Network Administrator regarding the use of the DHCP.

When DHCP is disabled, enter the **IP Address, Subnet Mask,** and **Default Gateway** for **LAN**, as given by your Network Administrator.

These parameters can be configured locally from the OSD as explained on page 12.

12.1.2 KVM.net

KVM.net is a centralized IP based system for secure control of servers and network devices, power and user administration in the data center environment. KVM.net combines Out-Of-Band, KVM via IP access with modern IT standards and requirements. It is the most comprehensive remote server maintenance solution available in the market today.

Enable KVM.net - Check this option to allow Smart 216 IP unit to be remotely managed by Minicom's KVM.net system.

Manager Auto Discovery – when checked, KVM.net automatically detects the Smart 216 IP, if it resides on the same network segment.

Manager IP – If Smart 216 IP resides on a different segment, type the static IP address of the KVM.net Manager. (We advise typing the static IP address of the KVM.net Manager even if the Smart 216 IP resides on the same network segment as the KVM.net Manager).

13. Administration > User Settings

From the menu click **User Settings**, Figure 16 appears.

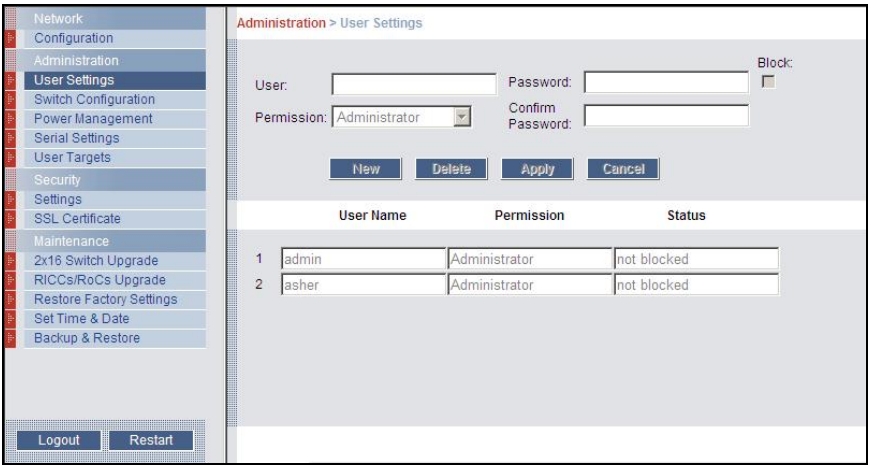


Figure 16 User Settings

On this page an Administrator creates or deletes users.

There are 3 levels of user access:

- Administrator
- User
- View only

Administrator

An Administrator has unrestricted access to all windows and settings. An Administrator can change the name and password and Target server permissions of all users.

User

A User can access/control permitted Target servers, but cannot use the advanced mouse settings.

A User has no access to the web configuration interface.

View only

View only can view the screen of the currently accessed Target server without keyboard and mouse control. A "view only" indicator appears on the viewer's local mouse pointer.

13.1 Adding a user

To add a user:

1. Click

and type a name and a password. The password must be at least 6 characters – letters or numbers, and must not include the user name, even if other characters are added.

   Note! The following "special" characters: &, <, >, " cannot be used for either the user name or password.

   Depending on the security level chosen the user name and password parameters are different. See section 18 on page 22.

2. Select the permission type from the **Permission** box.

3. Click

, the user appears in the list of users. The Permission column shows the user level (Administrator, User, View Only). The Status column shows whether the user is blocked or unblocked, explained in section 13.3 below.

13.2 Deleting a user

To delete a user:

1. Select the user from the list.

2. Click

.

3. Click

, the changes are saved.

13.3 Blocking a user

An alternative to deleting a user is blocking a user. This means that the user's name and password is stored, but the user is unable to access the system. Check **Block** to block a user. Uncheck **Block** to allow the user access.

14. Administration > Switch Configuration

Give the servers connected to the Smart 216 IP unique names, so that users accessing the system can identify the servers easily.

To do so:

1. From the menu click **Switch Configuration**. The Switch Configuration window appears, see Figure 17.

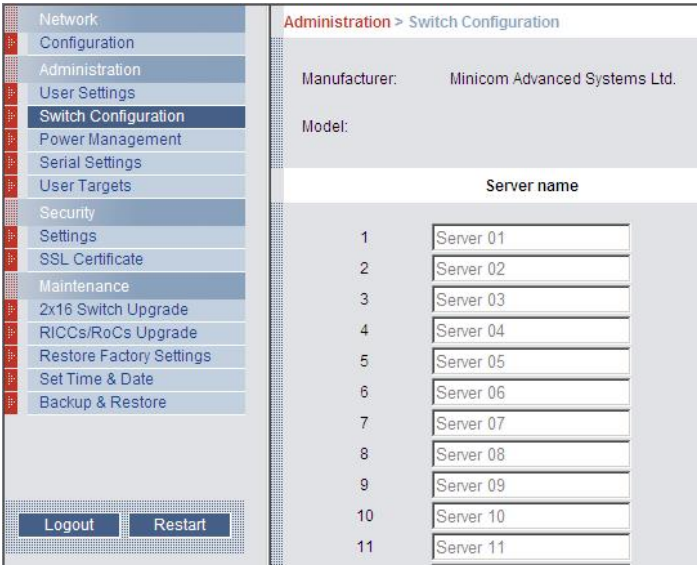


Figure 17 Switch Configuration

2. In the **Server Name** section change the name of the connected servers by selecting the server name and typing a new name. Click Apply to save changes.

15. Administration > Power Management

Where you have a Minicom Serial Remote Power Switch (SRPS), connect it to the Serial 1 port of the Smart 216 IP.

Configure the Power Management switch as follows:

1. From the menu, click Power Management. The Power Management window appears, see Figure 17.

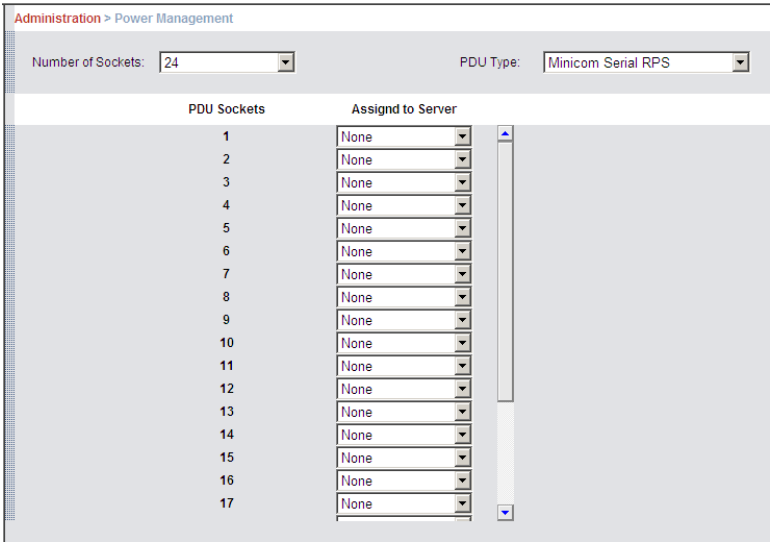


Figure 18 Power Management

2. Select the number of sockets on the power management switch in the Number of Sockets drop-down menu (SRPS has 8)
3. Click Apply. The appropriate number of Managed by Sockets and Server name drop-down menus appear.
4. Select the PDU type (default is SRPS).
5. Match the sockets to the servers. For each socket select the server name connected to it from the drop-down menu.

When there is a double or triple power supply, you need to assign multiple sockets to the same KVM port.

16. Administration > Serial Settings

Where you have a Serial device connected to the system you must configure the RS232 settings.

To do so:

From the menu click **Serial Settings**, the **Serial Settings** appear, see Figure 19.

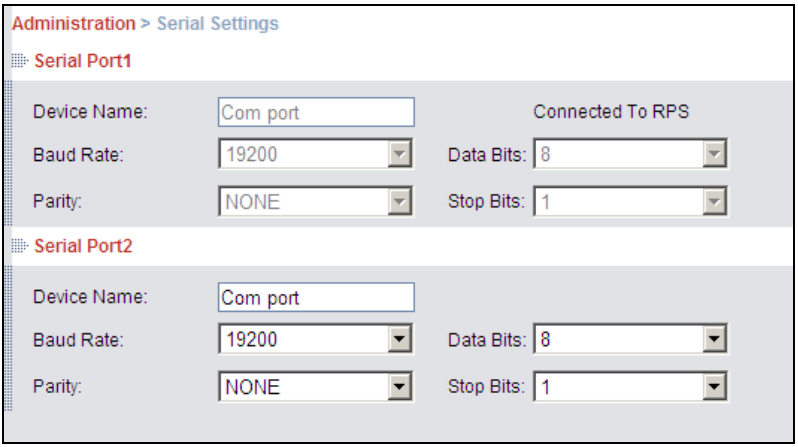


Figure 19 Serial Settings

Where you have a Minicom Serial Remote Power Switch, it must be connected to Serial port 1.

For each Serial device connected, type a device name and choose the correct device parameters.

17. Administration > User Targets

By default access is allowed to all servers for administrators. For other users, define the access rights of each user separately.

To do so:

1. From the menu click **User Targets**. The User Targets Configuration window appears, see Figure 20.

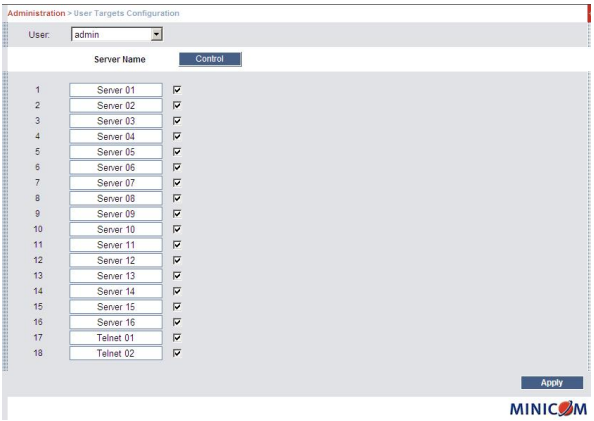


Figure 20 User Targets Configuration

2. Select a user from the User drop-down menu.
3. Check the Target servers the user can access (according to his access permissions). To select all Target servers, press Control.
4. Click Apply, the selection is saved.
5. Repeat the above steps for other users.

18. Security > Settings

Configure the security features, such as Account Blocking, Password Policy and Idle Timeout, as explained below.

From the **Security** section click **Settings**, the **Security Settings** appear, see Figure 21.

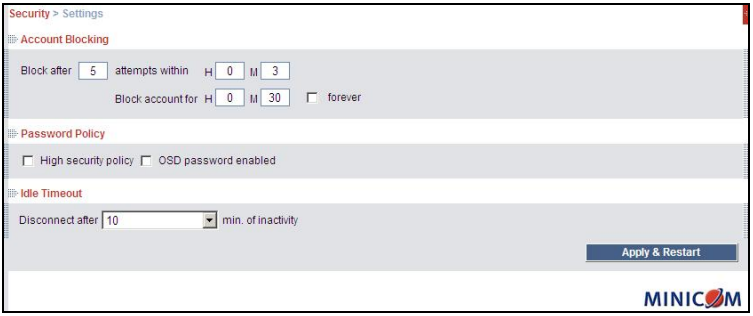


Figure 21 Security Settings

The Security Settings fields:

Account Blocking – decide on the number of attempts to login with a wrong username or password after which there is a time lock or a total block.

Password Policy

For local and remote users you have the option of a standard or high security level of password. The table below shows the parameters of the 2 options.

Standard security policy	High security policy
6 characters or more	8 characters or more must include at least 1 digit and 1 upper case letter and 1 “special” character as follows !@#$%^*()_-+=[]':;?/{}
Must not include the user name	Must not include the user name

Check the box to enable the high security password policy. Unchecked, the standard security policy applies.

OSD password enabled - For the local user access to the OSD can be password enabled or disabled (default), with the option of a standard or high security level of password as explained above. Select the checkbox to enable password.

Note! The user access permissions are the same whether access in done locally or remotely.

Idle Timeout – Select the Timeout inactivity period after which the user is disconnected from the system. Choose **No Timeout** to disable Timeout.

19. Security > SSL Certificate

You can install an SSL certificate.

To do so:

From the menu, select **SSL Certificate**, the install SSL Certificate page appears, see Figure 22.

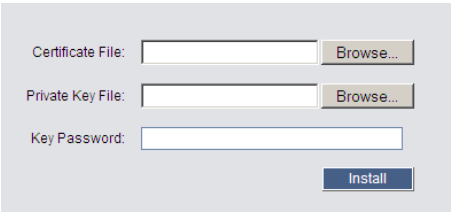


Figure 22 Install SSL Certificate page

Certificate File - Browse to locate the **cer** file (.ssl format).

Private Key File - Browse to locate the **private key** file (.pem format).

Key Password – Type the Key password.

Click Install. The certificate installs. The device restarts automatically.

20. Maintenance > Switch Upgrade

Upgrade the Smart 216 IP firmware to take advantage of new features. Download the firmware from the Support section of Minicom's website –www.minicom.com. Save the firmware file on the Client computer.

From the menu select Switch Upgrade. The Upgrade window appears showing the current firmware version see Figure 23.

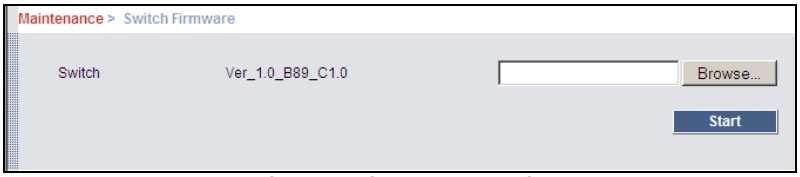


Figure 23 Firmware Upgrade

1. Locate and upload the firmware file.
2. Verify the current and uploaded version of the firmware.
3. Click Start. The upgrade starts. The unit reboots automatically. After about 2 minutes the Login page appears.

Note!

Depending on the type of firmware upgrade, the following settings may be erased: User settings, server names, mouse and video adjustments. For more information refer to the firmware release notes.

The network settings remain intact.

21. Maintenance > RICCs/RoCs Upgrade

Upgrade the ROC firmware to take advantage of new features. Download the firmware from the Support section of Minicom's website –www.minicom.com. Save the firmware file on the Client computer.

1. From the menu select RICCs/RoCs Upgrade. The Upgrade window appears showing the current firmware version see Figure 24.
2. Select the servers connected to the ROCs you wish to upgrade. Click All to select all.
3. Verify the current version of the firmware by pressing Version.
4. Locate and upload the firmware file.

5. Press Start, the firmware upgrades.

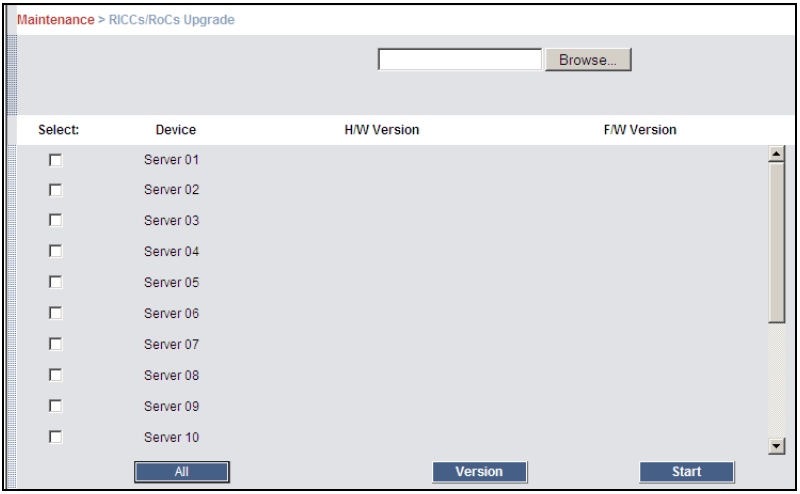


Figure 24 RICCs/RoCs Upgrade

22. Restore Factory Settings

You can restore the Smart 216 IP unit to the factory settings. This restores the original Smart 216 IP parameters, resetting all the information added by the administrators, including: Network settings*, servers, users, and passwords etc.

* You have the option to preserve network settings – explained below.

Warning! Once reset the data cannot be retrieved.

To restore factory settings:

1. From the menu select **Restore Factory Settings**. Restore Factory Settings appears see Figure 25.

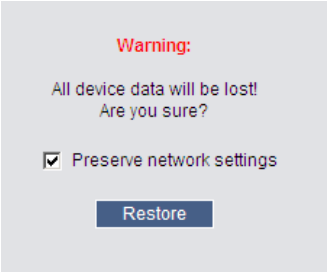


Figure 25 Restore factory settings

2. Check the box if you want to preserve Network settings.
3. Click Restore.

23. Set Time & Date

The time and date set is used when recording log events (see page 37).

To set the time and date:

From the menu, select Time & Date, Figure 26 appears.

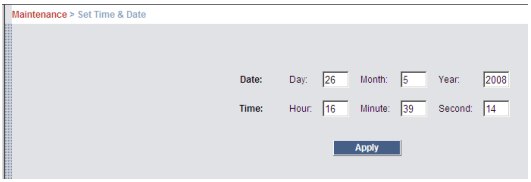


Figure 26 Set Time & Date

Type the appropriate parameters.

24. Backup & Restore

You can backup all configuration data and restore it at a later date. To do so:

From the menu select Backup & Restore, Figure 27 appears.

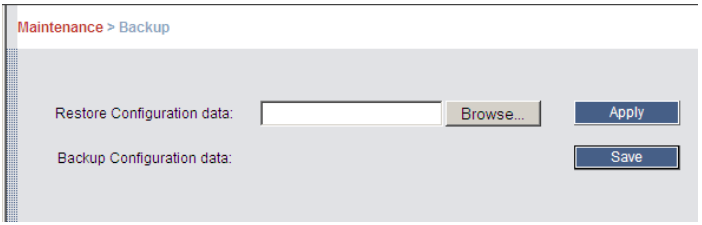


Figure 27 Backup & Restore

To backup the configuration data, click Save. And save the file.

To restore the configuration data, browse to locate the file and press Apply, the device restarts.

25. Saving changes and logging out

To save any configuration changes click the relevant button on the current page.

This could be Save & Restart or just Apply.

To restart the Smart 216 IP press Restart.

To exit the Configuration menu and close the session, click Logout.

Only one Administrator can log into the Configuration area at a time. After the idle Timeout – see section 18 page 22 – the session terminates.

26. Accessing a Target server

Log in to the web interface as explained on page 13. The web interface opens at the Targets page, see Figure 14 on page 15. To connect to a Target or serial device, click the desired Target/device in the Server Name Column. (A server being used by another user cannot be accessed). The screen of the Target/device appears inside a remote console window. Note! For a User, only permitted Targets appear on the Targets page. Figure 28 illustrates the remote console window.

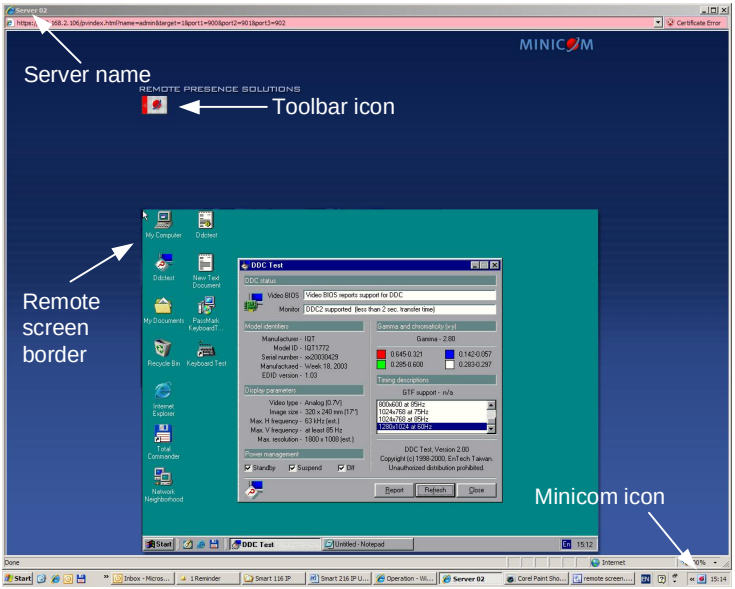


Figure 28 Remote console window

On the remote console you have the following:

Server name - The currently accessed server identity can be checked any time by looking at the **Server name** on the Internet Explorer title bar.

Toolbar icon – This is the minimized toolbar from which you switch and configure the system.

Minicom icon – Hold the mouse over the icon to view information about current server, connection time and video mode.

26.1 The Toolbar

To maximize the Toolbar:

Click the arrow . Click again to minimize the Toolbar.

When maximized, the Toolbar can be dragged and dropped to anywhere on the screen, by dragging the icon . When minimized the icon glides to a side of the screen.

To hide the Toolbar, either:

Double-click the Smart 216 IP System tray icon .

Or

Press **F9**.

To display the Toolbar repeat the above action. See also page 36.

26.2 Switching to a different server

To connect to a different server:

1. From the Toolbar, click , or right-click . A list of available servers appears. The currently connected server is highlighted in bold.
2. Click the desired server name. The screen of the selected server appears.

26.3 Changing the performance settings

You can alter the bandwidth settings from the Toolbar.

To alter the settings:

From the Toolbar, click . The Settings.. Dialog box appears, see Figure 29.

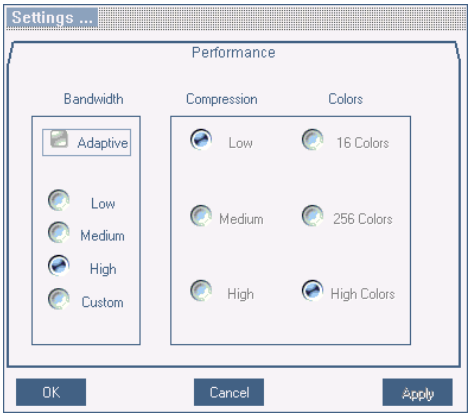


Figure 29 Settings.. Dialog box

Bandwidth

Choose from the following options

Adaptive – automatically adapts to the best compression and colors according to the network conditions. (Not recommended because network parameters may change frequently impacting on user experience).

Low - Select Low for high compression and 16 colors.

Medium - Select medium for medium compression and 256 colors. Medium is recommended when using a standard internet connection.

High - For optimal performance when working on a LAN, select High. This gives a low compression and high colors (16bit).

Custom – You cam choose your own compression and color levels.

Click **OK**. The screen of the last accessed Target server appears.

26.4 Adjusting the Video settings

To change the video settings:

From the Toolbar, click . You have the following options:

- Refresh
- Manual Video Adjust
- Auto Video Adjust

Each option is explained below.

26.4.1 Refresh

Select Refresh to refresh the Video image. Refresh may be needed when changing the display attributes of a Target server.

26.4.2 Manual Video Adjust

Use the manual video adjustment for fine-tuning the Target server video settings after auto adjustment or for adapting to a noisy environment or a non-standard VGA signal or when in full-screen DOS/CLI mode.

To adjust the video manually:

Click Manual Video Adjust. The manual controls appear, see Figure 30. Also a red frame appears around the screen. This represents the screen area according to the Server's screen resolution. Perform the adjustments inside and relative to this frame.

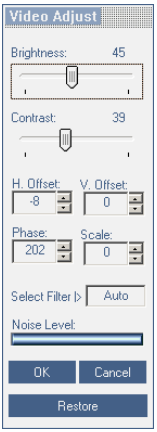


Figure 30 Manual Video Adjustments controls

Brightness / Contrast - use the scales to adjust the brightness and contrast of the displayed image. Move the sliders to change the displayed image. Click in the area of the sliders for fine-tuning.

For the following controls choose the appropriate measurement.

Horizontal Offset - defines the starting position of each line on the displayed image.

Vertical Offset - defines the vertical starting position of the displayed image.

Phase - defines the point at which each pixel is sampled.

Scale – defines the scale resolution of the session image.

Select Filter - defines the filter of the input video from the server. A higher filter reduces the noise level but makes the image heavier.

Noise Level - represents the Video "noise" when a static screen is displayed.

26.4.3 Auto Video Adjust

To adjust the video automatically:

Click **Auto Video Adjust**. The process takes a few seconds. If the process runs for more than 3 times, there is an abnormal noise level. Check the video cable and verify that no dynamic video application is running on the Target server's desktop.

Perform the procedure where necessary for each Target server or new screen resolution.

26.5 Power cycle

Where a Minicom Serial Remote Power Switch is connected to Serial 1 port of the IP Control, you can power manage the Target servers as follows:

From the Toolbar, click . The Power menu appears, see below.

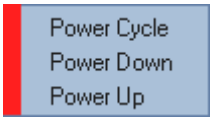


Figure 31 Power menu

To send a power cycle command or to power down or up the currently accessed Target server, select the appropriate option.

Note! Only the currently accessed Target server is affected, so to power manage other Target servers you must access each one individually.

26.6 Keyboard key sequences

Click . A list of defined keyboard sequences appears. When clicked, these transmit directly to the Target server, and will not affect the Client computer.

For example, select **Ctrl-Alt-Del** to send this three key sequence to the Target server to initiate its Shutdown/Login process.

To add a keyboard sequence:

Click **Add/Remove**. The Special Key Manager box appears see Figure 32.

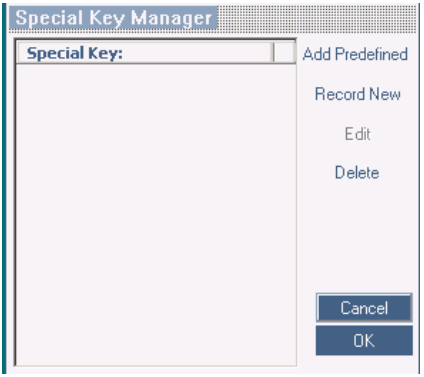


Figure 32 Special Key Manager box

To add a predefined sequence:

1. Click Add Predefined. A list of sequences appears.

2. Select the desired sequence and click OK. The sequence appears in the Special Key Manager box.
3. Click OK. The sequence appears in the Keyboard Key sequence list.

To record a key sequence:

1. From the Special Key Manager box press **Record New**. The Add Special Key Dialog box appears, see Figure 33.

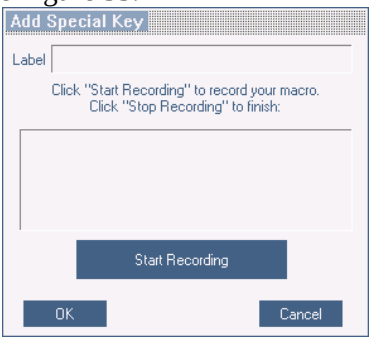


Figure 33 Add Special Key Dialog box

2. Give the key sequence a name in the Label field.
3. Click **Start Recording**.
4. Press the desired keys. The key sequence appears in the area provided.
5. Click **Stop Recording**.
6. Click **OK**.

To edit a key sequence:

1. From the Special Key Manager Dialog box select the desired key.
2. Click **Edit**.
3. Click **Start Recording**
4. Press the desired keys. The keys appear in the area provided.
5. Click **Stop Recording**.
6. Click **OK**.

26.7 Synchronizing mouse pointers

When working at the Client computer, two mouse pointers appear: The Client computer's is on top of the Target server's. The mouse pointers should be synchronized. The following explains what to do if they are not synchronized.

Warning

Before synchronizing mouse pointers adjust the video of the Target server, (explained above) otherwise mouse synchronization may not work.

26.7.1 Aligning the mice pointers

When accessing the Target server, the mice may appear at a distance to each other.

To align the mouse pointers:

From the Toolbar click / **Align** or press **Ctrl+M** simultaneously. The mice align.

26.7.2 Calibrating mice pointers

A Target server may have a different mouse pointer speed to the Client computer. Calibrating automatically discovers the mouse speed of the Target server and aligns the two pointers.

To perform the calibration when the Target server Operating system is, Windows NT4, 2000 or 98:

From the Toolbar click / **Calibrate**. Smart 216 IP saves this alignment so calibration is only needed once per Target server.

If the Video Noise Level is above zero, calibration may not work. Go to Video Adjustment and try to eliminate the noise by pressing Auto video adjust and/or adjusting the bars in Manual video adjust, then perform the mouse calibration.

Note! If the mouse settings on the Target server were ever changed, you must synchronize mouse pointers manually, as explained below.

26.7.3 Manual mice synchronization

If the mouse settings on the Target server were ever changed, or when the Operating system on the Target server is, Windows XP / 2003 Server / Vista / 2008 Server, Linux, Novell, SCO UNIX or SUN Solaris you must synchronize the mouse pointers manually.

To manually synchronize mouse pointers:

1. From the Toolbar click / **Manual Settings**. The **Mouse Settings** Dialog box appears see Figure 34.

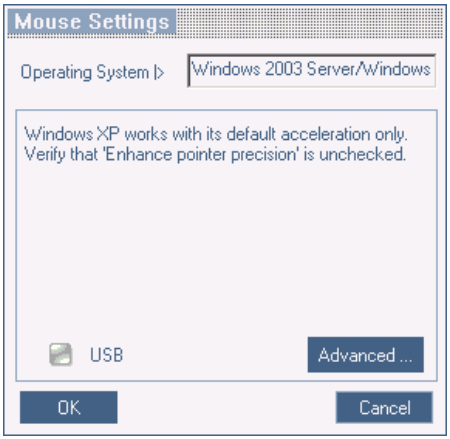


Figure 34 Mouse Settings Dialog box

2. Select the Target server's Operating System and click OK. Instructions and sliders appear.
3. Follow the instructions and set any relevant sliders to the same values as set in the Target server's Mouse Properties window.

2 examples!

For Windows XP, 2003 Server, Vista and 2008 Server. Go to the Mouse settings on the Target server and uncheck Enhance pointer precision.

For Windows NT4, 98, ME, 2000. If Mouse Properties were ever changed for the Target server – even if they have been returned to their original state - uncheck default -

.

Click **OK**. The mouse pointers should be synchronized.

26.7.3.1 USB

The USB option in Mouse Settings box is available for RICC USB and ROC USB, for unsupported operating systems and SUN Solaris. Use this option if you are sure of the custom acceleration algorithm you are using, or have been informed so by customer support.

26.7.3.2 Advanced – Mouse Emulation

Click Advanced ... the Mouse Emulation Dialog box appears, see Figure 35. Do not change these settings unless instructed to do so by Tech support.

Figure 35 Mouse Emulation Dialog box

Max Rate - this defines the maximum mouse report rate. For Sun Solaris the default value is 20 in order to support older Sun versions.

26.8 Adjustments in general

The above adjustments, namely:

- Performance settings
- Video settings
- Keyboard key sequences
- Synchronizing mouse pointers

May have to be performed twice for each Target.

26.9 Minicom icon menu features

Right-click the Minicom icon , a menu appears. From this menu you can access the connected devices. You also have the following features:

Disconnect – You can disconnect the session by clicking Disconnect.

About - Click About to verify the Client, Firmware and Switch file versions installed on your Smart 216 IP.

Local Settings – Click Local settings, the Client Configuration Dialog box appears, see Figure 36

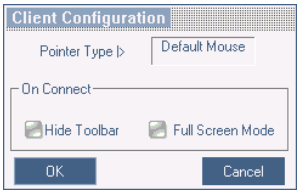


Figure 36 Client Configuration Dialog box

Pointer type – From the Drop-down menu you can change the Client computer mouse pointer to appear as a dot or to not appear at all.

Hide Toolbar – Check this option to hide the Toolbar from the next reconnection onwards. To toggle the Toolbar on and off, press **F9** or double-click the System tray icon . See above page 27.

Full Screen Mode - Check this option to make the remote session screen appear in full screen mode from the next reconnection onwards. To toggle the full screen mode on and off, press **F11**. (Also see section below).

26.10 Full screen mode

Work on the Target server as if you are working on a local computer, with full screen mode.

To work in full screen mode:

1. Ensure that the Client computer has the same screen resolution as the Target server.
2. Press **F11**. The Internet Explorer window disappears, leaving the Internet Explorer menu bar at the top.
3. Right click the Internet Explorer menu bar and check Auto-Hide. The Internet Explorer menu bar disappears. You are in full screen mode.

To exit full screen mode:

Press **F11**. Or place the mouse at the top of the window to display the Internet Explorer toolbar and click the Restore button.

Note! Full screen mode can also be activated from the Toolbar menu, see page 36.

26.11 Disconnecting the remote session

To disconnect the session, on the Toolbar, click . The Login page appears. You can re-login, or close the browser window to disconnect the session.

27. The Targets page menu

When logging into the system as an Administrator or a User, you reach the Targets page, see Figure 14 page 15. From the menu you can:

- Change the password
- See an event log

Note! Only an Administrator has the configuration option in the menu.

27.1 Changing the password

To change the password, from the menu click Password, the following appears.

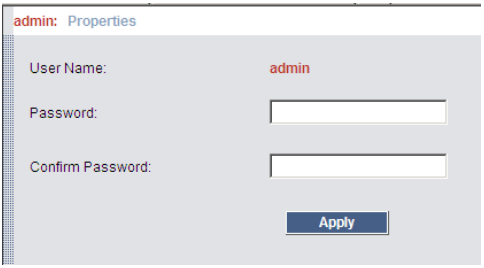


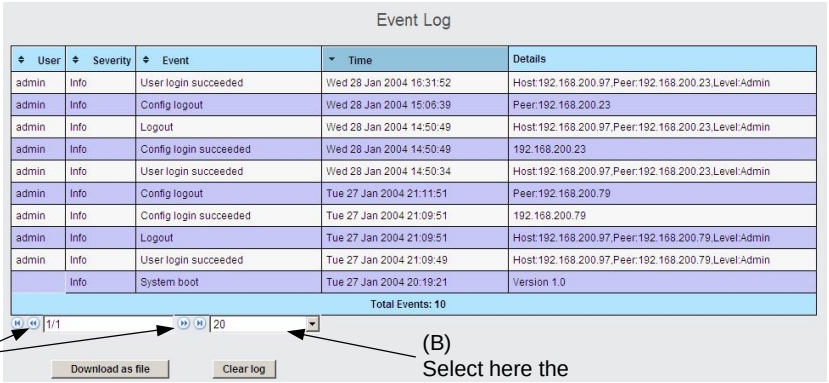
Figure 37 My Properties

Type a new password according to the password policy set - see page 22.

27.2 Event log

To see a log of all system events:

From the menu select Event Log, the following appears.



(A) Where there are a number of pages, click forward or backwards here to navigate to the desired page

(B) Select here the number of events that should appear on each page

Figure 38 Events log

Navigate through the events pages using the forward or backward arrows, marked as (A) in Figure 38,

From the drop down menu, marked as (B) in Figure 38, choose the number of events that will appear on each page - between 10 – 40.

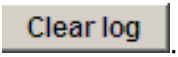
27.2.1 Downloading the log

You can download and save the log.

To do so, click

and save as a .csv file. The file can be viewed using Microsoft Excel or compatible software.

27.2.2 Clearing the log

To clear the log, click 

. A prompt appears asking if you first want to save the log.

Section II

Section II explains how to operate the Smart 216 IP system locally via the OSD.

28. The OSD

To display the OSD:

1. From the local keyboard, press the left Shift key twice. The OSD Main window appears. See Figure 39. Lines with yellow text show active computers. Lines with blue text show inactive computers. The PM column indicates a server can be power managed.

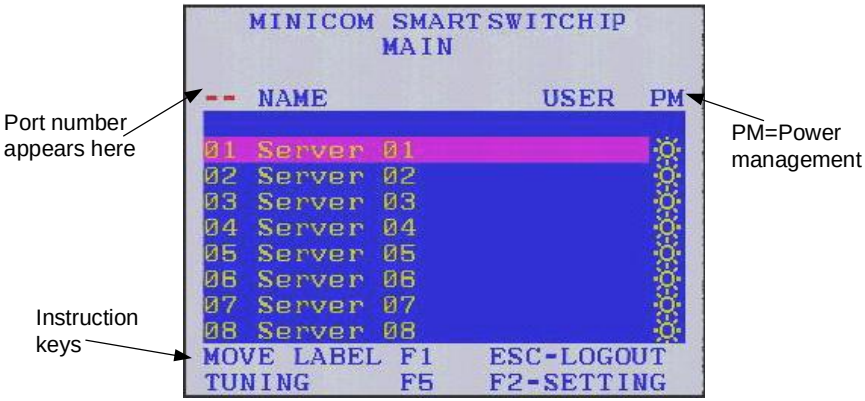


Figure 39 OSD Main window

28.1 Navigating the OSD Main window

To navigate up and down use the Up and Down arrow keys.

To exit the OSD press **Esc**.

28.2 Selecting a computer

To select a computer:

1. Navigate to the desired computer line.

   Or, type the two-digit port number of the desired computer.

2. Press **Enter**. The selected computer is accessed. A Confirmation label appears showing which computer is accessed.

28.3 Power management hotkey – left Shift, F12

To power manage a server connected to a power management switch:

1. Navigate to the computer line you desire to power manage.
2. Press Left Shift, F12. The Power Control dialog box appears, see Figure 40. Note! If you change the OSD hotkey from Shift, Shift to Ctrl, Ctrl, then the power management hotkey becomes left Ctrl, F12.

Figure 40 Power Control dialog box

3. Use the arrow keys to navigate up and down and press Enter to select the power option.
4. A prompt appear, see Figure 41. Select the desired option and press Enter. The power command is sent.

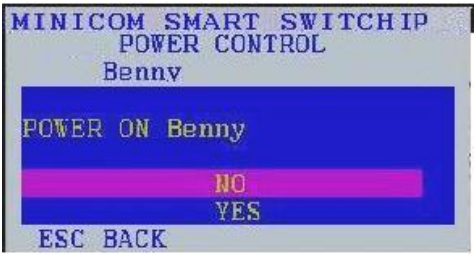


Figure 41 Power prompt

28.4 Moving the Confirmation label – F1

The Confirmation label appearing briefly showing which computer is currently accessed can be positioned anywhere on the screen.

To position the label from the Main window:

1. Navigate to a computer line using the **Up** and **Down** arrow keys.
2. Press **F1**. The selected screen image and Confirmation label appear.
3. Use the arrow keys to move the label to the desired position.
4. Press **Esc** to save and exit.

28.5 Tuning – F5

You can tune the image of any computer screen from the Main window.

To adjust the screen image:

1. Navigate to the computer line you wish to adjust.

2. Press **F5**. The screen image of the selected computer appears, together with the Image Tuning label, see Figure 42.

Figure 42 Image Tuning label

3. Adjust the image by using the **Right** and **Left** Arrow keys.

4. When the image is satisfactory, press **Esc**.

Note! Picture quality is relative to distance. The further away a remote computer is from the Smart 216 IP, the lower the image quality, and the more tuning needed. So place the higher resolution computers closer to the Switch.

28.6 The Settings window - F2

Press **F2**. The Settings window appears see Figure 43.

Figure 43 Settings window

In the Settings window navigate downwards using the Tab key. At the bottom of the window, press tab to go to the top of the window. Change settings by typing in the selected area or by pressing the spacebar – whichever is relevant.

[Changing the network parameters from the OSD is explained with the initial configuration in section 10 on page 12.]

From In the Settings window you can do the following:

KVM.NET MNG – Press the spacebar to toggle between enabling and disabling KVM.net management. When enabled the Smart 216 IP unit is remotely managed by Minicom's KVM.net system.

KVM.NET ADD – Here you can change the static IP address of the KVM.net Manager.

HOT KEY – By pressing **Shift**, **Shift** the OSD appears. You can replace **Shift**, **Shift** with any of the following:

- Ctrl, Ctrl
- Ctrl, F11
- Print Screen

Press the Spacebar to toggle between options. To display the OSD in future press the new hotkey.

KEYBOARD LANGUAGE - Press the Spacebar to toggle between the language options. It can be changed to French or German.

28.7 DDC – F10

Display Data Channel (DDC) is a VESA standard for communication between a monitor and a video adapter.

From the Settings window, input the DDC information of the monitor connected to the Smart 216 IP switch into the memories of all connected ROCs when first installing system.

To input the DDC information:

Press **F10**. "Please wait" flashes a few times and disappears. The monitor's DDC information is sent to all ROCs.

28.7.1.1 Updating the DDC information

Update the DDC information in any of the following circumstances:

- When replacing the monitor connected to Smart 216 IP Switch
- When adding a new ROC to the system
- When reconnecting an existing ROC that was temporarily used in a different system

To update the DDC information, repeat the steps as set out above.

28.8 Saving changes to the settings

To save changes to the settings and return to the Main window, press **Esc**.

29. Video resolution and refresh rates

Hz →	56	60	65	66	70	72	73	75	76	85	86
640x480		x		x	x	x		x		x	
720x400					x					x	
800x600	x	x				x		x		x	x
1024x768		x			x	x	x	x	x	x	
1152x864								x			
1152x900				x					x		
1280x720		x									
1280x768		x						x			
1280x960		x								x	
1280x1024		x				x		x	x	x	
1600x1200		x	x		x			x		x	

30. Technical specifications

Operating systems	**Target server** Windows, Novell, Linux, SUN Solaris **Client Computer** Windows 2000 or higher with IE 6.0 or higher and ActiveX
Resolution	**Target server** Up to 1600 x 1200 @ 85Hz **Client Computer** Recommended - resolution should be higher than on Target server
Distance from Switch to ROCs	Up to 30m/99ft.
Video and mouse synchronization	Both auto and manual modes
Security	128-bit SSL encryption
Connections	**Ethernet** – RJ45 – 10/100 Mbit/sec autosensing **Serial** – RJ45 x 2 **Local KVM connection** – Screen HDD15, Keyboard./Mouse – 2 USB **Servers** – RJ45
Weight	2.343Kg / 5.165lbs
Dimensions (H x D x W)	44 x 270 x 431 mm / 1.7 x 10.6 x 17"
Power input	100 – 240 VAC, 0.8 A, 50 / 60 Hz.
Operating temperature	0°C to 40°C / 32°F to 104°F
Storage temperature	-40°C to 70°C / -40°F to 158°F
Humidity	80% non condensing relative humidity

	ROC PS/2	**ROC USB**
Connections	VGA - HDD15 KM - MiniDin6 System - RJ45	VGA - HDD15 KM - USB System - RJ45
Power	From Keyboard port	From USB port
Product weight	100g / 0.20lb	
Shipping weight	172g / 0.38lb	
Dimensions	65 x 25 x 25mm / 0.21 x 0.08 x 0.08”	

31. Safety

This device contains no serviceable parts. Any servicing of the device must be performed by an authorized Minicom Technician in a Minicom authorized Service Center.

32. User guide feedback

Your feedback is very important to help us improve our documentation. Please email any comments to: ug.comments@minicom.com

Please include the following information: Guide name, part number and version number (as appears on the front cover).

33. WEEE compliance

WEEE Information for Minicom Customers and Recyclers

Under the Waste Electrical and Electronic Equipment (WEEE) Directive and implementing regulations, when customers buy new electrical and electronic equipment from Minicom they are entitled to:

- Send old equipment for recycling on a one-for-one, like-for-like basis (this varies depending on the country)
- Send the new equipment back for recycling when this ultimately becomes waste

Instructions to both customers and recyclers/treatment facilities wishing to obtain disassembly information are provided in our website www.minicom.com.

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