

IPEPSMINI-VGA
IPEPSMINI-HM
IPEPSMINI-DP



Introduction

Welcome	2
Supplied items	3
Optional extras.....	3

Installation

Connections	4
Video link	5
Link connection	5
USB and power connections	6
Connecting to POE installations	7

Configuration

Connecting to ipeps mini	8
Initial configuration	9
Performing a flash upgrade.....	10
Restoring a backup firmware image.....	11
Resetting.....	11

Operation

Connecting with the host computer(s)	12
Remote connections.....	12
Auto calibrate 	13
Access mode - shared/private	13
Controls	14
Mouse Control.....	14
Advanced mouse configuration.....	15
Keyboard Control	16
Indicators	17

Further information

Getting assistance	18
Appendix 1 - Remote configuration menus (via VNC).....	19
User Accounts.....	20
Menu Bar Edit (Gui Edit Configuration)	21
Unit Configuration	22
EDID Configuration.....	23
Advanced Unit Configuration.....	24
Time & Date Configuration	27
Network Configuration	28
Setting IP Access Control	29
Host Configuration.....	30
Logging and Status.....	31
Appendix 2 - Networking issues	32
Positioning AdderLink ipeps mini in the network.....	32
Appendix 3 - Security considerations	34
Appendix 4 - Product compatibility	35
Appendix 5 - Hotkey sequences.....	36
Appendix 6 - Open source licenses.....	37

Index

Introduction



WELCOME

Thank you for choosing the **AdderLink ipeps mini** KVM-over-IP module. Using the tried and trusted RealVNC® software, each AdderLink ipeps mini module provides highly secure remote connectivity across the Internet or corporate network. The AdderLink ipeps mini module naturally permits secure remote access to a single host, however, with the addition of a suitable KVM switch, a choice of many hosts becomes possible.

Highly secure

Enterprise grade security (using AES 128 or 256-bit encryption and RSA 2048-bit public key authentication) is employed as standard. This is further enhanced by VNC®, which allows the creation of ciphered user communications.

User management

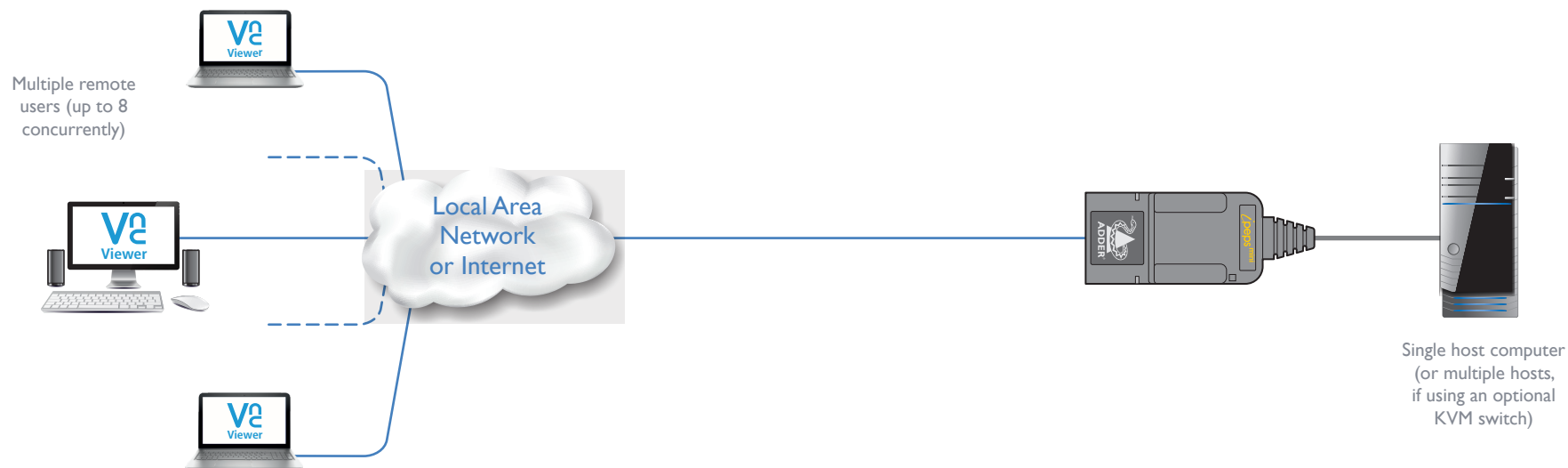
The AdderLink ipeps mini can create up to 15 user profiles (plus the admin user) with defined access rights. Up to 8 remote users may access the unit simultaneously, subject to available network bandwidth and content.

High quality remote video

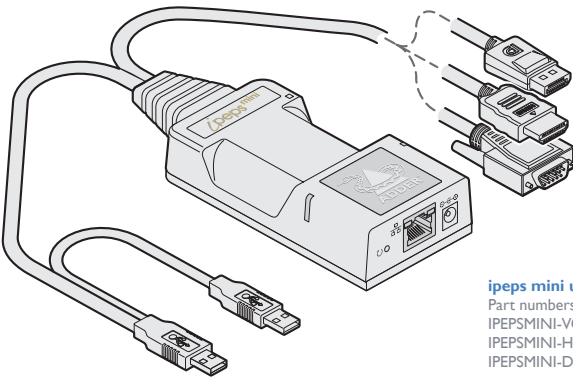
Despite its small size the AdderLink ipeps mini offers video streaming at resolutions up to 1920 x 1200 with non-blocking access for up to eight remote users.

EDID management

The AdderLink ipeps mini has intelligent EDID management allowing the user to specify the video modes generated by the controlled device.



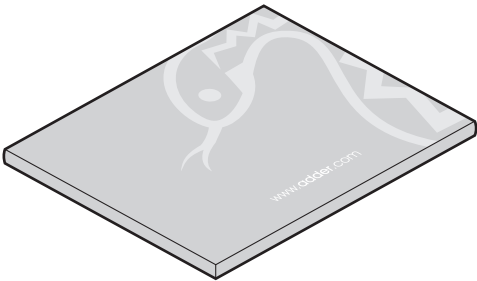
SUPPLIED ITEMS



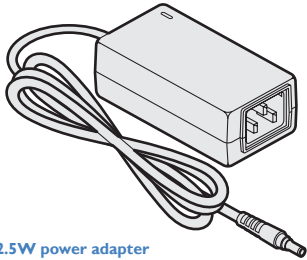
ipeps mini unit
Part numbers:
IPEPSMINI-VGA
IPEPSMINI-HM
IPEPSMINI-DP

**Information wallet
containing:**

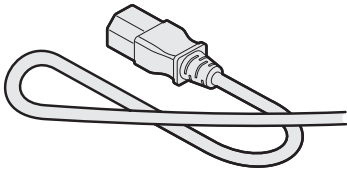
Four self-adhesive rubber feet
Safety document



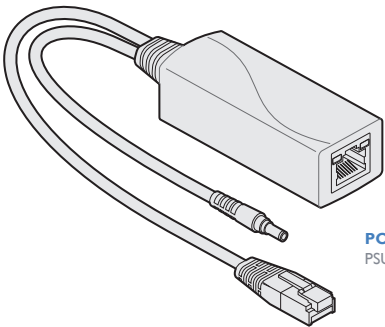
OPTIONAL EXTRAS



12.5W power adapter
Part number: PSU-IEC-5VDC-2.5A



Country-specific power cords
CAB-IEC-AUS (Australia)
CAB-IEC-EURO (Europe)
CAB-IEC-UK (United Kingdom)
CAB-IEC-USA (United States)



POE splitter
PSU-POE-5VDC-2.4A



INSTALLATION

CONFIGURATION

OPERATION

FURTHER
INFORMATION

INDEX

Installation

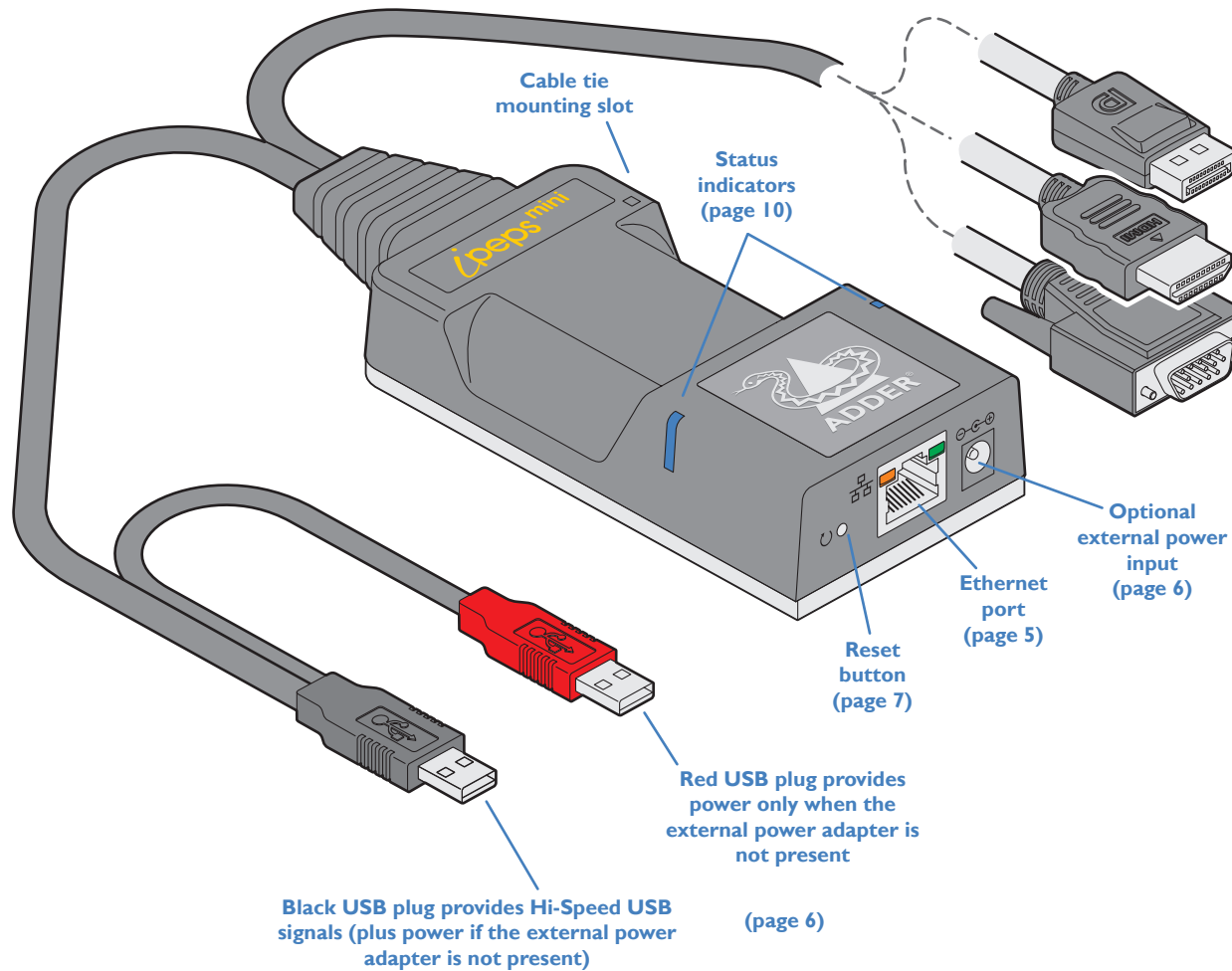


CONNECTIONS

Installation involves linking the ipeps mini unit to various ports on the host computer:

‘Suitable for installation in Information Technology Rooms in accordance with Article 645 of the National Electrical Code and NFPA 75.

Peut être installé dans des salles de matériel de traitement de l'information conformément à l'article 645 du National Electrical Code et à la NFPA 75.’

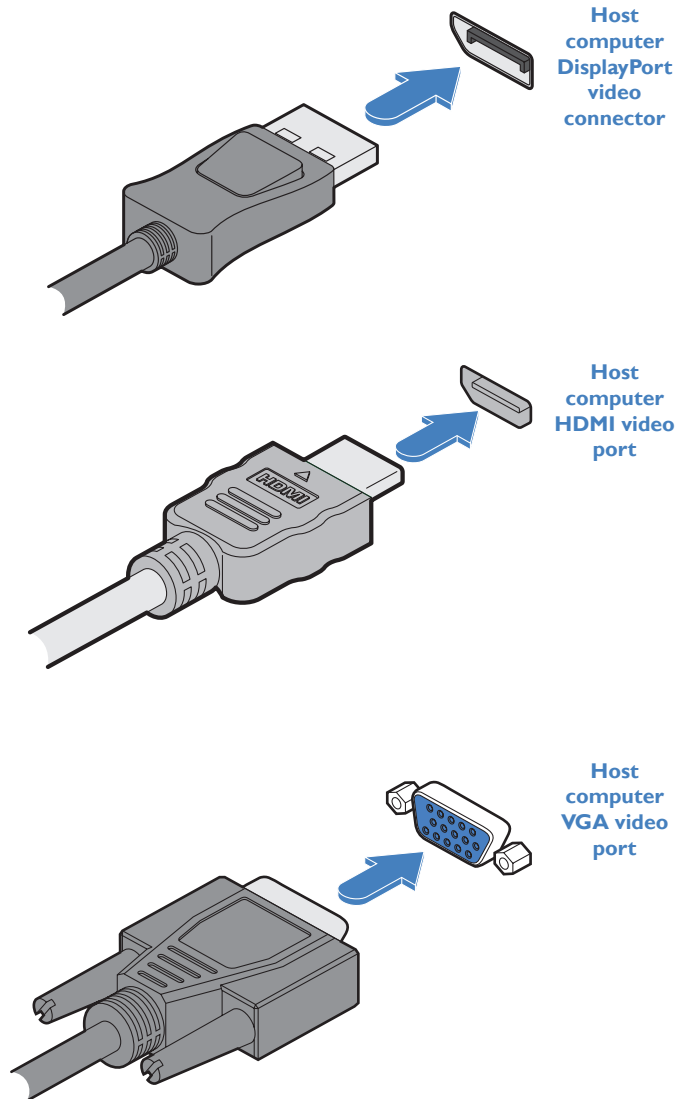


Video link

The ipeps mini unit is supplied with a single video connector - DisplayPort®, HDMI™ or VGA depending on the chosen ipeps mini variant. Video resolutions up to 1920x1200 are supported (*maximum 1920x1080 for VGA variants*).

To make a video link

- 1 Connect the ipeps mini video connector to the video socket of the host computer:

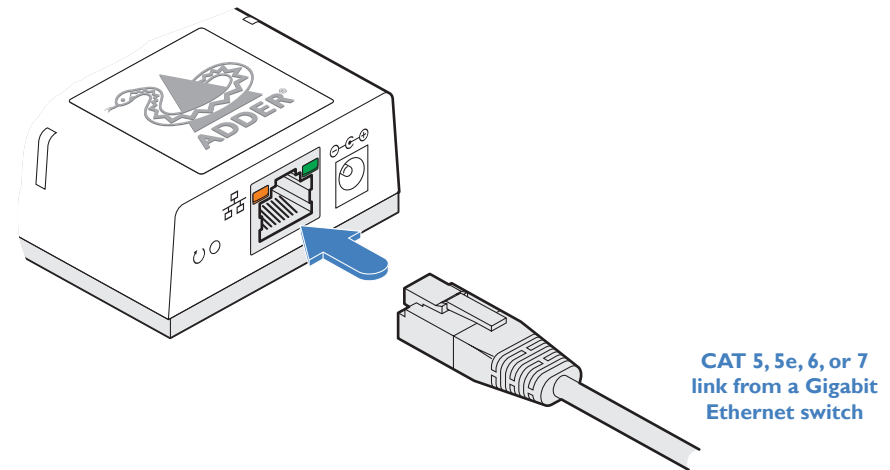


Link connection

Use the network port to join the ipeps mini to a suitable network switch. It is also possible to connect a computer directly to the network port for configuration purposes.

To make a link connection

- 1 Insert a standard network cable into the socket on the front panel of the ipeps mini unit.



- 2 Connect the other end of the cable either directly to a suitable network switch.

Please see [Appendix D](#) for important tips about networking ipeps mini units.

USB and power connections

The ipeps mini unit is designed to be as flexible as possible. It can either operate using an optional external power adapter (see page 3) or derive all of its power from its two USB plugs. The main advantage offered by using an external power adapter is that it allows the ipeps mini unit to be active before the host computer; thus allowing a remote user to access the host's initial boot up and access the BIOS menu, when required.

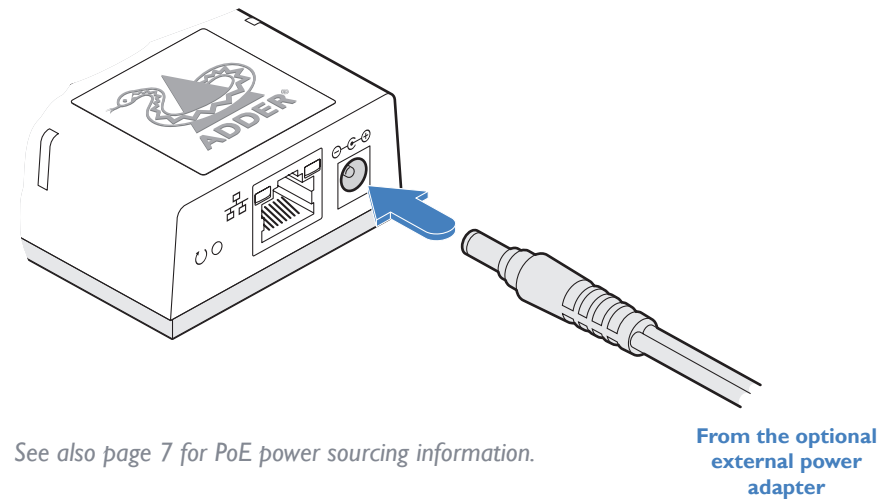
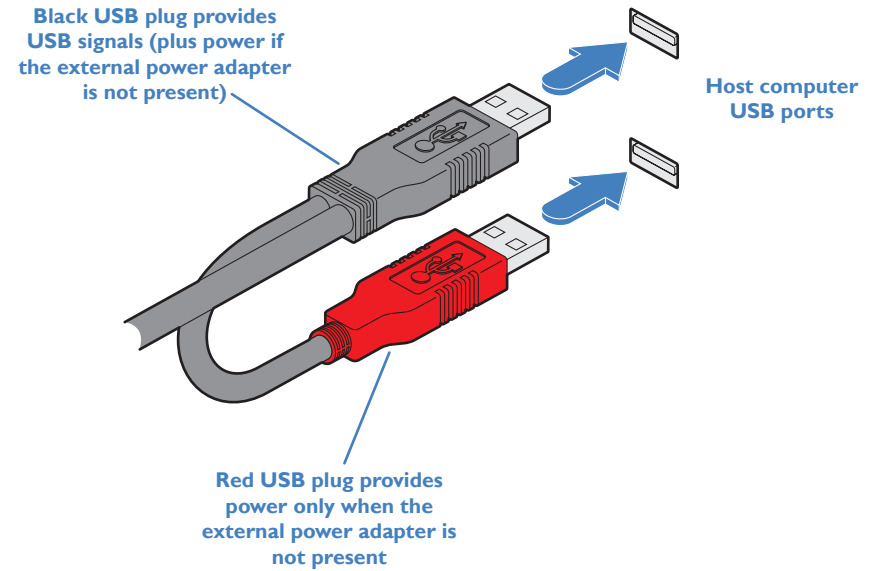
If powered by USB only, then both the black and red USB plugs need to be connected.

If powered by external power adapter, only the black Hi-Speed USB plug needs to be connected, for signal purposes. Whenever, the external power adapter is attached and operating, then power will be taken from it rather than the USB plugs. There is no problem if the red USB plug remains connected while the power adapter is used.

This is summarized as follows:

Power adapter	Black USB	Red USB	Power sourcing behavior
✗	✓	✓	Power taken from both USB plugs.
✓	✓	✗	Power taken from power adapter only.
✓	✓	✓	Power taken from power adapter only, unless it becomes unavailable, in which case power will be taken from both USB plugs after a short interruption.

Note: The USB plugs do not operate as a seamless failover for the external power adapter; there will be a short interruption as operation switches from one power source to the other.



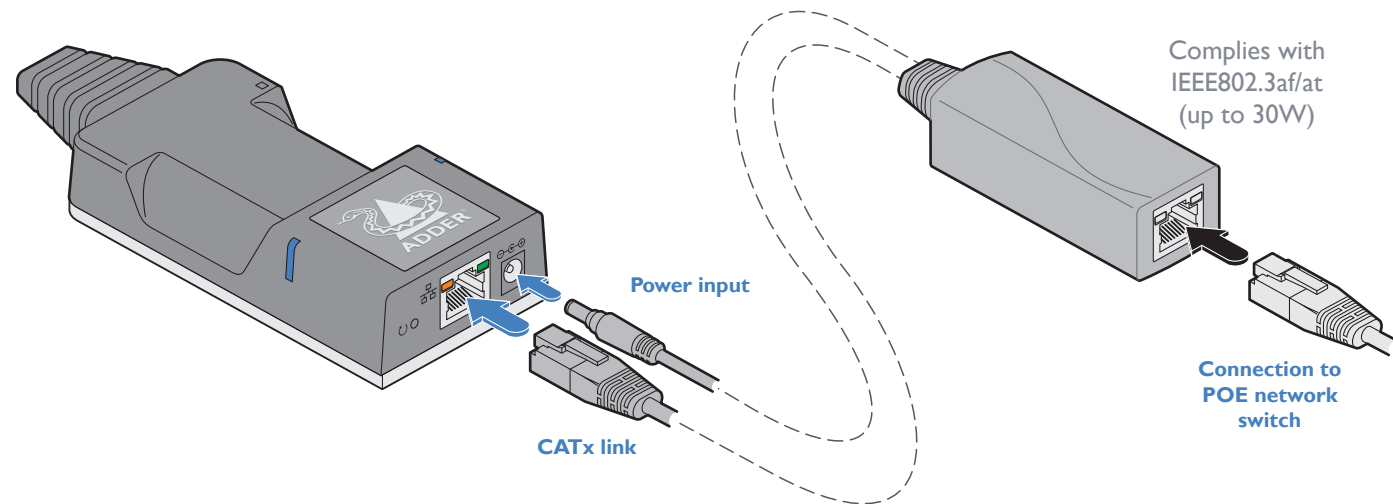
See also page 7 for PoE power sourcing information.

Connecting to POE installations

In situations where the ipeps mini unit needs to be connected into (and powered from) a POE-equipped network, an optional POE splitter device is available.

To connect ipeps mini to an optional POE splitter

- 1 Situate the POE splitter (*part no: PSU-POE-5VDC-2.4A*) next to the ipeps mini.
- 2 Attach the power plug of the POE splitter to the input socket on the front panel of the ipeps mini.
- 3 Attach the CATx link from the POE splitter to the RJ45 port on the front panel of the ipeps mini.
- 4 Link the RJ45 port of the POE splitter to the appropriate network switch.



Configuration



CONNECTING TO IPEPS MINI

Connection to (and configuration of) ipeps mini is carried out over a network, using a VNC Viewer® program running on a computer or mobile device. VNC Viewers are available for most computers, tablets and smartphones.

- If you already have a VNC viewer, please follow the Initial configuration instructions given on the next page.

If you do not already have a VNC viewer, you can download the latest VNC Viewers for most operating systems via the RealVNC® website, or for tablets and smartphones from the appropriate app store.

INITIAL CONFIGURATION

To perform the initial configuration, you need to connect the ipeps mini to an IP network and use a computer located on the same network to connect to it.

To perform the initial configuration

1 Connect the ipeps mini to an IP network where a suitable computer is available on the same subnet.

2 Use a computer connected to the same subnet of the network. On that computer, you will need to use the VNC Viewer® application, which is available to download from www.realvnc.com. On the computer, locate and select the VNC viewer icon ⇨

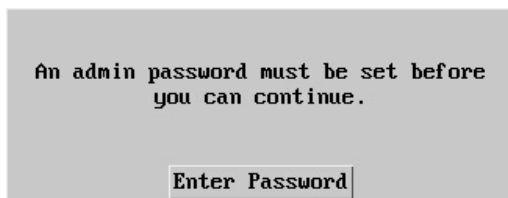


3 Within the VNC Viewer application, create a new connection - please consult the VNC Viewer documentation for further details.

4 In the VNC Server entry, type the default address of the ipeps mini: **192.168.1.42**

Note: One or more warning messages may be displayed regarding the 'VNC server not being recognized' and/or 'unencrypted connection'. If so, click the Continue button to proceed.

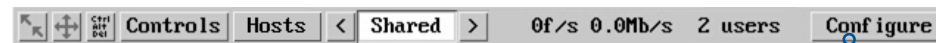
5 Click the OK button. If the module has not been previously configured, you will be asked to set an admin password:



6 Click the Enter Password button to display the Set Password popup:

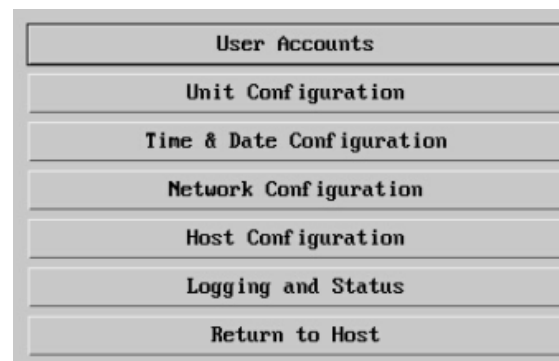


7 Enter a suitably strong password: it must have 8 or more characters and contain at least 1 letter, 1 digit and 1 special character. The input field will change from red to white when the password is suitably strong. Confirm the same password in the second field and click the OK button. Click the Continue button in the next popup to complete the process and access the Viewer window:



Click the Configure button

8 Click the Configure button to display the Configuration menu:



Use the various options (particularly the 'Unit Configuration' and 'Network Configuration' options) to arrange the ipeps mini to suit your requirements.

See "Appendix I - Remote configuration menus (via VNC)" on page 19.

PERFORMING A FLASH UPGRADE

The firmware in ipeps mini is fully upgradable and is carried out via remote connection (through the IP network port). Upgrades are digitally signed by Adder using a secure key. This prevents unauthorized or altered firmware images being downloaded into the unit.

To perform a flash upgrade

- 1 Download the latest firmware revision for the ipeps mini from the Adder website and decompress the download file. View the decompressed files and make a note of the name and location of the .bin file that was part of the download file collection.
- 2 Make a remote connection to the ipeps mini unit and login as the admin user.
- 3 Once logged in, click the 'Configure' button in the top right corner of the window.
- 4 Click the 'Unit Configuration' button.
- 5 Click the 'Advanced Unit Configuration' button.
- 6 Click the 'Firmware' button to view the following page:

Serial Number:	2305A0205230
Bootloader Firmware:	v1.09.70000 - 15:09 24/05/22
Recovery Firmware:	v1.09.80000 - 10:10 20/03/23
Current Firmware:	v0.01.10000 - 10:37 02/05/23
Firmware Upgrade:	Disabled
	Enable

- 7 Click the Enable button. The following popup message will be displayed:

Information

Upgrading firmware is done using a web browser. Visit <http://192.168.1.42> to perform the upgrade. (It may be necessary to press F5 to refresh the page)

- 8 Note the IP address shown in the dialog box and click OK.

- 9 The unit is now ready to accept the upgrade files. Open your browser and log into the ipeps mini using the IP address that was confirmed in the dialog. Once connected, the unit will show the following:

ipeps mini

Firmware Upgrade
Reboot

Firmware Upgrade

Upgrade

Please specify an upgrade firmware file.

Filename No file chosen

ADDER®
THE IP KVM PEOPLE

All content copyright © 2008-2023 Adder Technology Limited, all rights reserved.

- 10 Click the 'Choose File' button and locate the .bin upgrade file that you downloaded earlier. Click the 'Upgrade Now' button. The upgrade will take place and its progress will be shown on screen. The unit will then reboot automatically once the upgrade process has completed.

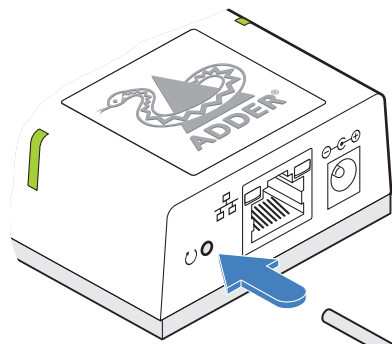
Note: If the flash upgrade fails, you can restore a backup firmware image to return the unit to a fully working state. See "Restoring a backup firmware image" on page 11.

RESTORING A BACKUP FIRMWARE IMAGE

The AdderLink ipeps mini module retains a backup image of the previous firmware version in order to provide a fallback in case of any issues with the primary image. The backup image has no video or USB functionality; once invoked, you will need to load an upgrade file using the web interface to load a new primary image - see “Performing a flash upgrade” on page 10.

To restore the backup firmware image

- 1 Power on the AdderLink ipeps mini module.
- 2 Use a narrow implement (e.g. a straightened-out paper clip) to press-and-hold the recessed reset button for roughly ten seconds until the indicators flash **green/red**.



Use a straightened-out paper clip to press the reset button for roughly 10 seconds

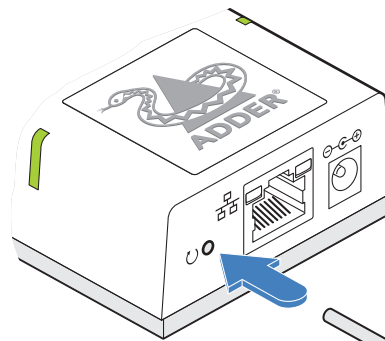
- 3 Release the reset switch.
- 4 The module will switch to the backup firmware image. Once complete, the module will then continually flash **green/red**.
- 5 Perform an upgrade to reinstate a fresh primary firmware image - see “Performing a flash upgrade” on page 10.

RESETTING

The recessed reset button provides a way to take control of the module if normal operation is affected.

To reset the module

- 1 Power on the module.
- 2 Use a narrow implement (e.g. a straightened-out paper clip) to press-and-hold the recessed reset button for more than 15 seconds until the status indicators turn **blue**:



Use a straightened-out paper clip to press the reset button for more than 15 seconds

- 3 Release the reset switch.

NOTE: Allow the module to fully complete the reset process by waiting for at least 30 seconds after you have released the reset button.

CONNECTING WITH THE HOST COMPUTER(S)

The AdderLink ipeps mini module allows up to eight concurrent users to remotely connect with a host computer. If an optional KVM switch is attached, a choice of multiple host computers becomes possible, although only one host may be selected at any one time.

Remote connections

The VNC Viewer® application is available to download from www.realvnc.com. It gives you the ability to view and control the AdderLink ipeps mini and its host computer(s).



To remotely connect with a host

- 1 Install and run the VNC Viewer application; a connection dialog will be displayed.
- 2 Enter the ipeps mini network address (*the default is 192.168.1.42*) into the search bar and press Enter (or double click the connection entry for the ipeps mini, if one has previously been created) - please consult the VNC Viewer documentation for further details.
The VNC Viewer will attempt make a connection to the AdderLink ipeps mini module. Once a connection is made, you should be presented with a login dialog.
- 3 When prompted for credentials, enter your username and password and click OK.

- 4 If a successful connection is made a new window will be opened with a VNC menu bar along the top edge:



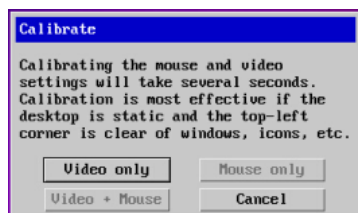
Note: The VNC Viewer Idle Timeout option is set to zero by default, meaning that it will not automatically disconnect.

Auto calibrate

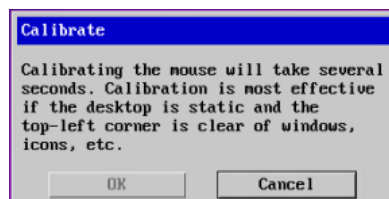
Auto calibrate will calibrate the mouse only if relative mouse mode is selected. This detects the mouse motion and will report back that the mouse has been calibrated correctly depending upon the operating system.

Note: When performing an auto calibration, ensure that the screen image is static (no moving images) and also try to remove any on-screen displays (such as host names or menus). This is because they can affect the calibration process and result in a lower overall performance level. For mouse calibration, ensure that there are no application windows located around the upper left corner of the screen. This is because as the mouse calibration takes place, the cursor may change (to match the application as it skims across the window) and this may confuse the calculation. Also ensure that the host system does not have the mouse cursor trails option enabled.

Click the button to display a dialog:



On VGA-equipped versions



On DP/HDMI-equipped versions

Click the required option to proceed with calibration.

See the notes on [Advanced mouse configuration](#) for more details.

Once this has been done, providing you use the 'Hosts' button to switch between host computers, the video settings for each machine will be re-used.

Re-synchronize mouse

If you find that your local mouse pointer and that of the host are not correctly synchronized, use this feature to re-align their movements. This operation is also selectable from the Controls menu.

To re-synchronize the mouse

- 1 Use the Hosts button to select the required computer.
- 2 Click the  button and then click OK in the subsequent pop-up message.

Note: If you find that this doesn't work, you may need to perform a mouse calibration again.

Access mode - shared/private

Up to eight remote users can be simultaneously logged-in and all will view the same host. If you need to perform a sensitive task that should not be viewed by other users, you can change the access mode to Private. This action prevents other users connecting at the same time.

To change the access mode

- 1 Click one of the arrow buttons adjacent to the Shared/Private indicator.



Controls

When clicked, this button reveals a menu of options concerned with keyboard, video and mouse operation.

Single Mouse Mode

This mode is for fast network connections where the cursor response is sufficient to provide instant visual feedback on the remote screen. When enabled, the cursor is 'captured' within the viewer window until you use the 'escape' hot keys.

To quit from single mouse mode, press F8 and then P. Alternatively, enable and use the mouse button escape sequences - see Advanced unit configuration for details.

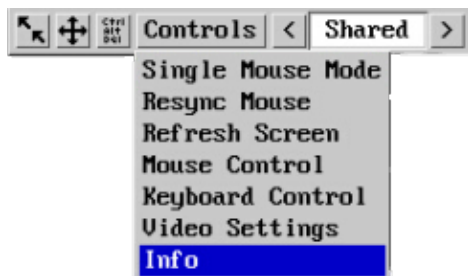
The single mouse mode does not require calibration.

Resync Mouse

This option has the same effect as the  button on the menu bar and re-synchronizes the local and remote mouse pointers.

Refresh Screen

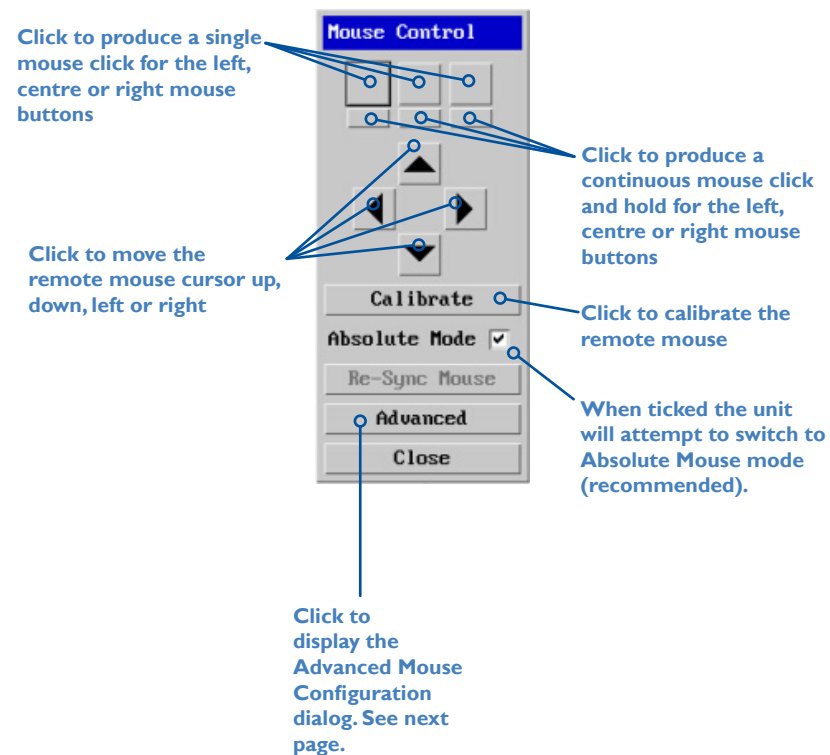
This option refreshes the whole screen image to remove any artefacts from moved screen items. This is useful when using very low refresh rates on slow speed communication links.



Mouse Control

This option displays a mouse control dialog and is useful when the remote cursor is failing to respond correctly to your mouse movements, even after using the Resync mouse option.

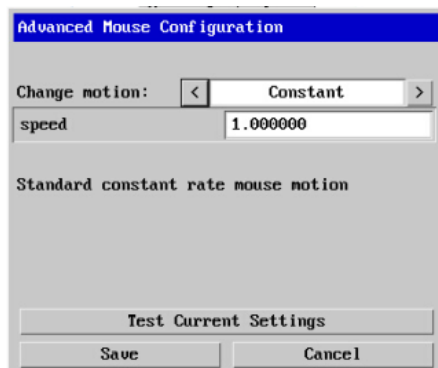
The mouse control dialog allows you to control the remote mouse cursor using a selection of buttons that you click with your local mouse.



Advanced mouse configuration

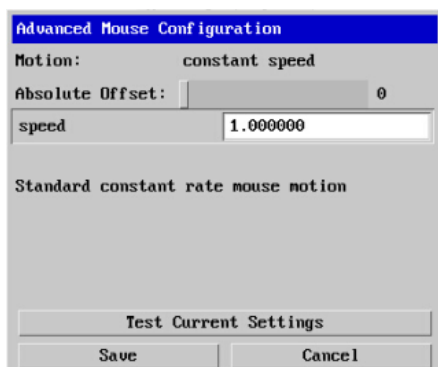
This dialog (accessible via the Mouse Control popup) allows the mouse acceleration to be configured according to the operating system in use and also permits manual fine tuning for situations where problems are encountered with the Calibrate function.

For best results, choose the appropriate *Change motion*: entry to match the host in use.



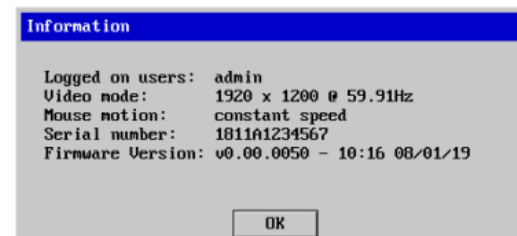
The available Change Motion schemes are: *Constant*, *Windows 7/8/10*, *Solaris*, *Solaris 9* and *Mac OSX*.

When the *Absolute Mode* option is ticked in the main [Mouse Control](#) menu, this dialog allows you to adjust the *Absolute Offset* scale:



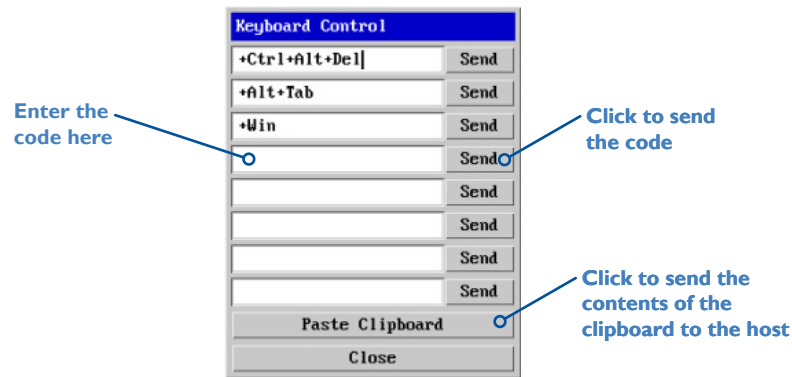
Info

When selected, this option displays an information dialog showing the current logged on users, the current host, its video mode and its mouse motion details.



Keyboard Control

This option displays a keyboard control dialog and is useful for sending keyboard combinations (to the host) that are needed regularly or that are trapped by the AdderLink ipeps mini module.



When entering codes:

- + means press down the key that follows
- means release the key that follows
- +– means press down and release the key that follows
- * means wait 250ms (note: if a number immediately follows the asterisk, then the delay will equal the number, in milliseconds)

It is automatically assumed that all keys specified will be released at the end, so there is need to specify -Ctrl or -Alt if these keys are to be released together.

Examples:

'Ctrl + Alt I2' would be expressed as: +Ctrl+ Alt+ I–I+2

+N means press the 'N' key

+Scroll means press the Scroll lock key

+Space means press the space key

Video Settings

This dialog provides access to all of the key video settings that determine image quality and link performance.

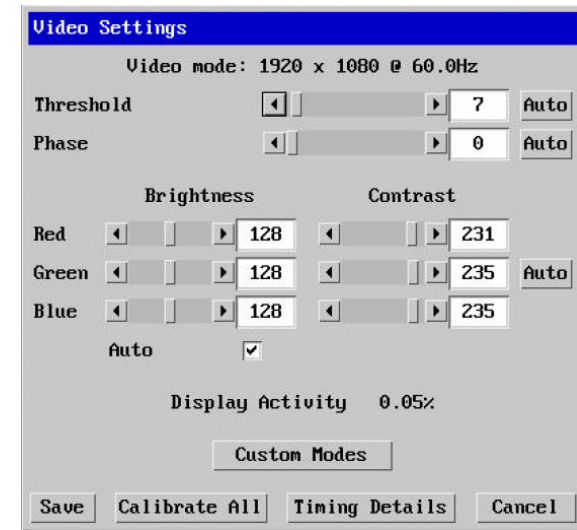
VGA models (for DisplayPort® and HDMI™ models, please see the next page)

Threshold

The threshold is effectively a noise filter that differentiates between valid video signals and background noise or interference. This has the effect of reducing unnecessary video signals between the ipeps mini and the remote system, thus improving performance.

Phase

The phase setting adjusts the alignment of the host video output and the remote system video display to achieve the sharpest image.



Brightness & contrast

Provides manual sliders and also automatic settings to optimize these important video constituents for the current host and connection speed.

Calibrate all

Click to determine the optimum settings for all aspects of video the video connection from the host system.

Timing details

Click to view specific horizontal and vertical video timings.

Display activity

Indicates the level of video activity currently in progress.

Using automatic configurations

- Every setting can be individually subjected to an automatic configuration (click the appropriate 'Auto' button) and most can also be manually adjusted.
- Use the 'Calibrate All' button to automatically determine the optimum settings for all items.

Note: Before using the 'Calibrate All' option, if possible, remove on-screen display (OSD) elements. These OSD elements use different video rates to those of the host system and can affect the setting of the automatic threshold value. The ipeps mini module uses an improved calculation procedure to filter out the effect of these elements. However, best results are obtained when the screen contains only host system information.

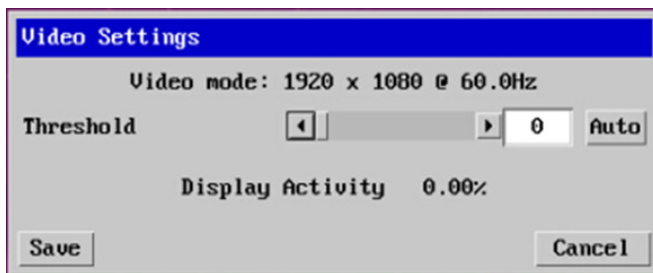
Note: To maximise performance, the threshold level is automatically increased by 50% when a slow link is detected.

Setting the Threshold manually

Occasionally it can be useful to manually adjust the Threshold setting, in order to achieve a setting that best suits your particular requirements.

- 1 Use the 'Calibrate All' function to ensure that all other settings are optimized.
- 2 Click the Threshold left arrow button to decrement the setting by one and observe the 'Display Activity' indicator.
- 3 Repeat step 2 until the Display Activity indicator suddenly rises to a much higher level (i.e. 50%). This will mean that you have reached the noise boundary. At this point, increment the Threshold value by 2 or 3 points to achieve an optimum setting.

DisplayPort® and HDMI™ models (for VGA models, please see the previous page)



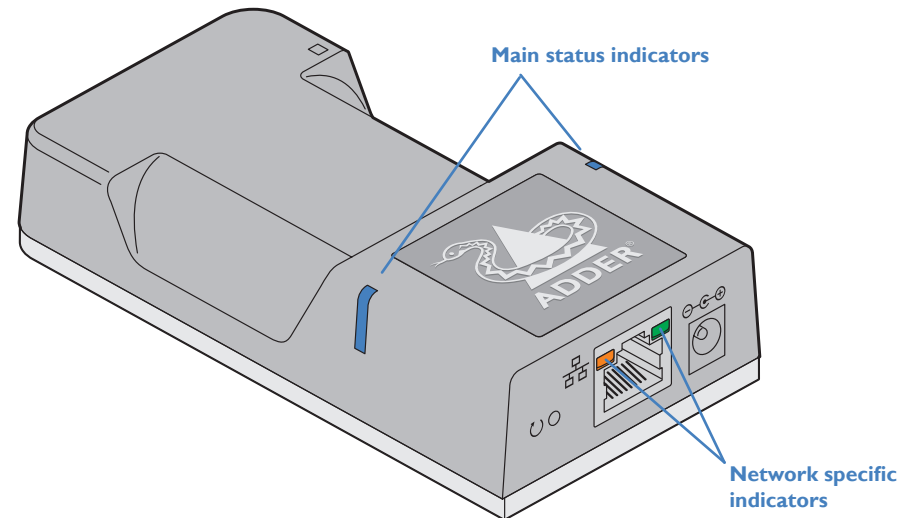
Threshold is effectively a noise filter that differentiates between valid video signals and background noise or interference. This has the effect of reducing unnecessary video signals between the ipeps mini module and the remote system, thus improving performance. A good way to choose the value is to watch the Display Activity indicator for a static screen. If the Threshold is too low, the Display Activity will be a high percentage while nothing is really changing. If the Threshold is too high, the Display Activity will be very low (or zero) but some real changes in the screen may be missed.

INDICATORS

The AdderLink ipeps mini module contains various indicators to provide you with status information.

Status indicators

The two top panel indicators on the unit provide a useful guide to operation:



Main status indicators

- Off No power
- Green Operating - Video, USB and network link all present
- Orange Operating - But video, USB and/or network link missing.
- Red (momentarily) Unit is booting up, or (consistently) Unit has failed, try rebooting.
- Red/green flashing Unit is in backup mode.
- Blue Factory reset has been activated.
- Red/blue flashing Unit is in upgrade mode.

Network specific indicators

- Orange Off: No link On: Link established
- Green Off: No link Flashing: Network activity On: Quiescent link

Further information



This chapter contains a variety of information, including the following:

- Getting assistance - see right
- [Appendix 1](#) - Remote configuration menus (via VNC®)
- [Appendix 2](#) - Networking issues
- [Appendix 3](#) - Security considerations
- [Appendix 4](#) - Product compatibility
- [Appendix 5](#) - Hotkey sequences
- [Appendix 6](#) - Open source licenses

GETTING ASSISTANCE

If you are still experiencing problems after checking the information contained within this guide, then please refer to the Support section of our website:

www.adder.com

INSTALLATION

CONFIGURATION

OPERATION

FURTHER
INFORMATION

INDEX

APPENDIX I - REMOTE CONFIGURATION MENUS (VIA VNC)

When connected remotely via VNC®, with admin privileges, a Configure button is made available on the right side of the VNC menu bar. The resulting configuration menu provides access to all main settings of the AdderLink ipeps mini module:



To view the main configuration menu

- 1 Using the VNC viewer® application, log on as the 'admin' user.
- 2 Click the 'Configure' button in the top right corner. The main configuration menu will be displayed (shown above).

The various configuration pages are covered within this appendix:

- [User Accounts](#)
 - [Menu Bar \(Gui edit configuration\)](#)
- [Unit Configuration](#)
 - [EDID Configuration](#)
 - [Console Configuration](#)
 - [Advanced unit Configuration](#)
- [Time & Date Configuration](#)
- [Network Configuration](#)
 - [IP Access Control](#)
- [Host Configuration](#)
- [Logging and Status](#)

User Accounts

There is one admin user account, which has full access to the configuration menu. Up to 15 users can be created by the admin user, each with their own password and access privileges.

Logged on users: admin

User Name	Password	View Only	Menu Bar
admin	Change Password	☐	Edit
	Enter Password	☐	Edit
	Enter Password	☐	Edit
	Enter Password	☐	Edit
	Enter Password	☐	Edit
	Enter Password	☐	Edit
	Enter Password	☐	Edit
	Enter Password	☐	Edit
	Enter Password	☐	Edit
	Enter Password	☐	Edit
	Enter Password	☐	Edit
	Enter Password	☐	Edit
	Enter Password	☐	Edit
	Enter Password	☐	Edit
	Enter Password	☐	Edit
	Enter Password	☐	Edit
	Enter Password	☐	Edit

Save User Configuration Cancel

To get here

- 1 Using VNC viewer®, log on as the 'admin' user.
- 2 Click the 'Configure' button in the top right corner.
- 3 Click the 'User Accounts' option.

User Name

All user names must consist of lower case characters, numbers and certain non-alphanumeric characters (e.g. '_') only. No symbols or upper case characters are permissible. The user name can be between 1 and 32 characters in length but cannot contain foreign characters.

Password

Click the button to display a password popup. Each password can be up to 16 characters in length. Passwords must be at least 8 characters, including at least 1 letter, 1 number and a special character.

View Only

When ticked, no control data (from keyboard or mouse) are sent to the ipeps mini.

Menu Bar

Optionally click to customize the menu bar for each user. See next page.

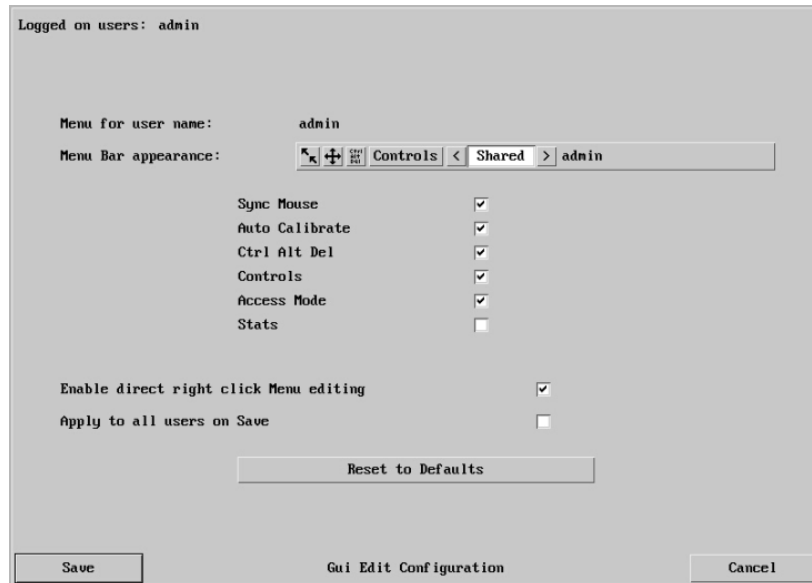
Menu Bar Edit (Gui Edit Configuration)

If required, you can customize the menu bar of the viewer window to ensure that it contains only the necessary options.

The menu bar can be edited locally by each user or edited singly by the admin or alternatively, the admin can globally alter the menu bar for all users.

To globally edit the menu bar via admin

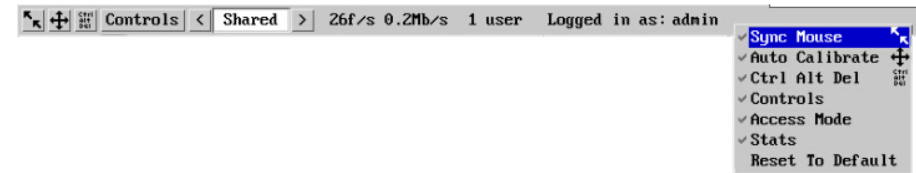
- 1 Using VNC viewer®, log on as the 'admin' user.
- 2 Click the 'Configure' button in the top right corner.
- 3 Click on User Accounts.
- 4 Click on the relevant Edit button to display the following page:



- 5 Tick/untick the required menu bar options and then click Save.

To edit the menu bar locally

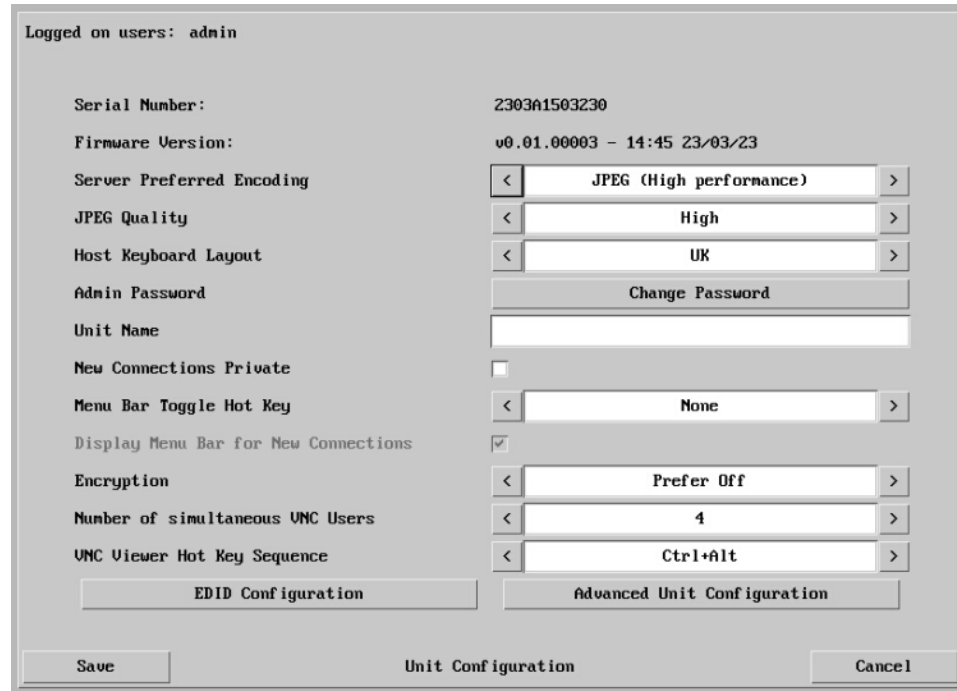
- 1 Login remotely via VNC viewer and display the viewer window.
- 2 Place the mouse pointer on the menu bar and click the right mouse button. A popup will be displayed:



- 3 Click on any option within the popup to add it to or remove it from the menu bar.
- 4 When all changes have been made, click anywhere else within the viewer window. Changes made in this way will affect the individual user only.

Unit Configuration

This page provides access to a selection of both basic and advanced settings for the AdderLink ipeps mini module.



Firmware Version

Indicates the version of the internal software within the AdderLink ipeps mini module flash memory.

Server Preferred Encoding

Determines the preferred graphics encoding method to be used across the VNC connection. Options are: JPEG (High performance), Use Viewer Preference, raw, RRE, hextile, TRLE, ZRLE. *Note: If the Use Viewer Preference option is selected, the user may have to reset the unit (see Advanced Unit Configuration) when switching between different VNC Viewer Preferred Encoding property settings.*

Host Keyboard Layout

Use the arrow buttons to match the keyboard layout expected by the host system. *Note: The chosen keyboard layout may be different from the keyboard layout being used by one or more remote users.*

Admin Password

Click the button to display a popup which allows you to optionally edit the password that will be used to gain administrator access to the AdderLink ipeps mini module.

Unit Name

The name entered here will be displayed on the remote VNC viewer/browser windows.

To get here

- 1 Using VNC viewer®, log on as the 'admin' user.
- 2 Click the 'Configure' button in the top right corner.
- 3 Click the 'Unit Configuration' option.

New Connections Private

Allows you to determine whether new VNC connections should be set up as private (when ticked) or as shared (when unticked).

Menu Bar Toggle Hot Key

Determines the function key that can be used to display/hide the menu bar within the VNC screen.

Display Menu Bar for New Connections

If a menu bar hot key is set (see above), this tick box option becomes available and determines whether or not a menu bar is shown when each new connection occurs.

Encryption

Four options are available: Always On, Always Maximum, Prefer Off or Prefer On. The one to choose depends on the specific details of your installation. The use of encryption imposes a slight performance overhead, but is highly secure against third party intrusion. Maximum selects 256 bit encryption.

Number of simultaneous VNC Users

Allows you to restrict the number of concurrent VNC sessions. The maximum number is 8 and the default is 4.

VNC Viewer Hot Key Sequence

When using the VNC Viewer, you can use key press combinations to select host computers and also to display the host selection menu. This option allows you to choose which keys should be used to form the hotkeys that will precede a switching command. The default setting is CTRL + ALT, so as an example when you press the CTRL ALT and 2 keys, the viewer will change to the host with "Hotkey Host Number" 2 - see [Host configuration](#).

There are three additional buttons at the foot of the page:

- [EDID Configuration](#) - Details the timings for the various video modes supported by the host computer and also allows you to edit timings where necessary. It is not normally necessary to make any changes within this section.
- [Advanced Unit Configuration](#) - Allows access to timings and calibration options which do not usually require attention.

EDID Configuration

This page details the timings for the various video modes supported by the host computer. The Edit Preferred, Standard & DVT Timing page also allows you to edit timings where necessary. It is not normally necessary to make any changes within these pages.

Logged on users: admin

Preferred Timing

Preferred Mode 1920 x 1080 @ 60Hz 148.50 MHz			
active	fp	sync	bp polarity
Horizontal 1920	88	44	148 Pos
active	fp	sync	bp polarity
Vertical 1080	4	5	36 Pos

Established Timing

☒ 720 x 400 @ 70 Hz	☒ 640 x 480 @ 60 Hz	☒ 640 x 480 @ 67 Hz	☒ 640 x 480 @ 72 Hz
☒ 640 x 480 @ 75 Hz	☒ 800 x 600 @ 56 Hz	☒ 800 x 600 @ 60 Hz	☒ 800 x 600 @ 72 Hz
☒ 800 x 600 @ 75 Hz	☒ 832 x 624 @ 75 Hz	☒ 1024 x 768 @ 60 Hz	☒ 1024 x 768 @ 70 Hz
☒ 1024 x 768 @ 75 Hz	☒ 1280 x 1024 @ 75 Hz	☒ 1152 x 870 @ 75 Hz	☒

Standard Timing

1920 x 1080 @ 60Hz	1920 x 1200 @ 60Hz	800 x 600 @ 85Hz	1024 x 768 @ 85Hz
1152 x 864 @ 75Hz	1280 x 960 @ 60Hz	1280 x 1024 @ 85Hz	1600 x 1200 @ 60Hz
1152 x 864 @ 60Hz	1280 x 1024 @ 67Hz	640 x 480 @ 85Hz	

Support Default GTF ☒ HDMI ☒

Monitor Name

Coordinated Video Timing (CUT)

Note: The HDMI checkbox is normally checked.

This string is displayed as the monitor type when Display Settings are displayed on the host PC.

Logged on users: admin

Preferred Timing Mode

Resolution: X @ Hz

Pixel Clock:

Active Front Sync Back Polarity

Porch

Horizontal

Vertical

Standard Timing Modes

X @ Hz

1920 x 1080 @ 60Hz
1920 x 1200 @ 60Hz
800 x 600 @ 85Hz
1024 x 768 @ 85Hz
1152 x 864 @ 75Hz

Coordinated Video Timing Modes

X @ Hz RB

1920 x 1200 @ 60Hz RB

Advanced Unit Configuration

Click this button to display advanced options that do not normally require alteration.

Logged on users: admin

Force VNC Protocol 3.3	☐
Idle Timeout (minutes)	60
Session Sleep Timeout (minutes)	20
Protocol Timeout (seconds)	20
Background Refresh Rate	< Slow >
Mouse Latency Allowance (milliseconds)	0
Mouse Rate (milliseconds)	8
Single Mouse Mode Mouse Switch	< Disabled >
Use Quick Mouse Calibration	☒
Use Absolute Mouse by default	☒
Set viewer cursor to arrow	☐
Behaviour for admin connections when limit reached	< Replace oldest connection >
Use VESA GTF	☒

Firmware
Remote Support
Multi Head
Reboot Unit

Save
Advanced Unit Configuration
Cancel

Force VNC Protocol 3.3

IMPORTANT: Protocol 3.3 is a legacy version that does not offer any encryption. Hashed passwords are not supported with 3.3

Idle Timeout

Determines the period of inactivity on a global connection before the user is logged out. The idle timeout period can be set to any time span, expressed in minutes.

Session Sleep Timeout

Determines the period of inactivity before the viewer screen will blank and a message is displayed.

Protocol Timeout

Sets the time period by which responses should have been received to outgoing data packets. If the stated period is exceeded, then a connection is considered lost and terminated.

Background Refresh Rate

Use the arrow keys to alter the background refresh rate used to correct any screen changes missed in normal operation. The options are: Slow, Medium, Fast, Auto or Disabled. The Auto option automatically varies the refresh rate when multiple VNC sessions are active to provide a balance between the sessions.

Note: When a low connection speed is detected, the background refresh is automatically disabled, regardless of the settings of this option.

Mouse Latency Allowance

This option (*used only for Relative Mouse mode*) is used during calibration to account for latency delays that may be caused as signals pass through a device.

During calibration, the AdderLink ipeps mini module waits for 40ms after each mouse movement before sampling the next. If a device adds a significant delay to the flow of data, the calibration process can be lengthened or may fail entirely. The value entered here is added to (or subtracted from) the default 40ms sampling time.

Note: You can enter negative values (down to -40) in order to speed up the calibration process when using fast KVM switches. Use this option with caution as it can adversely affect the calibration process.

Mouse Rate

Defines the rate at which mouse movement data are transmitted to the system. The default option is 20ms, which equates to 50 mouse events per second. This is used to slow down the rate in exceptional circumstances but normally requires no adjustment.

Single Mouse Mode Mouse Switch

Select the mouse button combination to exit from single mouse mode (when active).

Use Quick Mouse Calibration

Invokes optimized calibration techniques that handle the majority of mouse types (*used only for Relative Mouse mode*).

Use Absolute Mouse by default

When selected, absolute mouse positioning data will be used rather than relative values.

Set viewer cursor to arrow

When checked, the viewer's mouse cursor will default to an arrow.

Behaviour for admin connections when limit reached

Determines what should occur when the limit on VNC® users is reached. Options are: *Replace oldest connection*, *Replace newest connection* and *Don't replace*.

Firmware

Allows you to upgrade the firmware of the AdderLink ipeps mini module. See page 10.

Remote Support

The AdderLink ipeps mini unit has a remote support feature which allows technical support to connect, should the need arise. It works by establishing a secure SSL connection with a managed secure server hosted on the internet. Using a reverse tunnel, technical support can connect to the unit via the secure server. Each support representative has their own unique SSL keys for full traceability when making a remote connection.

Adder Technical Support will guide you through the enabling process and confirm whether the standard port number 22 needs to be changed.

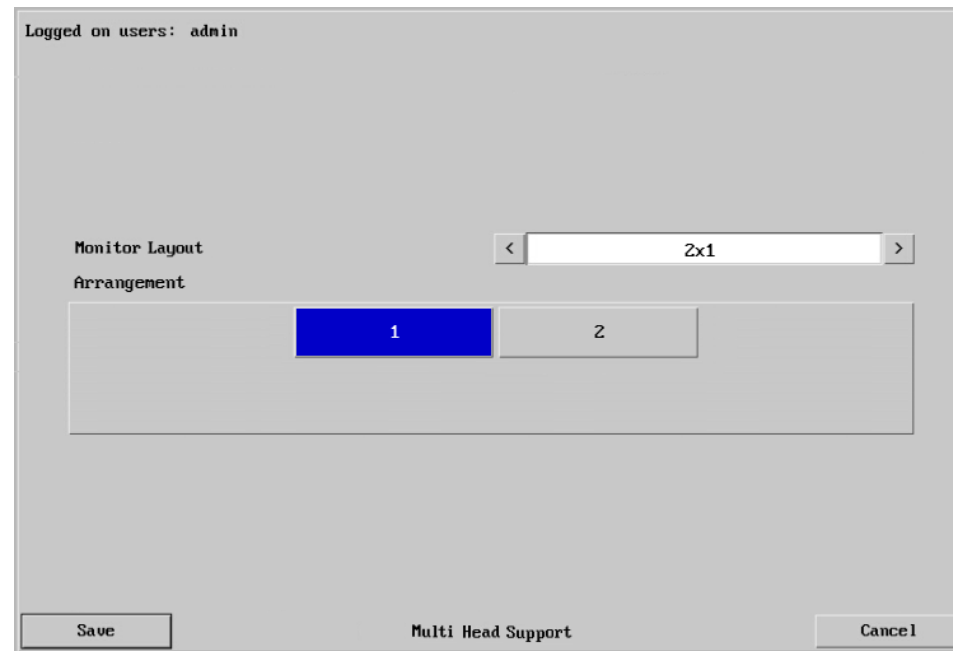
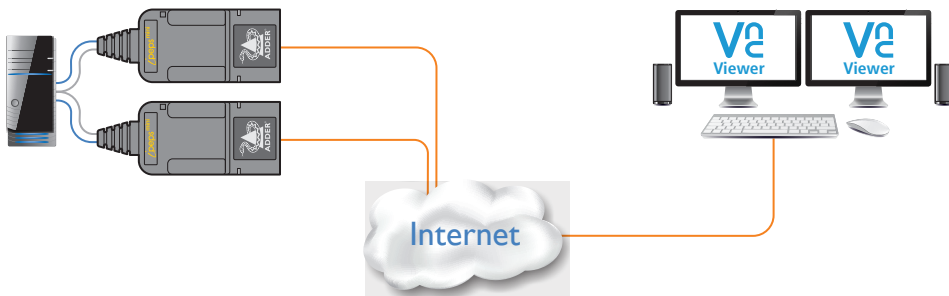
Multi Head

When clicked the Multi Head Support dialog (shown right) is displayed. This allows you to configure connection to a multi-head computer that has up to 4 displays. A separate ipeps mini module is used to connect to each head, each accessed by a separate VNC session. All ipeps mini modules are required to have a video and USB connection to the host computer.

The standard VNC Viewer® application, downloaded from www.realvnc.com, will suffice.

Note: Multi-head operation relies upon the host computer using Single mouse mode.

The Multi Head Support dialog is used to specify that multi-head mode is being used, as well as confirming the monitor layout and which monitor within the layout this ipeps mini module is connected to:



Monitor Layout

Layout are specified in the format HxV, where H is number of horizontal displays and V are the vertical number. The list of choices is: 1x1 (default single head), 2x1, 4x1, 2x2, 1x2.

Arrangement

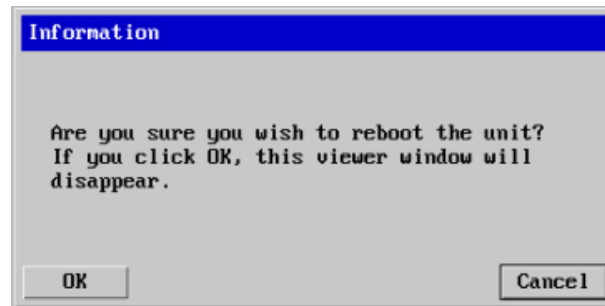
The graphic shows the chosen monitor layout. You should select the position of the ipeps mini module within the layout.

Note: There are no communications between ipeps mini modules, so it is up to you to ensure that each one is configured correctly.

Although it is possible to move the mouse between displays, there is a restriction when dragging items, such as windows. It is only possible to drag the mouse to the display edge. You should then move the mouse to the target display to complete the drag. If this is not possible, then you should use the Move command to move the window using cursor keys instead.

Reboot Unit

Performs a complete cold boot of the AdderLink ipeps mini module.



Time & Date Configuration

This page allows you to configure all aspects relating to time and date within the unit.

Logged on users: admin

Time And Date

Timezone specifier (e.g. EST5)

Use NTP

NTP Server IP address

Set Time from NTP Server

Save Time & Date Configuration Cancel

Use NTP

When this option is selected, the AdderLink ipeps mini module will synchronize its internal clocks using information from the (Network Time Protocol) server listed in the NTP Server IP address field.

NTP Server IP address

Optionally enter the IP address for a known Network Time Protocol server (the Use NTP option needs to be checked).

Set Time from NTP Server

Click to immediately use the time and date information from the listed NTP server.

Timezone specifier

Optionally enter a recognized timezone specifier related to the current position of the AdderLink ipeps mini module. When an NTP server is used, the specifier will be used to provide the correct real time.

The timezone specifier takes the following form:

std offset dst [offset], start[/time], end[/time]

The *std* and *offset* specify the standard time zone, such as GMT and 0, or CET and -1, or EST and 5, respectively.

The *dst* string and *[offset]* specify the name and offset for the corresponding Daylight Saving Time zone; if the *offset* is omitted, it defaults to one hour ahead of standard time. The remainder of the specification describes when Daylight Saving Time is in effect. The *start* field is when Daylight Saving Time goes into effect and the *end* field is when the change is made back to standard time. The most common format used for the daylight saving time is: *Mm.w.d*

Where: *m* specifies the month and must be between 1 and 12. The day *d* must be between 0 (Sunday) and 6. The week *w* must be between 1 and 5; week 1 is the first week in which day *d* occurs, and week 5 specifies the last *d* day in the month.

The *time* fields specify when, in the local time currently in effect, the change to the other time occurs. If omitted, the default is 02:00:00.

Typical examples are:

UK:	GMT0BST,M3.5.0/1,M10.5.0/2
Central Europe:	CET-1CEST,M3.5.0/2,M10.5.0/3
US Eastern:	EST5EDT,M3.2.0/2,M11.1.0/2
US Pacific:	PST5PDT,M3.2.0/2,M11.1.0/2

For further details

- For details of timezone specifier formats, please refer to: http://www.gnu.org/software/libc/manual/html_node/TZ-Variable.html
- For details of the Network Time Protocol (main RFC number: 1305; the SNTP subset used as the basis for the AdderLink ipeps mini module: 4330) <http://www.ietf.org/rfc.html>

To get here

- 1 Using VNC viewer®, log on as the 'admin' user.
- 2 Click the 'Configure' button in the top right corner.
- 3 Click the 'Time & Date Configuration' option.

Network Configuration

This page allows you to configure the various aspects of the IP port. See also [Appendix 3 - Networking issues](#) for useful configuration advice.

Logged on users: admin

MAC address: 00:0F:58:04:91:2F

Use DHCP	☐
IP Address	192.168.1.42
IP Network Mask	255.255.255.0
IP Gateway	0.0.0.0
DNS Server	8.8.8.8

VNC Port: 5900

IP Access Control

Add Remove Up Down Edit

+0.0.0.0/0.0.0.0

Save Network Configuration Cancel

MAC address

Media Access Control address – this is the unique and unchangeable code that was hard coded within the module when it was built. It consists of six 2-digit hexadecimal (base 16) numbers separated by colons. A section of the MAC address identifies the manufacturer, while the remainder is effectively the unique electronic serial number of your particular unit.

Use DHCP

Determines whether a DHCP (Dynamic Host Configuration Protocol) server should be consulted on the connected network to automatically set an appropriate IP Address, IP Network Mask and IP Gateway.

IP Address

If the *Use DHCP* option is set to No, use this option to set an IP address for the AdderLink ipeps mini module which is appropriate for the network to which it is connected.

To get here

- 1 Using VNC viewer®, log on as the 'admin' user.
- 2 Click the 'Configure' button in the top right corner.
- 3 Click the 'Network Configuration' option.

IP Network Mask

If the *Use DHCP* option is set to No, use this option to set a subnet-mask for the AdderLink ipeps mini module which is appropriate for the network to which it is connected.

IP Gateway

If the *Use DHCP* option is set to No, use this option to set a gateway address for a network router which gives access to another network, to be used whenever a required address lies outside the current network.

DNS Server

If the *Use DHCP* option is set to No, enter a valid IP address here for a Domain Name System server which is reachable through the connected network.

VNC Port

This is the logical link through which communications with a remote VNC viewer will be channelled. The default setting is 5900 which is a widely recognized port number for use by VNC software. However, in certain circumstances it may be advantageous to alter this number - see 'Security issues with ports' for more details.

IP Access Control

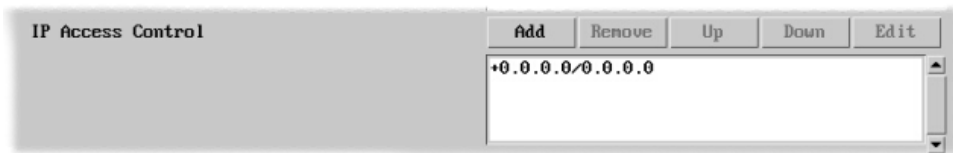
This section allows you to optionally specify ranges of addresses which will or won't be granted access to the AdderLink ipeps mini module. If this option is left unchanged, then the default entry of '+0.0.0.0/0.0.0.0' ensures that access from all IP addresses will be permitted. See [Setting IP access control](#) for details.

Setting IP Access Control

The golden rule with this feature is 'Include before you exclude' or to put it another way 'Arrange *allowed* addresses in the list *before* the *denied* addresses'.

This is because the positions of entries in the list are vitally important. Once a range of addresses is denied access, it is not possible to make exceptions for particular addresses within that range. For instance, if the range of addresses from A to F are denied access first, then the address C could not be granted access lower down the list. Address C needs to be placed in the list before the denied range.

IMPORTANT: This feature should be configured with extreme caution as it is possible to deny access to everyone. If such an error occurs, you will need to perform a reset to factory default settings in order to regain access.



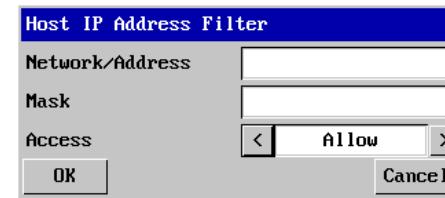
In the list, access control addresses prefixed by '+' are allow entries while those prefixed by '-' are deny entries.

To get here

- 1 Using VNC viewer®, log on as the 'admin' user.
- 2 Click the 'Configure' button in the top right corner.
- 3 Click the 'Network Configuration' option.
- 4 In the Set IP Access section, click Add or Edit, as necessary.

To define a new IP access control entry

- 1 Click the Add button to display a popup dialog:



Network/Address

Enter the network address that is to be allowed or denied access. If a range of addresses is being specified then specify any one of the addresses within the range and use the Mask entry to indicate the size of the range.

Mask

Enter an IP network mask that indicates the range of addresses that are to be allowed or denied access. For instance, if only a single specified IP address were to be required, the mask entry would be 255.255.255.255 in order to specify a single location.

Access

Use the arrow buttons to select either 'Allow' or 'Deny' as appropriate.

- 2 Enter the base network address, the mask and select the appropriate access setting.
- 3 Click the OK button.

To reorder access control entries

IMPORTANT: When reordering, ensure that any specific allowed addresses are listed higher in the list than any denied addresses. Take care not to invoke any deny access settings that would exclude valid users.

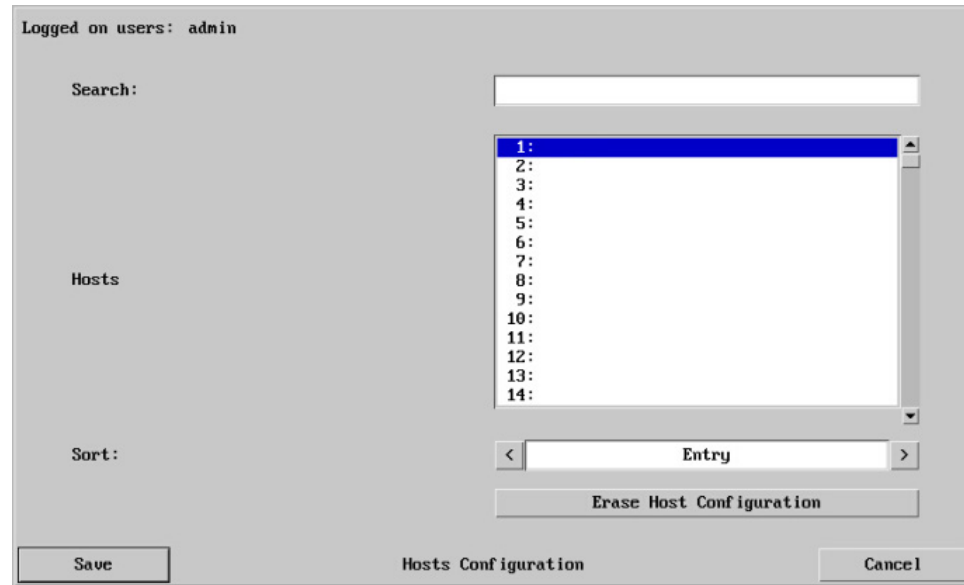
- 1 In the access control list, click on the entry to be moved.
- 2 Click the Up or Down buttons as appropriate.

To edit/remove access control entries

- 1 In the access control list, click on the appropriate entry.
- 2 Click either the Edit or Remove button as appropriate.

Host Configuration

This page provides the opportunity to configure various details for each of the host systems that may be connected to the AdderLink ipeps mini module. Each entry can be configured with a name, the permitted users, the hot key combinations required to switch to it and, if required, appropriate power control commands.



The 'Hosts Configuration' dialog box is shown. It has a title bar 'Hosts Configuration'. At the top left, it says 'Logged on users: admin'. Below this is a 'Search:' field. In the center is a list box labeled 'Hosts' containing entries from '1:' to '14:'. Below the list box is a 'Sort:' section with a dropdown menu currently showing 'Entry'. At the bottom left is a 'Save' button, at the bottom right is a 'Cancel' button, and in the center bottom is an 'Erase Host Configuration' button.

Sort

Allows you to reorder the list of hosts either alphabetically or by entry number.

Erase Host Configuration

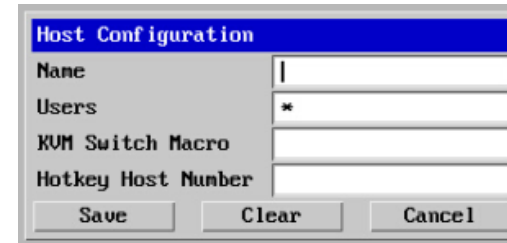
Removes all hosts from the list.

To get here

- 1 Using VNC viewer®, log on as the 'admin' user.
- 2 Click the 'Configure' button in the top right corner.
- 3 Click the 'Host Configuration' option.

To create a new host entry

- 1 Click one of the host entries to reveal a Host configuration dialog.



The 'Host Configuration' dialog box is shown. It has a title bar 'Host Configuration'. It contains four input fields: 'Name' (with a cursor), 'Users' (containing '*'), 'KVM Switch Macro' (empty), and 'Hotkey Host Number' (empty). At the bottom are three buttons: 'Save', 'Clear', and 'Cancel'.

- 2 Enter the required information in each field.

- 3 Click the OK button.

Name

Enter the name that will be displayed in the viewer window when you click the Host button.

Users

Select the users that will be permitted to connect to this host. Either enter * to allow all users or a list of users separated by commas.

KVM Switch Macro

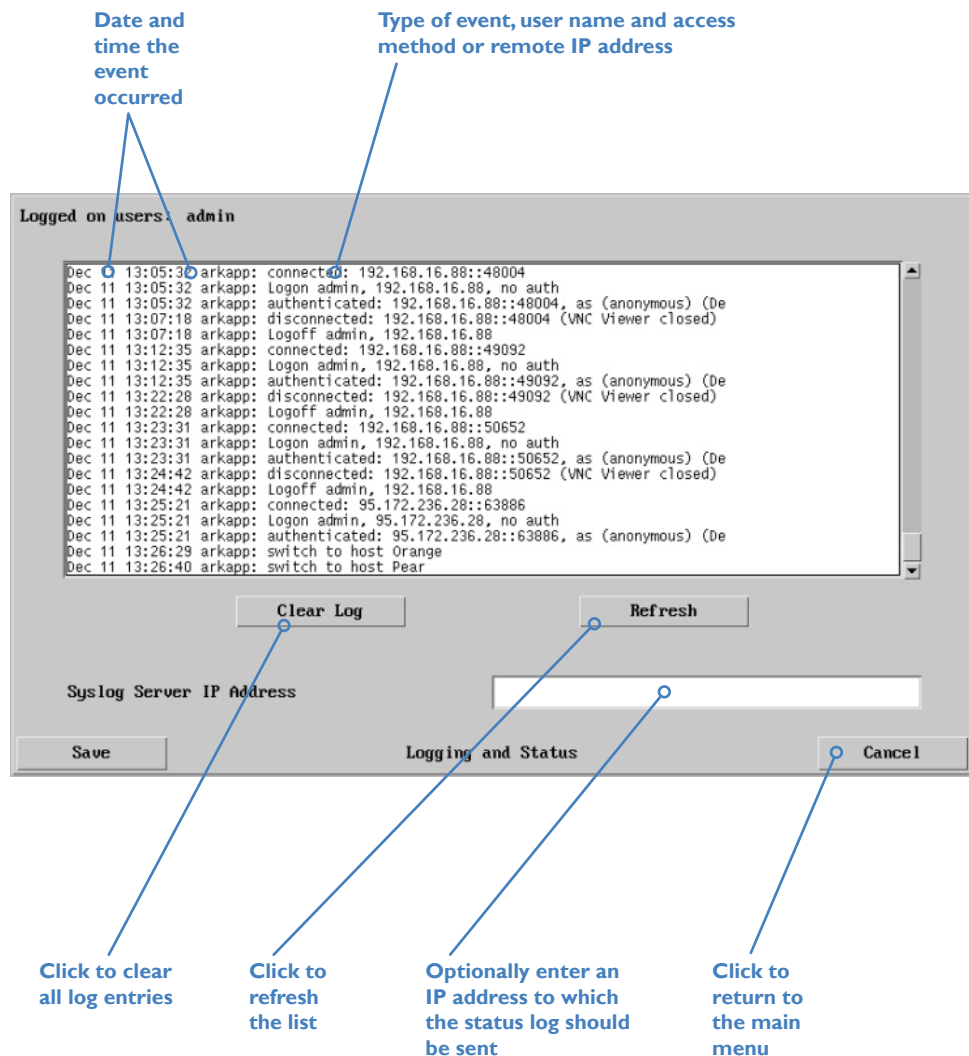
Declare the hot key sequence that will cause the KVM switch to link with the required host system. *Note: If this is left blank, the host will not be included in the Hosts menu.*

Hotkey Host Number

Declare the numeric sequence that is pressed together with the VNC viewer hotkeys (usually Ctrl + Alt) to select this host system, which is the same value as the KVM port number.

Logging and Status

This screen provides various details about the user activity on the AdderLink ipeps mini module.



The screenshot shows the 'Logging and Status' window. At the top, it says 'Logged on users: admin'. Below this is a list of log entries. Annotations point to various parts of the window:

- Date and time the event occurred:** Points to the timestamp '13:05:30' in the first log entry.
- Type of event, user name and access method or remote IP address:** Points to the event description 'arkapp: connect' and the IP address '192.168.16.88' in the first log entry.
- Click to clear all log entries:** Points to the 'Clear Log' button.
- Click to refresh the list:** Points to the 'Refresh' button.
- Optionally enter an IP address to which the status log should be sent:** Points to the 'Syslog Server IP Address' text input field.
- Click to return to the main menu:** Points to the 'Cancel' button.

The log entries include:

```

Dec 11 13:05:30 arkapp: connect: 192.168.16.88::48004
Dec 11 13:05:32 arkapp: Logon admin, 192.168.16.88, no auth
Dec 11 13:05:32 arkapp: authenticated: 192.168.16.88::48004, as (anonymous) (De
Dec 11 13:07:18 arkapp: disconnected: 192.168.16.88::48004 (VNC Viewer closed)
Dec 11 13:07:18 arkapp: Logoff admin, 192.168.16.88
Dec 11 13:12:35 arkapp: connected: 192.168.16.88::49092
Dec 11 13:12:35 arkapp: Logon admin, 192.168.16.88, no auth
Dec 11 13:12:35 arkapp: authenticated: 192.168.16.88::49092, as (anonymous) (De
Dec 11 13:22:28 arkapp: disconnected: 192.168.16.88::49092 (VNC Viewer closed)
Dec 11 13:22:28 arkapp: Logoff admin, 192.168.16.88
Dec 11 13:23:31 arkapp: connected: 192.168.16.88::50652
Dec 11 13:23:31 arkapp: Logon admin, 192.168.16.88, no auth
Dec 11 13:23:31 arkapp: authenticated: 192.168.16.88::50652, as (anonymous) (De
Dec 11 13:24:42 arkapp: disconnected: 192.168.16.88::50652 (VNC Viewer closed)
Dec 11 13:24:42 arkapp: Logoff admin, 192.168.16.88
Dec 11 13:25:21 arkapp: connected: 95.172.236.28::63886
Dec 11 13:25:21 arkapp: Logon admin, 95.172.236.28, no auth
Dec 11 13:25:21 arkapp: authenticated: 95.172.236.28::63886, as (anonymous) (De
Dec 11 13:26:29 arkapp: switch to host Orange
Dec 11 13:26:40 arkapp: switch to host Pear
  
```

To copy and paste the log

You can copy the information listed within the log and paste it into another application.

- 1 While viewing the log screen, press Ctrl and C, to copy the data into the clipboard.
- 2 In a text application (i.e. Word, WordPad, Notepad) press Ctrl and V, or right mouse click and 'Paste'.

Syslog Server IP Address

Logging information can optionally be sent, as it occurs, to a separate system using the standard Syslog protocol. Enter the IP address of a suitable system in the field provided.

For further details

- For details of the Syslog protocol (RFC number: 3164) <http://www.ietf.org/rfc.html>

To get here

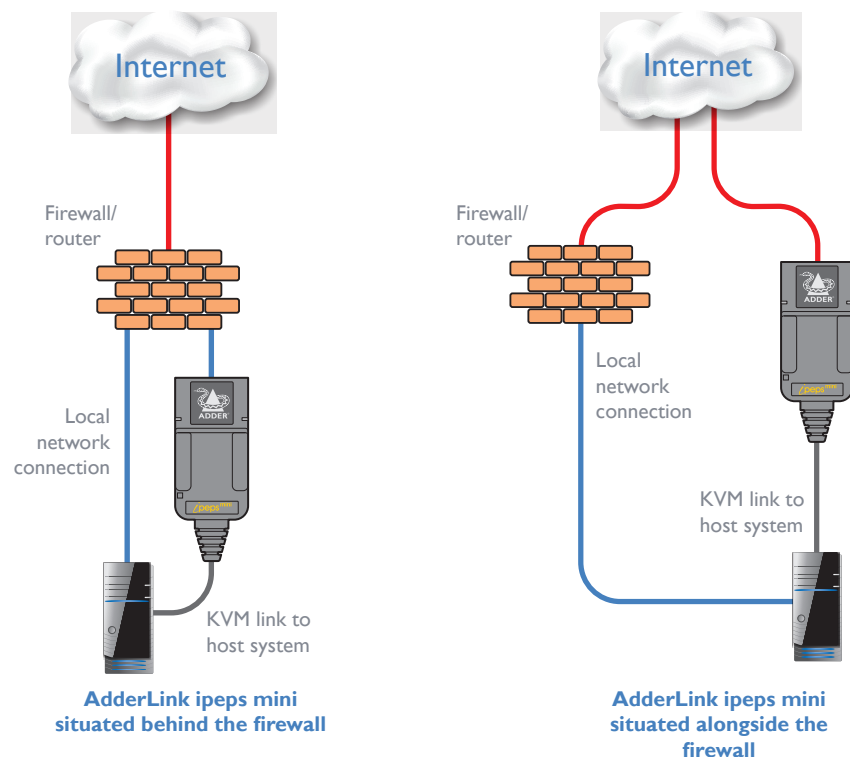
- 1 Using VNC viewer® log on as the 'admin' user.
- 2 Click the 'Configure' button in the top right corner.
- 3 Click the 'Logging and Status' option.

APPENDIX 2 - NETWORKING ISSUES

Thanks to its robust security the AdderLink ipeps mini offers you great flexibility in how it integrates into an existing network structure. The AdderLink ipeps mini is designed to reside either on an internal network, behind a firewall/router or alternatively with its own direct Internet connection.

Positioning AdderLink ipeps mini in the network

Every network setup is different and great care needs to be taken when introducing a powerful device such as the AdderLink ipeps mini into an existing configuration. A common cause of potential problems can be in clashes with firewall configurations. For this reason the AdderLink ipeps mini is designed to be intelligent, flexible and secure. With the minimum of effort the AdderLink ipeps mini can reside either behind the firewall or alongside with its own separate Internet connection.



IMPORTANT: When the AdderLink ipeps mini is accessible from the Internet, you must ensure that sufficient security measures are employed.

Placing AdderLink ipeps mini behind a router or firewall

A possible point of contention between the AdderLink ipeps mini and a firewall can occasionally arise over the use of IP ports. Every port through the firewall represents a potential point of attack from outside and so it is advisable to minimize the number of open ports. The AdderLink ipeps mini usually uses two separate port numbers, however; these are easily changeable and can even be combined into a single port.

IMPORTANT: The correct configuration of routers and firewalls requires advanced networking skills and intimate knowledge of the particular network. Adder Technology cannot provide specific advice on how to configure your network devices and strongly recommend that such tasks are carried out by a qualified professional.

Port settings

As standard, the AdderLink ipeps mini uses two ports to support its two types of viewer:

- **Port 80** for users making contact with a web browser; and
- **Port 5900** for those using the VNC viewer®.

When these port numbers are used, VNC viewers and web browsers will locate the AdderLink ipeps mini correctly using only its network address. The firewall/router must be informed to transfer traffic, requesting these port numbers, through to the AdderLink ipeps mini.

If you need to change the VNC port number

If you change the VNC port to anything other than 5900, then each VNC viewer user will need to specify the port address as well as the IP address. For instance, if you set the VNC port to '11590' and the IP address is '192.168.47.10' then VNC viewer users will need to enter:

192.168.47.10::11590

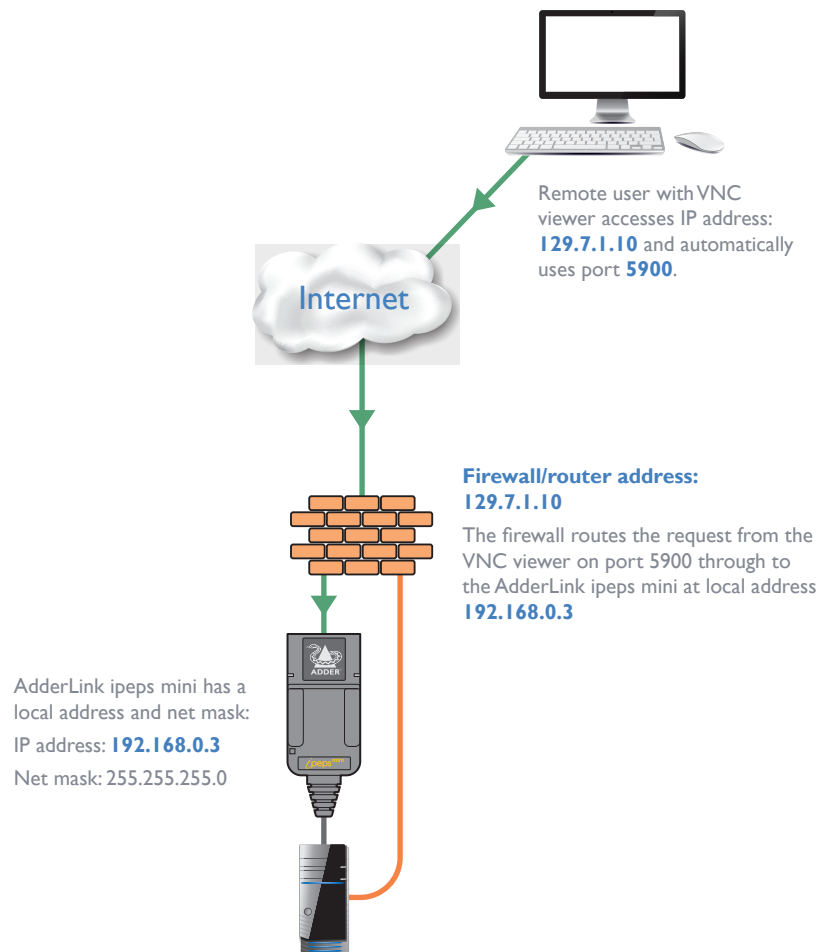
(Note the **double** colons that separate the IP address and port number).

The firewall/router would also need to be informed to transfer all traffic to the new port number through to the AdderLink ipeps mini.

Addressing

When the AdderLink ipeps mini is situated within the local network, you will need to give it an appropriate local IP address and IP network mask. This is achieved most easily using the DHCP server option which will apply these details automatically. If a DHCP server is not available on the network, then these details need to be applied manually in accordance with the network administrator.

The firewall/router must then be informed to route incoming requests to port 5900 or port 80 (if available) through to the local address being used by the AdderLink ipeps mini.



Placing AdderLink ipeps mini alongside the firewall

AdderLink ipeps mini is built from the ground-up to be secure. It employs a sophisticated 128bit public/private key system that has been rigorously analysed and found to be highly secure (a security white paper is available upon request from Adder Technology Ltd). Therefore, you can position the AdderLink ipeps mini alongside the firewall and control a computer that is also IP connected within the local network.

IMPORTANT: If you make the AdderLink ipeps mini accessible from the public Internet, care should be taken to ensure that the maximum security available is activated. You are strongly advised to enable encryption and use a strong password. Security may be further improved by restricting client IP addresses, using a non-standard port number for access.

Ports

In this configuration there should be no constraints on the port numbers because the AdderLink ipeps mini will probably be the only device at that IP address. Therefore, maintain the HTTP port as 80 and the VNC port as 5900.

Addressing

When the AdderLink ipeps mini is situated alongside the firewall, it will require a public static IP address (i.e. one provided by your Internet service provider).

More addressing information:

[Discover DHCP-allocated addresses](#)

[DNS addressing](#)

APPENDIX 3 - SECURITY CONSIDERATIONS

The security capabilities offered by the AdderLink ipeps mini are only truly effective when they are correctly used. An open or weak password or unencrypted link can cause security loopholes and opportunities for potential intruders. For network links in general and direct Internet connections in particular, you should carefully consider and implement the following:

- Ensure that [encryption is enabled](#).
- Ensure that you have selected secure passwords with at least 8 characters, a mixture of upper and lower case and numeric characters plus a special character.
- Reserve the admin password for administration use only and use a non-admin user profile for day-to-day access.
- Use the latest Secure VNC viewer (this has more in-built security than is available with the Java viewer).
- Use non-standard [port numbers](#).
- Restrict the range of IP addresses that are allowed to access the AdderLink ipeps mini to only those that you will need to use. To [restrict IP access](#).
- Do NOT Force VNC protocol 3.3.
- Ensure that the computer accessing the AdderLink ipeps mini is clean of viruses and spyware and has up-to-date firewall and anti-virus software loaded that is appropriately configured.
- Avoid accessing the AdderLink ipeps mini from public computers.

Security can be further improved by using the following suggestions:

- Place the AdderLink ipeps mini behind a firewall and use port the numbers to route the VNC network traffic to an internal IP address.
- Review the activity log from time to time to check for unauthorized use.
- Lock your server consoles after they have been used.

A security white paper that gives further details is available upon request from Adder Technology Limited.

Older versions of VNC Viewer

Although ipeps mini allows passwords of up to 16 characters, versions of VNC Viewer pre 4.2 will only validate up to 8 characters. Administrators may prevent such access by setting the encryption scheme to 'Always On' or 'Always Max'. See page 22.

APPENDIX 4 - PRODUCT COMPATIBILITY

AdderLink ipeps mini is compatible with the following Adder products:

- AdderView DDX and AdderLink XDIP small Matrix systems.
- AdderLink Infinity 1000 and AdderLink Infinity 2000 receivers to allow a VNC connection into an Infinity Matrix.
- AdderView AV4PRO KVM switch to allow remote access to four USB/DVI computers.

APPENDIX 5 - HOTKEY SEQUENCES

AdderLink ipeps mini allows you to enter commands suitable for any KVM switch in order to choose from up to 128 host systems. These switching commands can take the form of hotkey sequences that emulate standard keypress combinations or, for KVM switches that support the Adder Port Direct format, merely basic port numbers.

Hotkey sequences

Almost any combination of keypresses can be emulated using the following notations:

- +** means press down the key that follows;
- means release the key that follows
- +—** means press and then release the key that follows
- *** means add a delay. The standard delay period is 250ms, however, if a number immediately follows the asterisk, this will define an alternate delay period (in milliseconds)

Notes

- The entries are not case sensitive.
- All characters can be entered using their ASCII codes, from 32 to 126 (i.e. A,B,C, ... 1,2,3 etc.) with the exception of the special characters above.
- It is not necessary to specify all keys to be released at the end because they are all released automatically after the last code.
- A number of KVM switches from alternative manufacturers use hot key sequences that begin with a press/release of either the Scroll Lock or Ctrl keys. These often require a delay between the initial key press and the channel number to allow the switch to respond. A 500ms delay is usually sufficient.

Examples

To send the command *Ctrl + Alt 4* you should use the following: `+Ctrl+Alt+4`.

To send the command *Ctrl + Alt 12* you should use the following: `+Ctrl+ALT+—1+2` (the '+—1' entry causes the 1 key to be pressed and released before the 2 key is pressed).

To send the command *Scroll lock 1 + Enter* (with a 500ms delay) you should use the following: `+—Scr*500+1+Ent`

Main control keys (see 'Using abbreviations')

Backspace | Tab | Return | Enter | Ctrl | Alt | Win | Shift | LShift | RShift
LCtrl | RCtrl | LAlt | AltGr | RAlt | LWin | RWin | Menu | Escape | Space
CapsLock | NumLock | PrintScreen | Scrolllock

Math operand keys (see 'Using abbreviations')

Add (Plus) | Subtract (Minus) | Multiply

Central control keys (see 'Using abbreviations')

Insert | Delete | Home | End | PageUp | PageDown

Up | Down | Left | Right | Print | Pause

Keypad keys (see 'Using abbreviations')

KP_Insert | KP_Delete | KP_Home | KP_End | KP_PageUp

KP_PageDown | KP_Up | KP_Down | KP_Left | KP_Right | KP_Enter

KP_Add | KP_Subtract | KP_Divide | KP_Multiply

KP_0 to KP_9

Function keys

F1 | F2 | F3 | F4 | F5 | F6 | F7 | F8 | F9 | F10 | F11 | F12

Creating macro sequences

Hot key macro sequences can be up to 256 characters long. All keys are assumed to be released at the end of a line, however, you can also determine that a key is pressed and released within a sequence. Any of the following three examples will send a command that emulates and a press and release of the Scroll Lock key:

`+SCROLL-SCROLL`

`+—SCROLL`

`+SCROLL—`

Example:

`+—SCROLL+—SCROLL+1+ENTER`

Press and release scroll twice, press 1 then enter then release all keys (equivalent definition is `+SCROLL-SCROLL+SCROLL-SCROLL+1+ENTER—1—ENTER`)

Using abbreviations

To reduce the length of the key definitions, any unique abbreviation for a key can be used. For example: "scroll", "scr" and even "sc" all provide an identifiable match for "ScrollLock" whereas "en" could not be used because it might mean "Enter" or "End" ("ent" would be suitable for "Enter").

Note: Hotkey sequences and abbreviations are not case sensitive.

For information about where to enter these codes, please see the section [Host configuration](#).

APPENDIX 6 - OPEN SOURCE LICENSES

This product includes binaries that are derived from the open source community. The modules listed below are licenced under the GNU General Public License v2 and must be provided, in source form, on request:

dtc
u-boot-xlnx
linux-xlnx
busybox
util-linux
udev
termcap
mtd-utils
libpbe
stress
haserl

This product includes binaries that are derived from the open source community. The modules listed below are licenced under the GNU Lesser General Public License v2.1 and must be provided, in source form, on request:

kmod
libdaemon
avahi
libgpg-error
libgcrypt
gnutls
libjwt
libmicrohttpd

In addition to the GPL modules listed, this product also includes binaries derived from 3rd party open sources that have their own license requirements. Each module is listed below with their required Copyright statement and distribution conditions.

-
- Module: libupnp

Copyright (c) 2000-2003 Intel Corporation
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
* Neither name of Intel Corporation nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL INTEL OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

-
- Module: openssl

LICENSE ISSUES
=====

The OpenSSL toolkit stays under a dual license, i.e. both the conditions of the OpenSSL License and the original SSLeay license apply to the toolkit. See below for the actual license texts. Actually both licenses are BSD-style Open Source licenses. In case of any license issues related to OpenSSL please contact openssl-core@openssl.org.

OpenSSL License

/* =====
=====
* Copyright (c) 1998-2011 The OpenSSL Project. All rights reserved.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
*
* 1. Redistributions of source code must retain the above copyright

notice, this list of conditions and the following disclaimer.
*
* 2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
*
* 3. All advertising materials mentioning features or use of this software must display the following acknowledgment:
* "This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (<http://www.openssl.org/>)"
*
* 4. The names "OpenSSL Toolkit" and "OpenSSL Project" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact openssl-core@openssl.org.
*
* 5. Products derived from this software may not be called "OpenSSL" nor may "OpenSSL" appear in their names without prior written permission of the OpenSSL Project.
*
* 6. Redistributions of any form whatsoever must retain the following acknowledgment:
* "This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (<http://www.openssl.org/>)"
*
* THIS SOFTWARE IS PROVIDED BY THE OpenSSL PROJECT ``AS IS'' AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE OpenSSL PROJECT OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
* =====



=====

*
* This product includes cryptographic software written by Eric Young
* (eay@cryptsoft.com). This product includes software written by Tim
* Hudson (tjh@cryptsoft.com).
*
*/

Original SSLeay License

/* Copyright (C) 1995-1998 Eric Young (eay@cryptsoft.com)
* All rights reserved.
*
* This package is an SSL implementation written
* by Eric Young (eay@cryptsoft.com).
* The implementation was written so as to conform with Netscapes SSL.
*
* This library is free for commercial and non-commercial use as long as
* the following conditions are aheared to. The following conditions
* apply to all code found in this distribution, be it the RC4, RSA,
* lhash, DES, etc., code; not just the SSL code. The SSL documentation
* included with this distribution is covered by the same copyright terms
* except that the holder is Tim Hudson (tjh@cryptsoft.com).
*
* Copyright remains Eric Young's, and as such any Copyright notices in
* the code are not to be removed.
* If this package is used in a product, Eric Young should be given
attribution
* as the author of the parts of the library used.
* This can be in the form of a textual message at program startup or
* in documentation (online or textual) provided with the package.
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the copyright
* notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above copyright
* notice, this list of conditions and the following disclaimer in the
* documentation and/or other materials provided with the distribution.
* 3. All advertising materials mentioning features or use of this software
* must display the following acknowledgement:
* "This product includes cryptographic software written by
* Eric Young (eay@cryptsoft.com)"
* The word 'cryptographic' can be left out if the rouines from the
library
* being used are not cryptographic related :-).
* 4. If you include any Windows specific code (or a derivative thereof)

from
* the apps directory (application code) you must include an
acknowledgement:
* "This product includes software written by Tim Hudson (tjh@
cryptsoft.com)"
*
* THIS SOFTWARE IS PROVIDED BY ERIC YOUNG ``AS IS'' AND
* ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT
LIMITED TO, THE
* IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR
A PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR OR
CONTRIBUTORS BE LIABLE
* FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY,
OR CONSEQUENTIAL
* DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT
OF SUBSTITUTE GOODS
* OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS
INTERRUPTION)
* HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY,
WHETHER IN CONTRACT, STRICT
* LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE)
ARISING IN ANY WAY
* OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE
POSSIBILITY OF
* SUCH DAMAGE.
*
* The licence and distribution terms for any publically available version or
* derivative of this code cannot be changed. i.e. this code cannot simply
be
* copied and put under another distribution licence
* [including the GNU Public Licence.]
*/

-
- Module: libev
-

All files in libev are
Copyright (c)2007,2008,2009,2010,2011,2012,2013 Marc Alexander
Lehmann.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that the following conditions are
met:

* Redistributions of source code must retain the above copyright
notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above
copyright notice, this list of conditions and the following
disclaimer in the documentation and/or other materials provided
with the distribution.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND
CONTRIBUTORS
"AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING,
BUT NOT
LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY
AND FITNESS FOR
A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL
THE COPYRIGHT
OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT,
INDIRECT, INCIDENTAL,
SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES
(INCLUDING, BUT NOT
LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES;
LOSS OF USE,
DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER
CAUSED AND ON ANY
THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY,
OR TORT
(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY
OUT OF THE USE
OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF
SUCH DAMAGE.

-
- Module: libaes
-

Copyright (c) 1998-2008, Brian Gladman, Worcester, UK. All rights
reserved.

LICENSE TERMS

The redistribution and use of this software (with or without changes)
is allowed without the payment of fees or royalties provided that:

1. source code distributions include the above copyright notice, this
list of conditions and the following disclaimer;

2. binary distributions include the above copyright notice, this list of conditions and the following disclaimer in their documentation;
3. the name of the copyright holder is not used to endorse products built using this software without specific written permission.

DISCLAIMER

This software is provided 'as is' with no explicit or implied warranties in respect of its properties, including, but not limited to, correctness and/or fitness for purpose.

BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

This program is based on the Generalized Timing Formula (GTF TM) Standard Version: 1.0, Revision: 1.0

The GTF Document contains the following Copyright information:

Copyright (c) 1994, 1995, 1996 - Video Electronics Standards Association. Duplication of this document within VESA member companies for review purposes is permitted. All other rights reserved.

While every precaution has been taken in the preparation of this standard, the Video Electronics Standards Association and its contributors assume no responsibility for errors or omissions, and make no warranties, expressed or implied, of functionality or suitability for any purpose. The sample code contained within this standard may be used without restriction.

- Module: libgcrypt

Additional license notices for Libgcrypt. *- org *-

This file contains the copying permission notices for various files in the Libgcrypt distribution which are not covered by the GNU Lesser General Public License (LGPL) or the GNU General Public License (GPL).

These notices all require that a copy of the notice be included in the accompanying documentation and be distributed with binary distributions of the code, so be sure to include this file along with any binary distributions derived from the GNU C Library.

* BSD_3Clause

For files:

- cipher/sha256-avx-amd64.S
- cipher/sha256-avx2-bmi2-amd64.S
- cipher/sha256-ssse3-amd64.S
- cipher/sha512-avx-amd64.S
- cipher/sha512-avx2-bmi2-amd64.S
- cipher/sha512-ssse3-amd64.S

#+begin_quote

Copyright (c) 2012, Intel Corporation

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

* Neither the name of the Intel Corporation nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY INTEL CORPORATION "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR

PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL INTEL CORPORATION OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING,

(INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
##end_quote

For files:
- random/jitterentropy-base.c
- random/jitterentropy.h
- random/rndjent.c (plus common Libgcrypt copyright holders)

##begin_quote
* Copyright Stephan Mueller <smueller@chronox.de>, 2013
*
* License
* =====
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
* notice, and the entire permission notice in its entirety,
* including the disclaimer of warranties.
* 2. Redistributions in binary form must reproduce the above copyright
* notice, this list of conditions and the following disclaimer in the
* documentation and/or other materials provided with the distribution.
* 3. The name of the author may not be used to endorse or promote
* products derived from this software without specific prior
* written permission.
*
* ALTERNATIVELY, this product may be distributed under the terms of
* the GNU General Public License, in which case the provisions of the
* GPL are
* required INSTEAD OF the above restrictions. (This clause is
* necessary due to a potential bad interaction between the GPL and
* the restrictions contained in a BSD-style copyright.)
*
* THIS SOFTWARE IS PROVIDED ``AS IS'' AND ANY EXPRESS OR
* IMPLIED
* WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED
* WARRANTIES
* OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR
* PURPOSE, ALL OF
* WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL THE
* AUTHOR BE
* LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
* EXEMPLARY, OR

* CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF NOT ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.
##end_quote

* X License

For files:
- install.sh

##begin_quote
Copyright (C) 1994 X Consortium

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE X CONSORTIUM BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Except as contained in this notice, the name of the X Consortium shall not

be used in advertising or otherwise to promote the sale, use or other dealings in this Software without prior written authorization from the X Consortium.
##end_quote

* Public domain

For files:
- cipher/arcfour-amd64.S

##begin_quote
Author: Marc Bevand <bevand_m (at) epita.fr>
Licence: I hereby disclaim the copyright on this code and place it in the public domain.
##end_quote

* OCB license I

For files:
- cipher/cipher-ocb.c

##begin_quote
OCB is covered by several patents but may be used freely by most software. See <http://web.cs.ucdavis.edu/~rogaway/ocb/license.htm>. In particular license I is suitable for Libgcrypt: See <http://web.cs.ucdavis.edu/~rogaway/ocb/licenseI.pdf> for the full license document; it basically says:

License I "License for Open-Source Software Implementations of OCB
(Jan 9, 2013)

Under this license, you are authorized to make, use, and distribute open-source software implementations of OCB. This license terminates for you if you sue someone over their open-source software implementation of OCB claiming that you have a patent covering their implementation.

License for Open Source Software Implementations of OCB
January 9, 2013

I Definitions

I.1 "Licensor" means Phillip Rogaway.

1.2 **“Licensed Patents”** means any patent that claims priority to United States Patent Application No. 09/918,615 entitled **“Method and Apparatus for Facilitating Efficient Authenticated Encryption,”** and any utility, divisional, provisional, continuation, continuations-in-part, reexamination, reissue, or foreign counterpart patents that may issue with respect to the aforesaid patent application. This includes, but is not limited to, United States Patent No. 7,046,802; United States Patent No. 7,200,227; United States Patent No. 7,949,129; United States Patent No. 8,321,675 ; and any patent that issues out of United States Patent Application No. 13/669,114.

1.3 **“Use”** means any practice of any invention claimed in the Licensed Patents.

1.4 **“Software Implementation”** means any practice of any invention claimed in the Licensed Patents that takes the form of software executing on a user-programmable, general-purpose computer or that takes the form of a computer-readable medium storing such software. Software Implementation does not include, for example, application-specific integrated circuits (ASICs), field-programmable gate arrays (FPGAs), embedded systems, or IP cores.

1.5 **“Open Source Software”** means software whose source code is published and made available for inspection and use by anyone because either (a) the source code is subject to a license that permits recipients to copy, modify, and distribute the source code without payment of fees or royalties, or (b) the source code is in the public domain, including code released for public use through a CC0 waiver. All licenses certified by the Open Source Initiative at opensource.org as of January 9, 2013 and all Creative Commons licenses identified on the creativecommons.org website as of January 9, 2013, including the Public License Fallback of the CC0 waiver, satisfy these requirements for the purposes of this license.

1.6 **“Open Source Software Implementation”** means a Software Implementation in which the software implicating the Licensed Patents is Open Source Software. Open Source Software Implementation does not include any Software Implementation in which the software implicating the Licensed

Patents is combined, so as to form a larger program, with software that is not Open Source Software.

2 License Grant

2.1 License. Subject to your compliance with the terms of this license, including the restriction set forth in Section 2.2, Licensor hereby grants to you a perpetual, worldwide, non-exclusive, non-transferable, non-sublicenseable, no-charge, royalty-free, irrevocable license to practice any invention claimed in the Licensed Patents in any Open Source Software Implementation.

2.2 Restriction. If you or your affiliates institute patent litigation (including, but not limited to, a cross-claim or counterclaim in a lawsuit) against any entity alleging that any Use authorized by this license infringes another patent, then any rights granted to you under this license automatically terminate as of the date such litigation is filed.

3 Disclaimer

YOUR USE OF THE LICENSED PATENTS IS AT YOUR OWN RISK AND UNLESS REQUIRED BY APPLICABLE LAW, LICENSOR MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND CONCERNING THE LICENSED PATENTS OR ANY PRODUCT EMBODYING ANY LICENSED PATENT, EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF TITLE, MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT. IN NO EVENT WILL LICENSOR BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN CONTRACT, TORT OR OTHERWISE, ARISING FROM OR RELATED TO ANY USE OF THE LICENSED PATENTS, INCLUDING, WITHOUT LIMITATION, DIRECT, INDIRECT, INCIDENTAL, CONSEQUENTIAL, PUNITIVE OR SPECIAL DAMAGES, EVEN IF LICENSOR HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES PRIOR TO SUCH AN OCCURRENCE.

#+end_quote

- Module: jansson

Copyright (c) 2009-2014 Petri Lehtinen <petri@digip.org>

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the “Software”), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED “AS IS”, WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

- Module: libpng

COPYRIGHT NOTICE, DISCLAIMER, and LICENSE

PNG Reference Library License version 2

* Copyright (c) 1995-2019 The PNG Reference Library Authors.
* Copyright (c) 2018-2019 Cosmin Truta.

- * Copyright (c) 2000-2002, 2004, 2006-2018 Glenn Randers-Pehrson.
- * Copyright (c) 1996-1997 Andreas Dilger.
- * Copyright (c) 1995-1996 Guy Eric Schalnat, Group 42, Inc.

The software is supplied “as is”, without warranty of any kind, express or implied, including, without limitation, the warranties of merchantability, fitness for a particular purpose, title, and non-infringement. In no event shall the Copyright owners, or anyone distributing the software, be liable for any damages or other liability, whether in contract, tort or otherwise, arising from, out of, or in connection with the software, or the use or other dealings in the software, even if advised of the possibility of such damage.

Permission is hereby granted to use, copy, modify, and distribute this software, or portions hereof, for any purpose, without fee, subject to the following restrictions:

1. The origin of this software must not be misrepresented; you must not claim that you wrote the original software. If you use this software in a product, an acknowledgment in the product documentation would be appreciated, but is not required.
2. Altered source versions must be plainly marked as such, and must not be misrepresented as being the original software.
3. This Copyright notice may not be removed or altered from any source or altered source distribution.

PNG Reference Library License version 1 (for libpng 0.5 through 1.6.35)

libpng versions 1.0.7, July 1, 2000, through 1.6.35, July 15, 2018 are Copyright (c) 2000-2002, 2004, 2006-2018 Glenn Randers-Pehrson, are derived from libpng-1.0.6, and are distributed according to the same disclaimer and license as libpng-1.0.6 with the following individuals added to the list of Contributing Authors:

Simon-Pierre Cadieux
Eric S. Raymond
Mans Rullgard
Cosmin Truta
Gilles Vollant
James Yu
Mandar Sahastrabuddhe
Google Inc.
Vadim Barkov

and with the following additions to the disclaimer:

There is no warranty against interference with your enjoyment of the library or against infringement. There is no warranty that our efforts or the library will fulfill any of your particular purposes or needs. This library is provided with all faults, and the entire risk of satisfactory quality, performance, accuracy, and effort is with the user.

Some files in the “contrib” directory and some configure-generated files that are distributed with libpng have other copyright owners, and are released under other open source licenses.

libpng versions 0.97, January 1998, through 1.0.6, March 20, 2000, are Copyright (c) 1998-2000 Glenn Randers-Pehrson, are derived from libpng-0.96, and are distributed according to the same disclaimer and license as libpng-0.96, with the following individuals added to the list of Contributing Authors:

Tom Lane
Glenn Randers-Pehrson
Willem van Schaik

libpng versions 0.89, June 1996, through 0.96, May 1997, are Copyright (c) 1996-1997 Andreas Dilger, are derived from libpng-0.88, and are distributed according to the same disclaimer and license as libpng-0.88, with the following individuals added to the list of Contributing Authors:

John Bowler
Kevin Bracey
Sam Bushell
Magnus Holmgren
Greg Roelofs
Tom Tanner

Some files in the “scripts” directory have other copyright owners, but are released under this license.

libpng versions 0.5, May 1995, through 0.88, January 1996, are Copyright (c) 1995-1996 Guy Eric Schalnat, Group 42, Inc.

For the purposes of this copyright and license, “Contributing Authors” is defined as the following set of individuals:

Andreas Dilger
Dave Martindale

Guy Eric Schalnat
Paul Schmidt
Tim Wegner

The PNG Reference Library is supplied “AS IS”. The Contributing Authors and Group 42, Inc. disclaim all warranties, expressed or implied, including, without limitation, the warranties of merchantability and of fitness for any purpose. The Contributing Authors and Group 42, Inc. assume no liability for direct, indirect, incidental, special, exemplary, or consequential damages, which may result from the use of the PNG Reference Library, even if advised of the possibility of such damage.

Permission is hereby granted to use, copy, modify, and distribute this source code, or portions hereof, for any purpose, without fee, subject to the following restrictions:

1. The origin of this source code must not be misrepresented.
2. Altered versions must be plainly marked as such and must not be misrepresented as being the original source.
3. This Copyright notice may not be removed or altered from any source or altered source distribution.

The Contributing Authors and Group 42, Inc. specifically permit, without fee, and encourage the use of this source code as a component to supporting the PNG file format in commercial products. If you use this source code in a product, acknowledgment is not required but would be appreciated.

-
- Module: libgd
-

Credits and license terms:

In order to resolve any possible confusion regarding the authorship of gd, the following copyright statement covers all of the authors who have required such a statement. If you are aware of any oversights in this copyright notice, please contact Pierre-A. Joye who will be pleased to correct them.

* Portions copyright 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001,

2002, 2003, 2004 by Cold Spring Harbor Laboratory. Funded under Grant P41-RR02188 by the National Institutes of Health.

* Portions copyright 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004 by Boutell.Com, Inc.

* Portions relating to GD2 format copyright 1999, 2000, 2001, 2002, 2003, 2004 Philip Warner.

* Portions relating to PNG copyright 1999, 2000, 2001, 2002, 2003, 2004 Greg Roelofs.

* Portions relating to gdtf.c copyright 1999, 2000, 2001, 2002, 2003, 2004 John Ellson (ellson@graphviz.org).

* Portions relating to gdf.c copyright 2001, 2002, 2003, 2004 John Ellson (ellson@graphviz.org).

* Portions copyright 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007 Pierre-Alain Joye (pierre@libgd.org).

* Portions relating to JPEG and to color quantization copyright 2000, 2001, 2002, 2003, 2004, Doug Becker and copyright (C) 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004 Thomas G. Lane. This software is based in part on the work of the Independent JPEG Group. See the file README-JPEG.TXT for more information.

* Portions relating to GIF compression copyright 1989 by Jef Poskanzer and David Rowley, with modifications for thread safety by Thomas Boutell.

* Portions relating to GIF decompression copyright 1990, 1991, 1993 by David Koblas, with modifications for thread safety by Thomas Boutell.

* Portions relating to WBMP copyright 2000, 2001, 2002, 2003, 2004 Maurice Szmurlo and Johan Van den Brande.

* Portions relating to GIF animations copyright 2004 Jaakko HyvÄrtti (jaakko.hyvatti@iki.fi)

Permission has been granted to copy, distribute and modify gd in any context without fee, including a commercial application, provided that this notice is present in user-accessible supporting documentation.

This does not affect your ownership of the derived work itself,

and the intent is to assure proper credit for the authors of gd, not to interfere with your productive use of gd. If you have questions, ask. "Derived works" includes all programs that utilize the library. Credit must be given in user-accessible documentation.

This software is provided "AS IS." The copyright holders disclaim all warranties, either express or implied, including but not limited to implied warranties of merchantability and fitness for a particular purpose, with respect to this code and accompanying documentation.

Although their code does not appear in the current release, the authors wish to thank David Koblas, David Rowley, and Hutchison Avenue Software Corporation for their prior contributions.

```
-----
-
- Module: libjpeg-turbo
-
-----
```

This software is based in part on the work of the Independent JPEG Group.

```
-----
-
- Module: freebsd-libc
-
-----
```

@(#)COPYRIGHT 8.2 (Berkeley) 3/21/94

All of the documentation and software included in the 4.4BSD and 4.4BSD-Lite Releases is copyrighted by The Regents of the University of California.

Copyright 1979, 1980, 1983, 1986, 1988, 1989, 1991, 1992, 1993, 1994 The Regents of the University of California. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. All advertising materials mentioning features or use of this software must display the following acknowledgement:
This product includes software developed by the University of California, Berkeley and its contributors.
4. Neither the name of the University nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE REGENTS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The Institute of Electrical and Electronics Engineers and the American National Standards Committee X3, on Information Processing Systems have given us permission to reprint portions of their documentation.

In the following statement, the phrase "this text" refers to portions of the system documentation.

Portions of this text are reprinted and reproduced in electronic form in the second BSD Networking Software Release, from IEEE Std 1003.1-1988, IEEE Standard Portable Operating System Interface for Computer Environments (POSIX), copyright C 1988 by the Institute of Electrical and Electronics Engineers, Inc. In the event of any discrepancy between these versions and the original IEEE Standard, the original IEEE Standard is the referee

document.

In the following statement, the phrase “This material” refers to portions of the system documentation.

This material is reproduced with permission from American National Standards Committee X3, on Information Processing Systems. Computer and Business Equipment Manufacturers Association (CBEMA), 311 First St., NW, Suite 500, Washington, DC 20001-2178. The developmental work of Programming Language C was completed by the X3J11 Technical Committee.

The views and conclusions contained in the software and documentation are those of the authors and should not be interpreted as representing official policies, either expressed or implied, of the Regents of the University of California.

-
- Module: strace
-

Copyright (c) 1991, 1992 Paul Kranenburg <pk@cs.few.eur.nl>
Copyright (c) 1993 Branko Lankester <branko@hacktic.nl>
Copyright (c) 1993 Ulrich Pegelow <pegelow@moorea.uni-muenster.de>
Copyright (c) 1995, 1996 Michael Elizabeth Chastain <mec@duracef.shout.net>
Copyright (c) 1993, 1994, 1995, 1996 Rick Sladkey <jrs@world.std.com>
Copyright (C) 1998-2001 Wichert Akkerman <wakkerma@deephackmode.org>
Copyright (C) 2001-2017 The strace developers.
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. The name of the author may not be used to endorse or promote

products
derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR “AS IS” AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

-
- Module: libpcap
-

Copyright (C) 1993-2008 The Regents of the University of California.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. The names of the authors may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED “AS IS” AND WITHOUT ANY EXPRESS OR

IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

-
- Module: tcpdump
-

Licensed under the 3-clause BSD license:

- Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:
1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
 2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
 3. The names of the authors may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED “AS IS” AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Some files in this package are licensed under the 4-clause BSD license, the copyright on most of them belongs to The Regents of the University of California. Since the license was retroactively changed in 1999 to remove the advertising clause, they are effectively under the 3-clause license even if the text of the license in the files hasn't been updated. See the following document for more details:

<ftp://ftp.cs.berkeley.edu/pub/4bsd/README.Impt.License.Change>

Other files under the 4-clause BSD license and whose copyright doesn't belong to the The Regents of the University of California are listed below:

- aodv.h, Copyright (c) 2003 Bruce M. Simpson

```
- atmuni31.h, Copyright (c) 1997 Yen Yen Lim and North Dakota State
University
- ieee802_11.h, Copyright (c) 2001 Fortress Technologies and Charlie
Lenahan
- print-802_11.c, Copyright (c) 2001 Fortress Technologies and Charlie
Lenahan
- print-aodv.c, Copyright (c) 2003 Bruce M. Simpson
- print-ascii.c, Copyright (c) 1997, 1998 The NetBSD Foundation, Inc.
- print-cnfp.c, Copyright (c) 1998 Michael Shalayeff
- print-gre.c, Copyright (c) 2002 Jason L. Wright
- print-mobile.c, Copyright (c) 1998 The NetBSD Foundation, Inc.
- print-sunatm.c, Copyright (c) 1997 Yen Yen Lim and North Dakota State
University
- print-telnet.c, Copyright (c) 1997, 1998 The NetBSD Foundation, Inc.
- print-timed.c, Copyright (c) 2000 Ben Smithurst
- missing/inet_aton.c, Copyright (c) 1995, 1996, 1997 Kungliga Tekniska
H  gskolan (Royal Institute of Technology,
Stockholm,
Sweden).
- missing/inet_ntop.c, Copyright (c) 1995, 1996, 1997 Kungliga Tekniska
H  gskolan (Royal Institute of Technology,
Stockholm,
Sweden).
- missing/inet_pton.c, Copyright (c) 1995, 1996, 1997 Kungliga Tekniska
H  gskolan (Royal Institute of Technology,
Stockholm,
Sweden).

-----
-
- Module: dhcp
-
-----

# Copyright (c) 2004-2017 by Internet Systems Consortium, Inc. ("ISC")
# Copyright (c) 1995-2003 by Internet Software Consortium
#
# Permission to use, copy, modify, and distribute this software for any
# purpose with or without fee is hereby granted, provided that the above
# copyright notice and this permission notice appear in all copies.
#
# THE SOFTWARE IS PROVIDED "AS IS" AND ISC DISCLAIMS ALL WARRANTIES
# WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF
# MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL ISC BE
# LIABLE FOR
# ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL
```

```
DAMAGES OR ANY DAMAGES
# WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR
# PROFITS, WHETHER IN AN
# ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS
# ACTION, ARISING OUT
# OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF
# THIS SOFTWARE.
#
# Internet Systems Consortium, Inc.
# 950 Charter Street
# Redwood City, CA 94063
# <info@isc.org>
# https://www.isc.org/
```

```
-----
-
- Module: ntp
-
-----
```

The following copyright notice applies to all files collectively called the Network Time Protocol Version 4 Distribution. Unless specifically declared otherwise in an individual file, this entire notice applies as if the text was explicitly included in the file.

```
*****
*
* Copyright (c) University of Delaware 1992-2015
*
* Permission to use, copy, modify, and distribute this software and
* its documentation for any purpose with or without fee is hereby
* granted, provided that the above copyright notice appears in all
* copies and that both the copyright notice and this permission
* notice appear in supporting documentation, and that the name
* University of Delaware not be used in advertising or publicity
* pertaining to distribution of the software without specific,
* written prior permission. The University of Delaware makes no
* representations about the suitability this software for any
* purpose. It is provided "as is" without express or implied
* warranty.
*
*****
```

Content starting in 2011 from Harlan Stenn, Danny Mayer, and Martin Burnicki is:

```
*****
*
* Copyright (c) Network Time Foundation 2011-2017
*
* All Rights Reserved
*
* Redistribution and use in source and binary forms, with or without
* modification, are permitted provided that the following conditions
* are met:
* 1. Redistributions of source code must retain the above copyright
* notice, this list of conditions and the following disclaimer.
* 2. Redistributions in binary form must reproduce the above
* copyright notice, this list of conditions and the following
* disclaimer in the documentation and/or other materials provided
* with the distribution.
*
* THIS SOFTWARE IS PROVIDED BY THE AUTHORS ``AS IS'' AND
* ANY EXPRESS
* OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO,
* THE IMPLIED
* WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A
* PARTICULAR PURPOSE
* ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHORS OR
* CONTRIBUTORS BE
* LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL,
* EXEMPLARY, OR
* CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO,
* PROCUREMENT
* OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR
* PROFITS; OR
* BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY
* THEORY OF
* LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT
* (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY
* WAY OUT OF THE
* USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY
* OF SUCH
* DAMAGE.
*****
```

The following individuals contributed in part to the Network Time Protocol Distribution Version 4 and are acknowledged as authors of this work.

- [1] Takao Abe <takao_abe@xurb.jp> Clock driver for JJY receivers
- [2] Mark Andrews <mark_andrews@isc.org> Leitch atomic clock controller
- [3] Bernd Altmeier <altmeier@atsoft.de> hopf Elektronik serial line and PCI-bus devices
- [4] Viraj Bais <vbais@mailman1.intel.com> and [5] Clayton Kirkwood

<kirkwood@striderfm.intel.com> port to WindowsNT 3.5

5. [6]Michael Barone <michael,barone@lmco.com> GPSVME fixes

6. [7]Karl Berry <karl@owl.HQ.ileaf.com> syslog to file option

7. [8]Greg Brackley <greg.brackley@bigfoot.com> Major rework of WINNT
port. Clean up recvbuf and iosignal code into separate modules.

8. [9]Marc Brett <Marc.Brett@westgeo.com> Magnavox GPS clock driver

9. [10]Piete Brooks <Piete.Brooks@cl.cam.ac.uk> MSF clock driver, Trimble PARSE support

10. [11]Nelson B Bolyard <nelson@bolyard.me> update and complete broadcast and crypto features in snpt

11. [12]Jean-Francois Boudreault
<Jean-Francois.Boudreault@viagenie.qc.ca> IPv6 support

12. [13]Reg Clemens <reg@dwf.com> Oncore driver (Current maintainer)

13. [14]Steve Clift <clift@ml.csiro.au> OMEGA clock driver

14. [15]Casey Crellin <casey@csc.co.za> vxWorks (Tornado) port and help with target configuration

15. [16]Sven Dietrich <sven_dietrich@trimble.com> Palisade reference clock driver, NT adj. residuals, integrated Greg's Winnt port.

16. [17]John A. Dundas III <dundas@salt.jpl.nasa.gov> Apple A/UX port

17. [18]Torsten Duwe <duwe@immd4.informatik.uni-erlangen.de> Linux
port

18. [19]Dennis Ferguson <dennis@mrbill.canet.ca> foundation code for NTP Version 2 as specified in RFC-1119

19. [20]John Hay <jhay@icomtek.csr.co.za> IPv6 support and testing

20. [21]Dave Hart <davehart@davehart.com> General maintenance, Windows
port interpolation rewrite

21. [22]Claas Hilbrecht <neoclock4x@linum.com> NeoClock4X clock driver

22. [23]Glenn Hollinger <glenn@herald.usask.ca> GOES clock driver

23. [24]Mike Iglesias <iglesias@uci.edu> DEC Alpha port

24. [25]Jim Jagielski <jim@jagubox.gsfc.nasa.gov> A/UX port

25. [26]Jeff Johnson <jbj@chatham.usdesign.com> massive prototyping overhaul

26. [27]Hans Lambermont <Hans.Lambermont@nl.origin-it.com> or [28]<H.Lambermont@chello.nl> ntpswep

27. [29]Poul-Henning Kamp <phk@FreeBSD.ORG> Oncore driver (Original author)

28. [30]Frank Kardel [31]<kardel (at) ntp (dot) org> PARSE <GENERIC>
(driver 14 reference clocks), STREAMS modules for PARSE, support scripts, syslog cleanup, dynamic interface handling

29. [32]Johannes Maximilian Kuehn <kuehn@ntp.org> Rewrote snpt to comply with NTPv4 specification, ntpq saveconfig

30. [33]William L. Jones <jones@hermes.chpc.utexas.edu> RS/6000 AIX
modifications, HP-UX modifications

31. [34]Dave Katz <dkatz@cisco.com> RS/6000 AIX port

32. [35]Craig Leres <leres@ee.lbl.gov> 4.4BSD port, ppsclock, Magnavox
GPS clock driver

33. [36]George Lindholm <lindholm@ucs.ubc.ca> SunOS 5.1 port

34. [37]Louis A. Mamakos <louie@ni.umd.edu> MD5-based authentication

35. [38]Lars H. Mathiesen <thorinn@diku.dk> adaptation of foundation code for Version 3 as specified in RFC-1305

36. [39]Danny Mayer <mayer@ntp.org> Network I/O, Windows Port, Code
Maintenance

37. [40]David L. Mills <mills@udel.edu> Version 4 foundation, precision kernel; clock drivers: 1, 3, 4, 6, 7, 11, 13, 18, 19, 22, 36

38. [41]Wolfgang Moeller <moeller@gwdg.vl.dnet.gwdg.de> VMS port

39. [42]Jeffrey Mogul <mogul@pa.dec.com> ntptrace utility

40. [43]Tom Moore <tmoore@fielvel.daytonoh.ncr.com> i386 svr4 port

41. [44]Kamal A Mostafa <kamal@whence.com> SCO OpenServer port

42. [45]Derek Mulcahy <derek@toybox.demon.co.uk> and [46]Damon Hart-Davis <d@hd.org> ARCRON MSF clock driver

43. [47]Rob Neal <neal@ntp.org> Bancomm refclock and config/parse code
maintenance

44. [48]Rainer Pruy <Rainer.Pruy@informatik.uni-erlangen.de> monitoring/trap scripts, statistics file handling

45. [49]Dirce Richards <dirce@zk3.dec.com> Digital UNIX V4.0 port

46. [50]Wilfredo S  nchez <wsanchez@apple.com> added support for NetInfo

47. [51]Nick Sayer <mrapple@quack.kfu.com> SunOS streams modules

48. [52]Jack Sasportas <jack@innovativeinternet.com> Saved a Lot of space on the stuff in the html/pic/ subdirectory

49. [53]Ray Schnitzler <schnitz@unipress.com> Unixware 1 port

50. [54]Michael Shields <shields@tembel.org> USNO clock driver

51. [55]Jeff Steinman <jss@pebbles.jpl.nasa.gov> Datum PTS clock driver

52. [56]Harlan Stenn <harlan@pfc.com> GNU automake/ autoconfigure
makeover; various other bits (see the ChangeLog)

53. [57]Kenneth Stone <ken@sdd.hp.com> HP-UX port

54. [58]Ajit Thyagarajan <ajit@ee.udel.edu> IP multicast/anycast support

55. [59]Tomoaki TSURUOKA <tsuruoka@nc.fukuoka-u.ac.jp> TRAK clock
driver

56. [60]Brian Utterback <brian.utterback@oracle.com> General codebase,
Solaris issues

57. [61]Loganaden Velvindron <loganaden@gmail.com> Sandboxing (libseccomp) support

58. [62]Paul A Vixie <vixie@vix.com> TrueTime GPS driver, generic TrueTime clock driver

59. [63]Ulrich Windl <Ulrich.Windl@rz.uni-regensburg.de> corrected and
validated HTML documents according to the HTML DTD

Dropbear contains a number of components from different sources, hence there are a few licenses and authors involved. All licenses are fairly non-restrictive.

The majority of code is written by Matt Johnston, under the license below.

Portions of the client-mode work are (c) 2004 Mihnea Stoenescu, under the same license:

Copyright (c) 2002-2020 Matt Johnston
Portions copyright (c) 2004 Mihnea Stoenescu
All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED “AS IS”, WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

=====

LibTomCrypt and LibTomMath are written by Tom St Denis and others, see libtomcrypt/LICENSE and libtommath/LICENSE.

=====

sshpty.c is taken from OpenSSH 3.5p1,
Copyright (c) 1995 Tatu Ylonen <ylo@cs.hut.fi>, Espoo, Finland
All rights reserved

“As far as I am concerned, the code I have written for this software can be used freely for any purpose. Any derived versions of this software must be clearly marked as such, and if the derived work is incompatible with the protocol description in the RFC file, it must be called by a name other than “ssh” or “Secure Shell”.”

=====

loginrec.c
loginrec.h
atomicio.h
atomicio.c
and strlcat() (included in util.c) are from OpenSSH 3.6.1p2, and are licensed under the 2 point BSD license.

loginrec is written primarily by Andre Lucas, atomicio.c by Theo de Raadt.

strlcat() is (c) Todd C. Miller

=====

Import code in keyimport.c is modified from PuTTY's import.c, licensed as follows:

PuTTY is copyright 1997-2003 Simon Tatham.

Portions copyright Robert de Bath, Joris van Rantwijk, Delian Delchev, Andreas Schultz, Jeroen Massar, Wez Furlong, Nicolas Barry, Justin Bradford, and CORE SDI S.A.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the “Software”), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED “AS IS”, WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

=====

curve25519.c:

Modified TweetNaCl version 20140427, a self-contained public-domain C library.
<https://tweetnacl.cr.yp.to/>

Contributors (alphabetical order)
Daniel J. Bernstein, University of Illinois at Chicago and Technische Universiteit Eindhoven
Bernard van Gastel, Radboud Universiteit Nijmegen
Wesley Janssen, Radboud Universiteit Nijmegen
Tanja Lange, Technische Universiteit Eindhoven
Peter Schwabe, Radboud Universiteit Nijmegen
Sjaak Smetsers, Radboud Universiteit Nijmegen

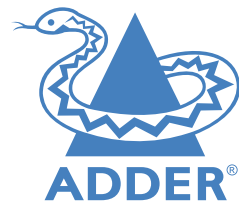
Acknowledgments

This work was supported by the U.S. National Science Foundation under grant

1018836. “Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the

views of the National Science Foundation.”

This work was supported by the Netherlands Organisation for Scientific Research (NWO) under grant 639.073.005 and Veni 2013 project 13114.



www.adder.com

A

- Access control
 - configuration 29
- Access mode
 - shared & private 13
- Addressing 33
 - network issues 33
- Admin password 9
- Auto calibrate 13

B

- Backup image 11

C

- Cable specifications 36
- Calibrate
 - mouse 13
 - screen 13
- Calibrate all
 - video settings 16
- Configuration
 - advanced mouse 15
- Connections
 - link 5
 - overview 4
- Controls
 - viewer options 14

D

- DisplayPort 5

E

- Ethernet port 4
- External power input 4

F

- Firewall 32
- Flash upgrade 10

H

- HDMI 23
- Host computer
 - configuration 30
- Hotkey sequences 36
 - codes and macros 36
- HTTP port
 - remote setting 28

I

- Indicators 17
- Initial configuration 8
- IP access control 29
- IP address
 - remote setting 28
- IP network mask 28

K

- Keyboard codes
 - sending 16
- Keyboard Control 16
- Keyboard layout
 - remote setting 22

L

- Link connection 5
- Local network
 - connection 32
- Logging 31

M

- MAC address 27,28
- Mouse
 - advanced configuration 15
 - calibration 13
 - control 14
 - resync 13,14

N

- Network configuration 28
- Networking issues 32

P

- Password 9
- POE splitter 7
- Power
 - external input 4,6
- Power adapter 3
- Power Over Ethernet 7
- Power switching
 - user permissions 20
- Private
 - access mode 13

R

- Refresh screen 14
- Remote configuration
 - host configuration 30
 - logging and status 31
 - network configuration 28
 - unit configuration 22
 - user accounts 20
- Reset button 4
- Reset module 11
- Restore
 - backup firmware image 11
- Resync mouse 14
- Router 32

S

- Screen
 - refresh 14
- Server
 - configuration 30
- Shared
 - access mode 13
- Single mouse mode 14
- Status indicators 4
- Syslog 31

T

- Threshold
 - adjustment 17
- Time & date configuration 27

U

- Unit Configuration 22
- Unit name
 - remote setting 22
- USB
 - connections 6
 - plugs 4
- User accounts 20
- User configuration 20,21

V

- Video link 5
- Video settings 15
- Virtual media. *See* File Transfer
- VNC port
 - remote setting 28
 - when altered 32
- VNCViewer 9,12