ACR1002DP-T   ACR1002DP-R   ACR1002FDP-T   ACR1002FDP-R   ACR1002FH-T

AGILITY ACR1002DP EXTENDERS

BLACK BOX

NEED HELP?
LEAVE THE TECH TO US

LIVE 24/7
TECHNICAL
SUPPORT

1.877.877.2269

TRADEMARKS USED IN THIS MANUAL

Black Box and the Double Diamond logo are registered trademarks of BB Technologies, Inc.

Any other trademarks mentioned in this manual are acknowledged to be the property of the trademark owners.

We're here to help! If you have any questions about your application or our products, contact Black Box Tech Support at **877-877-2269** or visit **blackbox.com**.

You'll be live with one of our technical experts in 60 seconds or less.

NEED HELP?
LEAVE THE TECH TO US

LIVE 24/7
TECHNICAL
SUPPORT

1.877.877.2269

FEDERAL COMMUNICATIONS COMMISSION AND INDUSTRY CANADA RADIO FREQUENCY INTERFERENCE STATEMENTS

This equipment generates, uses, and can radiate radio-frequency energy, and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

Disclaimer:

Black Box Network Services shall not be liable for damages of any kind, including, but not limited to, punitive, consequential or cost of cover damages, resulting from any errors in the product information or specifications set forth in this document and Black Box Network Services may revise this document at any time without notice.

NEED HELP?
LEAVE THE TECH TO US

**LIVE 24/7
TECHNICAL
SUPPORT**
1.877.877.2269

INSTRUCCIONES DE SEGURIDAD

(NORMAS OFICIALES MEXICANAS ELECTRICAL SAFETY STATEMENT)

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.

2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.

3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.

4. Todas las instrucciones de operación y uso deben ser seguidas.

5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc.

6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.

7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.

8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.

9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.

10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.

11. El aparato eléctrico deberá ser connectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.

12. Precaución debe ser tomada de tal manera que la tierra fisica y la polarización del equipo no sea eliminada.

13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.

14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.

15. En caso de existir, una antena externa deberá ser localizada lejos de las lineas de energia.

16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.

17. Cuidado debe ser tomado de tal manera que objectos liquidos no sean derramados sobre la cubierta u orificios de ventilación.

18. Servicio por personal calificado deberá ser provisto cuando:
    A: El cable de poder o el contacto ha sido dañado; u
    B: Objectos han caído o líquido ha sido derramado dentro del aparato; o
    C: El aparato ha sido expuesto a la lluvia; o
    D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o
    E: El aparato ha sido tirado o su cubierta ha sido dañada.

NEED HELP?
LEAVE THE TECH TO US

LIVE 24/7
TECHNICAL
SUPPORT

1.877.877.2269

CONTENTS

NEED HELP?
LEAVE THE TECH TO US
**LIVE 24/7
TECHNICAL
SUPPORT**
1.877.877.2269

CHAPTER 1: SPECIFICATIONS

TECHNICAL SPECIFICATIONS

OPERATING/STORAGE CONDITIONS

Operating temperature:	0 to 40ºC / 32 to 104ºF
Storage temperature:	0 to 40ºC / 32 to 104ºF
Storage and operating relative humidity:	10 to 90% non-condensing
Altitude:	< 2000m

POWER

External power:	12VDC, 1.5A
Typical power consumption:	7W

PHYSICAL

LOCAL UNIT - TRANSMITTER (TX)

Dimensions:	136mm/5.3" (w) x 150mm/5.9" (d) x 39mm/1.5" (h)
Weight:	0.8kg / 1.7 lbs

REMOTE UNIT - RECEIVER (RX)

Dimensions:	186mm/7.3" (w) x 150mm/5.9" (d) x 39mm/1.5" (h)
Weight:	1.1kg / 2.4 lbs

MATERIALS

Aluminium and steel construction

CONNECTORS
LOCAL UNIT - TRANSMITTER (TX)

Computer:	2x DisplayPort™ connections (2x HDMI™ for ACR1002FH-T variants), 1x 3.5mm socket for Audio in, 1x USB Type B, 1x USB Type A for auxiliary connections, 1x 8p8c and 1x SFP for 1GbE network connections (2x SFP for ACR1002FDP variants)

REMOTE UNIT - RECEIVER (RX)

Desk:	2x DisplayPort connections, 1x 3.5mm socket for Audio out, 1x 3.5mm socket for headset/microphone, 4x USB Type A, 1x 8p8c and 1x SFP for 1GbE network connections (2x SFP for ACR1002FDP variants)

USB2.0 WITH CLASS CONTROL

Supports USB2.0 devices (low, full and high speed). Security feature allows the blocking of non-HID devices. Isochronous devices are not supported (e.g. USB audio or video devices)

VIDEO RESOLUTION

The system supports up to 1x 2560x1600@60Hz or 2x 1920x1200 @60Hz

AUDIO

USB audio 2 channel 16bit 48KHz (bi-directional)

ETHERNET

In-built support for 1GbE CATx∗
Support for second CATx (up to 1GbE) or fiber (up to 1GbE) via SFP modules∗
∗ ACR1002FDP variants have 2x SFP and no in-built CATx port

APPROVALS / COMPLIANCE

CE, UKCA, FCC, ICES, cULus

PRODUCT INFORMATION LABELS

The product information labels are located on the base of each unit.

CHAPTER 2: WELCOME

NEED HELP?
LEAVE THE TECH TO US

**LIVE 24/7
TECHNICAL
SUPPORT**
1.877.877.2269

WELCOME

Thank you for choosing the Black Box Agility ACR1002 high performance extenders, which offer dual-head video, audio and USB delivered over a single fiber connection. The extenders offer pixel-perfect color and accurate picture quality at up to 2560x1600@60Hz and USB2.0 with fast switching.

PRODUCT IN BRIEF

- In-built support for CATx links at speeds up to 1GbE with additional support for dual CATx or fiber at up to 1GbE using optional SFP modules (2x SFP for ACR1002FDP variants),
- Support for 1x 2560x1600@60Hz or 2x 1920x1200@60Hz,
- Digital stereo audio via the video connections,
- Bi-directional analog audio (with combined headset jack on the receiver),
- USB True Emulation for fast switching,
- Support for advance diagnostic and troubleshooting tools,
- Backward compatibility with existing Agility range.

LINKING

Agility units can be linked in two mains ways: Direct or Networked.

DIRECT LINKING

Where Agility transmitters and receivers are directly linked to each other, very little configuration action is required, provided that they both have their factory default settings in place - just link them together. If the standard settings have been changed in a previous installation, you merely need to perform a manual factory reset on each unit - see page 24.


NETWORKED LINKING

Where Agility units are connected via networked links, you can either configure them individually, or configure them collectively using an iPATH server:

- **Configuring networked units individually** - In the absence of an iPATH server, unallocated Agility units have the ability to locate each other. You can alter settings via the OSD on the console connected to the receiver by pressing **CTRL + ALT + C**.
- **Configuring networked units collectively** - The iPATH server allows you to configure, control and coordinate any number of transmitters and receivers from a single application.

*Note: If you are using one or more transmitters within an installation managed by an iPATH server, the iPATH server must be running firmware version **4.9** or above.*
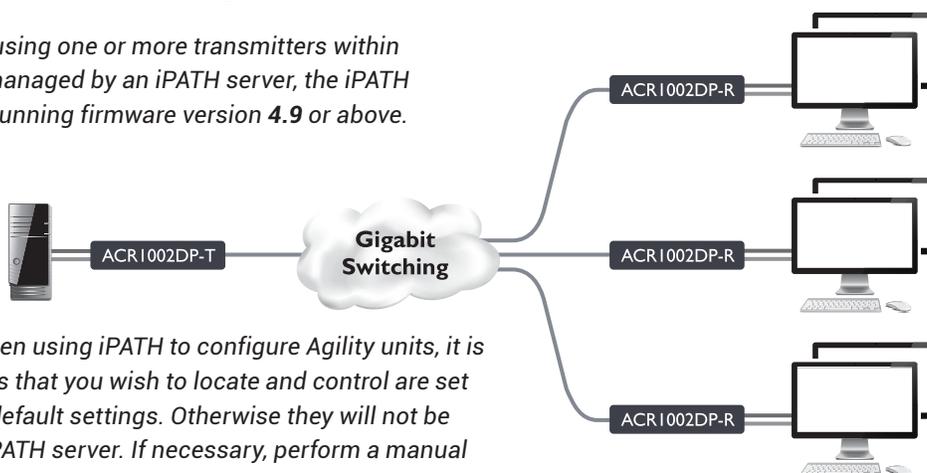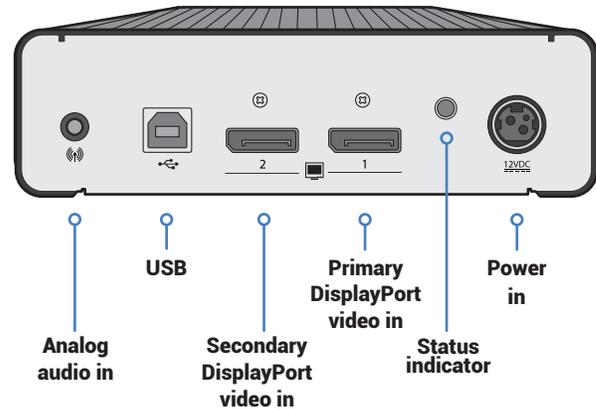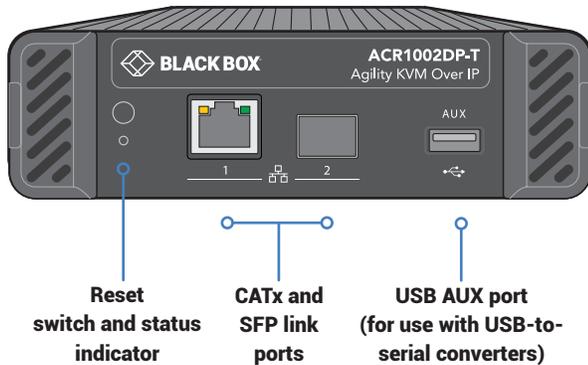

IMPORTANT: When using iPATH to configure Agility units, it is vital that all units that you wish to locate and control are set to their factory default settings. Otherwise they will not be located by the iPATH server. If necessary, perform a manual factory reset on each Agility unit.

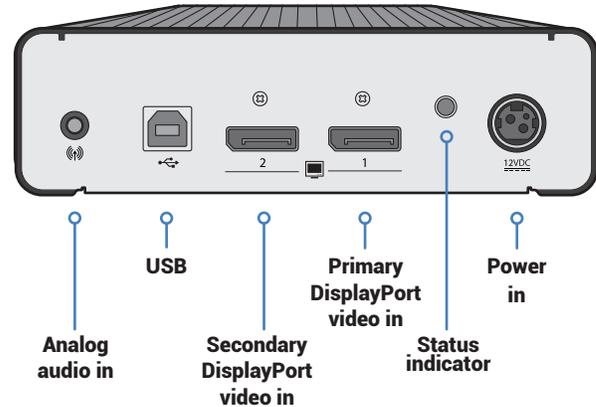## AGILITY ACR1002DP, ACR1002FDP AND ACR1002FH FEATURES

The transmitter and receiver modules are housed within durable, vented enclosures with connectors situated on the front and rear panels. FDP and FH-T model variants have two SFP ports rather than a mix of CATx and SFP. FH-T model variants also have two HDMI™ video ports rather than DisplayPort™, but are otherwise identical. *Note: ACR1002FH-T transmitters do not support either the CEC or HDCP protocols.*

AGILITY TRANSMITTER MODULES

ACR1002DP-T model

Reset switch and status indicator

CATx and SFP link ports

USB AUX port (for use with USB-to-serial converters)

Analog audio in

USB

Secondary DisplayPort video in

Primary DisplayPort video in

Status indicator

Power in

ACR1002FDP-T model

Reset switch and status indicator

2 x SFP link ports

USB AUX port (for use with USB-to-serial converters)

Analog audio in

USB

Secondary DisplayPort video in

Primary DisplayPort video in

Status indicator

Power in

ACR1002FH-T model

Reset switch and status indicator

2 x SFP link ports

USB AUX port (for use with USB-to-serial converters)

Analog audio in

USB

Secondary HDMI video in

Primary HDMI video in

Status indicator

Power in

NEED HELP?
LEAVE THE TECH TO US
**LIVE 24/7
TECHNICAL
SUPPORT**
1.877.877.2269

AGILITY RECEIVER MODULES

ACR1002DP-R and
ACR1002FDP-R models

BLACK BOX

ACR1002DP-R
Agility KVM Over IP

1   2

**Reset
switch and status
indicator**

**Combined
analog audio
headphone/
mic/headset
port**

**USB
ports**

ACR1002DP-R model

12VDC

4
3

1   2

1   2

**Power
in**

**USB
ports**

**CATx and
SFP link ports**

**Primary
display**

**Status
indicator**

**Secondary
display**

**Analog
audio line
out**

ACR1002FDP-R model

12VDC

4
3

1   2

1   2

**2 x SFP link
ports**

NEED HELP?
LEAVE THE TECH TO US

**LIVE 24/7
TECHNICAL
SUPPORT**

1.877.877.2269
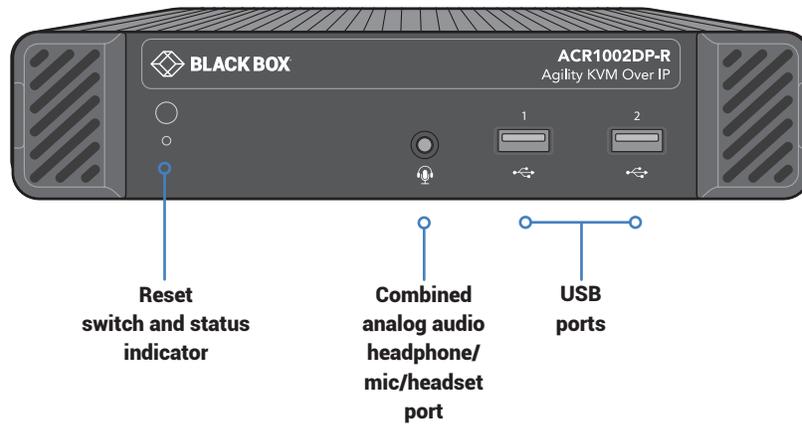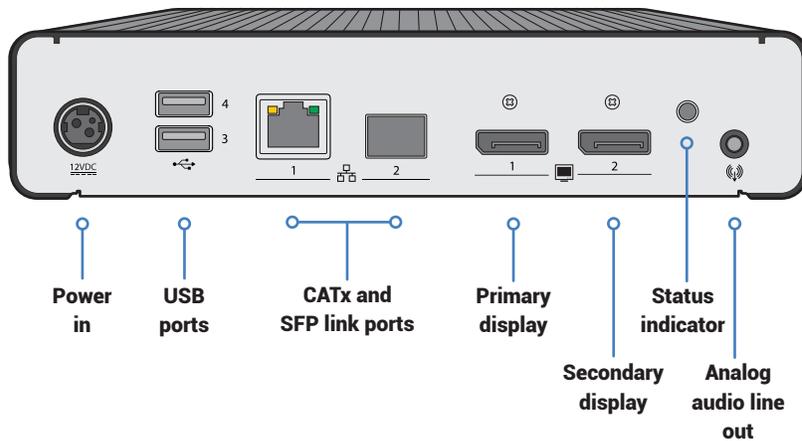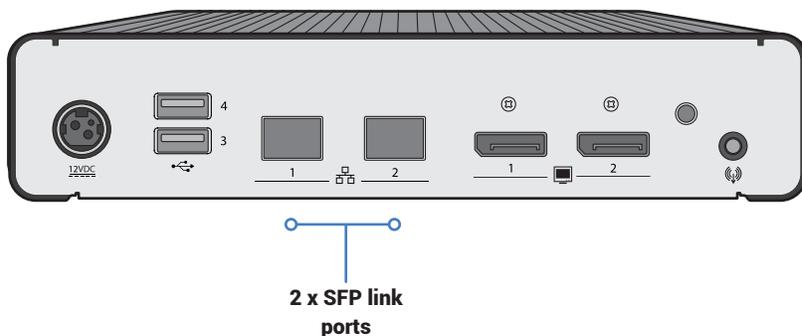
LOCATIONS

Please consider the following important points when planning the position of the modules:

- Situate the transmitter module close to the system to which it will be connected and near to a source of mains power. Place the receiver module in similar close proximity to the peripherals that it will connect with, plus a source of mains power.

- Consult the precautions listed within the supplied safety leaflet.

- Connections do not need to be carried out in the order given within this guide, however, where possible, connect the *power in* as the final step.

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.

NEED HELP?
LEAVE THE TECH TO US
**LIVE 24/7
TECHNICAL
SUPPORT**
1.877.877.2269

TRANSMITTER VIDEO LINK(S)

The transmitter supports a single DisplayPort™ connection at up to 2560x1600@60Hz or two connections, each up to 1920x1200@60Hz. *Note: ACR1002FH-T transmitters do not support either the CEC or HDCP protocols.*

TO MAKE A VIDEO LINK

1 Connect your digital video link cable(s) to the DisplayPort/HDMI socket(s) on the TX unit rear panel:

ACR1002DP-T AND
ACR1002FDP-T
(DISPLAYPORT) MODELS

To secondary
video output
port

To primary
video output
port

ACR1002FH-T
(HDMI) MODELS

To secondary
video output
port

To primary
video output
port
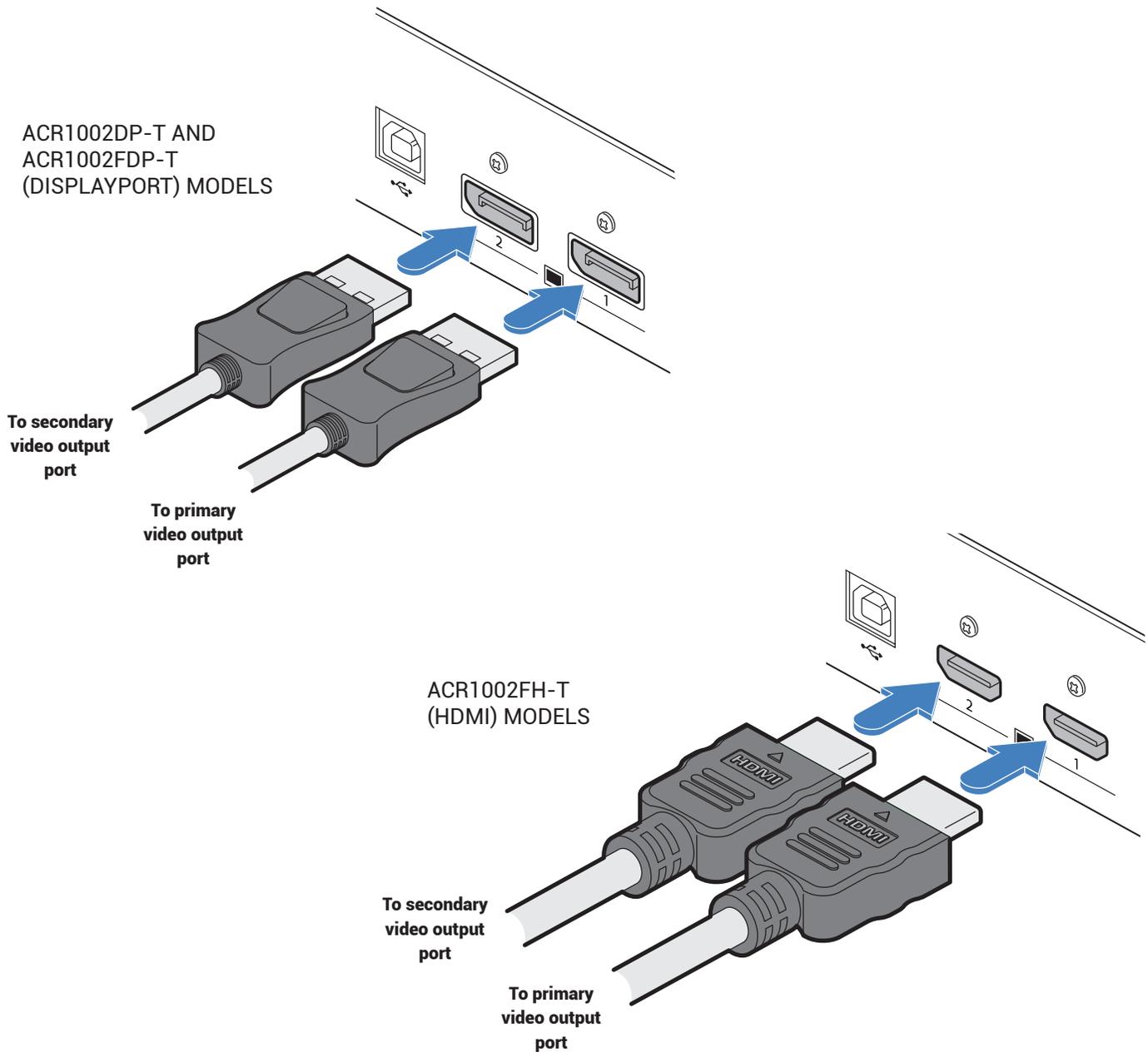
2 Connect the plug at the other end of the cable(s) to the corresponding video output socket(s) of the host computer.

NEED HELP?
LEAVE THE TECH TO US
**LIVE 24/7
TECHNICAL
SUPPORT**
1.877.877.2269

TRANSMITTER AUDIO LINKS

Audio is supported in the initial product release solely via the USB link with the host computer. In subsequent firmware updates further audio capabilities will be added.

Conversion between the USB derived digital audio and the receiver compatible audio format audio is carried out at the transmitter.

TRANSMITTER USB LINKS

The transmitter has a USB type B socket on the rear panel to link with the host computer. Additionally, the unit also has a type A socket on the front panel to allow an optional USB-to-serial converter device to be attached.

TO MAKE A USB LINK

1 Connect the type B connector of the supplied USB cable to the USB port 1 on the transmitter rear panel.

USB link from host computer
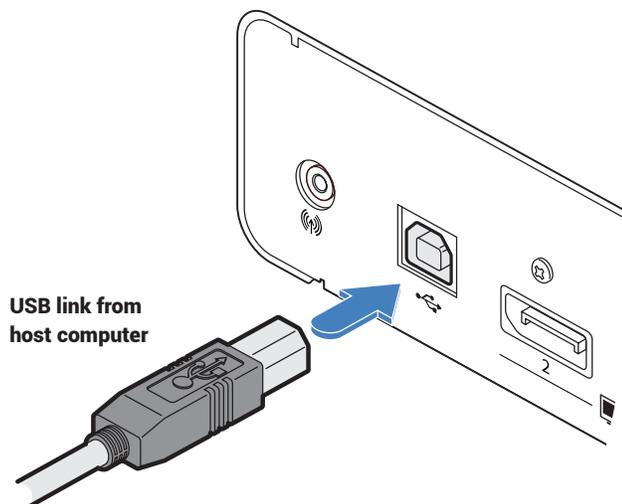
2 Connect the type A connector of the supplied cable to a vacant USB socket on the host computer.

RS232 SERIAL SUPPORT

To support RS232 serial connections, use third-party USB-to-serial adapters on both the transmitters and receivers.

TO ATTACH A USB-TO-SERIAL CONVERTER

1 If required, connect a USB-to-serial converter to the AUX port on the transmitter front panel.

ACR1002DP-T
Agility KVM Over IP

AUX
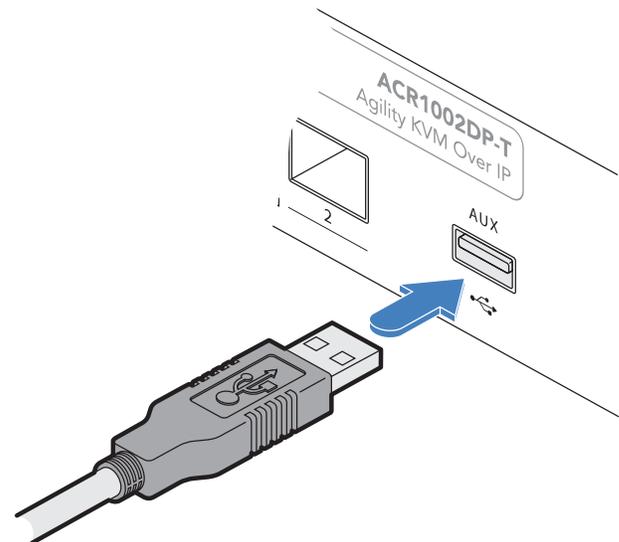
2 Connect an accompanying USB-to-serial converter to a vacant USB socket on the receiver.

NEED HELP?
LEAVE THE TECH TO US
**LIVE 24/7
TECHNICAL
SUPPORT**
1.877.877.2269

TRANSMITTER POWER IN

Each unit is supplied with a power adapter and country-specific power cord. The supplied power adapter uses a locking-type plug to help prevent accidental disconnection; follow the instructions shown on the right when disconnecting a power adapter.
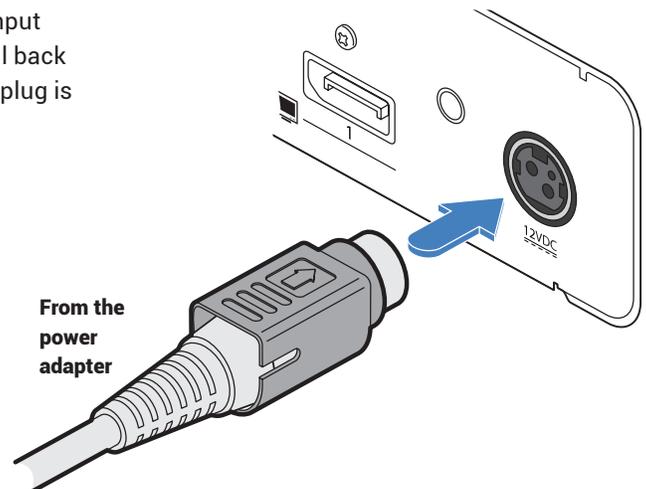
TO CONNECT THE POWER ADAPTER

1 Attach the output plug of the supplied power adapter to the power input socket on the right side of the rear panel. As you insert the plug, pull back slightly on the outer body to assist the locking mechanism until the plug is fully inserted.

From the power adapter

2 Insert the IEC connector of the supplied country-specific power cord to the socket of the power adapter.

3 Connect the power cord to a nearby mains supply socket.

IMPORTANT: Please read and adhere to the electrical safety information given within the supplied safety leaflet. In particular, do not use an unearthed power socket or extension cable.

Note: Both the modules and the power supplies generate heat when in operation and will become warm to the touch. Do not enclose them or place them in locations where air cannot circulate to cool the equipment. Do not operate the equipment in ambient temperatures exceeding 40 degrees Centigrade (104 degrees Fahrenheit). Do not place the products in contact with equipment whose surface temperature exceeds 40 degrees Centigrade (104 degrees Fahrenheit).

TO DISCONNECT THE POWER ADAPTER

1 Isolate the power adapter from the mains supply.

2 Grasp the outer body of the power adapter plug where it connects with the node.

3 Gently pull the body of the outer plug away from the node. As the body of the plug slides back, it will release from the socket and you can fully withdraw the whole plug.
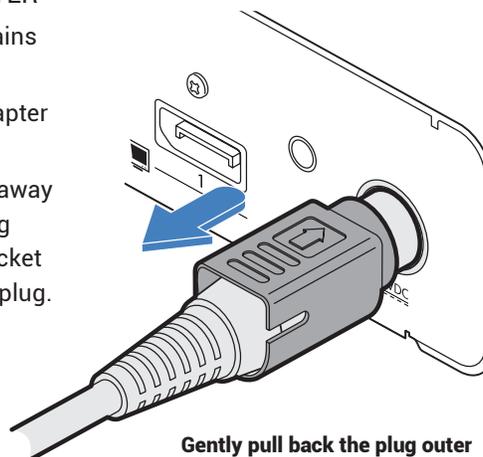
Gently pull back the plug outer body to release the lock.

TRANSMITTER/RECEIVER HIGH SPEED LINKS

Agility units can be either connected directly to each other or via a high speed (up to 1GbE) network. Links can be made:

- Using the in-built CATx ports (see below),
- Using additional CATx connections within the SFP ports (see next page),
- Using the SFP ports with optional fiber (FCoE) modules (see page 16).
- Using the dual SFP ports with optional fiber (FCoE) modules on ACR1002FDP variants (see page 17).

TEAMING

Agility units are ready to automatically invoke teaming whenever the CATx and SFP *(with either CATx or fiber modules installed)* ports are both used to link transmitters and receivers. Teaming potentially doubles the available bandwidth for video intensive applications and also provides redundancy in case one link is lost.

TO LINK USING THE IN-BUILT CATX PORT

1 Insert a suitable CATx cable into the RJ45 port on the front panel of the transmitter.

2 Connect the other end(s) of the CATx cable(s) to either a network switch or...

Transmitter front panel

CATx link cable

Receiver rear panel
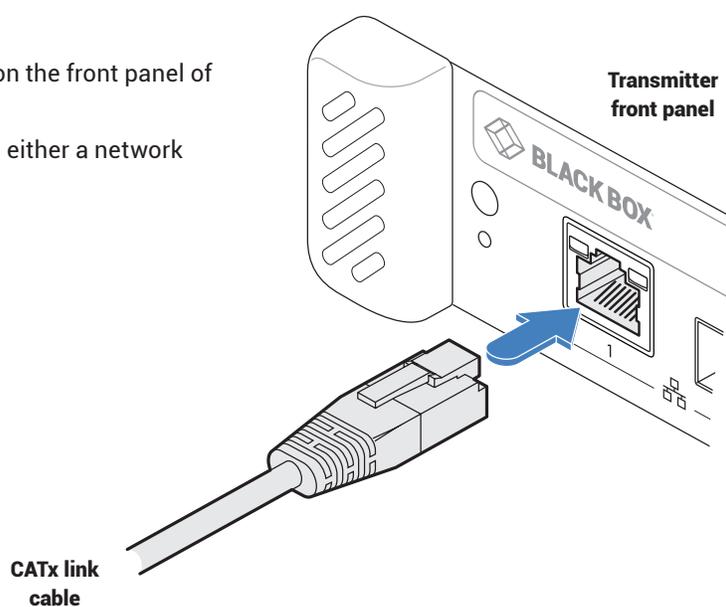
... connect directly to the receiver - to the RJ45 port on the rear panel of the receiver.

CATx link cable

NEED HELP?
LEAVE THE TECH TO US
**LIVE 24/7
TECHNICAL
SUPPORT**
1.877.877.2269
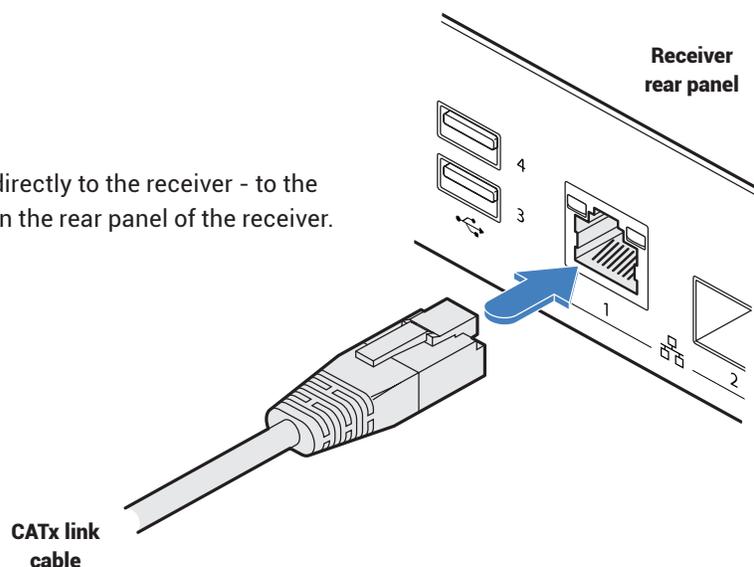
TO INSTALL ADDITIONAL CATX MODULES

1 Insert the appropriate optional SFP module into socket 2 located on the
   front panel of the transmitter...

**Transmitter
front panel**

**WARNING
CLASS 1
laser
product**

**CATx SFP
module**

...and the rear panel of the
receiver:

**Receiver
rear panel**

**CATx SFP
module**
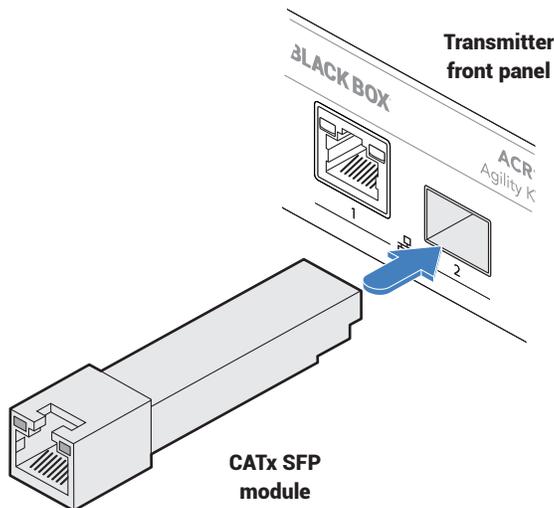
2 Make your CATx connection(s)
   between the SFP module and
   either the other Agility unit or a
   suitable network switch.

**CATx link
cable**

NEED HELP?
LEAVE THE TECH TO US
**LIVE 24/7
TECHNICAL
SUPPORT**
1.877.877.2269
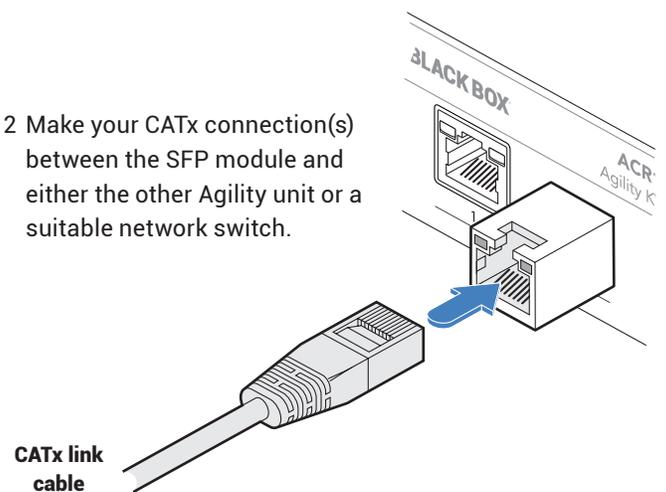
TO LINK AGILITY ACR1002DP UNITS VIA FIBER MODULES

1 Insert the appropriate optional SFP module into socket 2 located on
   the front panel of the transmitter...

**WARNING
CLASS 1
laser
product**

**Transmitter
front panel**

**Fiber SFP
module**

**Receiver
rear panel**

...and the rear panel of
the receiver:

**Fiber SFP
module**

BLACK BOX

2 Make your fiber connection(s) between
   the SFP module and either the other
   Agility unit or a suitable fiber network
   switch.

3 Close the latch over the link connectors
   to lock them into place.

**Transmit and receive
fiber links**

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269
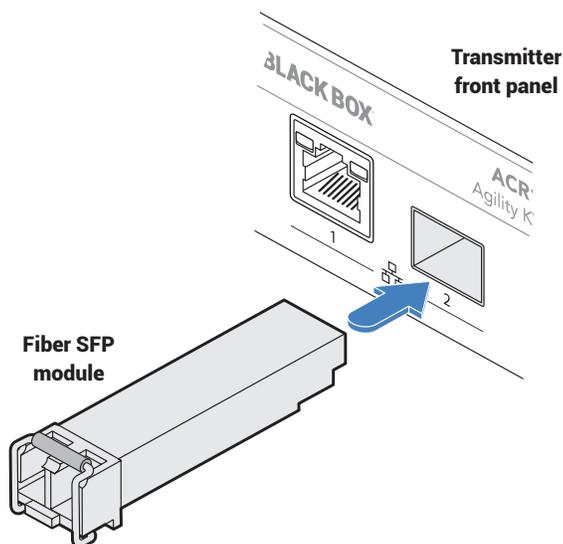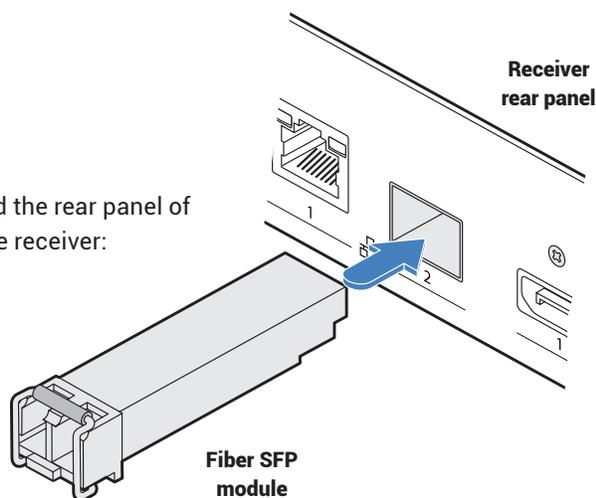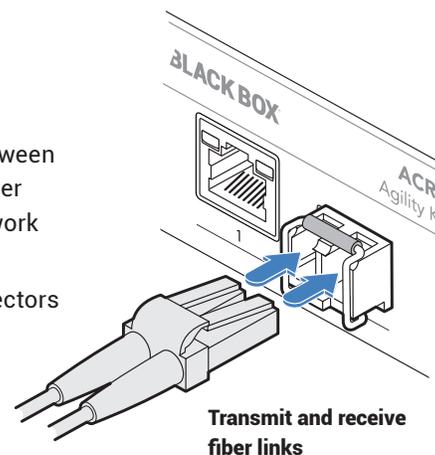
TO LINK AGILITY ACR1002FDP UNITS VIA FIBER MODULES

1 Insert the appropriate optional SFP modules into sockets 1 and 2
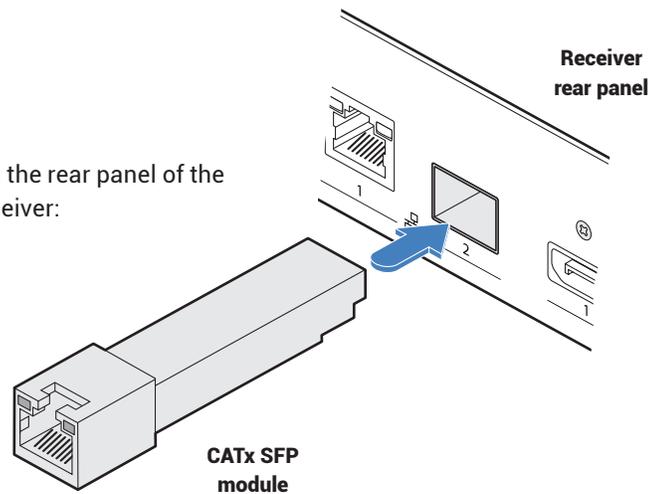   located on the front panel of the transmitter...

⚠️ **WARNING
CLASS 1
laser
product**

**Transmitter
front panel**

**Fiber SFP
modules**

**Receiver
rear panel**

...and the rear panel of
the receiver:

**Fiber SFP
modules**
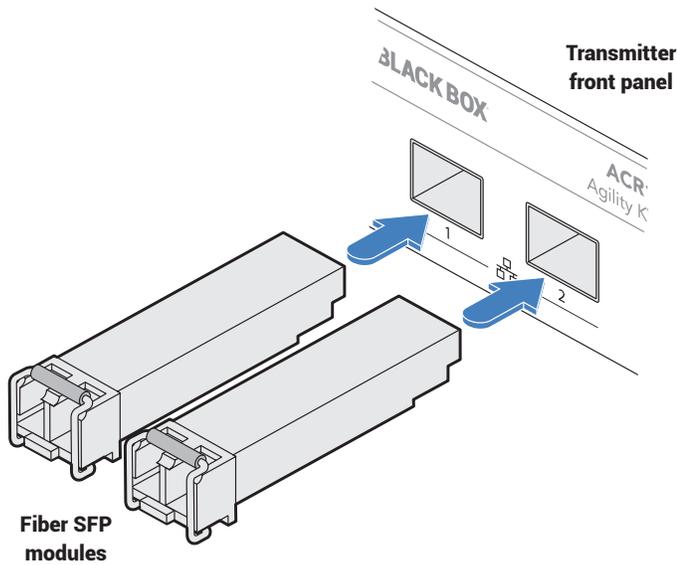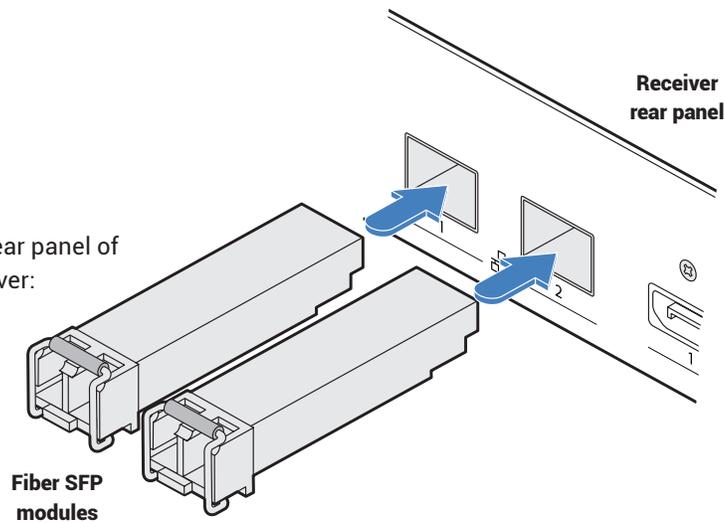
2 Make your fiber connection(s) between
   the SFP modules and either the other
   Agility unit or a suitable fiber network
   switch.

3 Close the latch over the link connectors
   to lock them into place.

**Transmit and receive
fiber links**
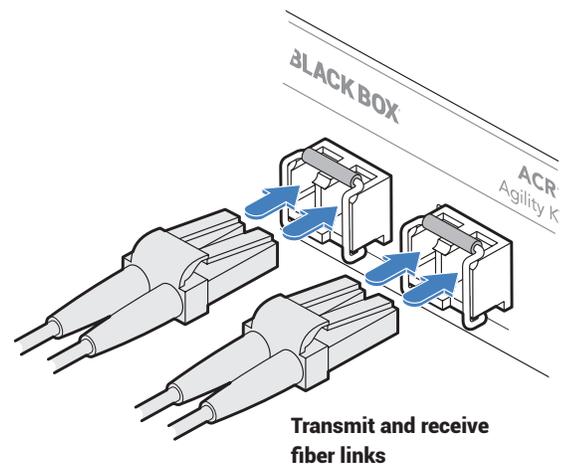
RECEIVER VIDEO DISPLAYS

The receiver supports a single DisplayPort™ connection at up to 2560x1600@60Hz or two connections, each up to 1920x1200@60Hz.
Note: If required, DP++ to HDMI or DP++ to DVI passive adapters can be used on a receiver to allow a HDMI or DVI monitor to be connected instead of a DisplayPort monitor.

TO CONNECT VIDEO DISPLAYS

1 Connect the lead from the primary video display to the DisplayPort socket marked '1' on the receiver rear panel:

To primary video display

To secondary video display
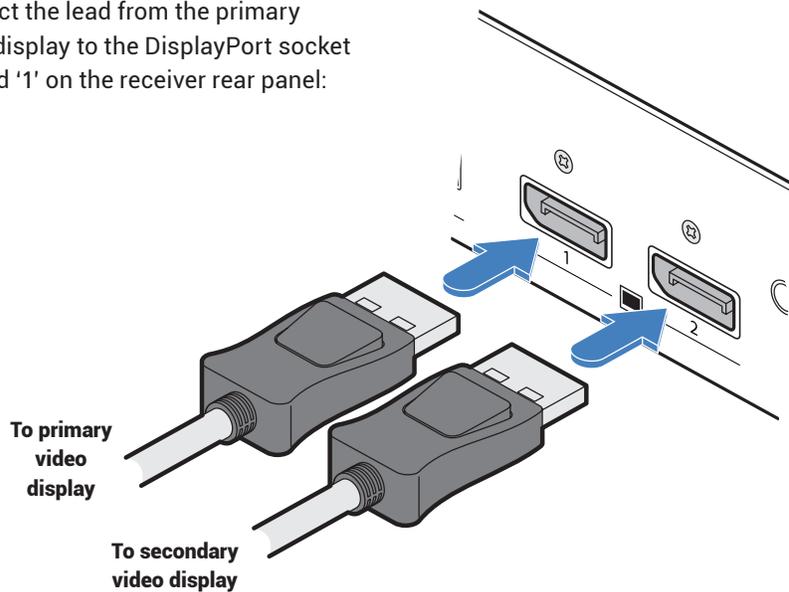
2 If required, connect the lead from the second video display to the DisplayPort socket marked '2' on the receiver rear panel.

NEED HELP?
LEAVE THE TECH TO US
**LIVE 24/7
TECHNICAL
SUPPORT**
1.877.877.2269

RECEIVER AUDIO DEVICES

The receiver can support headphones and a mono microphone via its front panel jack socket. On the rear panel a line out jack socket can be used to drive powered speakers. A USB link must be made between the transmitter and the host computer for audio to operate.

TO CONNECT HEADPHONES AND/OR HEADSETS

1 Connect your chosen audio device to the 3.5mm socket labeled 🎤 on the front panel. Please see below for a compatibility list.

**To headphones/
headset**
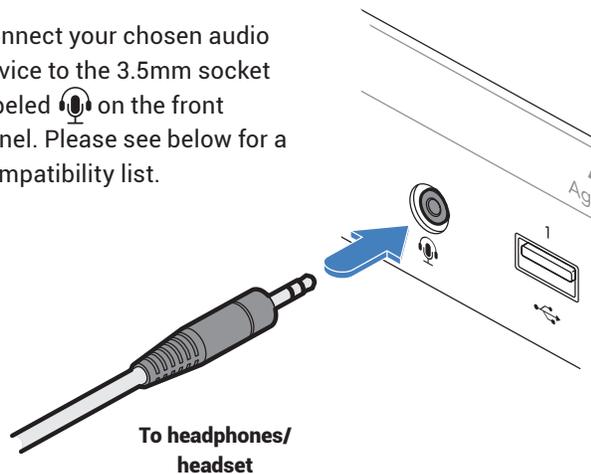
TO CONNECT AMPLIFIED SPEAKERS

1 Connect your speakers to the 3.5mm line out socket on the rear panel.

To speakers
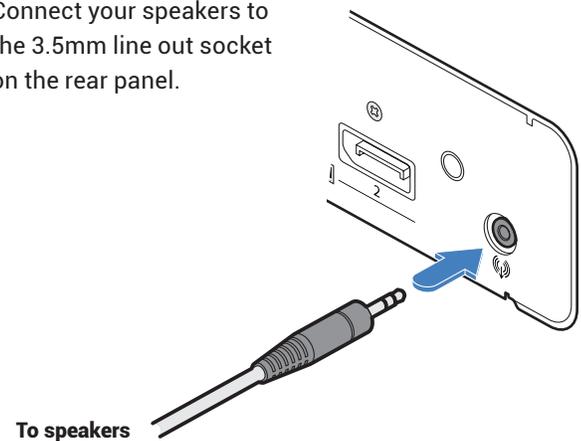
HEADPHONE, HEADSET AND MICROPHONE SUPPORT

The combined jack socket can accommodate any standard stereo headphones; it can also support headsets which conform to the CTIA/AHJ standard. The lesser-used OMTP standard is not directly supported as its microphone and ground connections are swapped. If used, the audio may be distorted and/or the mic will not operate. Suitable OMTP to CTIA/AHJ converters are available.

	CTIA/AHJ standard	OMTP standard
Tip	Audio left	Audio left
Ring	Audio right	Audio right
Ring	Ground	Microphone
Sleeve	Microphone	Ground
TRRS	✔ Supported	✘ Not supported

SUPPORTED DEVICES

All standard headphones and some headsets are directly supported, others require a suitable converter. It can be difficult to distinguish different headset standards, however, some (but not all) CTIA/AHJ devices use white dividers on their jack plugs.

SUPPORTED

- Stereo headphones - Yes
- Mono microphone – Supported when used with an adapter
- CTIA/AHJ-compliant headset with mic - Yes
- CTIA/AHJ-compliant adapter with mic and headphones plugged in - Yes

NOT SUPPORTED

- OMTP-compliant headset with mic – Not supported directly
- OMTP-compliant adapter with headset plugged in – Not supported directly

---

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

RECEIVER USB DEVICES

The receiver has two USB ports on the front panel to which peripherals may be connected.

To connect more than two peripherals, a USB hub may be used. The total current that may be drawn from the USB ports is 1.2A, which should be sufficient for a keyboard, mouse (no more than 100mA each) and any two other devices (500mA maximum each). If more power for USB devices is required, use a powered USB hub.

TO CONNECT USB DEVICES

1 Connect the lead from the device(s) to either of the two USB sockets on the front panel of the receiver...
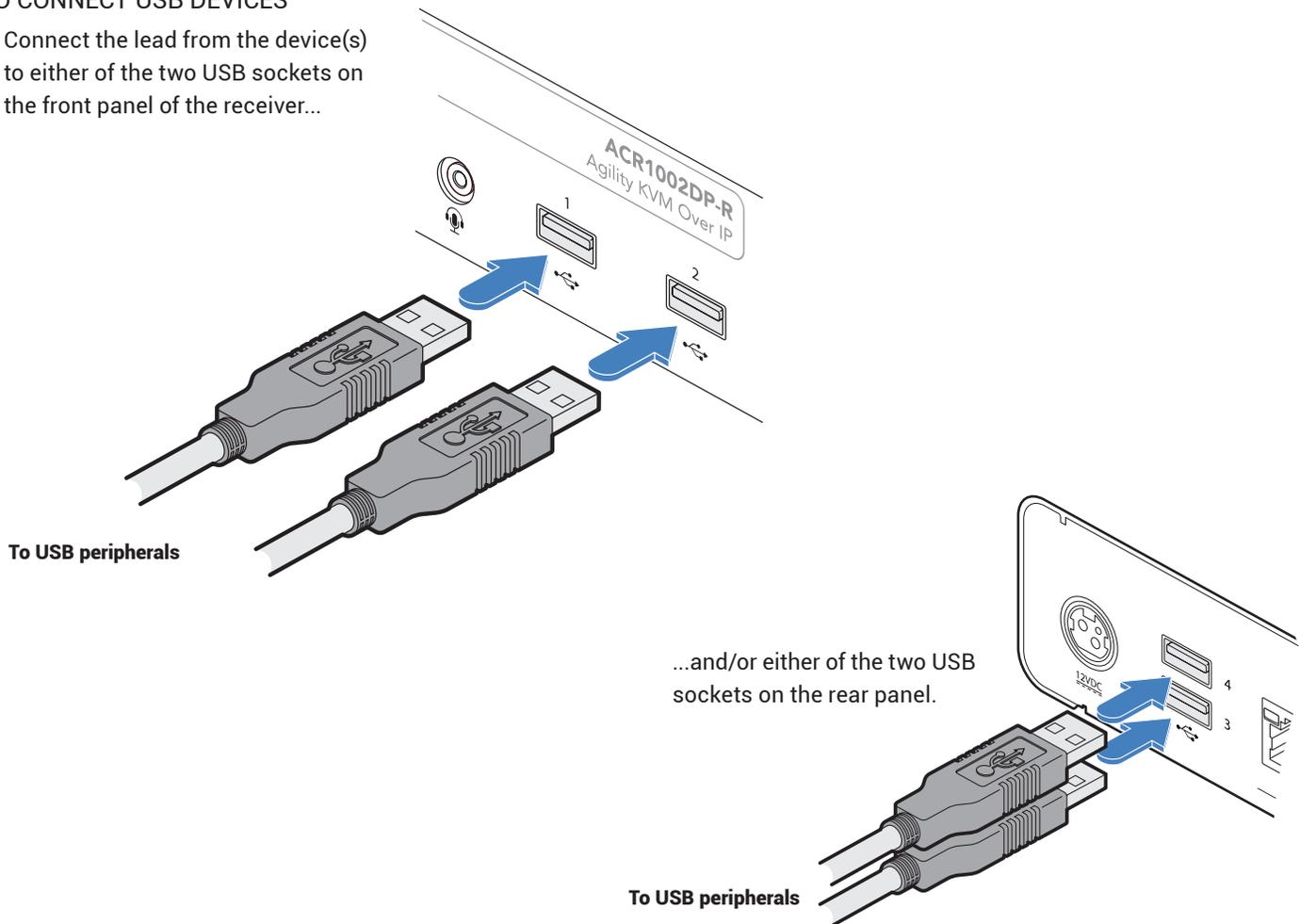
To USB peripherals

...and/or either of the two USB sockets on the rear panel.

To USB peripherals

RS232 SERIAL SUPPORT

To support RS232 serial connections, use third-party USB-to-serial adapters on both the transmitter and receiver.

RECEIVER POWER IN

Each unit is supplied with a power adapter and country-specific power cord. The supplied power adapter uses a locking-type plug to help prevent accidental disconnection; follow the instructions shown on the right when disconnecting a power adapter.

TO CONNECT THE POWER ADAPTER

1 Attach the output plug of the supplied power adapter to the power input socket on the right side of the rear panel. As you insert the plug, pull back slightly on the outer body to assist the locking mechanism until the plug is fully inserted.

From the power adapter

2 Insert the IEC connector of the supplied country-specific power cord to the socket of the power adapter.

3 Connect the power cord to a nearby mains supply socket.

TO DISCONNECT THE POWER ADAPTER

1 Isolate the power adapter from the mains supply.

2 Grasp the outer body of the power adapter plug where it connects with the node.

3 Gently pull the body of the outer plug away from the node. As the body of the plug slides back, it will release from the socket and you can fully withdraw the whole plug.

Gently pull back the plug outer body to release the lock.

IMPORTANT: Please read and adhere to the electrical safety information given within the supplied safety leaflet. In particular, do not use an unearthed power socket or extension cable.

Note: Both the modules and the power supplies generate heat when in operation and will become warm to the touch. Do not enclose them or place them in locations where air cannot circulate to cool the equipment. Do not operate the equipment in ambient temperatures exceeding 40 degrees Centigrade (104 degrees Fahrenheit). Do not place the products in contact with equipment whose surface temperature exceeds 40 degrees Centigrade (104 degrees Fahrenheit).

CHAPTER 4: CONFIGURATION

NEED HELP?
LEAVE THE TECH TO US

LIVE 24/7
TECHNICAL
SUPPORT

1.877.877.2269

AGILITY CONFIGURATION VIA WEB PAGES

Each Agility unit hosts its own internal set of web pages which contain all configuration details and settings *(see also Start of Life, shown right)*. You will need to use a computer connected to the same network as each Agility unit to access the web pages. Additionally, on the console attached to the receiver, you can access its configuration details via the On Screen Display (OSD) by pressing **CTRL + ALT + C** (or by tapping the ☰ icon on the touchscreen) - see page 30.

TO MANUALLY CONFIGURE AGILITY UNITS VIA THEIR WEB PAGES

Run a web browser on your computer and enter the IP address of the required Agility unit:

The default addresses (if using port **1**) are: **Transmitter:** https://169.254.1.33
Receiver: https://169.254.1.32

The default addresses (if using port **2**) are: **Transmitter:** https://169.254.1.43
Receiver: https://169.254.1.42

The opening page should be displayed:

For explanations of the options within each page, please see Appendix A.

NEED HELP?
LEAVE THE TECH TO US
**LIVE 24/7
TECHNICAL
SUPPORT**
1.877.877.2269
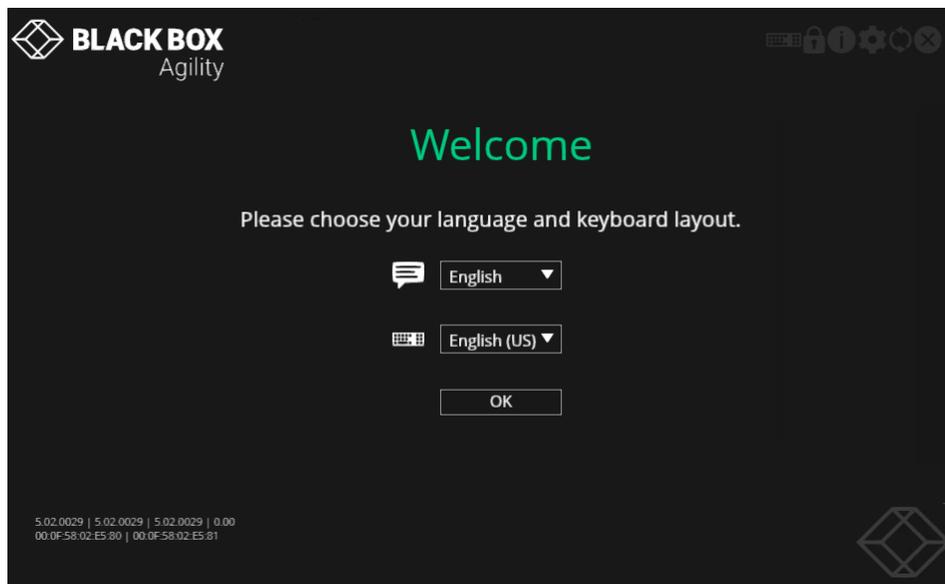
START OF LIFE: IPATH OR POINT TO POINT CONFIGURATION

To streamline initial configuration processes, all Agility ACR1002DP units employ a Start of Life (SoL) procedure when they are in an unconfigured state, either because they are new or because they have undergone a factory reset.

When an unconfigured Agility ACR1002DP unit boots, its SoL procedure will guide it to automatically determine which of two modes it should adopt:

- **iPATH mode** - place itself into the control of a specific iPATH server on the network, whereupon the Agility unit will be assigned suitable configuration details to fit within the network of similar units.

- **Mini Matrix (P2P) mode** - place itself into Mini Matrix (Point to Point) mode to allow manual configuration of links with other Agility units.

The SoL procedure follows this basic logic flow to determine the correct mode:

Note: If an iPATH server is present on the network then the modules don't have to be within SoL procedure for it to be placed under iPATH control.

Once the mode has been set to iPATH control, an Agility unit will remain operating that way until it undergoes a factory reset. If set to P2P mode, an Agility unit will remain thus until it undergoes a factory reset or is discovered by an iPATH server.

Note: When the modules enter Mini Matrix mode, you can cancel auto-SoL at any point by pressing Ctrl-Alt-C.

SoL:
Is a DHCP server available? — **N** → **Enter Mini Matrix mode.**

RX units:
seek out suitable TX endpoints on the network.

Y ↓

Does the DHCP have a valid Option 125 instruction? — **N** → **Stop auto-config** to allow manual configuration.

Y ↓

Enter iPATH mode
Place yourself under control of the iPATH server listed in the Option 125 instruction.

RX:
How many TX endpoints located?

I → Create a preset to suit the located TX endpoint.

>I → **Stop auto-config** to allow manual configuration.

0 → Create a simplified preset and assume a link-local (169.254.x.x) TX address.

Connection established to a TX endpoint using the preset? — **N** →

Y ↓

Operate with TX endpoint.

NEED HELP?
LEAVE THE TECH TO US

LIVE 24/7
TECHNICAL
SUPPORT

1.877.877.2269

PERFORMING A MANUAL FACTORY RESET

A factory reset returns Agility unit to its default configuration.

TO PERFORM A MANUAL FACTORY RESET

1 Power on the Agility unit.

2 Use a long narrow implement (e.g., a straightened-out paper clip) to press-and-hold the recessed reset button on the front panel for roughly ten seconds until the status indicator turns **blue** *(Note: alternating red/green indications will occur during the ten second period while the button is still pressed).*

3 Release the reset switch. The indicator will change to **red** for a short time (less than ten seconds) and then back to **blue** while the Agility unit performs the reset and should then change to an alternative color, usually **orange** initially, signifying that the operation is complete.
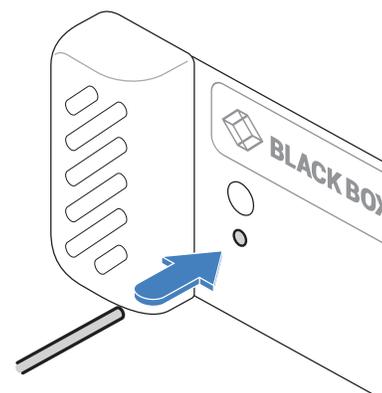
   Note: If you are performing a factory reset and intend to disconnect the power immediately after the reset, you must wait at least 30 seconds after you have released the reset button for it to complete the process.

PLACING THE DEVICE INTO RECOVERY MODE

Recovery mode may allow an Agility unit to be diagnosed or upgraded in the event of the main mode being non-operational.

TO BOOT THE DEVICE INTO RECOVERY MODE

1 Power on the Agility unit.

2 Use a long narrow implement (e.g., a straightened-out paper clip) to press-and-hold the recessed reset button on the front panel (for less than ten seconds) until the status indicator starts alternating **red**/**green**. *Note: A solid **blue** indication will occur after the ten second period.*

3 Release the reset switch. The indicator will change to **red** for a short time (less than ten seconds) and then alternate **red**/**green** signifying that the device is in recovery mode. *Note: If the indicator turns **blue**, then a factory reset has been performed instead; the device will not be in recovery mode; and the operation will need to be attempted again.*
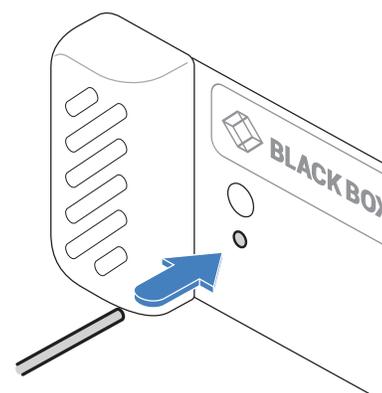
CONFIGURING DUAL TOUCHSCREENS

When a single touchscreen is used with a receiver, it should operate correctly as soon as the USB link is made between the screen and the receiver. However, if two touchscreens are installed it may be necessary to instruct the receiver which screen to correctly attribute to each USB input.

TO ATTRIBUTE DUAL TOUCHSCREENS

1 Access the Configuration pages on the receiver - see page 30.

2 Click the Ports entry from the list of pages on the left side.

3 Click the USB page icon: [⟷] to display the following:
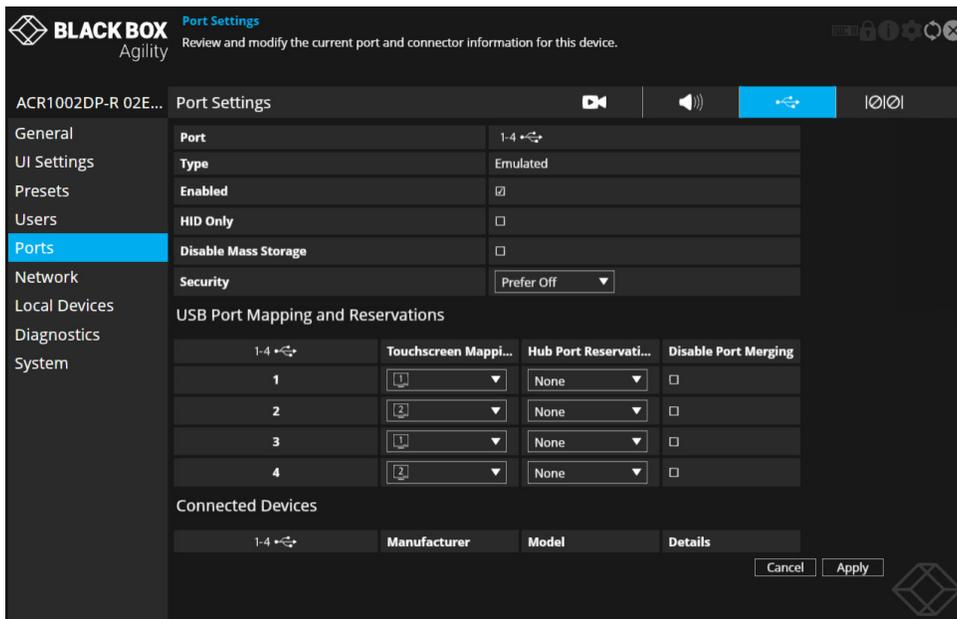
4 In the USB Port Mapping and Reservations section, match the primary touchscreen to the port number (1-4) that its USB cable is connected to.

5 Repeat step 4 for the secondary touchscreen.

6 Click the Apply button and exit from the configuration pages.

NEED HELP?
LEAVE THE TECH TO US
**LIVE 24/7
TECHNICAL
SUPPORT**
1.877.877.2269

CREATING AN UNMANAGED MATRIX

Although Agility units are most often organized and managed by a central iPATH server, it is possible to create small networks of Agility units, most often in matrix arrangements, i.e., multiple transmitters and receivers which can freely cross-connect.

Fiber/IP
network switch
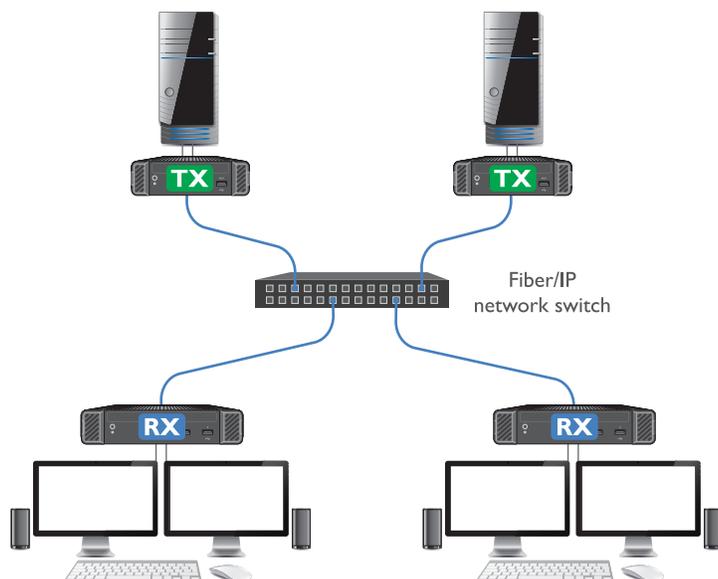
This method of connection works well for small numbers of transmitters and receivers, but will become more difficult to manage as more units are attached. The maximum number of transmitter sources that can be made available to any receiver is sixteen.

TO CREATE AN UNMANAGED MATRIX

1 Connect Agility transmitters and receivers (with their various hosts and peripherals) to a suitable switch, as described in the Installation section - see page 10.

   Note: If any device was previously managed by iPATH, then it will need to be given a factory reset before continuing with this procedure. There must not be an iPATH connected on the matrix network. Otherwise, when such devices undergo a factory reset, they will automatically revert to iPATH control.

   You now need to perform the following procedure on each receiver in turn:

2 Access the Configuration pages - see page 30.

3 Click the Transmitters option from the list on the left side. This page will list all of the available transmitters which are not under iPATH control. See page 42.

4 Click the Presets option from the list on the left side. Use this page to add each transmitter to the list of presets for the receiver that you are editing. See page 36.

TO USE THE MATRIX

• On each receiver, use the OSD to access the required transmitters in the usual manner. See page 30.

NEED HELP?
LEAVE THE TECH TO US

**LIVE 24/7
TECHNICAL
SUPPORT**

1.877.877.2269

CREATING AND EDITING PRESETS

Presets allow you to create shortcuts from any Agility receivers to any available Agility transmitters. These are particularly useful when using an Agility installation that is not under iPATH control.

TO ACCESS THE PRESET CONFIGURATION PAGE

1 On the console keyboard attached to the receiver, access the OSD by pressing **CTRL + ALT + C** or tap the ≡ icon on the touchscreen.

2 The Preset Selection page will be displayed:
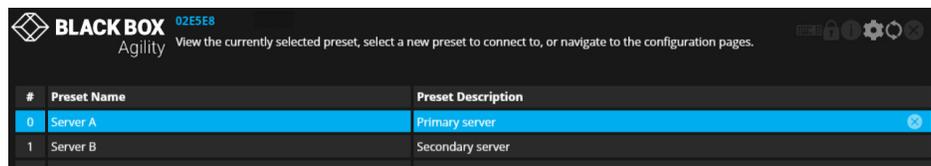
Note: The number on the left corresponds to the hotkey sequence that will connect to that channel, e.g., press Ctrl-Alt-4 to connect to the 4th preset.

3 Click/tap the ⚙ icon in the top right corner.

4 Choose the Presets option from the list on the left side of the screen. This page will show the same list of presets, but with options to add (⊕) or edit (⚙) entries:
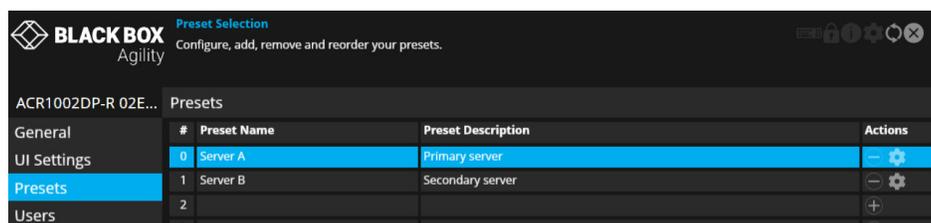
TO REMOVE A PRESET

1 Access the Preset configuration page as discussed above.

2 In the Actions column, click the ⊖ icon for the entry that you wish to remove.

TO ADD A PRESET

1 Access the Preset configuration page as discussed above.

2 Click the ⊕ icon on the right of a vacant preset entry to display the configuration page:
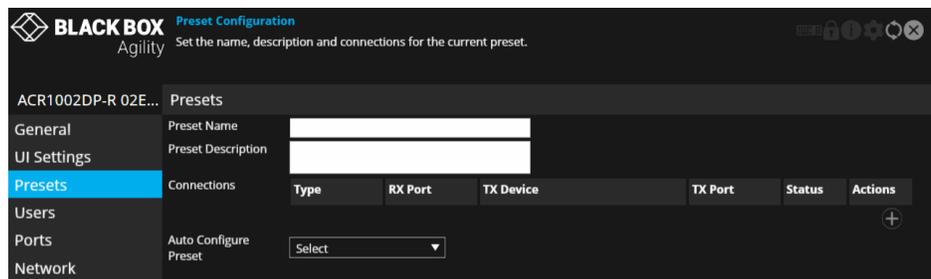
3 Enter a name and description for the new preset.

continued

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

4 You can now choose how to configure your new preset - Auto or Custom:

- **Auto** - Click the Auto Configure Preset drop down and choose the Agility transmitter that you wish to connect with. All of the supported default connections will be configured (on a 1-to-1 basis) between the receiver and chosen transmitter. Click the Apply button.

- **Custom** - Configure individual connections (useful when unusual cross connections are required).

   1 Click the ⊕ icon on the right side to add a new connection entry.

   2 Check that the correct module is shown in the TX Device column. Click and change this entry, if required.

   3 In the Type column, click the Select option and choose the type of connection: Video, Audio, USB or Serial.

   4 Click the RX Port drop down and choose the required port.

   5 Click the TX Port drop down and choose the port that you wish the current RX port to connect with. If only one option is available it will be auto-selected.

   6 Repeat steps 1 to 5 for each of the required ports.

   7 Click the Apply button.

TO EDIT A PRESET

1 Access the Preset configuration page as discussed left.

2 In the Actions column, click the ⚙ icon for the preset entry you wish to edit. An editable list of connections will be shown, together with their status representations:

3 Make your changes as required and then click the Apply button to save.
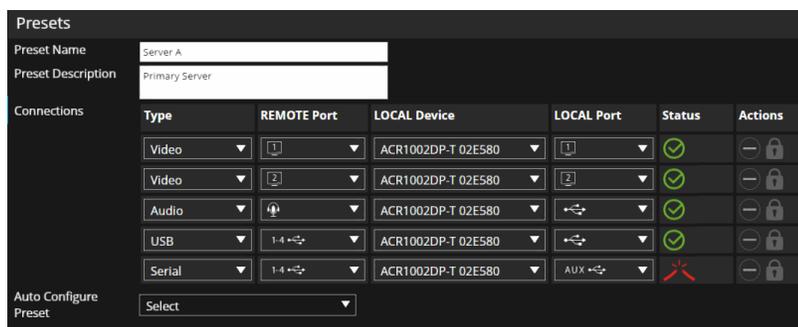
Presets						
Preset Name	Server A					
Preset Description	Primary Server					
Connections	**Type**	**REMOTE Port**	**LOCAL Device**	**LOCAL Port**	**Status**	**Actions**
	Video ▼	1 ▼	ACR1002DP-T 02E580 ▼	1 ▼	⊘	⊖ 🔒
	Video ▼	2 ▼	ACR1002DP-T 02E580 ▼	2 ▼	⊘	⊖ 🔒
	Audio ▼	🎤 ▼	ACR1002DP-T 02E580 ▼	⇄ ▼	⊘	⊖ 🔒
	USB ▼	1-4 ⇄ ▼	ACR1002DP-T 02E580 ▼	⇄ ▼	⊘	⊖ 🔒
	Serial ▼	1-4 ⇄ ▼	ACR1002DP-T 02E580 ▼	AUX ⇄ ▼	✕	⊖ 🔒
Auto Configure Preset	Select ▼					

TO RE-ORDER PRESETS

1 Access the Preset configuration page as discussed on the previous page.

2 Click and drag a preset to the required position within the list.

For more information about the options and status indications, see page 36.

CHAPTER 5: OPERATION

NEED HELP?
LEAVE THE TECH TO US

LIVE 24/7
TECHNICAL
SUPPORT

1.877.877.2269

In operation, many Agility installations require no intervention once configured. The transmitters and receivers take care of all connection control behind the scenes so that you can continue to work unhindered.

INDICATORS

The front and rear panels of each Agility unit feature an indicator capable of producing numerous color and flash patterns to provide a useful guide to operation. The dual indicators provide the same color and flash patterns.

INDICATOR COLOR AND FLASH PATTERNS

The front and rear panel indicators use varying color and flashing patterns to signal key status:

Off   No power.

Green   All services present as compared to the configuration required.

Amber   Running but video, USB or network link missing (or not connected to another Agility unit).

Red   Booting before processor loaded or failed.

Red rapid flash   A critical error has been detected that is preventing the device from being used (a malfunction message will also be displayed within the OSD.)

Blue   Factory reset mode active.

Red/green flash   Booting into factory recovery mode.

Green/blue flash   Upgrade mode active.

Fast green flash   Identify mode active.

USING THE ON SCREEN DISPLAY

The OSD provides a quick and easy way to access Agility transmitters as well as configuration details.

TO ACCESS THE OSD

1 On the console of your Agility receiver, either:

- Press **CTRL + ALT + C** on the keyboard,

  or

- Tap the ☰ icon∗ on the touchscreen.

2 The Preset Selection page will be displayed:
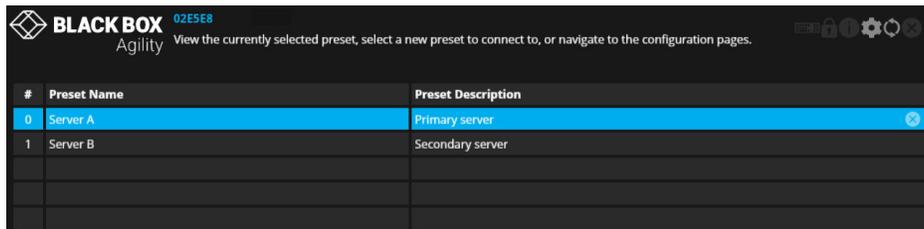
∗ To move the ☰ icon on your touchscreen, tap and hold it until it changes color and then drag it to the best position.

3 On the preset page, either

- Click/tap a preset entry to connect with the required transmitter,

  or

- Click/tap the ⚙ icon to enter the first Configuration page:
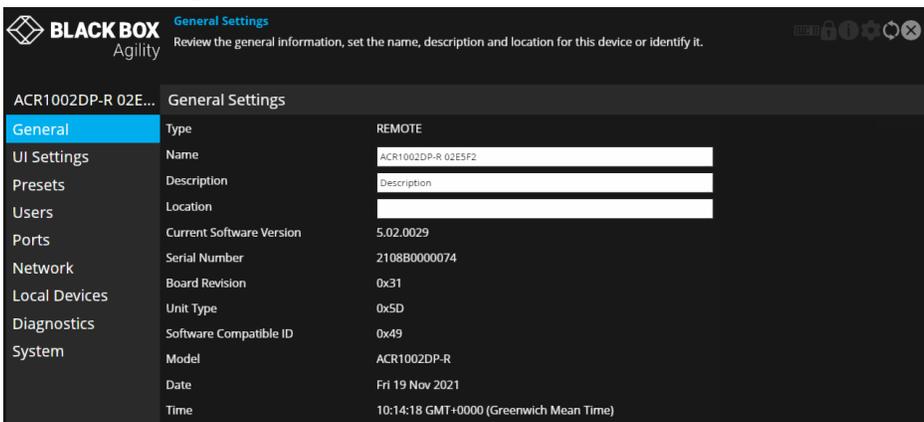
For explanations of the options within each page, please see Appendix A.

TO USE THE OSD KEYBOARD (WHEN USING A TOUCHSCREEN)

1 Access the OSD as discussed left.

2 Tap the ⌨ icon in the top right corner.

3 The OSD keyboard will be displayed to assist you when entering text and numerics:

TO HIDE THE OSD KEYBOARD

1 Tap the ⌨ icon in the top right corner.

TO EXIT THE OSD

1 Either press the Esc key or tap the ⊗ icon in the top right corner.

NEED HELP?
LEAVE THE TECH TO US
**LIVE 24/7
TECHNICAL
SUPPORT**
1.877.877.2269

PORT STATUS POPUPS
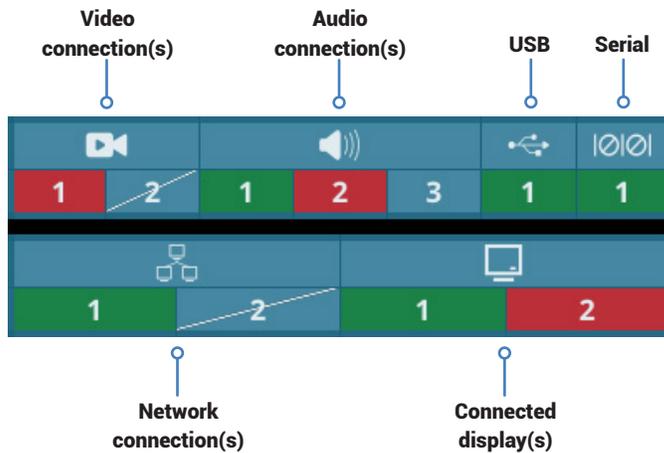
These useful status indicators will be displayed in the top left corner (or elsewhere according to UI Settings) of the primary console display:

• Whenever the OSD is in use,

• If any issues occur with one or more ports (when the OSD is not in use).

The status of each port will be shown as follows:

| Operational | Not operational | Not in use | Port disabled |

NEED HELP?
LEAVE THE TECH TO US
**LIVE 24/7
TECHNICAL
SUPPORT**
1.877.877.2269

CHAPTER 6: FURTHER INFORMATION

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

- Getting assistance - see right
- Appendix A - Configuration pages
- Appendix B - Support for analog and digital audio
- Appendix C - Tips for success when networking Agility units
- Appendix D - Troubleshooting
- Appendix E - Glossary
- Appendix F - Fiber/copper modules and cables
- Appendix G - Using the optional Agility rack shelves
- Appendix H - Open source licenses

APPENDIX A - CONFIGURATION PAGES

This section covers the web page configuration for the Agility units:

- Receiver - General Information
- Receiver - UI Settings
- Receiver - Presets
- Receiver - Users
- Receiver - Ports
- Receiver - Network
- Receiver - Local Devices
- Receiver - Diagnostics and Statistics
- Receiver - System

- Transmitter - General Information
- Transmitter - UI Settings
- Transmitter - Users
- Transmitter - Ports
- Transmitter - Network
- Transmitter - Diagnostics and Statistics
- Transmitter - System

TO ACCESS THE OSD

1 On the console of your Agility receiver, either:

- Press **CTRL + ALT + C** on the keyboard,

   or

- Tap the ☰ icon∗ on the touchscreen.

2 The Preset Selection page will be displayed:

3 On the preset page, either

- Click/tap a preset entry to connect with the required transmitter,

   or
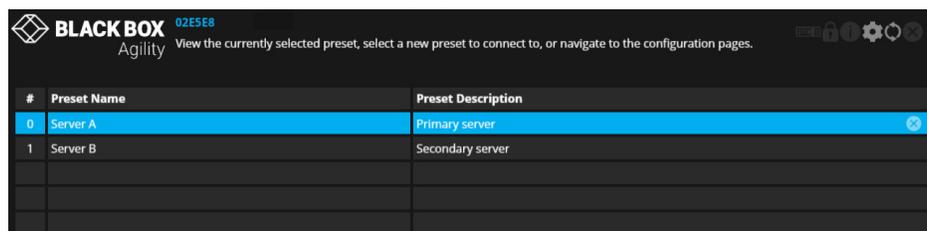
- Click/tap the ⚙ icon to enter the first Configuration page.

TO USE THE OSD KEYBOARD (WHEN USING A TOUCH SCREEN)

1 Access the OSD as discussed on page 30.

2 Tap the ⌨ icon in the top right corner of the screen.

3 The OSD keyboard will be displayed to assist you when entering text and numerics:

TO HIDE THE OSD KEYBOARD

1 Tap the ⌨ icon in the top right corner.

TO EXIT THE OSD

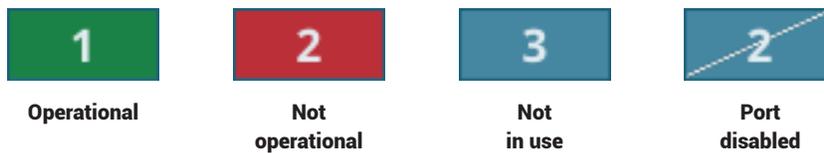1 Either press the Esc key or tap the ⊗ icon in the top right corner.

RECEIVER - GENERAL INFORMATION

To get here

You can access this page in two ways, however, the first method is not available if the module is under iPATH control:

1 On the console keyboard attached to the receiver, access the OSD by pressing **CTRL + ALT + C** or tap the touchscreen 🟢 icon. The Preset Selection page will be displayed.

2 Click the ⚙ icon in the top right corner.

3 If necessary, click the **General** link.

OR

1 Connect a computer to the same network as the receiver.

2 Run a web browser and enter the IP address of the receiver: **https://169.254.1.32** (this is the default address when using port 1). If you are using SFP port 2, then the default address will be **https://169.254.1.42** *Note: These default addresses can be changed.*

3 Click the ⚙ icon in the top right corner.

4 If necessary, click the **General** link.

General Information

Type - States whether the device is a transmitter (TX) or a receiver (RX).

Name - Name details that you can alter to distinguish this unit from all others. Not shown when operating under iPATH server control.

Description - Allows you to optionally add a description of the device. Useful when many Agility units are being used. Not shown when operating under iPATH server control.

Location - Allows you to optionally add a description of the device's location. Useful when many Agility units are being used. Not shown when operating under iPATH server control.

Current Software Version - Displays the version number of the currently installed (and active) internal software.

Serial Number - Displays the fixed serial number of the device.

Board Revision - Displays the revision number of the device's main circuit board.

Unit Type - Used for technical support purposes, this entry shows a code depicting the type of the main circuit board.

Software Compatible ID - Used for technical support purposes, this entry shows the software compatible ID of the main circuit board.

Model - Displays the model number of the device.

Date and Time - Displays the current date and time used by the device when this page was last loaded (select refresh icon to update).

Uptime - Shows the time period for which the device has currently being running since the last time this page was loaded (select refresh icon to update).

Identify Device - When clicked, this button will cause the indicator on the front panel of the device to flash to assist with identification when multiple units are installed in the same area. A popup dialog will also be displayed on screen showing all relevant identification details. Click the Cancel button to stop the identification process or click the OK button to close the popup (and then click the Identify Device button when you're ready to cancel this operation).

NEED HELP?
LEAVE THE TECH TO US

**LIVE 24/7
TECHNICAL
SUPPORT**
1.877.877.2269

RECEIVER - UI SETTINGS

To get here

You can access this page in two ways, however, the first method is not available if the module is under iPATH control:

1 On the console keyboard attached to the receiver, access the OSD by pressing **CTRL + ALT + C** or tap the touchscreen 🗐 icon. The Preset Selection page will be displayed.

2 Click the ⚙ icon in the top right corner.

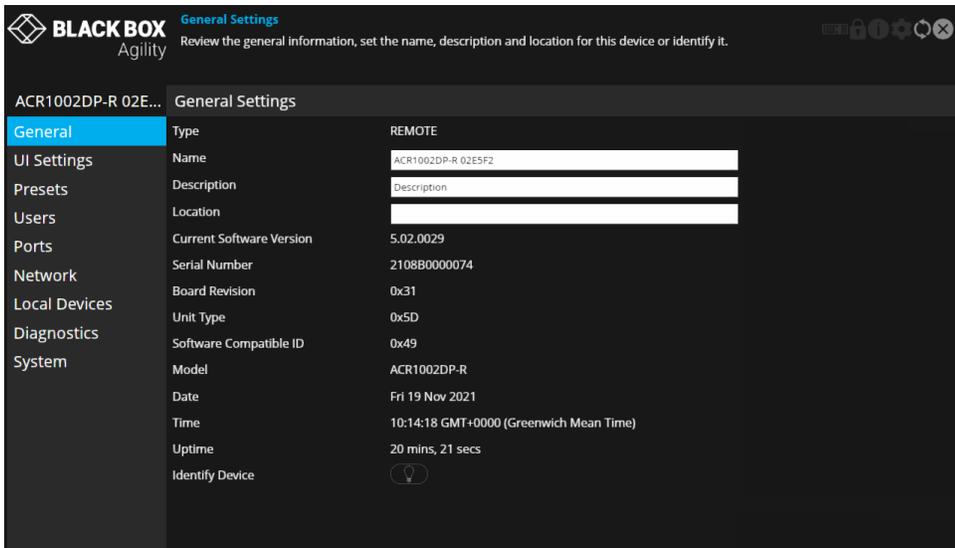3 If necessary, click the **UI Settings** link.

OR

1 Connect a computer to the same network as the receiver.

2 Run a web browser and enter the IP address of the receiver: **https://169.254.1.32** (this is the default address when using port 1). If you are using SFP port 2, then the default address will be **https://169.254.1.42** *Note: These default addresses can be changed.*

3 Click the ⚙ icon in the top right corner.

4 If necessary, click the **UI Settings** link.

UI Settings

OSD Notification Position (plus Timeout) - Determines the location and persistence of notifications issued on users' screens.

OSD Banner Position (plus Timeout) - Determines the location and persistence of banners (a banner is a popup showing the current preset/channel name) displayed on users' screens.

OSD Timeout - Determines the persistence of the OSD if no interaction has taken place.

LED brightness - Determines the brightness of the front and rear panel LED indicators.

The following entries are also displayed when the unit is not under iPATH control:

Language - Determines the language used for all text labels within the configuration pages.*

Keyboard Layout - Determines the appropriate keyboard layout for use with the configuration pages.*

Touch Show OSD - (When touch screens are used) Determines whether the Show OSD icon is displayed continually, not at all or automatically.*

Touch Show Icon Size - (When touch screens are used) Determines the size of the Show OSD icon. Options range from Small to Very Large.*

Mouse Show OSD - Determines the mouse button press combination that should be used to call the OSD.

Hotkey Modifiers - Determines the special modifier keys that will be used to form the basis of all the hotkey functions listed below.

Show OSD... ...Last Preset - These entries determine the hotkey letters required (together with the modifier keys selected above) to enact various presets and modes. Not shown when operating under iPATH server control.

* These entries are all visible but are not configurable under iPATH control.

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

RECEIVER - PRESETS

To get here

You can access this page in two ways, however, the first method is not available if the module is under iPATH control:

1 On the console keyboard attached to the receiver, access the OSD by pressing **CTRL + ALT + C** or tap the touchscreen ⊜ icon. The Preset Selection page will be displayed.

2 Click the ⚙ icon in the top right corner.

3 If necessary, click the **Presets** link.

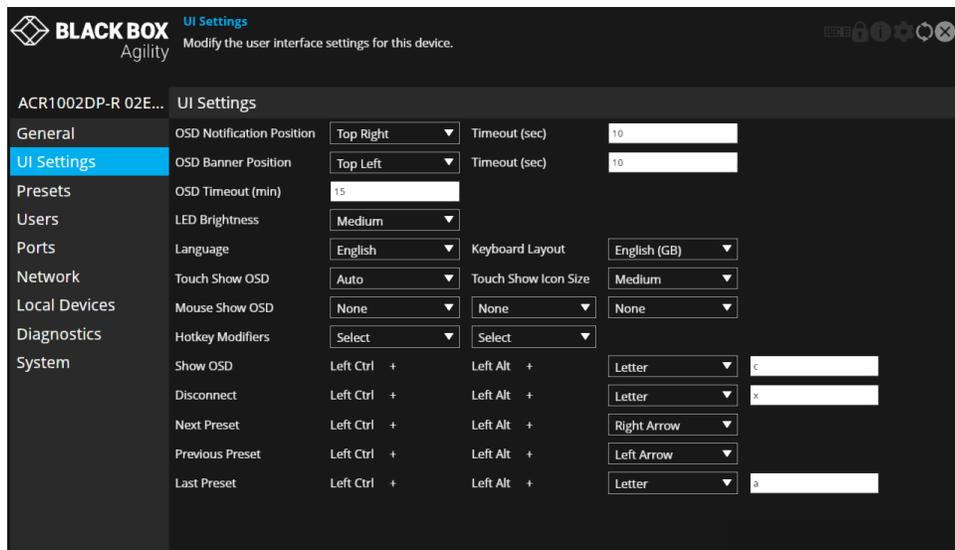4 Either add a new preset (click **+**) or click ⚙ to edit an existing one.

OR

1 Connect a computer to the same network as the receiver.

2 Run a web browser and enter the IP address of the receiver: **https://169.254.1.32** (this is the default address when using port 1). If you are using SFP port 2, then the default address will be **https://169.254.1.42** *Note: These default addresses can be changed.*

3 Click the ⚙ icon in the top right corner.

4 If necessary, click the **Presets** link.

5 Either add a new preset (click **+**) or click ⚙ to edit an existing one.
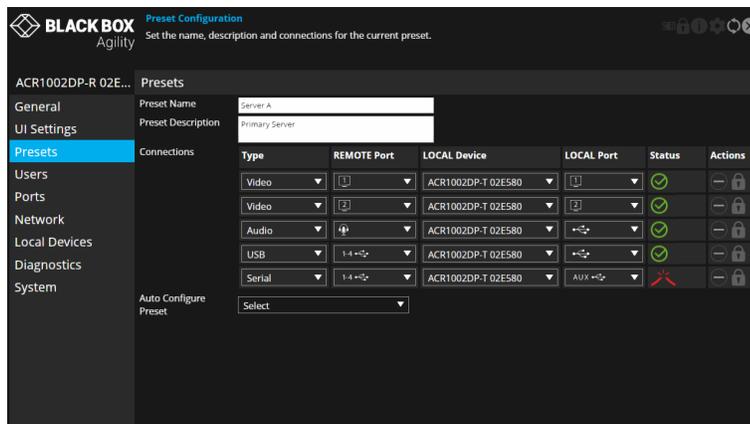
Preset Information

This page lists the details and connection status for the current channel/preset which the receiver is using. Under iPATH control this lists the connection details for the channel that the receiver is currently connected to.

Each row details one type of connection which has been made. It lists the output port on the receiver and the source port from the transmitter which it is connected to, as well as the name of the device it is connected to.

⊖ Click this icon in the *Actions* column to remove a particular row of connections from the list.

🔒 Click this icon to manually set the password for the specified device so that it has the necessary permission to access the appropriate channel on the selected transmitter. In most connections, the access passwords for all the peripherals will be set collectively during the initial linking between the receiver and transmitter. The 🔒 links given here provide an alternative method as backup.

⊕ Click this icon to add a new connection to the list.

Auto Configure Preset - Select to automatically create a new set of connection presets from the selected transmitter.

Analog and digital audio

ACR1002 units support both analog and digital audio connections from the host PC. Although originating from possibly the same audio source, these two audio types are switched completely separately and cannot be mixed. In the connections table, the two types are represented thus:

• **Analog** audio (🎙) at RX only connects to (↔ or ⊕) at TX.

• **Digital** audio (1 or 2) at RX only connect to (1 or 2) at TX.

For more details, please see Appendix B - Support for analog and digital audio.

Status

The following icons may be shown within the Status column:

⊘ The connection is fully operational.

❓ A connection has not been established.

⇄ The control protocol version is incompatible/unsupported between the peer and this device.

🔒 The control protocol security settings are incompatible/unsupported between the peer and this device.

🔒 The connection failed the authorisation stage (most likely a bad password).

↪ The connection is established but there is no input signal being received from the peer device.

→ The connection has an invalid or unsupported input source signal peer device (audio and video connections only), or the connection is currently out of resources at the peer device, or there is insufficient network bandwidth to support the requested data for this connection.

The encoding of the source data at the peer has stopped (due to an error or fault).

✕ There is no output device available on the port for this connection (e.g., no monitor connected).

There is no data currently being received by the device.

🖥 The video data for the connection produces an output signal that is out of range for the capabilities of this device, or the appliance connected to this device, or the device is currently out of resources to process the video data for this connection.

◁ The audio data for the connection produces an output signal that is out of range for the capabilities of this device, or the appliance connected to this device, or the device is currently out of resources to process the audio data for this connection.

⚠ The decoding of the data at this device has stopped (due to an error or fault).

RECEIVER - USERS

To get here

You can access this page in two ways, however, the first method is not available if the module is under iPATH control:

1 On the console keyboard attached to the receiver, access the OSD by pressing **CTRL + ALT + C** or tap the touchscreen ⊜ icon. The Preset Selection page will be displayed.

2 Click the ⚙ icon in the top right corner.

3 If necessary, click the **Users** link.

OR

1 Connect a computer to the same network as the receiver.

2 Run a web browser and enter the IP address of the receiver: **https://169.254.1.32** (this is the default address when using port 1). If you are using SFP port 2, then the default address will be **https://169.254.1.42** *Note: These default addresses can be changed.*

3 Click the ⚙ icon in the top right corner.

4 If necessary, click the **Users** link.

BLACK BOX
Agility

User Settings
Change the password of the default user on this device.

ACR1002DP-R 02E...   User Accounts

	User Name	User Type	Actions
General			
UI Settings	default	Admin	🔒
Presets			
Users			
Ports			
Network			
Local Devices			
Diagnostics			
System			

User accounts

This page allows you to change the password for the admin user.

Click the 🔒 icon to display the following dialog:

Change User Password

Enter and confirm the new user password for this device.

Password　[　　　　]
Confirm Password　[　　　　]

Cancel　OK

Enter and confirm the current and new admin password and click OK.

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

RECEIVER - PORTS

To get here

You can access this page in two ways, however, the first method is not available if the module is under iPATH control:

1. On the console keyboard attached to the receiver, access the OSD by pressing **CTRL + ALT + C** or tap the touchscreen ☰ icon. The Preset Selection page will be displayed.

2. Click the ⚙ icon in the top right corner.

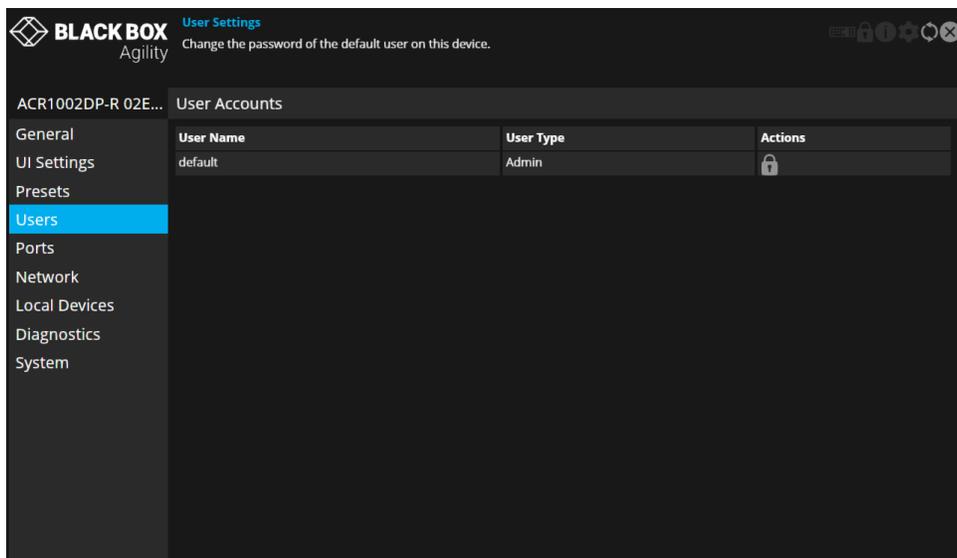3. If necessary, click the **Ports** link.

OR

1. Connect a computer to the same network as the receiver.

2. Run a web browser and enter the IP address of the receiver: **https://169.254.1.32** (this is the default address when using port 1). If you are using SFP port 2, then the default address will be **https://169.254.1.42** *Note: These default addresses can be changed.*
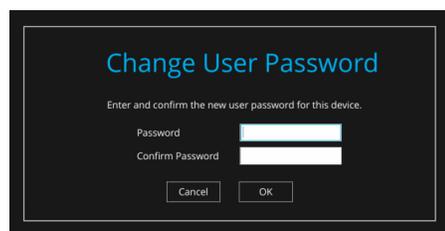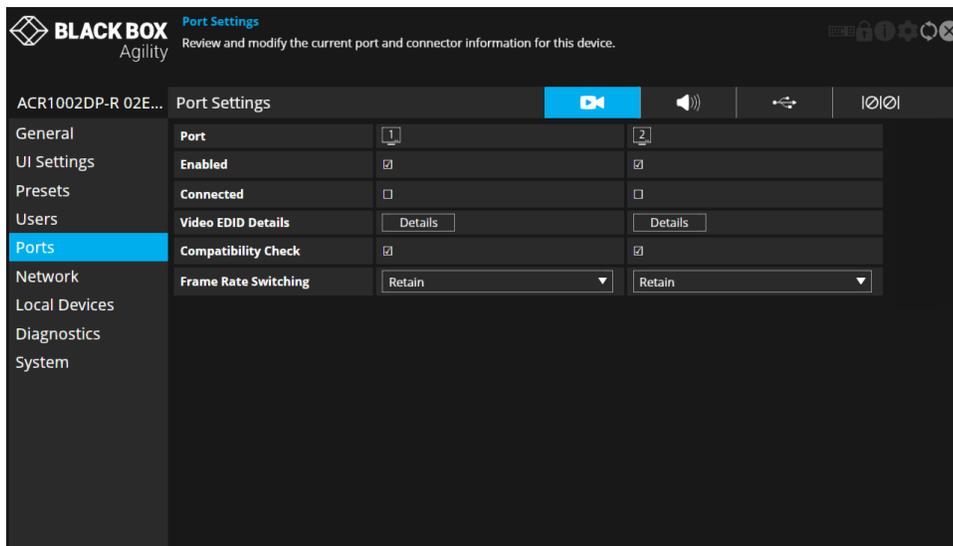
3. Click the ⚙ icon in the top right corner.

4. If necessary, click the **Ports** link.

Port Settings — Review and modify the current port and connector information for this device.

ACR1002DP-R 02E...

General
UI Settings
Presets
Users
Ports
Network
Local Devices
Diagnostics
System

Port Settings		
Port	1	2
Enabled	☑	☑
Connected	☐	☐
Video EDID Details	Details	Details
Compatibility Check	☑	☑
Frame Rate Switching	Retain ▼	Retain ▼

Video Ports

This page provides basic information about the two video ports located on the receiver.

Enabled - Confirms whether each video port is enabled or disabled.

Connected - Confirms whether functioning video displays are connected to the two video ports.

Video EDID Details - Click the Details button to show a popup for the connected video display. EDID details listed include: *Manufacturer, model, serial number, manufacture date, EDID version as well as supported (and preferred) EDID modes, maximum bits per color, encodings, colourimetry and dynamic range masterings supported by the monitor. Note: EDID modes that are supported by the monitor but not by the device will be greyed out. In cases where a resolution reported by the video display is supported, but at a lower frame rate than the display calls for, such entries will be shown in italics.*

Compatibility Check - *WARNING: Disabling this option can result in damage to display monitors in certain circumstances.* When ticked this option confirms video compatibility between the source and display device, (such as the video display's maximum resolution, bpc, etc.) and prevents signals being sent that the video display can't support. When unticked, signals will always be sent regardless of video display's declared capabilities. If you untick the option, the following warning will be displayed:

Monitor Compatibility Disabled

Warning, disabling monitor compatibility could result in over driving and therefore potentially damaging some monitors.

Cancel   OK

Frame Rate Switching - Determines the strategy to use for the frame rate when switching resolutions. Similar in function to the *Match Frame Rate* setting on iPATH servers:

Force 60 - The frame rate is always forced to be 60Hz unless the Compatibility check option is on and the monitor does not indicate it supports 60Hz.

Retain - When switching to the same resolution with a potentially different frame rate, it will retain the current frame.

Auto - The frame rate always changes to match the mode it is connected to.

Audio Ports

This page provides basic information about the analog and digital audio ports located on the receiver.

Enabled - Confirms whether the audio ports are enabled or disabled.

Connected - Confirms whether devices are connected to respective ports.

Gain - (Analog audio only) Determines the microphone amplification level:

None - no device connected on this port.

Mic - standard gain for normal microphone input devices.

Mic boost - 20dB boost to volume for microphone input devices.

Audio EDID Details - Click the Details button to show a popup listing the audio capabilities of the device connected to that video port. Unsupported formats will be greyed out.

Compatibility Check - If unticked, audio will be output regardless of the attached device's capabilities, however, if ticked the RX will not output audio on this port if it is not compatible with the attached device's audio capabilities. For example, if an attached device supports 2 channel stereo but the incoming stream is 6 channels, turning this off may allow L & R audio output to work - if the attached device can cope, but other channels will be lost (ie, there is no down-mix support).

USB Ports

This page provides basic information about the USB ports numbered 1 to 4 inclusive, located on the receiver.

Type - Identifies the type of USB ports. All are listed as Emulated.

Enabled - Confirms whether the USB ports are enabled or disabled.

HID Only - When ticked, all ports are limited to supporting Human Interface Devices only, such as keyboards and mice.

Disable Mass Storage - When ticked, this option prevents the use of USB mass storage devices on the receiver unit. This could be useful in situations where smart card readers need to be used for security purposes but the use of USB drives need to be prevented.

Security - Controls whether USB data is encrypted. *On* forces always on, *Off* forces always off and *Prefer off* will be off unless the transmitter requests it.

USB Port Mapping and Reservations - This section is useful when multiple touchscreens are in use and allows you to match each USB port input to the correct touchscreen.

Connected Devices - This section lists all connected devices with manufacturer and model details where reported. Click the Details button against each device to view further information, such as the Device Type, Protocol Version, Speed and Max Power Consumption.

Serial Port

This page provides basic information about the serial option port located on the RX unit.

Port - Indicates that an optional USB-to-serial converter may be connected to ports 1 - 4 of the receiver (a similar device needs to also be connected to the AUX port on the transmitter).

Enabled - Confirms whether the serial port is enabled or disabled. Disabling the serial port (or excluding it from the preset connection list) allows an attached USB-serial adapter to instead be used over the USB connection to the TX, rather than the explicit serial connection.

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

RECEIVER - NETWORK

To get here

You can access this page in two ways, however, the first method is not available if the module is under iPATH control:

1 On the console keyboard attached to the receiver, access the OSD by pressing **CTRL + ALT + C** or tap the touchscreen ☰ icon. The Preset Selection page will be displayed.

2 Click the ⚙ icon in the top right corner.

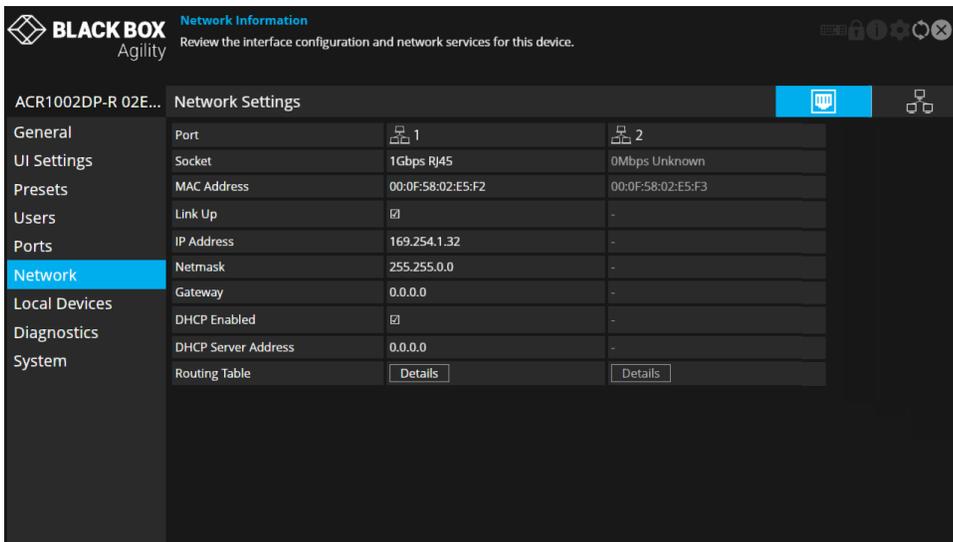3 If necessary, click the **Network** link.

OR

1 Connect a computer to the same network as the receiver.

2 Run a web browser and enter the IP address of the receiver: **https://169.254.1.32** (this is the default address when using port 1). If you are using SFP port 2, then the default address will be **https://169.254.1.42**
Note: These default addresses can be changed.

3 Click the ⚙ icon in the top right corner.

4 If necessary, click the **Network** link.

BLACK BOX Agility — Network Information

Review the interface configuration and network services for this device.

ACR1002DP-R 02E... — Network Settings

General | UI Settings | Presets | Users | Ports | **Network** | Local Devices | Diagnostics | System

Port	1	2
Socket	1Gbps RJ45	0Mbps Unknown
MAC Address	00:0F:58:02:E5:F2	00:0F:58:02:E5:F3
Link Up	☑	-
IP Address	169.254.1.32	-
Netmask	255.255.0.0	-
Gateway	0.0.0.0	-
DHCP Enabled	☑	-
DHCP Server Address	0.0.0.0	-
Routing Table	Details	Details

Port Settings

This page provides numerous network details for each of the installed ports on the receiver.

Socket - Details each operational network socket and what connection speeds they have established. Socket 2 is determined by the SFP modules plugged into it.

MAC Address - Displays the unique, fixed hardware identification number for each port.

Link Up - Indicates whether the link state of this network interface is up. This should be the case if the device is connected to a functioning network.

IP Address - This shows the IP address in use, which can be obtained via DHCP, a static IP or a link local (zero-config).

Netmask - The netmask of this network interface. The device can function in a network zero-config state which does not require the setting of a static netmask.

Gateway - The gateway address of this network interface. The device can function in a network zero-config state which does not require the setting of a static gateway.

Static IP Address - When the 'DHCP enabled' option (below) is unchecked, click on 'Edit' to enter/edit a static IP Address, Netmask and Gateway for the unit.

DHCP Enabled - When ticked, the corresponding port will derive its IP Address, Netmask and Gateway details from the DHCP server listed in the field below.

DHCP Server Address - Indicates the server that provided the DHCP details.

Routing Table - Click on 'Details' to show the routing table entries corresponding to this network interface. In it are the destination address, gateway and netmask for the routes to particular network destinations.

Routing Table

The routes configured for this interface.

Destination	Gateway	Netmask
169.254.0.0	0.0.0.0	255.255.0.0

OK

169.254.1.32

Network Information

Default Domain - Reserved for future use.

Independent Networks - When ticked, the Agility receiver will treat its two main network ports as independent routes to the transmitter(s) and not attempt to find secondary cross connections, which may not be possible due to the network topology. This setting will have no effect when Agility receivers link with Agility transmitters due to their use of auto discovery. However, when an Agility receiver links with other dual port Agility transmitters, enabling this option can prevent unnecessary delays due to the time taken looking for routes that are effectively network dead ends.

Route of Last Resort - In a multi-interface device such as this, the interface which is ticked will be used as the default whenever it is unclear which interface should be used for network traffic.

Dynamic DNS Servers - List of DNS server addresses obtained via DHCP.

Static DNS Servers - Lists DNS server addresses that have been manually configured.

NEED HELP?
LEAVE THE TECH TO US

LIVE 24/7
TECHNICAL
SUPPORT

1.877.877.2269

NTP Enabled - When ticked, the unit will derive its time and date information from a suitable NTP server.

NTP Key ID - The ID of the key used for secure NTP.

NTP Key Value - The value of the key used for secure NTP as a hexadecimal string.

Dynamic NTP Servers - Lists NTP server addresses obtained via DHCP.

Static NTP Servers - Lists NTP server addresses that have been manually configured.

iPATH Enabled - Indicates whether server management is enabled for this device.

Dynamic iPATH Servers - Lists iPATH server addresses obtained via DHCP.

Static iPATH Servers - Lists management server addresses that have been manually configured.

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

RECEIVER - LOCAL DEVICES

To get here

You can access this page in two ways, however, the first method is not available if the module is under iPATH control:

1 On the console keyboard attached to the receiver, access the OSD by pressing **CTRL + ALT + C** or tap the touchscreen ☰ icon. The Preset Selection page will be displayed.

2 Click the ⚙ icon in the top right corner.

3 If necessary, click the **Local Devices** link.

OR

1 Connect a computer to the same network as the receiver.

2 Run a web browser and enter the IP address of the receiver: **https://169.254.1.32** (this is the default address when using port 1). If you are using SFP port 2, then the default address will be **https://169.254.1.42** *Note: These default addresses can be changed.*

3 Click the ⚙ icon in the top right corner.

4 If necessary, click the **Local Devices** link.
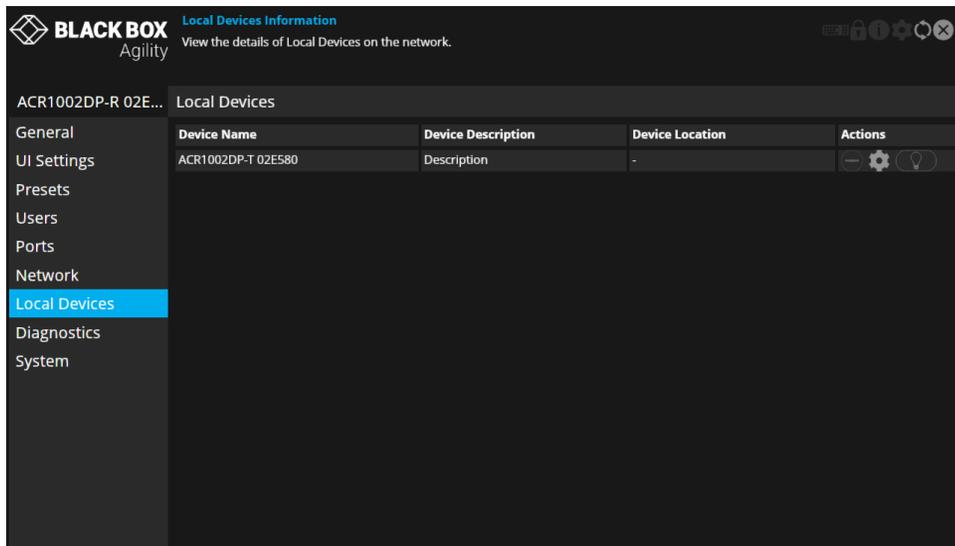
BLACK BOX Agility

Local Devices Information
View the details of Local Devices on the network.

ACR1002DP-R 02E... Local Devices

General
UI Settings
Presets
Users
Ports
Network
Local Devices
Diagnostics
System

Device Name	Device Description	Device Location	Actions
ACR1002DP-T 02E580	Description	-	— ⚙ 💡

Local Devices

This page lists the available transmitters on the network which aren't under iPATH control - *Note: Older Agility units are generally not discoverable using this process, however, if the Start of Life process was able to connect point-to-point to an ACR1002DP then it will have created a 'static' device entry and thus it will appear on this screen. However, the cog and light bulb icons will not function for the entry.*

In the Actions column you can perform the following functions for each listed transmitter:

• Click ⚙ to view the configuration page of the transmitter. When clicked, you will be directed to the General page for the chosen transmitter.

• Click 💡 to flash the front panel indicators on the transmitter to assist with identification.

• Click the X button in the top right corner to return to return to the receiver pages.

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

RECEIVER - DIAGNOSTICS AND STATISTICS

To get here

You can access this page in two ways, however, the first method is not available if the module is under iPATH control:

1 On the console keyboard attached to the receiver, access the OSD by pressing **CTRL + ALT + C** or tap the touchscreen ☰ icon. The Preset Selection page will be displayed.

2 Click the ⚙ icon in the top right corner.

3 If necessary, click the **Diagnostics** link.

OR

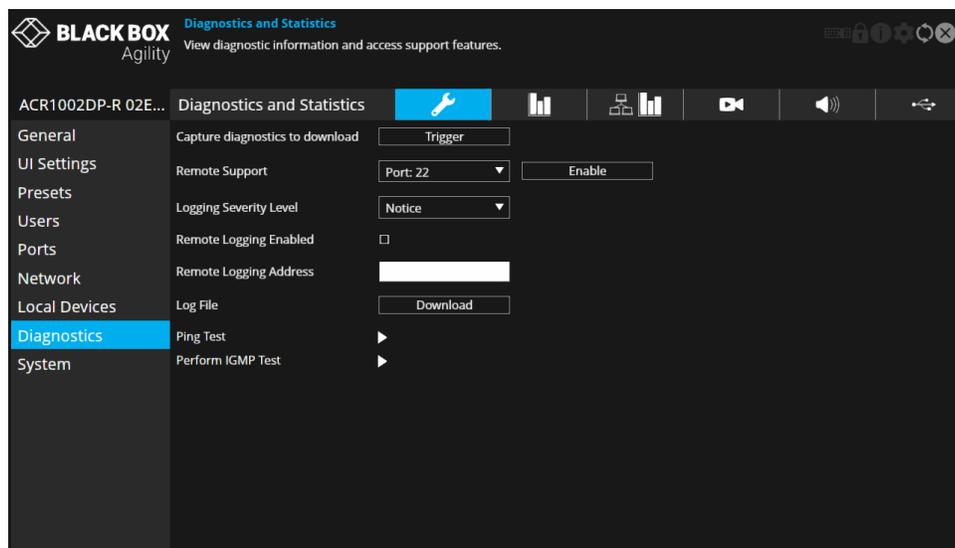1 Connect a computer to the same network as the receiver.

2 Run a web browser and enter the IP address of the receiver: **https://169.254.1.32** (this is the default address when using port 1). If you are using SFP port 2, then the default address will be **https://169.254.1.42** *Note: These default addresses can be changed.*

3 Click the ⚙ icon in the top right corner.

4 If necessary, click the **Diagnostics** link.

Log Settings

This page provides numerous key diagnostic log settings.

Capture diagnostics to download - Request generation of a diagnostics dump file. This will then be downloaded by the host computer's browser, this is an encrypted diagnostics file which can be used by technical support to diagnose and fix an issue. If using the local OSD, then this will show 'Capture diagnostics to USB' and will download the same file onto a USB memory stick inserted into USB ports 1-4. *Note: When in point to point mode, you will need to plug in a USB flash drive and capture the logs to it.*

Remote Support - When using the remote server, this option determines which port will be used. Multiple options are offered in case one or more ports are blocked by your firewall.

Logging Severity Level - Defines the level of messages that will be logged (according to RFC5424). Level 5 *(Notice: normal but significant condition)* is the default setting; Agility supports levels 1 to 7. Choosing levels 6 *(Informational)* or 7 *(Debug)* will cause larger numbers of lesser events to also be logged, with a potential impact to overall performance. These levels should only be used if working with the support team to diagnose a specific issue.

Remote Logging Enabled - Tick to send log files to the chosen *Remote Logging Address*.

Remote Logging Address - Enter a valid IP address for a syslog server on the local network where status logs can be sent.

Log File - If viewing this page using a browser: Click to download the log file to the host computer's browser. If viewing this page via the OSD, the log will be shown as a scrollable list.

Ping Test - Allows you to conduct a ping test to any selected address or device.

Perform IGMP Test - Allows you to conduct an IGMP test on connected devices, selectable from the drop-down list.

Basic Graph

This page shows a real time graph with the following entries:

- **Received and Transmitted Bit Rates** - the values of these correspond to the bandwidth axis on the left.
- **Frame Rate** - for both heads. Values are labeled when they change and correspond to the axis on the right.
- **Codec** - for both heads. These represent the compression used: 1 is better than 4.
- **Dropped Packets** - for both heads. Values are labeled when they change and correspond to the axis on the right.

Note: Use the Frame Rate and Dropped Packets tick box options to determine which is displayed at any given time.

NEED HELP?
LEAVE THE TECH TO US
**LIVE 24/7
TECHNICAL
SUPPORT**
1.877.877.2269

Network Statistics
This page allows you to view current communication statistics and also to create graphs in real time.

Capture and Graph Statistics - When ticked, the page will create a real time graph plotting Received Bytes alongside Received Packets.

After *Capture and Graph Statistics* is enabled, the *Show Legend* checkbox will show all other items that can be included on the plot. Click an item to tick and include it.

Video Port Status and Statistics
This page provides wide ranging information for support purposes.

Audio Port Status and Statistics
This page provides wide ranging information for support purposes.

USB Port Status and Statistics
Not yet implemented.

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

RECEIVER - SYSTEM

To get here

You can access this page in two ways, however, the first method is not available if the module is under iPATH control:

1 On the console keyboard attached to the receiver, access the OSD by pressing **CTRL + ALT + C** or tap the touchscreen ≡ icon. The Preset Selection page will be displayed.

2 Click the ⚙ icon in the top right corner.

3 If necessary, click the **System** link.

OR

1 Connect a computer to the same network as the receiver.

2 Run a web browser and enter the IP address of the receiver: **https://169.254.1.32** (this is the default address when using port 1). If you are using SFP port 2, then the default address will be **https://169.254.1.42** *Note: These default addresses can be changed.*

3 Click the ⚙ icon in the top right corner.

4 If necessary, click the **System** link.

Software and System Operations

This page contains various indications and options related to the internal software of the unit.

Note: The highlighted (and colored) entry is the version of software currently running.

Preferred Software Version - The software version the device will boot into upon a reboot.

Recovery Software Version - The software version the device will boot into if placed into recovery mode.

Alternate Software Version - The other (backup) version of software the device has available.

Reboot Device - Click the Reboot button to Reboot the device.

Restore Default Settings - Click the Restore button to restore the device to factory default settings.

Switch Software Versions - Click to switch to the listed 'Alternative Software Version'.

Upgrade Device - If viewing this page using a browser: Allows you to upgrade the firmware either from a trusted URL or from a locally stored file. Use the field to define the source and then click the Upgrade button.

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
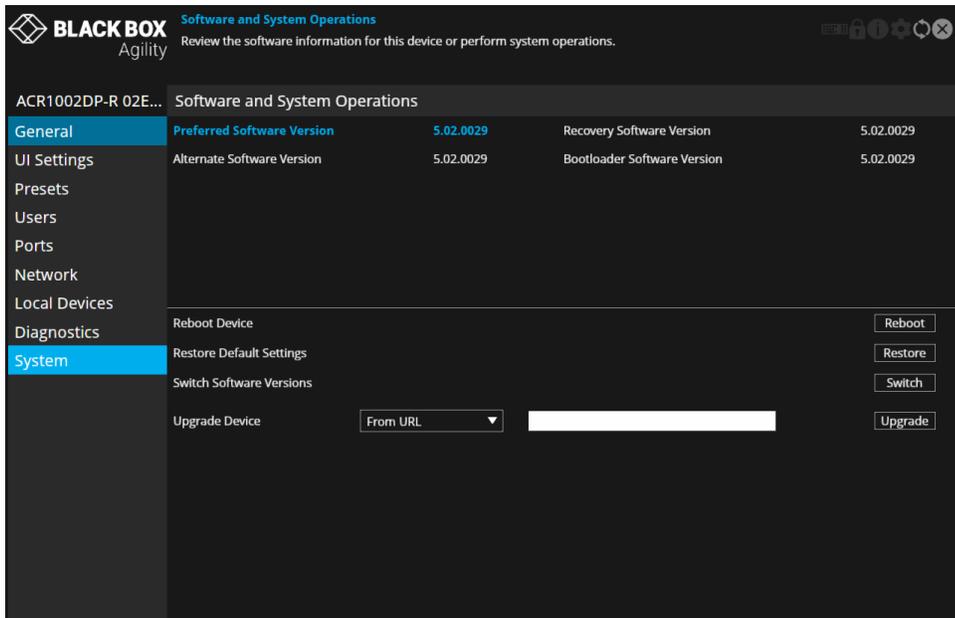SUPPORT
1.877.877.2269

TRANSMITTER - GENERAL INFORMATION

To get here

You can access this page in two ways, however, the first method is not available if the module is under iPATH control:

1. On the console keyboard attached to the receiver, access the OSD by pressing **CTRL + ALT + C** or tap the touchscreen ☰ icon. The Preset Selection page will be displayed.

2. Click the ⚙ icon in the top right corner.

3. Click the **Local Devices** option and then click the ⚙ icon for the required transmitter.
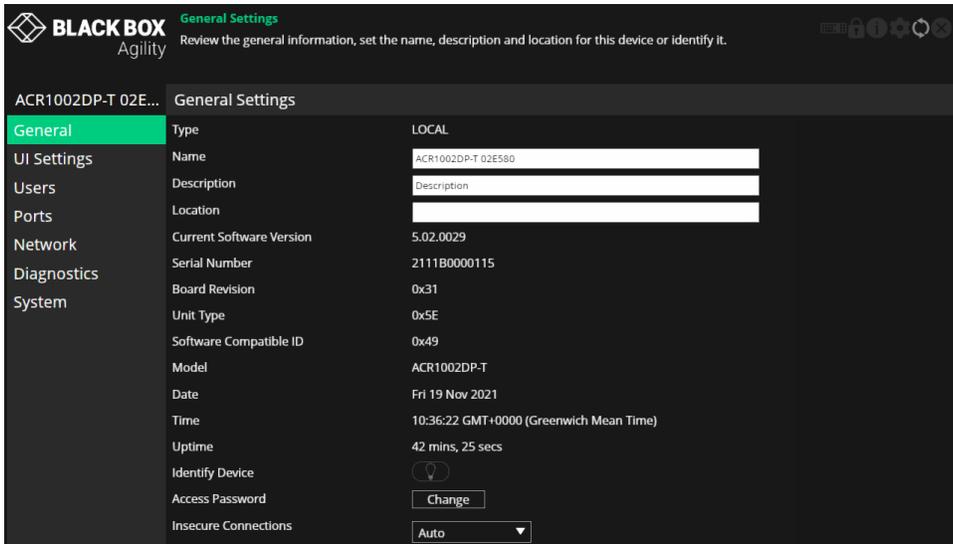
4. If necessary, click the **General** link.

OR

1. Connect a computer to the same network as the transmitter.

2. Run a web browser and enter the IP address of the transmitter: **https://169.254.1.33** (this is the default address when using port 1). If you are using SFP port 2, then the default address will be **https://169.254.1.43** *Note: These default addresses can be changed.*

3. Click the ⚙ icon in the top right corner.

4. If necessary, click the **General** link.

General Settings
Review the general information, set the name, description and location for this device or identify it.

	General Settings	
ACR1002DP-T 02E...		
General	Type	LOCAL
UI Settings	Name	ACR1002DP-T 02E580
Users	Description	Description
Ports	Location	
Network	Current Software Version	5.02.0029
Diagnostics	Serial Number	2111B0000115
System	Board Revision	0x31
	Unit Type	0x5E
	Software Compatible ID	0x49
	Model	ACR1002DP-T
	Date	Fri 19 Nov 2021
	Time	10:36:22 GMT+0000 (Greenwich Mean Time)
	Uptime	42 mins, 25 secs
	Identify Device	
	Access Password	Change
	Insecure Connections	Auto ▼

General Information

Type - States whether the device is a transmitter (TX) or a receiver (RX).

Name - Name details that you can alter to distinguish this unit from all others. Not shown when operating under iPATH server control.

Description - Allows you to optionally add a description of the device. Useful when many Agility units are being used. Not shown when operating under iPATH server control.

Location - Allows you to optionally add a description of the device's location. Useful when many Agility units are being used. Not shown when operating under iPATH server control.

Current Software Version - Displays the version number of the currently installed and running internal software (unit can have two different software versions installed at once).

Serial Number - Displays the fixed serial number of the device.

Board Revision - Displays the revision number of the device's main circuit board.

Unit Type - Used for technical support purposes, this entry shows a code depicting the type of the main circuit board.

Software Compatible ID - Used for technical support purposes, this entry shows the software compatible ID of the main circuit board.

Model - Displays the model number of the device.

Date and Time - Displays the current date and time used by the device when this page was last loaded (select refresh icon to update).

Uptime - Shows the time period for which the device has currently being running since the last time this page was loaded (select refresh icon to update).

Identify Device - When clicked, this button will cause the indicator on the front panel of the device to flash to assist with identification when multiple units are installed in the same area. A popup dialog will also be displayed on screen showing all relevant identification details. Click the Cancel button to stop the identification process or click the OK button to close the popup (and then click the Identify Device button when you're ready to cancel this operation).

Access Password - Sets the password that a receiver must provide in order to connect (video, audio, etc.) to the transmitter

Insecure Connections - Controls whether the transmitter will accept insecure connections from receivers. Insecure connections are those from older Agility products where the security credentials are not implemented. Initially, the transmitter will default to 'auto' which allows it to decide the setting based on the type of device that first connects to it. Once a device has connected, the setting will be changed to either 'Allowed' or 'Disallowed'.

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

TRANSMITTER - UI SETTINGS

To get here
You can access this page in two ways, however, the first method is not available if the module is under iPATH control:

1 On the console keyboard attached to the receiver, access the OSD by pressing **CTRL + ALT + C** or tap the touchscreen ☰ icon. The Preset Selection page will be displayed.

2 Click the ⚙ icon in the top right corner.

3 Click the **Local Devices** option and then click the ⚙ icon for the required transmitter.

4 If necessary, click the **UI Settings** link.

OR

1 Connect a computer to the same network as the transmitter.

2 Run a web browser and enter the IP address of the transmitter: **https://169.254.1.33** (this is the default address when using port 1). If you are using SFP port 2, then the default address will be **https://169.254.1.43** *Note: These default addresses can be changed.*

3 Click the ⚙ icon in the top right corner.

4 If necessary, click the **UI Settings** link.

UI Settings
LED brightness - Determines the brightness of the front and rear panel LED indicators.

Language - Determines the language used for all text labels within the configuration pages.

NEED HELP?
LEAVE THE TECH TO US
**LIVE 24/7
TECHNICAL
SUPPORT**
1.877.877.2269

TRANSMITTER - USERS

To get here

You can access this page in two ways, however, the first method is not available if the module is under iPATH control:

1 On the console keyboard attached to the receiver, access the OSD by pressing **CTRL + ALT + C** or tap the touchscreen ☰ icon. The Preset Selection page will be displayed.

2 Click the ⚙ icon in the top right corner.

3 Click the **Local Devices** option and then click the ⚙ icon for the required transmitter.

4 If necessary, click the **Users** link.

OR

1 Connect a computer to the same network as the transmitter.

2 Run a web browser and enter the IP address of the transmitter: **https://169.254.1.33** (this is the default address when using port 1). If you are using SFP port 2, then the default address will be **https://169.254.1.43** *Note: These default addresses can be changed.*

3 Click the ⚙ icon in the top right corner.

4 If necessary, click the **Users** link.

User accounts

This page allows you to change the password for the admin user.

Click the 🔒 icon to display the following dialog:

Enter and confirm the current and new admin password and click OK.

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
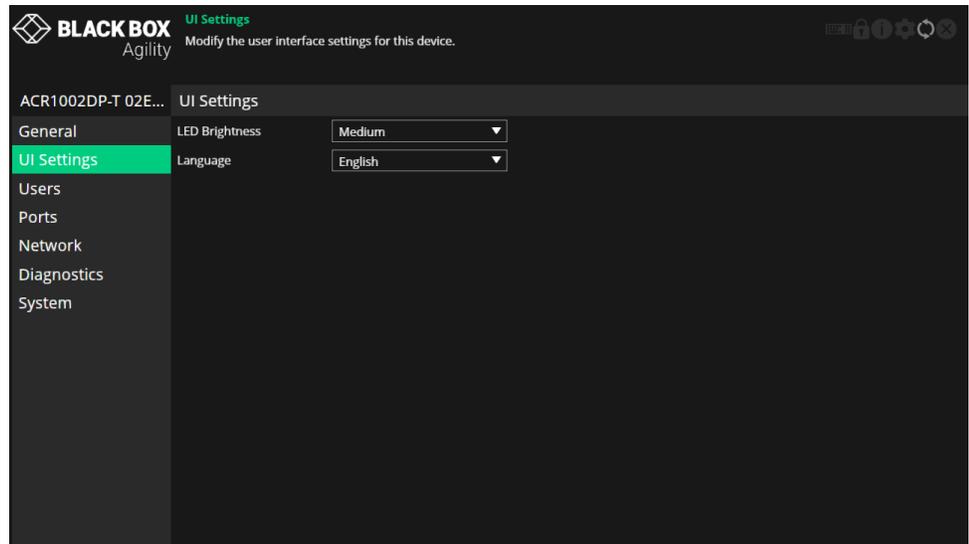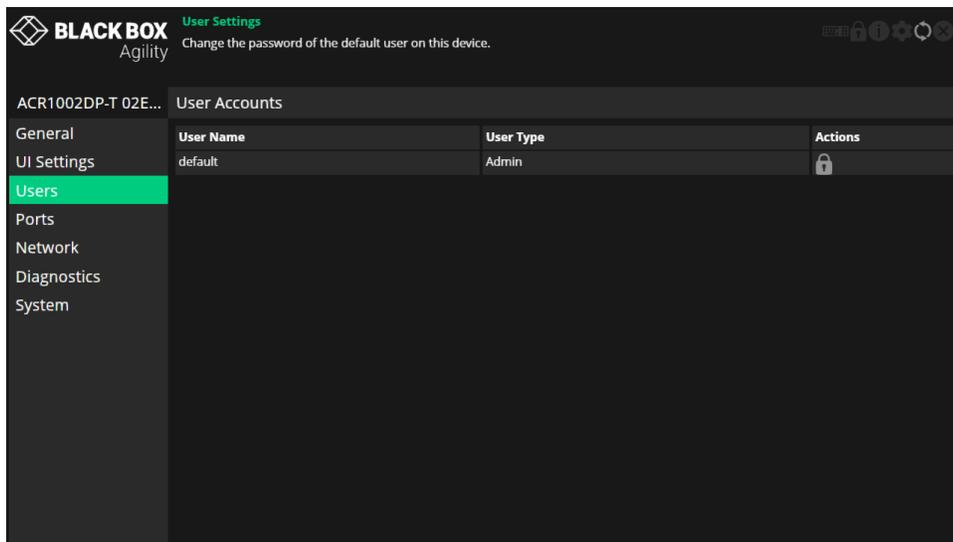1.877.877.2269

TRANSMITTER - PORTS

To get here

You can access this page in two ways, however, the first method is not available if the module is under iPATH control:

1 On the console keyboard attached to the receiver, access the OSD by pressing **CTRL + ALT + C** or tap the touchscreen ⬛ icon. The Preset Selection page will be displayed.

2 Click the ⚙ icon in the top right corner.

3 Click the **Local Devices** option and then click the ⚙ icon for the required transmitter.
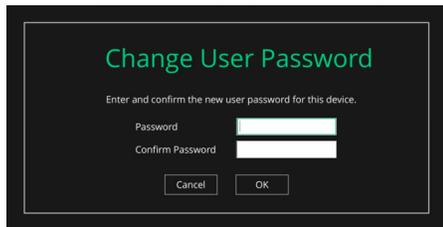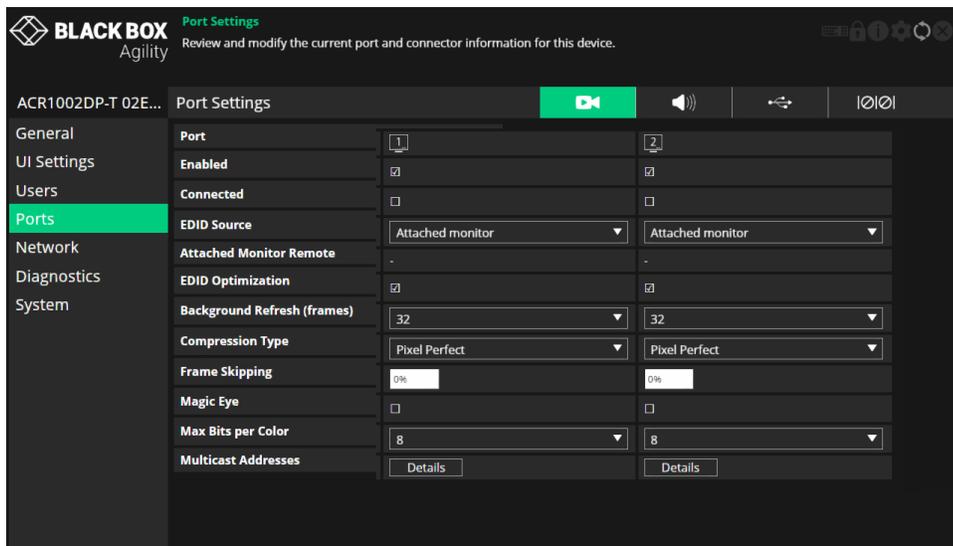
4 If necessary, click the **Ports** link.

OR

1 Connect a computer to the same network as the transmitter.

2 Run a web browser and enter the IP address of the transmitter: **https://169.254.1.33** (this is the default address when using port 1). If you are using SFP port 2, then the default address will be **https://169.254.1.43** *Note: These default addresses can be changed.*

3 Click the ⚙ icon in the top right corner.

4 If necessary, click the **Ports** link.

Video Ports

This page provides basic information about the two video ports located on the transmitter.

Enabled - Confirms whether each video port is enabled or disabled.

Connected - Confirms whether functioning host video drivers are connected to the two video ports.

EDID Source - Lists the EDID mode currently being output on the two video connectors. .

Attached Monitor Receiver - If the 'Attached monitor' option has been selected as the 'EDID Source', then this displays the name of the receiver that supplied the EDID currently being used.

EDID Optimization - When ticked, and if the *EDID source* option is set to 'Attached monitor'; upon connecting with a new receiver, the transmitter will compare the preferred video mode of the new monitor with the current video output from the host PC. Only if they differ will the transmitter present the new monitor's EDID to the host PC. This option speeds up switching as the host PCs graphics card does not have to go through a hotplug detect routine each time a new receiver is connected. If this setting is unticked, the transmitter will always present a new EDID to the host PC.

Background Refresh (frames) - The system will send all changing video as soon as it changes. In addition, it is possible to send unchanging video in the background, to overcome problems of lost network traffic. This control will configure how often a whole frame of video will be sent alongside changing video. In situations of frequently changing video, or high reliability networks, this value can be set to a higher number, or even set to disabled.

Compression Type - Allows you to select the compression method to best suit the nature of the video sources. Settings are: Pixel Perfect, Adaptive, Smoothest Video or Advanced (which allows you to set the maximum and minimum compression levels).

Frame Skipping - Frame Skipping involves 'missing out' video frames between those captured by the transmitter. For video sources that update only infrequently or for those that update very frequently but where high fidelity is not required, frame skipping is a good strategy for reducing the overall bandwidth consumed by the system. Range: 0 to 100%.

Magic Eye - When ticked, this feature increases performance and reduces network traffic if Agility units are used with host computers that have dithered video output. It also improves performance if the video source is noisy.

Max Bits per Pixel - These settings are fixed at 24bpp (ie, 8bpc) for this model.

Multicast Addresses - This section lists all video multicast IP addresses that have been configured. Setting the field to a blank (empty string) value will cause the system to automatically generate a default multicast address.

NEED HELP?
LEAVE THE TECH TO US

LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

Audio Ports

This page provides basic information about the audio ports located on the TX unit.

Enabled - Confirms whether the audio ports are enabled or disabled.

Connected - Confirms whether devices are connected to respective ports.

EDID Source - Determines which audio EDID should be used:

Attached Monitor - use the audio capabilities reported by the monitor.
None - remove audio support from the EDID presented by the TX to the connected PC.
2-Channel - apply a generic stereo audio EDID.

Attached Monitor Receiver - If the *EDID source* option is set to 'Attached monitor', then this displays the name of the RX device that supplied the EDID currently being used.

EDID Optimization - When ticked, and if the *EDID source* option is set to 'Attached monitor'; upon connecting with a new receiver, the transmitter will compare the preferred audio mode of the new monitor with the current audio output from the host PC. Only if they differ will the transmitter present the new monitor's EDID to the host PC. This option speeds up switching as the host PCs graphics card does not have to go through a hotplug detect routine each time a new receiver is connected. If this setting is unticked, the transmitter will always present a new EDID to the host PC.

Multicast Addresses - This section lists all audio multicast IP addresses that have been configured. Setting the field to a blank (empty string) value will cause the system to automatically generate a default multicast address.

USB Ports

This page provides basic information about the USB ports located on the transmitter.

Type - Identifies the type of the USB port.

Enabled - Confirms whether the USB ports are enabled or disabled.

Connected - Confirms whether valid devices are connected to either USB port. *Note: As both USB ports share the same physical port, it is not possible to detect whether a specific port has a device connected.*

Reserved Ports - Allows USB ports to be optionally reserved for use with particular devices. Once reserved, certain rules can be applied to them via the iPATH application.

Present Boot Keyboard - When ticked, the transmitter will report a virtual dummy boot keyboard to the attached PC to ensure that a keyboard is always reported when the PC boots up. The dummy boot keyboard uses one of the 13 USB endpoints, therefore if all 13 endpoints are required elsewhere for USB devices (or a KVM switch only supports two HID devices) then it can be disabled by deselecting this option.

Max Hub Size - Using this option you can select whether the transmitter should report itself as a 13 or a 7 port USB hub. Some USB hosts are only able to support 7 port USB hubs. If this option is set to 7, then only 7 USB devices are supported by the PC.

Security - Controls whether USB data is encrypted. *On* forces always on, *Off* forces always off and *Prefer off* will be off unless the receiver requests it.

Serial Port

This page provides basic information about the serial option port located available on the AUX USB port located on the front panel of the transmitter.

Enabled - Confirms whether the serial port is enabled or disabled.

Speed - The 'baud rate' of the serial device.

Data Bits - The number of data bits to be used (5, 6, 7, or 8).

Stop Bits - The number of stop bits to be used (1 or 2).

Parity - The parity checking to be used (none, odd or even).

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

TRANSMITTER - NETWORK

To get here

You can access this page in two ways, however, the first method is not available if the module is under iPATH control:

1 On the console keyboard attached to the receiver, access the OSD by pressing **CTRL + ALT + C** or tap the touchscreen 🔲 icon. The Preset Selection page will be displayed.

2 Click the ⚙ icon in the top right corner.

3 Click the **Local Devices** option and then click the ⚙ icon for the required transmitter.

4 If necessary, click the **Network** link.

OR

1 Connect a computer to the same network as the transmitter.

2 Run a web browser and enter the IP address of the transmitter: **https://169.254.1.33** (this is the default address when using port 1). If you are using SFP port 2, then the default address will be **https://169.254.1.43** *Note: These default addresses can be changed.*

3 Click the ⚙ icon in the top right corner.

4 If necessary, click the **Network** link.

Port Settings

This page provides numerous network details for each of the installed ports on the transmitter.

Socket - Details each operational network socket. Sockets 3 and 4 are determined by the SFP modules plugged into them.

MAC Address - Displays the unique, fixed hardware identification number for each port.

Link Up - Indicates whether the link state of this network interface is up. This should be the case if the device is connected to a functioning network.

IP Address - This shows the IP address in use, which can be obtained via DHCP, a static IP or a link local (zero-config).

Netmask - The netmask of this network interface. The device can function in a network zero-config state which does not require the setting of a static netmask.

Gateway - The gateway address of this network interface. The device can function in a network zero-config state which does not require the setting of a static gateway.

Static IP Address - When the 'DHCP enabled' option (below) is unchecked, click on 'Edit' to enter/edit a static IP Address, Netmask and Gateway for the unit.

DHCP Enabled - When ticked, the corresponding port will derive its IP Address, Netmask and Gateway details from the DHCP server listed in the field below.

DHCP Server Address - Indicates the server that provided the DHCP details.

Bandwidth Limit - This option can be used to set an upper limit (between 10 and 1000 Mbps aka 1Gbps) to the amount of the network bandwidth used on the physical interface. This could be useful if multiple devices share a common network link upstream; without a limit, the link could become overloaded and drop data.

Routing Table - Click on 'Details' to show the routing table entries corresponding to this network interface. In it are the destination address, gateway and netmask for the routes to particular network destinations:

Network Settings

Default Domain - Reserved for future use.

Route of Last Resort - In a multi interface device such as this, the interface which is ticked will be used as the default whenever it is unclear which interface should be used for network traffic.

Dynamic DNS Servers - List of DNS server addresses obtained via DHCP.

Static DNS Servers - Lists DNS server addresses that have been manually configured.

NTP Enabled - When ticked, the unit will derive its time and date information from a suitable NTP server.

NTP Key ID - The ID of the key used for secure NTP.

NTP Key Value - The value of the key used for secure NTP as a hexadecimal string.

Dynamic NTP Servers - Lists NTP server addresses obtained via DHCP.

Static NTP Servers - Lists NTP server addresses that have been manually configured.

iPATH Enabled - Indicates whether server management is enabled for this device.

Dynamic iPATH Servers - Lists iPATH server addresses obtained via DHCP.

Static iPATH Servers - Lists management server addresses that have been manually configured.

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
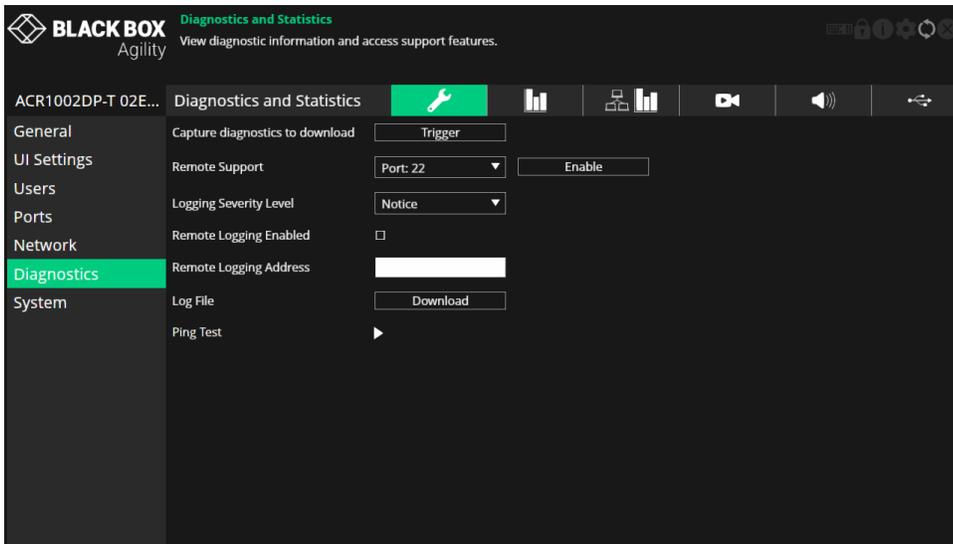**1.877.877.2269**

TRANSMITTER - DIAGNOSTICS AND STATISTICS

To get here

You can access this page in two ways, however, the first method is not available if the module is under iPATH control:

1 On the console keyboard attached to the receiver, access the OSD by pressing **CTRL + ALT + C** or tap the touchscreen ☰ icon. The Preset Selection page will be displayed.

2 Click the ⚙ icon in the top right corner.

3 Click the **Local Devices** option and then click the ⚙ icon for the required transmitter.

4 If necessary, click the **Diagnostics** link.

OR

1 Connect a computer to the same network as the transmitter.

2 Run a web browser and enter the IP address of the transmitter: **https://169.254.1.33** (this is the default address when using port 1). If you are using SFP port 2, then the default address will be **https://169.254.1.43** *Note: These default addresses can be changed.*

3 Click the ⚙ icon in the top right corner.

4 If necessary, click the **Diagnostics** link.

Log Settings

This page provides numerous key diagnostic log settings.

Capture diagnostics to download - (Only shown when viewing this page using a PC browser). Request generation of a diagnostics dump file. This will then be downloaded by the host computer's browser, this is an encrypted diagnostics file which can be used by technical support to diagnose and fix an issue.

Remote Support - When using the remote server, this option determines which port will be used. Multiple options are offered in case one or more ports are blocked by your firewall. When the Enable button is clicked, it will indicate the password to be used.

Logging Severity Level - Defines the level of messages that will be logged (according to RFC5424). Level 5 *(Notice: normal but significant condition)* is the default setting; Agility supports levels 1 to 7. Choosing levels 6 *(Informational)* or 7 *(Debug)* will cause larger numbers of lesser events to also be logged, with a potential impact to overall performance. These levels should only be used if working with the support team to diagnose a specific issue.

Remote Logging Enabled - Tick to send log files to the chosen *Remote Logging Address*.

Remote Logging Address - Enter a valid IP address for a syslog server on the local network where status logs can be sent.

Log File - If viewing this page using a browser: Click to download the log file to the host computer's browser. If viewing this page via the OSD, the log will be shown as a scrollable list.

Ping Test - Provides a quick and easy way to check the link status to a receiver. You can specify either an IP address or choose the device from a list. Click the Start button to begin; a summary of the results will be displayed.

Basic Graph

This page shows a real time graph with the following entries:

- **Received and transmitted bit rates** - the values of these correspond to the bandwidth axis on the left.
- **Frame rate** - for both heads. Values are labeled when they change and correspond to the axis on the right.
- **Codec** - for both heads. These represent the compression used: 1 is better than 4.

NEED HELP?
LEAVE THE TECH TO US
**LIVE 24/7
TECHNICAL
SUPPORT**
1.877.877.2269

Network Statistics

This page allows you to view current communication statistics and also to create graphs in real time.

Capture and Graph Statistics - When ticked, the page will create a real time graph plotting Received Bytes alongside Received Packets.

After *Capture and Graph Statistics* is enabled, the *Show Legend* checkbox will show all other items that can be included on the plot. Click an item to tick and include it.

Video Port Status and Statistics

This page provides wide ranging information for support purposes.

Audio Port Status and Statistics

This page provides wide ranging information for support purposes.

USB Port Status and Statistics

Not yet implemented.

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

TRANSMITTER - SYSTEM

To get here

You can access this page in two ways, however, the first method is not available if the module is under iPATH control:

1 On the console keyboard attached to the receiver, access the OSD by pressing **CTRL + ALT + C** or tap the touchscreen 🔵 icon. The Preset Selection page will be displayed.

2 Click the ⚙ icon in the top right corner.

3 Click the **Local Devices** option and then click the ⚙ icon for the required transmitter.

4 If necessary, click the **System** link.

OR

1 Connect a computer to the same network as the transmitter.

2 Run a web browser and enter the IP address of the transmitter: **https://169.254.1.33** (this is the default address when using port 1). If you are using SFP port 2, then the default address will be **https://169.254.1.43** *Note: These default addresses can be changed.*

3 Click the ⚙ icon in the top right corner.

4 If necessary, click the **System** link.

BLACK BOX
Agility

Software and System Operations
Review the software information for this device or perform system operations.

ACR1002DP-T 02E...

Software and System Operations

General
UI Settings
Users
Ports
Network
Diagnostics
System

Preferred Software Version	5.02.0029	Recovery Software Version	5.02.0029
Alternate Software Version	0.00	Bootloader Software Version	5.02.0029

Reboot Device — Reboot
Restore Default Settings — Restore
Switch Software Versions — Switch
Upgrade Device — From URL ▼ — Upgrade

Software and System Operations

This page contains various indications and options related to the internal software of the unit.

Note: The highlighted (and colored) entry is the version of software currently running.

Preferred Software Version - The software version the device will boot into upon a reboot.

Recovery Software Version - The software version the device will boot into if placed into recovery mode.

Alternate Software Version - The other (backup) version of software the device has available.

Reboot Device - Click the Reboot button to Reboot the device.

Restore Default Settings - Click the Restore button to restore the device to factory default settings.

Switch Software Versions - Click to switch to the listed 'Alternative Software Version'.

Upgrade Device - Allows you to upgrade the firmware either from a trusted URL or from a locally stored file. Use the field to define the source and then click the Upgrade button.

NEED HELP?
LEAVE THE TECH TO US

LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

APPENDIX B - Support for analog and digital audio

The ACR1002 range benefits from multiple audio signal streams:

- **Uni-directional analog audio** - from the host PCs jack socket,
- **Uni-directional digital audio** - via the video connection,
- **Bi-directional digital audio** - via the USB connection (converted to/from analog).

Even though the analog and digital outputs from a particular host PC might be carrying signals that originated from the same audio source, they are handled separately throughout the ACR1002 system and can never be mixed.

For digital audio derived from the video connection, the host PC needs to know details of the required signal to send out, eg 16 or 24-bit, 48, 88.2 or 96kHz sample rate, etc, so a valid definition of the requirement must be sent to the host PC. This is done as an audio sub-set of the EDID definition that is used to declare the video display capabilities/requirements.

In the diagram below the display and speaker installation send their video and digital audio portions of the EDID *(Extended Display Identification Data)* definition via the ACR1002 receiver and transmitter to the host PC:

In response, the host PC begins sending video and audio signals that are appropriate for the receiving peripherals:

In the above case, the video and digital audio from the host PC are both sent to the same receiver. However, the flexibility of the ACR1002 system is such that peripherals and hosts can be mixed as required. For instance, the video feed could be sent to one receiver, while the digital audio is used by a set of speakers on a different receiver:
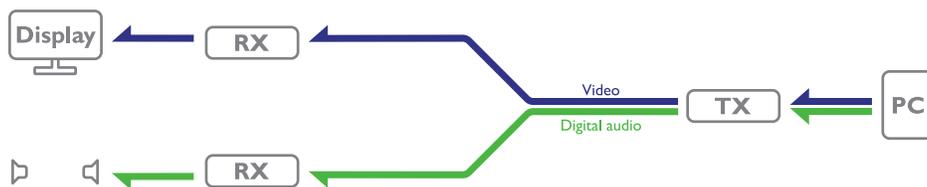
Notes:

- ACR1002 *units support only two channel stereo audio and the transmitters will not encode digital audio from a PC with more than 2 channels.*

This presents an issue for the host PC and its ALIF2100 transmitter as they must now respond to separate EDID definitions from the video display on one receiver (which will probably also have its own EDID audio sub-set) and the EDID definition from the digital audio device on the other receiver:

NEED HELP?
LEAVE THE TECH TO US

**LIVE 24/7
TECHNICAL
SUPPORT**

1.877.877.2269
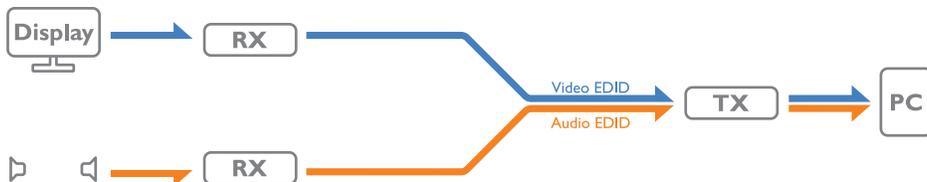
To solve potential conflicts, the ACR1002 transmitter uses a set of rules to determine how it mixes different EDID definitions. Firstly, for any connected video or digital audio devices, the ACR1002 system can consider each one using any of three selectable states:

- **Attached** - ACR1002 will interrogate the attached video/audio device to ascertain its exact capabilities/requirements.
- **Fixed** - ACR1002 will use a fixed definition (e.g 1920x1080p60 and 2-channel audio) to represent the video/audio device(s).
- **None** - No representation will be made for the device.

The above states are then combined by the ACR1002 transmitter, as connections are made to the different devices, using the following rules:

Video EDID	Audio EDID	Action *(taken by the TX as it feeds info to the PC)*
Fixed	Fixed	Merge the video and audio EDID definitions.
Fixed/Attached	None	Send video EDID definition only.
Attached	Attached	Use whichever EDID definition is available first.
Attached/Fixed	Fixed/Attached	Wait for the *Attached* device to declare and then use its data to modify those of the *Fixed* device. *Note: The video EDID retains precedence for setting general items, such as serial no., manufacturer, etc.*

Note: The analog audio is switched entirely separately to the digital audio feed.

ANALOG AND DIGITAL AUDIO SPECIFICATIONS

- **Analog audio**: Line in/out - 2 channel 16bit 48KHz 1V RMS in / 1V RMS out
- **Digital audio** (DisplayPort™ or HDMI):

  Up to 2 audio channels,

  Five choices of sampling frequencies: 32, 44.1, 48, 88.2 or 96kHz.

  Three choices of bit depth, using LPCM *Linear Pulse Code Modulation*: 16, 20 or 24bit,

NEED HELP?
LEAVE THE TECH TO US

**LIVE 24/7
TECHNICAL
SUPPORT**

1.877.877.2269

APPENDIX C - TIPS FOR SUCCESS WHEN NETWORKING AGILITY UNITS

Agility units use multiple strategies to minimize the amount of data that they send across networks. However, data overheads can be quite high, particularly when very high resolution video is being transferred, so it is important to take steps to maximize network efficiency and help minimize data output. The tips given in this section have been proven to produce very beneficial results.

SUMMARY OF STEPS

- Choose the right kind of switch.
- Create an efficient network layout.
- Configure the switches and devices correctly.

CHOOSING THE RIGHT SWITCH

Layer 2 switches are what bind all of the hosts together in the subnet. However, they are all not created equally, so choose carefully. In particular look for the following:

- 10Gigabit ports,
- Support for IGMP v2 (or v3) snooping,
- Support for Jumbo frames up to 9216-byte size,
- High bandwidth connections between switches, preferably Fiber Channel.
- Look for switches that perform their most onerous tasks (e.g., IGMP snooping) using multiple dedicated processors (ASICS).
- Ensure the maximum number of concurrent 'snoopable groups' the switch can handle meets or exceeds the number of Agility transmitters that will be used to create multicast groups.
- Check the throughput of the switch: Full duplex, 10Gbps up- and down- stream speeds per port.
- Use the same switch make and model throughout a single subnet.
- You also need a Layer 3 switch. Ensure that it can operate efficiently as an IGMP Querier.

CREATING AN EFFICIENT NETWORK LAYOUT

Network layout is vital. The use of IGMP snooping also introduces certain constraints, so take heed:

- Keep it flat. Use a basic line-cascade structure rather than a pyramid or tree arrangement.
- Keep the distances between the switches as short as possible.
- Ensure sufficient bandwidth between switches to eliminate bottlenecks.
- Where the iPATH server is used to administer multiple Agility transceivers, ensure the iPATH server and all Agility units reside in the same subnet.
- Do not use VGA to DisplayPort™ converters, instead replace VGA video cards in older systems with suitable DisplayPort replacements. Converters cause transmitters to massively increase data output.
- Wherever possible, create a private network.

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

THE RECOMMENDED LAYOUT

The layout shown below has been found to provide the most efficient network layout for rapid throughput when using IGMP snooping:
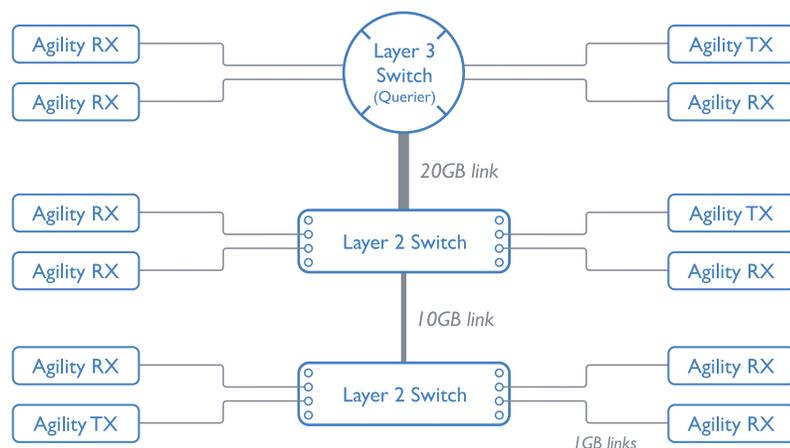
- Use no more than two cascade levels.
- Ensure high bandwidth between the two L2 switches and very high bandwidth between the top L2 and the L3. Typically 10GB and 20GB, respectively for 48 port L2 switches.

CONFIGURING THE SWITCHES AND DEVICES

The layout is vital but so too is the configuration:

- Enable IGMP Snooping on all L2 switches.
- Ensure that IGMP Fast-Leave is enabled on all switches with Agility units connected directly to them.
- Enable the L3 switch as an IGMP Querier.
- Enable Spanning Tree Protocol (STP) on all switches and importantly also enable portfast (only) on all switch ports that have Agility units connected.
- If any hosts will use any video resolutions using 2048 horizontal pixels (e.g. 2048 x 1152, 2048 x 2048), ensure that Jumbo Frames are enabled on all switches.
- Choose an appropriate forwarding mode on all switches. Use Cut-through if available, otherwise Store and forward.
- Optimize the settings on the Agility transmitters:
  - If moving video images are being shown frequently, then leave Frame Skipping at a low percentage and instead reduce the Peak bandwidth limiter.
  - Where screens are quite static, try increasing the Background Refresh interval and/or increasing the Frame skipping percentage setting.

  Make changes to the Agility transmitters one at a time, in small steps, and view typical video images so that you can attribute positive or negative results to the appropriate control.
- Ensure that all Agility units are fully updated to the latest firmware version (at least v2.1).

NEED HELP?
LEAVE THE TECH TO US

LIVE 24/7
TECHNICAL
SUPPORT

1.877.877.2269

APPENDIX D - TROUBLESHOOTING

PROBLEM: THE VIDEO IMAGE OF THE AGILITY RECEIVER SHOWS HORIZONTAL LINES ACROSS THE SCREEN.

This issue is known as *Blinding* because the resulting video image looks as though you're viewing it through a venetian blind.

When video is transmitted by Agility units, the various lines of each screen are divided up and transmitted as separate data packets. If the reception of those packets is disturbed, then blinding is caused. The lines are displayed in place of the missing video data packets.

There are several possible causes for the loss of data packets:

- Incorrect switch configuration. The problem could be caused by multicast flooding, which causes unnecessary network traffic. This is what IGMP snooping is designed to combat, however, there can be numerous causes of the flooding.
- Speed/memory bandwidth issues within one or more switches. The speed and capabilities of different switch models varies greatly. If a switch cannot maintain pace with the quantity of data being sent through it, then it will inevitably start dropping packets.
- One or more Agility units may be outputting Jumbo frames due to the video resolution (2048 horizontal pixels) being used. If Jumbo frames are output by an Agility unit, but the network switches have not been configured to use jumbo frames, the switches will attempt to break the large packets down into standard packets. This process introduces a certain latency and could be a cause for dropped packets.
- One or more Agility units may be using an old firmware version. Firmware versions prior to v2.1 exhibited an issue with the timing of IGMP join and leave commands that caused multicast flooding in certain configurations.

REMEDIES:

- Ensure that IGMP snooping is enabled on all switches within the subnet.
- Where each Agility unit is connected as the sole device on a port connection to a switch, enable IGMP Fast-Leave (aka Immediate Leave) to reduce unnecessary processing on each switch.
- Check the video resolution(s) being fed into the Agility transmitters. If resolutions using 2048 horizontal pixels are unavoidable then ensure that Jumbo frames are enabled on all switches.
- Check the forwarding mode on the switches. If *Store and forward* is being used, try selecting *Cut-through* as this mode causes reduced latency on lesser switch designs.
- Ensure that one device within the subnet is correctly configured as an IGMP Querier, usually a layer 3 switch or multicast router.
- Ensure that the firmware in every Agility unit is version 2.1 or greater.
- Try adjusting the transmitter settings on each Agility to make the output data stream as efficient as possible. See Agility transmitter video settings for details.

PROBLEM: THE AUDIO OUTPUT OF THE AGILITY RECEIVER SOUNDS LIKE A SCRATCHED RECORD.

This issue is called Audio crackle and is a symptom of the same problem that produces blinding (see previous page). The issue is related to missing data packets.

REMEDIES:

As per blinding discussed previously.

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

PROBLEM: IPATH CANNOT LOCATE WORKING AGILITY UNITS.

There are a few possible causes:

- The Agility units must be reset back to their zero config IP addresses for iPATH discovery. If you have a working network of Agility units without iPATH and then add iPATH to the network, iPATH will not discover the Agility units until they are reset to the zero config IP addresses.

- This could be caused by Layer 2 Cisco switches that have Spanning Tree Protocol (STP) enabled but do not also have *portfast* enabled on the ports to which Agility units are connected. Without portfast enabled, Agility units will all be assigned the same zero config IP address at reboot and iPATH will only acquire them one at a time on a random basis.

  You can easily tell whether portfast is enabled on a switch that is running STP: When you plug the link cable from a working Agility unit into the switch port, check how long it takes for the port indicator to change from orange to green. If it takes roughly one second, portfast is on; if it takes roughly thirty seconds then portfast is disabled.

REMEDIES:

- Ensure that the Agility units and the iPATH server are located within the same subnet because iPATH cannot cross subnet boundaries.

- Manually reset the Agility units to their zero config IP addresses.

- Enable portfast on all switch ports that have Agility units attached to them or try temporarily disabling STP on the switches while iPATH is attempting to locate Agility units.

NEED HELP?
LEAVE THE TECH TO US

LIVE 24/7
TECHNICAL
SUPPORT

1.877.877.2269

APPENDIX E - GLOSSARY

INTERNET GROUP MANAGEMENT PROTOCOL

Where an Agility transmitter is required to stream video to two or more receivers, multicasting is the method used.

Multicasting involves the delivery of identical data to multiple receivers simultaneously without the need to maintain individual links. When multicast data packets enter a subnet, the natural reaction of the switches that bind all the hosts together within the subnet is to spread the multicast data to all of their ports. This is referred to as Multicast flooding and means that the hosts (or at least their network interfaces) are required to process plenty of data that they didn't request. IGMP offers a partial solution.

The Internet Group Management Protocol (IGMP) is designed to prevent multicast flooding by allowing Layer 3 switches to check whether host computers within their care are interested in receiving particular multicast transmissions. They can then direct multicast data only to those points that require it and can shut off a multicast stream if the subnet has no recipients.

There are currently three IGMP versions: 1, 2 and 3, with each version building upon the capabilities of the previous one:

• IGMPv1 allows host computers to opt into a multicast transmission using a Join Group message, it is then incumbent on the router to discover when they no longer wish to receive; this is achieved by polling them (see IGMP Querier below) until they no longer respond.

• IGMPv2 includes the means for hosts to opt out as well as in, using a Leave Group message.

• IGMPv3 encompasses the abilities of versions 1 and 2 but also adds the ability for hosts to specify particular sources of multicast data.

Black Box Agility units make use of IGMPv2 when performing multicasts to ensure that no unnecessary congestion is caused.

IGMP SNOOPING

The IGMP messages are effective but only operate at layer 2 - intended for routers to determine whether multicast data should enter a subnet. A relatively recent development has taken place within the switches that glue together all of the hosts within each subnet: IGMP Snooping. IGMP snooping means these layer 2 devices now have the ability to take a peek at the IGMP messages. As a result, the switches can then determine exactly which of their own hosts have requested to receive a multicast – and only pass on multicast data to those hosts.

IGMP QUERIER

When IGMP is used, each subnet requires one Layer 3 switch to act as a Querier. In this lead role, the switch periodically sends out IGMP Query messages and in response all hosts report which multicast streams they wish to receive. The Querier device and all snooping Layer 2 switches then update their lists accordingly (the lists are also updated when Join Group and Leave Group (IGMPv2) messages are received).

IGMP FAST-LEAVE (AKA IMMEDIATE LEAVE)

When a device/host no longer wishes to receive a multicast transmission, it can issue an IGMP Leave Group message as mentioned above. This causes the switch to issue an IGMP Group-Specific Query message on the port (that the Leave Group was received on) to check no other receivers exist on that connection that wish to remain a part of the multicast. This process has a cost in terms of switch processor activity and time.

Where Agility units are connected directly to the switch (with no other devices on the same port) then enabling IGMP Fast-Leave mode means that switches can immediately remove receivers without going through a full checking procedure. Where multiple units are regularly joining and leaving multicasts, this can speed up performance considerably.

JUMBO FRAMES (JUMBO PACKETS)

Since its commercial introduction in 1980, the Ethernet standard has been successfully extended and adapted to keep pace with the ever improving capabilities of computer systems. The achievable data rates, for instance, have risen in ten-fold leaps from the original 10Mbit/s to a current maximum of 100Gbit/s.

While data speeds have increased massively, the standard defining the number of bytes (known as the Payload) placed into each data packet has remained resolutely stuck at its original level of 1500 bytes. This standard was set during the original speed era

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

(10Mbits/s) and offered the best compromise at that speed between the time taken to process each packet and the time required to resend faulty packets due to transmission errors.

But now networks are much faster and files/data streams are much larger; so time for a change? Unfortunately, a wholesale change to the packet size is not straightforward as it is a fundamental standard and changing it would mean a loss of backward compatibility with older systems.

Larger payload options have been around for a while, however, they have often been vendor specific and at present they remain outside the official standard. There is, however, increased consensus on an optional 'Jumbo' payload size of 9000 bytes and this is fully supported by the Agility units.

Jumbo frames (or Jumbo packets) offer advantages for Agility units when transmitting certain high resolution video signals across a network. This is because the increased data in each packet reduces the number of packets that need to be transferred and dealt with - thus reducing latency times.

The main problem is that for jumbo frames to be possible on a network, all of the devices on the network must support them.

SPANNING TREE PROTOCOL (STP)

In order to build a robust network, it is necessary to include certain levels of redundancy within the interconnections between switches. This will help to ensure that a failure of one link does not lead to a complete failure of the whole network.

The danger of multiple links is that data packets, especially multicast packets, become involved in continual loops as neighbouring switches use the duplicated links to send and resend them to each other.

To prevent such bridging loops from occurring, the Spanning Tree Protocol (STP), operating at layer 2, is used within each switch. STP encourages all switches to communicate and learn about each other. It prevents bridging loops by blocking newly discovered links until it can discover the nature of the link: is it a new host or a new switch?

The problem with this is that the discovery process can take up to 50 seconds before the block is lifted, causing problematic timeouts.

The answer to this issue is to enable the portfast variable for all host links on a switch. This will cause any new connection to go immediately into forwarding mode. However, take particular care not to enable portfast on any switch to switch connections as this will result in bridging loops.

FORWARDING MODES

In essence, the job of a layer 2 switch is to transfer as fast as possible, data packets arriving at one port out to another port as determined by the destination address. This is known as data forwarding and most switches offer a choice of methods to achieve this. Choosing the most appropriate forwarding method can often have a sizeable impact on the overall speed of switching:

- **Store and forward** is the original method and requires the switch to save each entire data packet to buffer memory, run an error check and then forward if no error is found (or otherwise discard it).

- **Cut-through** was developed to address the latency issues suffered by some store and forward switches. The switch begins interpreting each data packet as it arrives. Once the initial addressing information has been read, the switch immediately begins forwarding the data packet while the remainder is still arriving. Once all of the packet has been received, an error check is performed and, if necessary, the packet is tagged as being in error. This checking 'on-the-fly' means that cut-through switches cannot discard faulty packets themselves. However, on receipt of the marked packet, a host will carry out the discard process.

- **Fragment-free** is a hybrid of the above two methods. It waits until the first 64 bits have been received before beginning to forward each data packet. This way the switch is more likely to locate and discard faulty packets that are fragmented due to collisions with other data packets.

- **Adaptive** switches automatically choose between the above methods. Usually they start out as a cut-through switches and change to store and forward or fragment-free methods if large number of errors or collisions are detected.

So which one to choose? The *Cut-through* method has the least latency so is usually the best to use with Agility units. However,

NEED HELP?
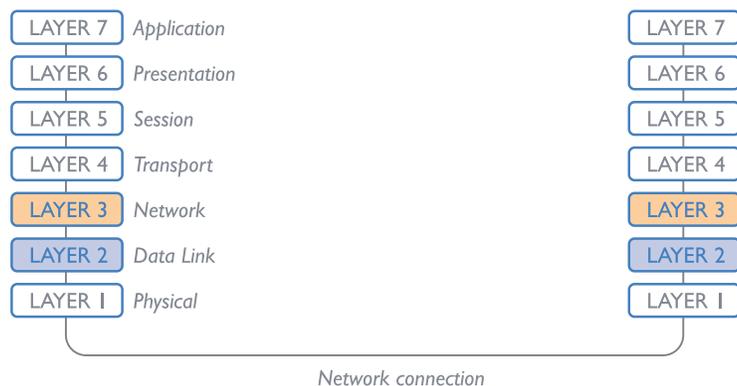LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

if the network components and/or cabling generate a lot of errors, the *Store and forward* method should probably be used. On higher end store and forward switches, latency is rarely an issue.

LAYER 2 AND LAYER 3: THE OSI MODEL

When discussing network switches, the terms Layer 2 and Layer 3 are very often used. These refer to parts of the Open System Interconnection (OSI) model, a standardized way to categorize the necessary functions of any standard network.

There are seven layers in the OSI model and these define the steps needed to get the data created by you (imagine that you are Layer 8) reliably down onto the transmission medium (the cable, optical fiber, radio wave, etc.) that carries the data to another user; to complete the picture, consider the transmission medium is Layer 0. In general, think of the functions carried out by the layers at the top as being complex, becoming less complex as you go lower down.

LAYER 7	Application
LAYER 6	Presentation
LAYER 5	Session
LAYER 4	Transport
LAYER 3	Network
LAYER 2	Data Link
LAYER 1	Physical

| LAYER 7 |
| LAYER 6 |
| LAYER 5 |
| LAYER 4 |
| LAYER 3 |
| LAYER 2 |
| LAYER 1 |

Network connection

As your data travel down from you towards the transmission medium (the cable), they are successively encapsulated at each layer within a new wrapper (along with a few instructions), ready for transport. Once transmission has been made to the intended destination, the reverse occurs: Each wrapper is stripped away and the instructions examined until finally only the original data are left.

So why are Layer 2 and Layer 3 of particular importance when discussing Agility units? Because the successful transmission of data relies upon fast and reliable passage through network switches – and most of these operate at either Layer 2 or Layer 3.

The job of any network switch is to receive each incoming network packet, strip away only the first few wrappers to discover the intended destination then rewrap the packet and send it in the correct direction.

In simplified terms, the wrapper that is added at Layer 2 (by the sending system) includes the physical address of the intended recipient system, i.e. the unique MAC address (for example, 09:f8:33:d7:66:12) that is assigned to every networking device at manufacture. Deciphering recipients at this level is more straightforward than at Layer 3, where the address of the recipient is represented by a logical IP address (e.g. 192.168.0.10) and requires greater knowledge of the surrounding network structure. Due to their more complex circuitry, Layer 3 switches are more expensive than Layer 2 switches of a similar build quality and are used more sparingly within installations.

NEED HELP?
LEAVE THE TECH TO US

**LIVE 24/7
TECHNICAL
SUPPORT**

1.877.877.2269

APPENDIX F - FIBER/COPPER MODULES AND CABLES

To suit your installation layout, fiber and copper modules are available for the Agility units to support various fiber optic and CATx cables. The specifications for all are summarized in this table:

Name	Fiber size	Type	Coding		Distance at 1Gbps
			Normal applications	**Suggested print nomenclature**	
OM1	(62.5/125)	Multimode (TIA-492AAAA)	Orange	62.5/125	220m
OM2	(50/125)	Multimode (TIA-492AAAB)	Orange	50/125	550m
OM3	(50/125)	Multimode (850 nm Laser-optimized) (TIA-492AAAC)	Aqua	850 LO 50 /125	550m
OM4	(50/125)	Multimode (850 nm Laser-optimized) (TIA-492AAAC)	Aqua	850 LO 50 /125	550m
OS1 and OS2	(9/125)	Single-mode (TIA-492C000 / TIA-492E000)	Yellow	SM/NZDS, SM	20km
CATx	n/a	CAT5e and above	n/a	n/a	100m

APPENDIX G - USING THE OPTIONAL AGILITY RACK SHELVES

ACR-RMK3 RACK MOUNT FOR AGILITY ACR1002DP AND ACR1002FDP TRANSMITTERS

1 Install the empty rack mount into your 19" rack frame and fully secure it.

2 Place compatible modules into the three bays of the rack mount so that their rear panels butt up against the small pegs located on each of the side walls.

3 Locate the supplied thumbscrews and spacers.

4 Insert the thumbscrew through the spacer; then insert into the small hole at the end of a divider **(A)**.

5 Gently tighten the thumbscrew so that the spacer engages with the inner edges of the modules that are either side of the divider to hold them in place **(B)**.

6 Repeat steps 4 and 5 for the other thumbscrew and spacer.

7 Place the power adapters in the rear section of the rack mount and connect them to their respective modules.

8 Make all other necessary connections to the modules.

IMPORTANT: When mounting the Agility units (and their power adapters), ensure that the vents are not obscured and that there is sufficient airflow. The operating temperature range is 0 to 40ºC (0 to 104ºF) and must not be exceeded.

(A)   (B)
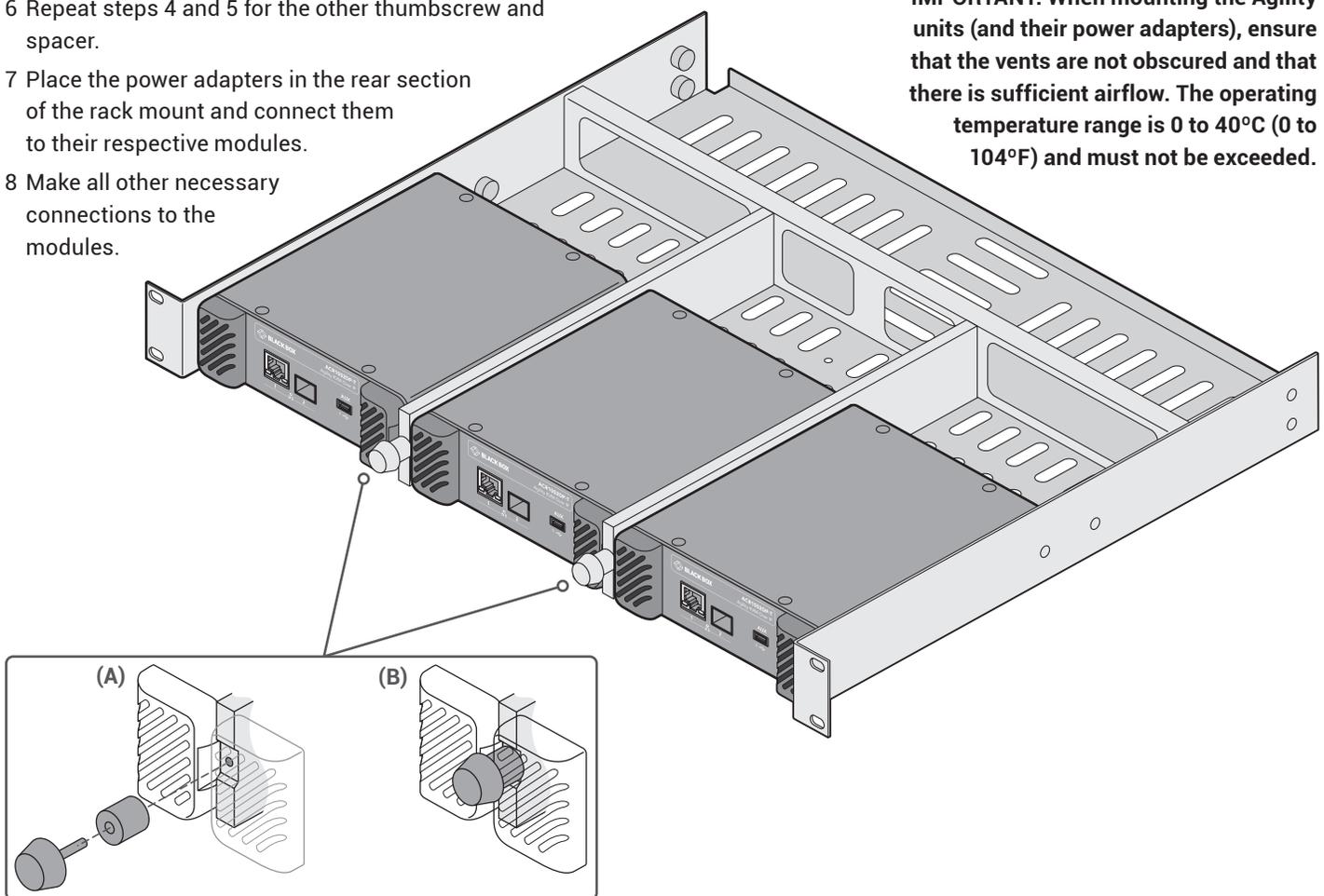
USING A BLANKING PLATE WHEN A SINGLE MODULE IS INSTALLED

In order to maintain suitable cooling airflow, if only two modules are installed within the rack mount, you are recommended to install an optional blanking plate: ACR-RMK3-BP

Note: The outer edge of the blanking plate needs to overlap the ears of the rack mount itself, so you need to either install the blanking plate before the tray is installed or briefly remove the mounting bolts on the blanked side (while supporting the weight of the tray) to allow the blanking plate to be put in place.
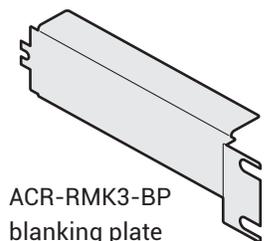
ACR-RMK3-BP
blanking plate

NEED HELP?
LEAVE THE TECH TO US
**LIVE 24/7
TECHNICAL
SUPPORT**
1.877.877.2269

KVXHP-RMK RACK MOUNT FOR AGILITY ACR1002DP AND ACR1002FDP RECEIVERS

1 Install the empty rack mount into your 19" rack frame and fully secure it.

2 Place a compatible module into each side of the rack mount so that their rear panels butt up against the small pegs located on each of the side walls.

3 Locate the supplied thumbscrew and spacer.

4 Insert the thumbscrew through the spacer; then insert into the small hole at the end of the center divider **(A)**.

5 Gently tighten the thumbscrew so that the spacer engages with the inner edges of the two modules and holds them in place **(B)**.

6 Place the power adapters in the rear section of the rack mount and connect them to their respective modules.

7 Make all other necessary connections to the modules.
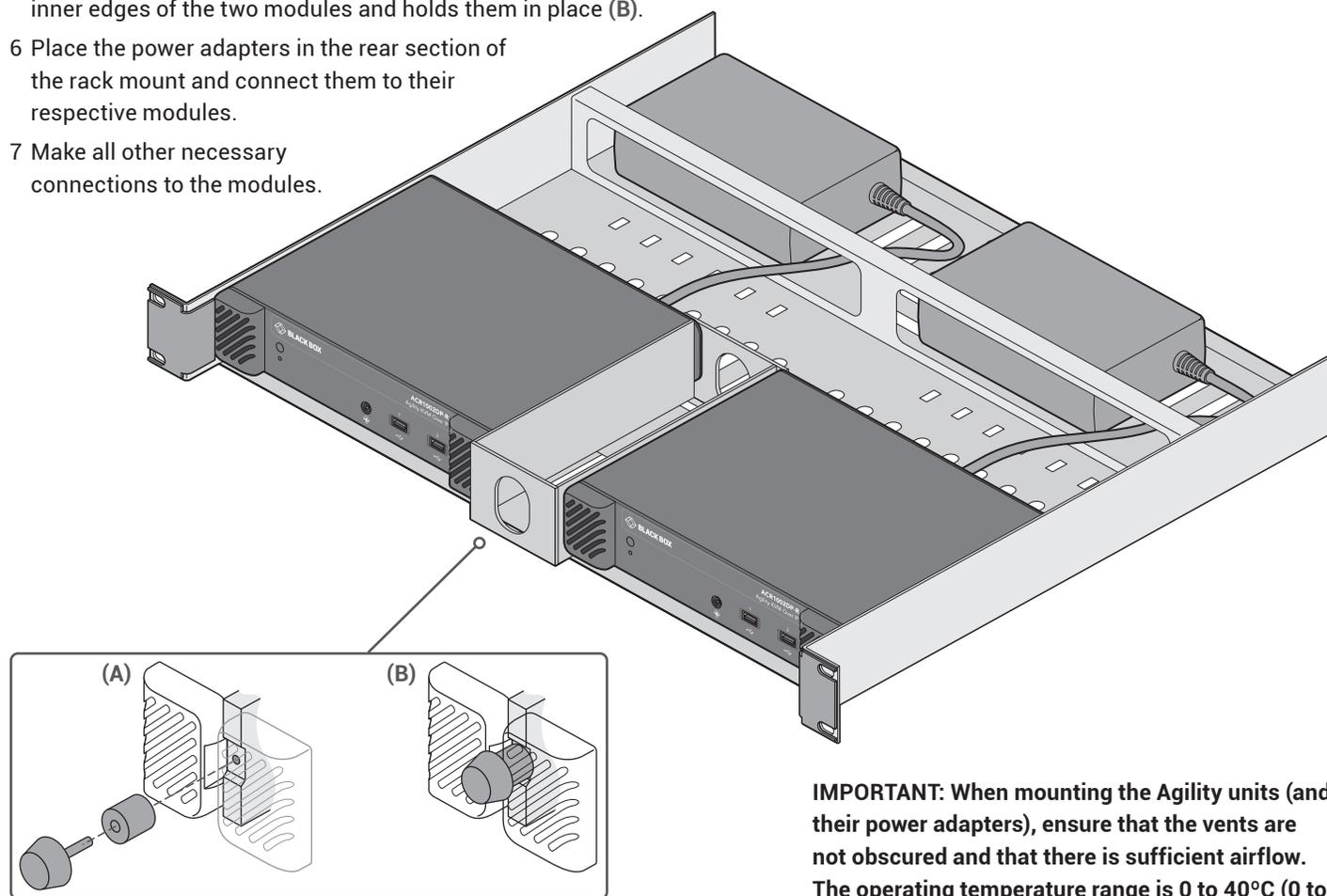
(A)   **(B)**

IMPORTANT: When mounting the Agility units (and their power adapters), ensure that the vents are not obscured and that there is sufficient airflow. The operating temperature range is 0 to 40ºC (0 to 104ºF) and must not be exceeded.

ACR-RMK3 and KVXHP-RMK rack mounts:

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.

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

APPENDIX H - OPEN SOURCE LICENSES

The software included in this product contains copyrighted software that is licensed under the GNU General Public License (GPL) v2. You may obtain the complete Corresponding Source Code from Black Box for a period of three years after the last shipment of this product, which will be no earlier than 2028, by contacting support@blackbox.com

Please write "Source for product XXXXXXXX" in the subject line, *where XXXXXXXX is the model and version number.*

This offer is valid to anyone in receipt of this information.

dtc

u-boot-xlnx

linux/linux

busybox

termcap

util-linux

libcap

systemd

iproute2

e2fsprogs

rng-tools

libfftw

dbus-1

freetype

qt5

libpbe

A complete copy of the GNU General Public License v2 license text is included at the end of this file.

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

systemd

libdaemon

avahi

gnutls

glib

libgpg-error

libgcrypt

libmicrohttpd

strace

A complete copy of the GNU Lesser General Public License v2.1 license text is included at the end of this file.

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 v3 and must be provided, in source form, on

request:

libunistring

gmp

nettle

A complete copy of the GNU Lesser General Public License v3 license text is included at the end of this file.

This product includes binaries that are derived from the open source community. The modules listed below are licenced under the Mozilla Public License Version 2.0 and must be provided, in source form, on request:

dhcp

libjwt

A complete copy of the Mozilla Public License Version 2.0 license text is included at the end of this file.

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: 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

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

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: openssl
-

 LICENSE ISSUES
 ==============

 The OpenSSL toolkit stays under a double 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.

 OpenSSL License

/* ==
 * Copyright (c) 1998-2019 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,

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

* 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: libcvt

-

Copyright (c) 2001, Andy Ritger aritger@nvidia.com
All rights reserved.

Redistribution and use in source and binary forms, with or without

modification, are permitted provided that the following conditions

are met:

o Redistributions of source code must retain the above copyright

  notice, this list of conditions and the following disclaimer.

o 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.

o Neither the name of NVIDIA 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

THE REGENTS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT,

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

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 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 of suitability for any purpose. The sample code contained within this standard may be used without restriction.

-

- Module: libdrm

-

Copyright 1999, 2000 Precision Insight, Inc., Cedar Park, Texas.

Copyright 2000 VA Linux Systems, Inc., Sunnyvale, California.

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 (including the next paragraph) 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 PRECISION INSIGHT AND/OR ITS SUPPLIERS 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.

Copyright (c) 2007-2008 Tungsten Graphics, Inc., Cedar Park, Texas.

Copyright (c) 2007-2008 Dave Airlie <airlied@linux.ie>

Copyright (c) 2007-2008 Jakob Bornecrantz <wallbraker@gmail.com>

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: libpcap

-

Copyright (c) 1999 - 2005 NetGroup, Politecnico di Torino (Italy).

Copyright (c) 2005 - 2010 CACE Technologies, Davis (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. Neither the name of the Politecnico di Torino, CACE Technologies 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 THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL,

NEED HELP?
LEAVE THE TECH TO US
**LIVE 24/7
TECHNICAL
SUPPORT**
1.877.877.2269

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 software developed by the University of California, Lawrence Berkeley Laboratory and its contributors.
This product includes software developed by the Kungliga Tekniska Högskolan and its contributors.
This product includes software developed by Yen Yen Lim and North Dakota State University.

Portions Copyright (c) 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997 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 INSTITUTE 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.

Portions Copyright (c) 1983 Regents of the University of California. All rights reserved.

Redistribution and use in source and binary forms are permitted provided that the above copyright notice and this paragraph are duplicated in all such forms and that any documentation, advertising materials, and other materials related to such distribution and use acknowledge that the software was developed by the University of California, Berkeley. The name of the University 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 MERCHANTIBILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Portions Copyright (c) 1995, 1996, 1997 Kungliga Tekniska Högskolan (Royal Institute of Technology, Stockholm, Sweden). 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 Kungliga Tekniska Högskolan 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 INSTITUTE 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 INSTITUTE 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.

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

Portions Copyright (c) 1997 Yen Yen Lim and North Dakota State University.
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 Yen Yen Lim and North Dakota State University"
4. 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.

Portions Copyright (c) 1993 by Digital Equipment Corporation.

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, and
that the name of Digital Equipment Corporation not be used in advertising
or publicity pertaining to distribution of the document or software without
specific, written prior permission.

THE SOFTWARE IS PROVIDED "AS IS" AND DIGITAL EQUIPMENT CORP. DISCLAIMS ALL
WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES
OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL DIGITAL EQUIPMENT
CORPORATION 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.

Portions Copyright (C) 1995, 1996, 1997, 1998, and 1999 WIDE 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. Neither the name of the project 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 PROJECT 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 PROJECT 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.

Portions Copyright (c) 1996 Juniper Networks, Inc. All rights reserved.

Redistribution and use in source and binary forms, with or without
modification, are permitted provided that:
(1) source code distributions retain the above copyright notice and this
paragraph in its entirety,
(2) distributions including binary code include the above copyright
notice and this paragraph in its entirety in the documentation or other
materials provided with the distribution. The name of Juniper Networks
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.

NEED HELP?
LEAVE THE TECH TO US

LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

Portions Copyright (c) 2001 Daniel Hartmeier 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.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTOR "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 HOLDERS 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.

Portions Copyright 1989 by Carnegie Mellon.

Permission to use, copy, modify, and distribute this program for any
purpose and without fee is hereby granted, provided that this copyright
and permission notice appear on all copies and supporting documentation,
the name of Carnegie Mellon not be used in advertising or publicity
pertaining to distribution of the program without specific prior permission,
and notice be given in supporting documentation that copying and
distribution is by permission of Carnegie Mellon and Stanford University.
Carnegie Mellon makes no representations about the suitability of this
software for any purpose. It is provided "as is" without express or implied
warranty.

-
- 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: pcre
-

PCRE LICENCE

PCRE is a library of functions to support regular expressions whose syntax
and semantics are as close as possible to those of the Perl 5 language.

Release 8 of PCRE is distributed under the terms of the "BSD" licence, as
specified below. The documentation for PCRE, supplied in the "doc"
directory, is distributed under the same terms as the software itself. The data
in the testdata directory is not copyrighted and is in the public domain.

The basic library functions are written in C and are freestanding. Also
included in the distribution is a set of C++ wrapper functions, and a
just-in-time compiler that can be used to optimize pattern matching. These
are both optional features that can be omitted when the library is built.

NEED HELP?
LEAVE THE TECH TO US
**LIVE 24/7
TECHNICAL
SUPPORT**
1.877.877.2269

THE BASIC LIBRARY FUNCTIONS

Written by: Philip Hazel

Email local part: Philip.Hazel

Email domain: gmail.com

University of Cambridge Computing Service,

Cambridge, England.

Copyright (c) 1997-2021 University of Cambridge
All rights reserved.

PCRE JUST-IN-TIME COMPILATION SUPPORT

Written by: Zoltan Herczeg
Email local part: hzmester
Email domain: freemail.hu

Copyright(c) 2010-2021 Zoltan Herczeg
All rights reserved.

STACK-LESS JUST-IN-TIME COMPILER

Written by: Zoltan Herczeg
Email local part: hzmester
Email domain: freemail.hu

Copyright(c) 2009-2021 Zoltan Herczeg
All rights reserved.

THE C++ WRAPPER FUNCTIONS

Contributed by: Google Inc.

Copyright (c) 2007-2012, Google Inc.
All rights reserved.

THE "BSD" LICENCE

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 University of Cambridge nor the name of Google
    Inc. nor the names of their 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 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.

End

-
- 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

NEED HELP?
LEAVE THE TECH TO US

LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

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.

-
- 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
  - cipher/sha512-ssse3-i386.c

#+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

NEED HELP?
LEAVE THE TECH TO US

LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

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 (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

For files:

- cipher/cipher-gcm-ppc.c

#+begin_quote

Copyright (c) 2006, CRYPTOGAMS by <appro@openssl.org>

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 copyright notices,

    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 CRYPTOGAMS nor the names of its

    copyright holder and contributors may be used to endorse or

    promote products derived from this software without specific

    prior written permission.

ALTERNATIVELY, provided that this notice is retained in full, this

product may be distributed under the terms of the GNU General Public

License (GPL), in which case the provisions of the GPL apply INSTEAD OF

those given above.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDER 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.

#+end_quote

* X License

NEED HELP?
LEAVE THE TECH TO US

LIVE 24/7
TECHNICAL
SUPPORT

1.877.877.2269

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 CONNEC-
TION 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 deal-
ings in this Software without prior written authorization from the X Consor-
tium.
#+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 1

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 1 is suitable for Libgcrypt: See
http://web.cs.ucdavis.edu/~rogaway/ocb/license1.pdf for the full
license document; it basically says:

License 1 — 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

1 Definitions

1.1 "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,

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

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 term s 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, STATUT ORY OR OTHERWISE, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF TITLE, MERCHANTIBILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NONINFRINGEMENT. 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) 2009-2020 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: mtdev
-
----

mtdev - Multitouch Protocol Translation Library (MIT license)

Copyright (C) 2010 Henrik Rydberg <rydberg@euromail.se>
Copyright (C) 2010 Canonical Ltd.

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 (including the next paragraph) 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.

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

Copyright © 2006-2009 Simon Thum

Copyright © 2008-2012 Kristian Høgsberg

Copyright © 2010-2012 Intel Corporation

Copyright © 2010-2011 Benjamin Franzke

Copyright © 2011-2012 Collabora, Ltd.

Copyright © 2013-2014 Jonas Ådahl

Copyright © 2013-2015 Red Hat, Inc.

-

- Module: libevdev

-

SPDX-License-Identifier: MIT

Copyright © 2013 Red Hat, Inc.

Copyright © 2013 David Herrmann <dh.herrmann@gmail.com>

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 (including the next
paragraph) 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.

The following license is from a Linux kernel header file and there is no GPL
code this package links to.

Copyright (c) 1999-2002 Vojtech Pavlik

This program is free software; you can redistribute it and/or modify it
under the terms of the GNU General Public License version 2 as published by
the Free Software Foundation.

-

- Module: libinput

-

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 (including the next
paragraph) 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.

libinput ships a copy of the GPL-licensed Linux kernel's linux/input.h
header file. [1] This does not make libinput GPL.
This copy is provided to provide consistent behavior regardless which kernel
version libinput is compiled against. The header is used during compilation
only, libinput does not link against GPL libraries.

[1] https://gitlab.freedesktop.org/libinput/libinput/blob/main/include/linux/input.h

----

-

- Module: tcpdump

-

License: BSD

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

NEED HELP?
LEAVE THE TECH TO US

LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

* DAMAGE.   *

****

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

1. [1]Takao Abe <takao_abe@xurb.jp> Clock driver for JJY receivers
2. [2]Mark Andrews <mark_andrews@isc.org> Leitch atomic clock
controller
3. [3]Bernd Altmeier <altmeier@atlsoft.de> hopf Elektronik serial
line and PCI-bus devices
4. [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 sntp
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.csir.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> ntpsweep
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 sntp to
comply with NTPv4 specification, ntpq saveconfig
30. [33]William L. Jones <jones@hermes.chpc.utexas.edu> RS/6000 AIX
modifications, HPUX 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@gwdgv1.dnet.gwdg.de> VMS port
39. [42]Jeffrey Mogul <mogul@pa.dec.com> ntptrace utility
40. [43]Tom Moore <tmoore@fievel.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 Sánchez <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> Unixware1 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@pfcs.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

NEED HELP?
LEAVE THE TECH TO US

**LIVE 24/7
TECHNICAL
SUPPORT**

1.877.877.2269

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

-
- Module: libjpeg
-

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

-
- 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:

NEED HELP?
LEAVE THE TECH TO US

LIVE 24/7
TECHNICAL
SUPPORT

1.877.877.2269

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: libxkbcommon

-

Copyright © 2009-2012, 2016 Daniel Stone

Copyright © 2012 Ran Benita <ran234@gmail.com>

Copyright © 2010, 2012 Intel Corporation

Copyright © 2008, 2009 Dan Nicholson

Copyright © 2010 Francisco Jerez <currojerez@riseup.net>

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 (including the next
paragraph) 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.

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

1.877.877.2269   BLACKBOX.COM

THE SOFTWARE.

-
- Module: xkeyboard-config
-

Copyright 1996 by Joseph Moss

Copyright (C) 2002-2007 Free Software Foundation, Inc.

Copyright (C) Dmitry Golubev <lastguru@mail.ru>, 2003-2004

Copyright (C) 2004, Gregory Mokhin <mokhin@bog.msu.ru>

Copyright (C) 2006 Erdal Ronahî

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

THE COPYRIGHT HOLDER(S) DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS
SOFTWARE,
INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS, IN NO
EVENT SHALL THE COPYRIGHT HOLDER(S) BE LIABLE FOR ANY SPECIAL, 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.

Copyright (c) 1996 Digital Equipment Corporation

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 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 DIGITAL EQUIPMENT CORPORATION 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 Digital Equipment
Corporation shall not be used in advertising or otherwise to promote
the sale, use or other dealings in this Software without prior written
authorization from Digital Equipment Corporation.

Copyright 1996, 1998 The Open Group

Permission to use, copy, modify, distribute, and sell this software and its
documentation for any purpose is hereby granted without fee, provided that
the above copyright notice appear in all copies and that both that
copyright notice and this permission notice appear in supporting
documentation.

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 OPEN GROUP 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 Open Group 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 Open Group.

Copyright 2004-2005 Sun Microsystems, Inc. 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 (including the next paragraph) 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.

Copyright (c) 1996 by Silicon Graphics Computer Systems, Inc.

Permission to use, copy, modify, and distribute this software and its documentation for any purpose and without fee is hereby granted, provided that the above copyright notice appear in all copies and that both that copyright notice and this permission notice appear in supporting documentation, and that the name of Silicon Graphics not be used in advertising or publicity pertaining to distribution of the software without specific prior written permission. Silicon Graphics makes no representation about the suitability of this software for any purpose. It is provided "as is" without any express or implied warranty.

SILICON GRAPHICS DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL SILICON GRAPHICS BE LIABLE FOR ANY SPECIAL, 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.

Copyright (c) 1996 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.

Copyright (C) 2004, 2006 Ævar Arnfjörð Bjarmason <avarab@gmail.com>

Permission to use, copy, modify, distribute, and sell this software and its documentation for any purpose is hereby granted without fee, provided that the above copyright notice appear in all copies and that both that copyright notice and this permission notice appear in supporting documentation.

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 OPEN GROUP 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 a copyright holder shall not be used in advertising or otherwise to promote the sale, use or other dealings in this Software without prior written authorization of the copyright holder.

Copyright (C) 1999, 2000 by Anton Zinoviev <anton@lml.bas.bg>

This software may be used, modified, copied, distributed, and sold, in both source and binary form provided that the above copyright and these terms are retained. Under no circumstances is the author responsible for the proper functioning of this software, nor does

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

the author assume any responsibility for damages incurred with its

use.

Permission is granted to anyone to use, distribute and modify

this file in any way, provided that the above copyright notice

is left intact and the author of the modification summarizes

the changes in this header.

This file is distributed without any expressed or implied warranty.

-

- Module: icu

-

COPYRIGHT AND PERMISSION NOTICE (ICU 58 and later)

Copyright © 1991-2020 Unicode, Inc. All rights reserved.

Distributed under the Terms of Use in https://www.unicode.org/copyright.html.

Permission is hereby granted, free of charge, to any person obtaining

a copy of the Unicode data files and any associated documentation

(the "Data Files") or Unicode software and any associated documentation

(the "Software") to deal in the Data Files or Software

without restriction, including without limitation the rights to use,

copy, modify, merge, publish, distribute, and/or sell copies of

the Data Files or Software, and to permit persons to whom the Data Files

or Software are furnished to do so, provided that either

(a) this copyright and permission notice appear with all copies

of the Data Files or Software, or

(b) this copyright and permission notice appear in associated

Documentation.

THE DATA FILES AND SOFTWARE ARE 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 OF THIRD PARTY RIGHTS.

IN NO EVENT SHALL THE COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS

NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL 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 THE DATA FILES OR SOFTWARE.

Except as contained in this notice, the name of a copyright holder

shall not be used in advertising or otherwise to promote the sale,

use or other dealings in these Data Files or Software without prior

written authorization of the copyright holder.

Third-Party Software Licenses

This section contains third-party software notices and/or additional

terms for licensed third-party software components included within ICU

libraries.

1. ICU License - ICU 1.8.1 to ICU 57.1

COPYRIGHT AND PERMISSION NOTICE

Copyright (c) 1995-2016 International Business Machines Corporation and others

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, and/or sell copies of the Software, and to permit persons

to whom the Software is furnished to do so, provided that the above

copyright notice(s) and this permission notice appear in all copies of

the Software and that both the above copyright notice(s) and this

permission notice appear in supporting documentation.

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

OF THIRD PARTY RIGHTS. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR

HOLDERS INCLUDED IN THIS NOTICE BE LIABLE FOR ANY CLAIM, OR ANY

SPECIAL 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.

Except as contained in this notice, the name of a copyright holder

shall not be used in advertising or otherwise to promote the sale, use

or other dealings in this Software without prior written authorization

of the copyright holder.

All trademarks and registered trademarks mentioned herein are the

property of their respective owners.

2. Chinese/Japanese Word Break Dictionary Data (cjdict.txt)

 #   The Google Chrome software developed by Google is licensed under

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

the BSD license. Other software included in this distribution is

provided under other licenses, as set forth below.

#

The BSD License

http://opensource.org/licenses/bsd-license.php

Copyright (C) 2006-2008, Google Inc.

#

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 Google Inc. 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 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.

#

#

The word list in cjdict.txt are generated by combining three word lists

listed below with further processing for compound word breaking. The

frequency is generated with an iterative training against Google web

corpora.

#

* Libtabe (Chinese)

- https://sourceforge.net/project/?group_id=1519

- Its license terms and conditions are shown below.

#

* IPADIC (Japanese)

- http://chasen.aist-nara.ac.jp/chasen/distribution.html

- Its license terms and conditions are shown below.

#

---------COPYING.libtabe ---- BEGIN-------------------

#

/*

* Copyright (c) 1999 TaBE Project.

* Copyright (c) 1999 Pai-Hsiang Hsiao.

* 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 TaBE Project 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 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.

*/

#

/*

* Copyright (c) 1999 Computer Systems and Communication Lab,

*   Institute of Information Science, Academia

*   Sinica. 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

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

```
#  from and not be held liable to the user for any such damages as noted
#  above as far as the program is concerned.
#
#  --------------COPYING.ipadic-----END--------------------------------
```

3. Lao Word Break Dictionary Data (laodict.txt)

```
# Copyright (C) 2016 and later: Unicode, Inc. and others.
# License & terms of use: http://www.unicode.org/copyright.html
# Copyright (c) 2015 International Business Machines Corporation
# and others. All Rights Reserved.
#
# Project: https://github.com/rober42539/lao-dictionary
# Dictionary: https://github.com/rober42539/lao-dictionary/laodict.txt
# License: https://github.com/rober42539/lao-dictionary/LICENSE.txt
#        (copied below)
#
#             This file is derived from the above dictionary version of Nov 22, 2020
# ----------------------------------------------------------------------
# Copyright (C) 2013 Brian Eugene Wilson, Robert Martin Campbell.
# 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.
#
# 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 HOLDER 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.
# ----------------------------------------------------------------------
```

4. Burmese Word Break Dictionary Data (burmesedict.txt)

```
# Copyright (c) 2014 International Business Machines Corporation
# and others. All Rights Reserved.
```

```
#
# This list is part of a project hosted at:
#   github.com/kanyawtech/myanmar-karen-word-lists
#
# --------------------------------------------------------------------------
# Copyright (c) 2013, LeRoy Benjamin Sharon
# 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 Myanmar Karen Word Lists, 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 THE COPYRIGHT HOLDER 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.
# --------------------------------------------------------------------------
```

5. Time Zone Database

```
  ICU uses the public domain data and code derived from Time Zone
Database for its time zone support. The ownership of the TZ database
is explained in BCP 175: Procedure for Maintaining the Time Zone
Database section 7.
```

```
# 7.  Database Ownership
#
#   The TZ database itself is not an IETF Contribution or an IETF
#   document.  Rather it is a pre-existing and regularly updated work
#   that is in the public domain, and is intended to remain in the
#   public domain.  Therefore, BCPs 78 [RFC5378] and 79 [RFC3979] do
```

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

not apply to the TZ Database or contributions that individuals make
to it. Should any claims be made and substantiated against the TZ
Database, the organization that is providing the IANA
Considerations defined in this RFC, under the memorandum of
understanding with the IETF, currently ICANN, may act in accordance
with all competent court orders. No ownership claims will be made
by ICANN or the IETF Trust on the database or the code. Any person
making a contribution to the database or code waives all rights to
future claims in that contribution or in the TZ Database.

6. Google double-conversion

Copyright 2006-2011, the V8 project authors. 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 Google Inc. 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 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: dropbear
-

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

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

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.

-

- Module: libcurl

-

COPYRIGHT AND PERMISSION NOTICE

Copyright (c) 1996 - 2021, Daniel Stenberg, <daniel@haxx.se>, and many

contributors, see the THANKS file.

All rights reserved.

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", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR

IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY,

FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS.

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.

Except as contained in this notice, the name of a copyright holder shall not

be used in advertising or otherwise to promote the sale, use or other dealings

in this Software without prior written authorization of the copyright holder.

NEED HELP?
LEAVE THE TECH TO US

LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

-
- Module: ssmping
-

Copyright (C) 2005, 2006 Stig Venaas <venaas@uninett.no>

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.

-
- Module: fonts
-

Fonts are (c) Bitstream (see below). DejaVu changes are in public domain.
Glyphs imported from Arev fonts are (c) Tavmjong Bah (see below)

Bitstream Vera Fonts Copyright

Copyright (c) 2003 by Bitstream, Inc. All Rights Reserved. Bitstream Vera is
a trademark of Bitstream, Inc.

Permission is hereby granted, free of charge, to any person obtaining a copy
of the fonts accompanying this license ("Fonts") and associated
documentation files (the "Font Software"), to reproduce and distribute the
Font Software, including without limitation the rights to use, copy, merge,
publish, distribute, and/or sell copies of the Font Software, and to permit
persons to whom the Font Software is furnished to do so, subject to the
following conditions:

The above copyright and trademark notices and this permission notice shall
be included in all copies of one or more of the Font Software typefaces.

The Font Software may be modified, altered, or added to, and in particular
the designs of glyphs or characters in the Fonts may be modified and
additional glyphs or characters may be added to the Fonts, only if the fonts
are renamed to names not containing either the words "Bitstream" or the word
"Vera".

This License becomes null and void to the extent applicable to Fonts or Font
Software that has been modified and is distributed under the "Bitstream
Vera" names.

The Font Software may be sold as part of a larger software package but no
copy of one or more of the Font Software typefaces may be sold by itself.

THE FONT SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS
OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTIES OF MERCHANTABILITY,
FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF COPYRIGHT, PATENT,
TRADEMARK, OR OTHER RIGHT. IN NO EVENT SHALL BITSTREAM OR THE GNOME
FOUNDATION BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, INCLUDING
ANY GENERAL, SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES,
WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF
THE USE OR INABILITY TO USE THE FONT SOFTWARE OR FROM OTHER DEALINGS IN THE
FONT SOFTWARE.

Except as contained in this notice, the names of Gnome, the Gnome
Foundation, and Bitstream Inc., shall not be used in advertising or
otherwise to promote the sale, use or other dealings in this Font Software
without prior written authorization from the Gnome Foundation or Bitstream
Inc., respectively. For further information, contact: fonts at gnome dot
org.

Arev Fonts Copyright

Copyright (c) 2006 by Tavmjong Bah. All Rights Reserved.

Permission is hereby granted, free of charge, to any person obtaining
a copy of the fonts accompanying this license ("Fonts") and
associated documentation files (the "Font Software"), to reproduce
and distribute the modifications to the Bitstream Vera Font Software,
including without limitation the rights to use, copy, merge, publish,
distribute, and/or sell copies of the Font Software, and to permit
persons to whom the Font Software is furnished to do so, subject to
the following conditions:

The above copyright and trademark notices and this permission notice
shall be included in all copies of one or more of the Font Software
typefaces.

The Font Software may be modified, altered, or added to, and in
particular the designs of glyphs or characters in the Fonts may be
modified and additional glyphs or characters may be added to the
Fonts, only if the fonts are renamed to names not containing either
the words "Tavmjong Bah" or the word "Arev".

This License becomes null and void to the extent applicable to Fonts
or Font Software that has been modified and is distributed under the
"Tavmjong Bah Arev" names.

The Font Software may be sold as part of a larger software package but
no copy of one or more of the Font Software typefaces may be sold by
itself.

NEED HELP?
LEAVE THE TECH TO US
**LIVE 24/7
TECHNICAL
SUPPORT**
1.877.877.2269

THE FONT SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF COPYRIGHT, PATENT, TRADEMARK, OR OTHER RIGHT. IN NO EVENT SHALL TAVMJONG BAH BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, INCLUDING ANY GENERAL, SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF THE USE OR INABILITY TO USE THE FONT SOFTWARE OR FROM OTHER DEALINGS IN THE FONT SOFTWARE.

Except as contained in this notice, the name of Tavmjong Bah shall not be used in advertising or otherwise to promote the sale, use or other dealings in this Font Software without prior written authorization from Tavmjong Bah. For further information, contact: tavmjong @ free . fr.

=====

Apache License

Version 2.0, January 2004

http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."

"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their

NEED HELP?
LEAVE THE TECH TO US

LIVE 24/7
TECHNICAL
SUPPORT

1.877.877.2269

Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

(a) You must give any other recipients of the Work or Derivative Works a copy of this License; and

(b) You must cause any modified files to carry prominent notices stating that You changed the files; and

(c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

(d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

APPENDIX: How to apply the Apache License to your work.

  To apply the Apache License to your work, attach the following
  boilerplate notice, with the fields enclosed by brackets "[]"
  replaced with your own identifying information. (Don't include
  the brackets!) The text should be enclosed in the appropriate
  comment syntax for the file format. We also recommend that a
  file or class name and description of purpose be included on the
  same "printed page" as the copyright notice for easier
  identification within third-party archives.

  Copyright [yyyy] [name of copyright owner]

  Licensed under the Apache License, Version 2.0 (the "License");
  you may not use this file except in compliance with the License.
  You may obtain a copy of the License at

    http://www.apache.org/licenses/LICENSE-2.0

  Unless required by applicable law or agreed to in writing, software
  distributed under the License is distributed on an "AS IS" BASIS,
  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
  See the License for the specific language governing permissions and
  limitations under the License.

-
- Modules: dtc u-boot-xlnx linux/linux busybox termcap util-linux libcap
systemd iproute2 e2fsprogs rng-tools libfftw dbus-1 freetype qt5 libpbe
-

          GNU GENERAL PUBLIC LICENSE
             Version 2, June 1991

  Copyright (C) 1989, 1991 Free Software Foundation, Inc.,
  51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
  Everyone is permitted to copy and distribute verbatim copies
  of this license document, but changing it is not allowed.

             Preamble

  The licenses for most software are designed to take away your
freedom to share and change it. By contrast, the GNU General Public
License is intended to guarantee your freedom to share and change free
software--to make sure the software is free for all its users. This
General Public License applies to most of the Free Software

Foundation's software and to any other program whose authors commit to
using it. (Some other Free Software Foundation software is covered by
the GNU Lesser General Public License instead.) You can apply it to
your programs, too.

  When we speak of free software, we are referring to freedom, not
price. Our General Public Licenses are designed to make sure that you
have the freedom to distribute copies of free software (and charge for
this service if you wish), that you receive source code or can get it
if you want it, that you can change the software or use pieces of it
in new free programs; and that you know you can do these things.

  To protect your rights, we need to make restrictions that forbid
anyone to deny you these rights or to ask you to surrender the rights.
These restrictions translate to certain responsibilities for you if you
distribute copies of the software, or if you modify it.

  For example, if you distribute copies of such a program, whether
gratis or for a fee, you must give the recipients all the rights that
you have. You must make sure that they, too, receive or can get the
source code. And you must show them these terms so they know their
rights.

  We protect your rights with two steps: (1) copyright the software, and
(2) offer you this license which gives you legal permission to copy,
distribute and/or modify the software.

  Also, for each author's protection and ours, we want to make certain
that everyone understands that there is no warranty for this free
software. If the software is modified by someone else and passed on, we
want its recipients to know that what they have is not the original, so
that any problems introduced by others will not reflect on the original
authors' reputations.

  Finally, any free program is threatened constantly by software
patents. We wish to avoid the danger that redistributors of a free
program will individually obtain patent licenses, in effect making the
program proprietary. To prevent this, we have made it clear that any
patent must be licensed for everyone's free use or not licensed at all.

  The precise terms and conditions for copying, distribution and
modification follow.

          GNU GENERAL PUBLIC LICENSE
 TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

  0. This License applies to any program or other work which contains
a notice placed by the copyright holder saying it may be distributed
under the terms of this General Public License. The "Program", below,

NEED HELP?
LEAVE THE TECH TO US

LIVE 24/7
TECHNICAL
SUPPORT

1.877.877.2269

refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

  1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

  2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

  a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

  b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

  c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

  3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

  a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

  b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

  c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

  4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

  5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

  6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

  7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to

apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

  8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

  9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

  10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

  11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY

FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

  12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

    END OF TERMS AND CONDITIONS

    How to Apply These Terms to Your New Programs

  If you develop a new program, and you want it to be of the greatest possible use to the public, the best way to achieve this is to make it free software which everyone can redistribute and change under these terms.

  To do so, attach the following notices to the program. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

    <one line to give the program's name and a brief idea of what it does.>
    Copyright (C) <year> <name of author>

    This program is free software; you can redistribute it and/or modify
    it under the terms of the GNU General Public License as published by
    the Free Software Foundation; either version 2 of the License, or
    (at your option) any later version.

    This program is distributed in the hope that it will be useful,
    but WITHOUT ANY WARRANTY; without even the implied warranty of
    MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the
    GNU General Public License for more details.

    You should have received a copy of the GNU General Public License along
    with this program; if not, write to the Free Software Foundation, Inc.,
    51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA.

Also add information on how to contact you by electronic and paper mail.

If the program is interactive, make it output a short notice like this when it starts in an interactive mode:

    Gnomovision version 69, Copyright (C) year name of author
    Gnomovision comes with ABSOLUTELY NO WARRANTY; for details type `show w'.
    This is free software, and you are welcome to redistribute it
    under certain conditions; type `show c' for details.

The hypothetical commands `show w' and `show c' should show the appropriate parts of the General Public License. Of course, the commands you use may be called something other than `show w' and `show c'; they could even be mouse-clicks or menu items--whatever suits your program.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the program, if necessary. Here is a sample; alter the names:

    Yoyodyne, Inc., hereby disclaims all copyright interest in the program
    `Gnomovision' (which makes passes at compilers) written by James Hacker.

    <signature of Ty Coon>, 1 April 1989
    Ty Coon, President of Vice

This General Public License does not permit incorporating your program into proprietary programs. If your program is a subroutine library, you may consider it more useful to permit linking proprietary applications with the library. If this is what you want to do, use the GNU Lesser General Public License instead of this License.

-
- Modules: kmod systemd libdaemon avahi gnutls glib libgpg-error libgcrypt libmicrohttpd strace
-

    GNU LESSER GENERAL PUBLIC LICENSE
        Version 2.1, February 1999

 Copyright (C) 1991, 1999 Free Software Foundation, Inc.
 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA
 Everyone is permitted to copy and distribute verbatim copies
 of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts
 as the successor of the GNU Library Public License, version 2, hence
 the version number 2.1.]

NEED HELP?
LEAVE THE TECH TO US

LIVE 24/7
TECHNICAL
SUPPORT

1.877.877.2269

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

This license, the Lesser General Public License, applies to some specially designated software packages--typically libraries--of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does Less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers Less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is Less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and

NEED HELP?
LEAVE THE TECH TO US

**LIVE 24/7
TECHNICAL
SUPPORT**

1.877.877.2269

modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

GNU LESSER GENERAL PUBLIC LICENSE

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License Agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this License"). Each licensee is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the Library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the Library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the Library does and what the program that uses the Library does.

1. You may copy and distribute verbatim copies of the Library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and distribute a copy of this License along with the Library.

You may charge a fee for the physical act of transferring a copy,

and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) The modified work must itself be a software library.

b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.

c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this License.

d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Library, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Library, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Library.

In addition, mere aggregation of another work not based on the Library with the Library (or with a work based on the Library) on a volume of

NEED HELP?
LEAVE THE TECH TO US
**LIVE 24/7
TECHNICAL
SUPPORT**
1.877.877.2269

a storage or distribution medium does not bring the other work under the scope of this License.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the Library into a program that is not a library.

4. You may copy and distribute the Library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a "work that uses the Library". Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this License.

However, linking a "work that uses the Library" with the Library creates an executable that is a derivative of the Library (because it contains portions of the Library), rather than a "work that uses the library". The executable is therefore covered by this License. Section 6 states terms for distribution of such executables.

When a "work that uses the Library" uses material from a header file that is part of the Library, the object code for the work may be a derivative work of the Library even though the source code is not. Whether this is true is especially significant if the work can be linked without the Library, or if the work is itself a library. The

threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessors, and small macros and small inline functions (ten lines or less in length), then the use of the object file is unrestricted, regardless of whether it is legally a derivative work. (Executables containing this object code plus portions of the Library will still fall under Section 6.)

Otherwise, if the work is a derivative of the Library, you may distribute the object code for the work under the terms of Section 6. Any executables containing that work also fall under Section 6, whether or not they are linked directly with the Library itself.

6. As an exception to the Sections above, you may also combine or link a "work that uses the Library" with the Library to produce a work containing portions of the Library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer's own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the Library is used in it and that the Library and its use are covered by this License. You must supply a copy of this License. If the work during execution displays copyright notices, you must include the copyright notice for the Library among them, as well as a reference directing the user to the copy of this License. Also, you must do one of these things:

a) Accompany the work with the complete corresponding machine-readable source code for the Library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable "work that uses the Library", as object code and/or source code, so that the user can modify the Library and then relink to produce a modified executable containing the modified Library. (It is understood that the user who changes the contents of definitions files in the Library will not necessarily be able to recompile the application to use the modified definitions.)

b) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user's computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.

NEED HELP?
LEAVE THE TECH TO US

**LIVE 24/7
TECHNICAL
SUPPORT**

1.877.877.2269

c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6a, above, for a charge no more than the cost of performing this distribution.

d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.

e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the "work that uses the Library" must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the Library together in an executable that you distribute.

7. You may place library facilities that are a work based on the Library side-by-side in a single library together with other library facilities not covered by this License, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the Sections above.

b) Give prominent notice with the combined library of the fact that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses

terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

NEED HELP?
LEAVE THE TECH TO US
**LIVE 24/7
TECHNICAL
SUPPORT**
1.877.877.2269

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

<one line to give the library's name and a brief idea of what it does.>
Copyright (C) <year> <name of author>

This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.

This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 51 Franklin Street, Fifth Floor, Boston, MA 02110-1301 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

Yoyodyne, Inc., hereby disclaims all copyright interest in the library `Frob' (a library for tweaking knobs) written by James Random Hacker.

<signature of Ty Coon>, 1 April 1990
Ty Coon, President of Vice

NEED HELP?
LEAVE THE TECH TO US

LIVE 24/7
TECHNICAL
SUPPORT

1.877.877.2269

That's all there is to it!

-

- Modules: libunistring gmp nettle

-

GNU LESSER GENERAL PUBLIC LICENSE
Version 3, 29 June 2007

Copyright (C) 2007 Free Software Foundation, Inc. <https://fsf.org/>
Everyone is permitted to copy and distribute verbatim copies
of this license document, but changing it is not allowed.

 This version of the GNU Lesser General Public License incorporates
the terms and conditions of version 3 of the GNU General Public
License, supplemented by the additional permissions listed below.

 0. Additional Definitions.

 As used herein, "this License" refers to version 3 of the GNU Lesser
General Public License, and the "GNU GPL" refers to version 3 of the GNU
General Public License.

 "The Library" refers to a covered work governed by this License,
other than an Application or a Combined Work as defined below.

 An "Application" is any work that makes use of an interface provided
by the Library, but which is not otherwise based on the Library.
Defining a subclass of a class defined by the Library is deemed a mode
of using an interface provided by the Library.

 A "Combined Work" is a work produced by combining or linking an
Application with the Library. The particular version of the Library
with which the Combined Work was made is also called the "Linked
Version".

 The "Minimal Corresponding Source" for a Combined Work means the
Corresponding Source for the Combined Work, excluding any source code
for portions of the Combined Work that, considered in isolation, are
based on the Application, and not on the Linked Version.

 The "Corresponding Application Code" for a Combined Work means the
object code and/or source code for the Application, including any data
and utility programs needed for reproducing the Combined Work from the
Application, but excluding the System Libraries of the Combined Work.

 1. Exception to Section 3 of the GNU GPL.

 You may convey a covered work under sections 3 and 4 of this License
without being bound by section 3 of the GNU GPL.

 2. Conveying Modified Versions.

 If you modify a copy of the Library, and, in your modifications, a
facility refers to a function or data to be supplied by an Application
that uses the facility (other than as an argument passed when the
facility is invoked), then you may convey a copy of the modified
version:

   a) under this License, provided that you make a good faith effort to
   ensure that, in the event an Application does not supply the
   function or data, the facility still operates, and performs
   whatever part of its purpose remains meaningful, or

   b) under the GNU GPL, with none of the additional permissions of
   this License applicable to that copy.

 3. Object Code Incorporating Material from Library Header Files.

 The object code form of an Application may incorporate material from
a header file that is part of the Library. You may convey such object
code under terms of your choice, provided that, if the incorporated
material is not limited to numerical parameters, data structure
layouts and accessors, or small macros, inline functions and templates
(ten or fewer lines in length), you do both of the following:

   a) Give prominent notice with each copy of the object code that the
   Library is used in it and that the Library and its use are
   covered by this License.

   b) Accompany the object code with a copy of the GNU GPL and this license
   document.

 4. Combined Works.

 You may convey a Combined Work under terms of your choice that,
taken together, effectively do not restrict modification of the
portions of the Library contained in the Combined Work and reverse
engineering for debugging such modifications, if you also do each of
the following:

   a) Give prominent notice with each copy of the Combined Work that
   the Library is used in it and that the Library and its use are
   covered by this License.

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

b) Accompany the Combined Work with a copy of the GNU GPL and this license document.

c) For a Combined Work that displays copyright notices during execution, include the copyright notice for the Library among these notices, as well as a reference directing the user to the copies of the GNU GPL and this license document.

d) Do one of the following:

0) Convey the Minimal Corresponding Source under the terms of this License, and the Corresponding Application Code in a form suitable for, and under terms that permit, the user to recombine or relink the Application with a modified version of the Linked Version to produce a modified Combined Work, in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.

1) Use a suitable shared library mechanism for linking with the Library. A suitable mechanism is one that (a) uses at run time a copy of the Library already present on the user's computer system, and (b) will operate properly with a modified version of the Library that is interface-compatible with the Linked Version.

e) Provide Installation Information, but only if you would otherwise be required to provide such information under section 6 of the GNU GPL, and only to the extent that such information is necessary to install and execute a modified version of the Combined Work produced by recombining or relinking the Application with a modified version of the Linked Version. (If you use option 4d0, the Installation Information must accompany the Minimal Corresponding Source and Corresponding Application Code. If you use option 4d1, you must provide the Installation Information in the manner specified by section 6 of the GNU GPL for conveying Corresponding Source.)

5. Combined Libraries.

You may place library facilities that are a work based on the Library side by side in a single library together with other library facilities that are not Applications and are not covered by this License, and convey such a combined library under terms of your choice, if you do both of the following:

a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities, conveyed under the terms of this License.

b) Give prominent notice with the combined library that part of it is a work based on the Library, and explaining where to find the accompanying uncombined form of the same work.

6. Revised Versions of the GNU Lesser General Public License.

The Free Software Foundation may publish revised and/or new versions of the GNU Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Library as you received it specifies that a certain numbered version of the GNU Lesser General Public License "or any later version" applies to it, you have the option of following the terms and conditions either of that published version or of any later version published by the Free Software Foundation. If the Library as you received it does not specify a version number of the GNU Lesser General Public License, you may choose any version of the GNU Lesser General Public License ever published by the Free Software Foundation.

If the Library as you received it specifies that a proxy can decide whether future versions of the GNU Lesser General Public License shall apply, that proxy's public statement of acceptance of any version is permanent authorization for you to choose that version for the Library.

-
- Modules: dhcp libjwt
-

Mozilla Public License Version 2.0
==================================

1. Definitions

1.1. "Contributor"
    means each individual or legal entity that creates, contributes to the creation of, or owns Covered Software.

1.2. "Contributor Version"
    means the combination of the Contributions of others (if any) used by a Contributor and that particular Contributor's Contribution.

1.3. "Contribution"
    means Covered Software of a particular Contributor.

NEED HELP?
LEAVE THE TECH TO US

LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

1.4. "Covered Software"

means Source Code Form to which the initial Contributor has attached the notice in Exhibit A, the Executable Form of such Source Code Form, and Modifications of such Source Code Form, in each case including portions thereof.

1.5. "Incompatible With Secondary Licenses"

means

(a) that the initial Contributor has attached the notice described in Exhibit B to the Covered Software; or

(b) that the Covered Software was made available under the terms of version 1.1 or earlier of the License, but not also under the terms of a Secondary License.

1.6. "Executable Form"

means any form of the work other than Source Code Form.

1.7. "Larger Work"

means a work that combines Covered Software with other material, in a separate file or files, that is not Covered Software.

1.8. "License"

means this document.

1.9. "Licensable"

means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently, any and all of the rights conveyed by this License.

1.10. "Modifications"

means any of the following:

(a) any file in Source Code Form that results from an addition to, deletion from, or modification of the contents of Covered Software; or

(b) any new file in Source Code Form that contains any Covered Software.

1.11. "Patent Claims" of a Contributor

means any patent claim(s), including without limitation, method, process, and apparatus claims, in any patent Licensable by such Contributor that would be infringed, but for the grant of the License, by the making, using, selling, offering for sale, having made, import, or transfer of either its Contributions or its Contributor Version.

1.12. "Secondary License"

means either the GNU General Public License, Version 2.0, the GNU Lesser General Public License, Version 2.1, the GNU Affero General Public License, Version 3.0, or any later versions of those licenses.

1.13. "Source Code Form"

means the form of the work preferred for making modifications.

1.14. "You" (or "Your")

means an individual or a legal entity exercising rights under this License. For legal entities, "You" includes any entity that controls, is controlled by, or is under common control with You. For purposes of this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. License Grants and Conditions

2.1. Grants

Each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license:

(a) under intellectual property rights (other than patent or trademark) Licensable by such Contributor to use, reproduce, make available, modify, display, perform, distribute, and otherwise exploit its Contributions, either on an unmodified basis, with Modifications, or as part of a Larger Work; and

(b) under Patent Claims of such Contributor to make, use, sell, offer for sale, have made, import, and otherwise transfer either its Contributions or its Contributor Version.

2.2. Effective Date

The licenses granted in Section 2.1 with respect to any Contribution become effective for each Contribution on the date the Contributor first distributes such Contribution.

2.3. Limitations on Grant Scope

The licenses granted in this Section 2 are the only rights granted under this License. No additional rights or licenses will be implied from the distribution or licensing of Covered Software under this License.

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

Notwithstanding Section 2.1(b) above, no patent license is granted by a Contributor:

(a) for any code that a Contributor has removed from Covered Software; or

(b) for infringements caused by: (i) Your and any other third party's modifications of Covered Software, or (ii) the combination of its Contributions with other software (except as part of its Contributor Version); or

(c) under Patent Claims infringed by Covered Software in the absence of its Contributions.

This License does not grant any rights in the trademarks, service marks, or logos of any Contributor (except as may be necessary to comply with the notice requirements in Section 3.4).

2.4. Subsequent Licenses

No Contributor makes additional grants as a result of Your choice to distribute the Covered Software under a subsequent version of this License (see Section 10.2) or under the terms of a Secondary License (if permitted under the terms of Section 3.3).

2.5. Representation

Each Contributor represents that the Contributor believes its Contributions are its original creation(s) or it has sufficient rights to grant the rights to its Contributions conveyed by this License.

2.6. Fair Use

This License is not intended to limit any rights You have under applicable copyright doctrines of fair use, fair dealing, or other equivalents.

2.7. Conditions

Sections 3.1, 3.2, 3.3, and 3.4 are conditions of the licenses granted in Section 2.1.

3. Responsibilities

3.1. Distribution of Source Form

All distribution of Covered Software in Source Code Form, including any Modifications that You create or to which You contribute, must be under

the terms of this License. You must inform recipients that the Source Code Form of the Covered Software is governed by the terms of this License, and how they can obtain a copy of this License. You may not attempt to alter or restrict the recipients' rights in the Source Code Form.

3.2. Distribution of Executable Form

If You distribute Covered Software in Executable Form then:

(a) such Covered Software must also be made available in Source Code Form, as described in Section 3.1, and You must inform recipients of the Executable Form how they can obtain a copy of such Source Code Form by reasonable means in a timely manner, at a charge no more than the cost of distribution to the recipient; and

(b) You may distribute such Executable Form under the terms of this License, or sublicense it under different terms, provided that the license for the Executable Form does not attempt to limit or alter the recipients' rights in the Source Code Form under this License.

3.3. Distribution of a Larger Work

You may create and distribute a Larger Work under terms of Your choice, provided that You also comply with the requirements of this License for the Covered Software. If the Larger Work is a combination of Covered Software with a work governed by one or more Secondary Licenses, and the Covered Software is not Incompatible With Secondary Licenses, this License permits You to additionally distribute such Covered Software under the terms of such Secondary License(s), so that the recipient of the Larger Work may, at their option, further distribute the Covered Software under the terms of either this License or such Secondary License(s).

3.4. Notices

You may not remove or alter the substance of any license notices (including copyright notices, patent notices, disclaimers of warranty, or limitations of liability) contained within the Source Code Form of the Covered Software, except that You may alter any license notices to the extent required to remedy known factual inaccuracies.

3.5. Application of Additional Terms

You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Software. However, You may do so only on Your own behalf, and not on behalf of any Contributor. You must make it absolutely clear that any such warranty, support, indemnity, or liability obligation is offered by

NEED HELP?
LEAVE THE TECH TO US

**LIVE 24/7
TECHNICAL
SUPPORT**

1.877.877.2269

You alone, and You hereby agree to indemnify every Contributor for any liability incurred by such Contributor as a result of warranty, support, indemnity or liability terms You offer. You may include additional disclaimers of warranty and limitations of liability specific to any jurisdiction.

4. Inability to Comply Due to Statute or Regulation

If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Software due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be placed in a text file included with all distributions of the Covered Software under this License. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5. Termination

5.1. The rights granted under this License will terminate automatically if You fail to comply with any of its terms. However, if You become compliant, then the rights granted under this License from a particular Contributor are reinstated (a) provisionally, unless and until such Contributor explicitly and finally terminates Your grants, and (b) on an ongoing basis, if such Contributor fails to notify You of the non-compliance by some reasonable means prior to 60 days after You have come back into compliance. Moreover, Your grants from a particular Contributor are reinstated on an ongoing basis if such Contributor notifies You of the non-compliance by some reasonable means, this is the first time You have received notice of non-compliance with this License from such Contributor, and You become compliant prior to 30 days after Your receipt of the notice.

5.2. If You initiate litigation against any entity by asserting a patent infringement claim (excluding declaratory judgment actions, counter-claims, and cross-claims) alleging that a Contributor Version directly or indirectly infringes any patent, then the rights granted to You by any and all Contributors for the Covered Software under Section 2.1 of this License shall terminate.

5.3. In the event of termination under Sections 5.1 or 5.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or Your distributors under this License prior to termination shall survive termination.

****

```
*                                                       *
* 6. Disclaimer of Warranty                             *
* -------------------------                             *
*                                                       *
* Covered Software is provided under this License on an "as is"   *
* basis, without warranty of any kind, either expressed, implied, or  *
* statutory, including, without limitation, warranties that the    *
* Covered Software is free of defects, merchantable, fit for a     *
* particular purpose or non-infringing. The entire risk as to the  *
* quality and performance of the Covered Software is with You.     *
* Should any Covered Software prove defective in any respect, You   *
* (not any Contributor) assume the cost of any necessary servicing, *
* repair, or correction. This disclaimer of warranty constitutes an *
* essential part of this License. No use of any Covered Software is  *
* authorized under this License except under this disclaimer.      *
*                                                       *
*************************************************************************


*************************************************************************
*                                                       *
* 7. Limitation of Liability                            *
* -------------------------                             *
*                                                       *
* Under no circumstances and under no legal theory, whether tort   *
* (including negligence), contract, or otherwise, shall any       *
* Contributor, or anyone who distributes Covered Software as       *
* permitted above, be liable to You for any direct, indirect,      *
* special, incidental, or consequential damages of any character   *
* including, without limitation, damages for lost profits, loss of  *
* goodwill, work stoppage, computer failure or malfunction, or any  *
* and all other commercial damages or losses, even if such party    *
* shall have been informed of the possibility of such damages. This *
* limitation of liability shall not apply to liability for death or  *
* personal injury resulting from such party's negligence to the    *
* extent applicable law prohibits such limitation. Some            *
* jurisdictions do not allow the exclusion or limitation of        *
* incidental or consequential damages, so this exclusion and       *
* limitation may not apply to You.                      *
*                                                       *
*************************************************************************
```

8. Litigation

Any litigation relating to this License may be brought only in the courts of a jurisdiction where the defendant maintains its principal place of business and such litigation shall be governed by laws of that jurisdiction, without reference to its conflict-of-law provisions. Nothing in this Section shall prevent a party's ability to bring

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

cross-claims or counter-claims.

9. Miscellaneous

This License represents the complete agreement concerning the subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not be used to construe this License against a Contributor.

10. Versions of the License

10.1. New Versions

Mozilla Foundation is the license steward. Except as provided in Section 10.3, no one other than the license steward has the right to modify or publish new versions of this License. Each version will be given a distinguishing version number.

10.2. Effect of New Versions

You may distribute the Covered Software under the terms of the version of the License under which You originally received the Covered Software, or under the terms of any subsequent version published by the license steward.

10.3. Modified Versions

If you create software not governed by this License, and you want to create a new license for such software, you may create and use a modified version of this License if you rename the license and remove any references to the name of the license steward (except to note that such modified license differs from this License).

10.4. Distributing Source Code Form that is Incompatible With Secondary Licenses

If You choose to distribute Source Code Form that is Incompatible With Secondary Licenses under the terms of this version of the License, the notice described in Exhibit B of this License must be attached.

Exhibit A - Source Code Form License Notice

  This Source Code Form is subject to the terms of the Mozilla Public
  License, v. 2.0. If a copy of the MPL was not distributed with this

file, You can obtain one at http://mozilla.org/MPL/2.0/.

If it is not possible or desirable to put the notice in a particular file, then You may include the notice in a location (such as a LICENSE file in a relevant directory) where a recipient would be likely to look for such a notice.

You may add additional accurate notices of copyright ownership.

Exhibit B - "Incompatible With Secondary Licenses" Notice

  This Source Code Form is "Incompatible With Secondary Licenses", as
  defined by the Mozilla Public License, v. 2.0.

SAFETY INFORMATION

NEED HELP?
LEAVE THE TECH TO US
LIVE 24/7
TECHNICAL
SUPPORT
1.877.877.2269

- For use in dry, oil free indoor environments only.

- Do not use to link between buildings.

- Ensure that the twisted pair interconnect cable is installed in compliance with all applicable wiring regulations.

- Do not connect the CATx link interface (RJ45 style connector) to any other equipment, particularly network or telecommunications equipment.

- Warning – the power adapter contains live parts.

- No user serviceable parts are contained within the power adapter - do not dismantle.

- Plug the power adapter into a grounded socket outlet close to the unit that it is powering.

- Replace the power adapter with a manufacturer approved type only.

- Do not use the power adapter if the power adapter case becomes damaged, cracked or broken or if you suspect that it is not operating properly.

- If you use a power extension cord with the units, make sure the total ampere rating of the devices plugged into the extension cord do not exceed the cord's ampere rating. Also, make sure that the total ampere rating of all the devices plugged into the wall outlet does not exceed the wall outlet's ampere rating.

- Do not attempt to service the units yourself.

- The units and power supplies can get warm in operation – do not situate them in an enclosed space without any ventilation.

- The units do not provide ground isolation and should not be used for any applications that require ground isolation or galvanic isolation.

ACR1002DP_ACR1002FDP_ACR1002FH-T, rev. 1.3

BLACK BOX