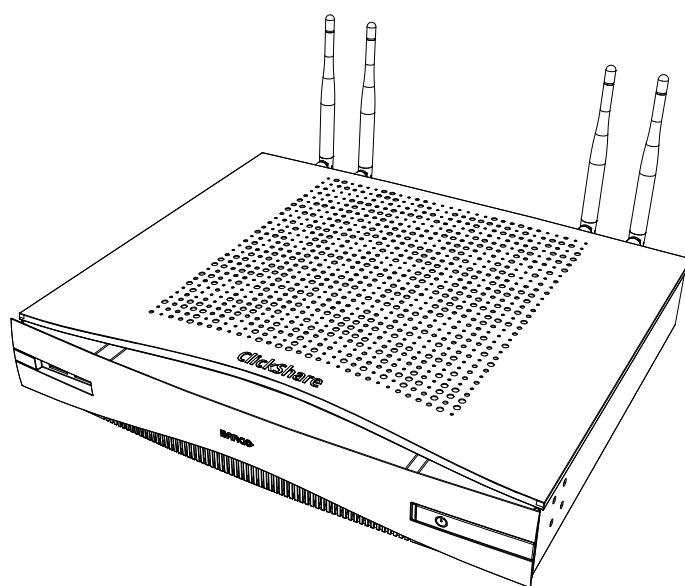


ClickShare CSE-800



Installation manual

Product revision

Software Revision: 1.7

Registered office: Barco NV

President Kennedypark 35, 8500 Kortrijk, Belgium
www.barco.com/en/support
www.barco.com

Barco NV

Beneluxpark 21, 8500 Kortrijk, Belgium
www.barco.com/en/support
www.barco.com

Barco ClickShare Product Specific End User License Agreement¹

THIS PRODUCT SPECIFIC USER LICENSE AGREEMENT (EULA) TOGETHER WITH THE BARCO GENERAL EULA ATTACHED HERETO SET OUT THE TERMS OF USE OF THE SOFTWARE.

PLEASE READ THIS DOCUMENT CAREFULLY BEFORE OPENING OR DOWNLOADING AND USING THE SOFTWARE.

DO NOT ACCEPT THE LICENSE, AND DO NOT INSTALL, DOWNLOAD, ACCESS, OR OTHERWISE COPY OR USE ALL OR ANY PORTION OF THE SOFTWARE UNLESS YOU CAN AGREE WITH ITS TERMS AS SET OUT IN THIS LICENSE AGREEMENT.

1. Entitlement

Barco ClickShare (the "Software") offered as a wireless presentation solution that includes the respective software components as further detailed in the applicable Documentation.

The Software can be used upon purchase from, and subject to payment of the relating purchase price to, a Barco authorized distributor or reseller of the ClickShare base unit and button or download of the authorized ClickShare applications (each a "Barco ClickShare Product").

- **Term**

The Software can be used under the terms of this EULA from the date of first use of the Barco ClickShare Product, for as long as you operate such Barco ClickShare Product.

- **Deployment and Use**

The Software shall be used solely in association with a Barco ClickShare Product in accordance with the Documentation issued by Barco for such Product.

2. Support

The Software is subject to the warranty conditions outlined in the Barco warranty rider. Maintenance, including the provision of upgrades and updates to the Software, and helpdesk support are available at your option on the terms of Barco's then current warranty rider.

Higher maintenance and support levels can be obtained at the moment of product sale or during the Barco ClickShare Product and/or Software warranty term.

Higher maintenance and support levels may be included in the initial transaction if ordered and paid for additionally. It is strongly suggested to maintain the maintenance and support agreement without interruption. Barco reserves the right not to restart maintenance following an interruption by the customer.

3. Terms of Use

The Software can be used as set out in the Barco EULA attached hereto.

The provisions of this Product Specific EULA override the Barco generic EULA in case of conflicts or inconsistencies.

In case of (inadvertent or other) non-compliance (e.g. where the actual use overshoots the use authorized hereunder), Barco shall have the option to suspend access to the Software until the non-compliance is remedied, failing of which Barco may terminate the License Agreement as set out herein.

4. Privacy

You are controller for personal data which are being processed via the Software. Therefore, you remain solely responsible for complying with all applicable data protection laws and for implementing and maintaining privacy protection and security measures (especially for components that you provide or control). Barco disclaims any liability in this regard.

Barco created a specific privacy policy for the ClickShare software application for mobile devices, which describes the processing of personal data via this application (

<http://www.barco.com/en/about-barco/legal/privacy-policy/clickshare-app>).

5. Other Terms

- **Open Source components**

The Software contains software components released under an Open Source license.

A list of the third party components used is available in the Software's README files, through the "My Barco" section of the Barco website or through other (online) means. The applicable license terms,

¹: In the event of any differences or inconsistencies between translations of the EULA and the English text of the EULA, the English text will prevail.

copyright notices and, as relevant, source code access conditions apply as set out in the Barco EULA attached hereto.

- **Retention of data**

Barco right to use and retain Functional Information (section 10.2 of the EULA) shall survive the term of this EULA.

BARCO END USER LICENSE AGREEMENT¹

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"Affiliate" means any corporation or other entity directly or indirectly, controlling, controlled by or under common control with such corporation or entity. For the purpose of the above, "control" shall mean (i) the ownership or control, directly or indirectly, of fifty percent (50%) or more of the equity capital or the shares or voting rights in the corporation or other entity in question or (ii) the control of the composition of the board of directors of the corporation or other entity in question.

"Barco" means Barco NV (company number 0473.191.041) with company address at Beneluxpark 21, 8500 Kortrijk, Belgium, or its designated Affiliate licensing to you the proprietary software which is the subject matter of this Agreement.

"Documentation" means all technical, reference and installation manuals, user guides, published performance specifications and other written documentation provided by Barco generally to its licensees with respect to the Software, along with any modifications and updates thereto;

"DRM" means Barco's digital rights management platform used to provide access to and access conditions of the Software.

"License Agreement" means this Barco End User License Agreement (EULA), incorporating the terms of the Product Specific EULA, and any modifications thereof as set out herein.

"Product Specific EULA" means the supplemental software terms applicable

"Software" means the computer software, released in object code only, which is being licensed hereunder, as described in the applicable purchase order and related Product Specific EULA.

"Term" means the period set out in article 9.1 hereof, as well as any agreed renewal period.

"you" means the entity on behalf of which these terms are accepted, and any of its representatives having access to the Software.

2. License Grant

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2.2 License Type. The applicable license type, and your rights in time, deployment and usage, are further detailed in the Product Specific EULA (in the absence of which the scope shall be as set in article 2.1 hereof).

2.3 License restrictions.

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2.4 Your Infrastructure. You remain responsible to procure and maintain hardware, operating system, network and other infrastructure (the "Infrastructure") required to operate the Software and to keep such Infrastructure functioning and virus-free. You acknowledge that the Software is a complex computer software application, and that the performance thereof may vary depending hardware platform, software interactions and configuration. You acknowledge that the Software is not designed and produced specifically to meet your requirements and expectations and the selection of the Software by you is entirely your own choice and decision.

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4.1 Principle. Barco is under no obligation to provide support and maintenance in respect of the Software, except as included in a Product Specific EULA and/or to the extent you have entered into a separate maintenance and support agreement and paid applicable maintenance and support fees. Any unauthorized use of the Software, as specified in any maintenance and support agreement, may prohibit Barco from providing such support and maintenance.

4.2 Support policy. Maintenance releases updates or upgrades can be obtained under the terms of a separate maintenance and support agreement which is being offered to you. Such agreements, together with the support included in a Product Specific EULA, include Barco's sole liability and your sole remedy in respect of the support and maintenance of the Software. You agree to install any maintenance releases to address bugs or security issues in the Software if the same are being provided to you. Barco will keep you informed as of when earlier versions of the Software are no longer serviced.

4.3 Remote connectivity. Barco may require, as a material condition to provide maintenance or support, that the Software remains remotely connected with Barco over a network.

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6.1 Reporting and Audit. In addition to good practice record-keeping obligations, you agree to report the use of the Software and relating billing metrics in the DRM or otherwise as agreed. You grant to Barco and its designated auditors, at Barco's expenses, the right to verify your deployment and use of the Software during your normal business hours so as to verify your compliance with the License Agreement. In the event such audit reveals non-compliance with your payment obligations hereunder, you shall promptly pay to Barco the appropriate license fees plus the reasonable cost of conducting the audit.

6.2 Fair Use Monitor. You are informed and acknowledge that the Software includes technology which allows to remotely decrease (in part or in full) the functionality of the Software (the "Fair Use Monitor"). Such technology is an enabling tool and a material condition precedent for Barco to enter into this License Agreement.

6.3 Enforcement. Upon breach of the License Agreement (including overdue payment), Barco shall inform the then known user, through the DRM or otherwise in writing, (i) which condition of the License Agreement (including payment terms) is violated; (ii) allow a period of 8 calendar days to cure such breach, if it can be cured at all; and (iii) inform which part of the functionality Barco intends to reduce (all Software or certain additionally licensed features only; in part or in full) if the breach is not remedied on time and in full.

6.4 Remedy. If the breach is not cured within the applicable remedy period (or cannot be cured at all), Barco shall have the option (i) to cause you to procure such additional licenses required as per the actual usage; (ii) to reduce the Software's functionality, including through the use of the Fair Use Monitor; or (iii) to terminate the License Agreement as set out herein, without prejudice to any other remedies available at law, under contract or in equity.

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11.1 Entire Agreement. This License Agreement is the only understanding and agreement between you and Barco for use of the Software. This License Agreement supersedes all other communications, understandings or agreements we had prior to this License Agreement (with the exception of any continuing confidentiality agreement).

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11.6 Assignment. You are not allowed to assign this Agreement in part or in full to any third party without Barco's consent. Barco shall be entitled to assign all or any of Barco's obligations hereunder to a third party and/or any of Barco's Affiliates.

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YOU HEREBY ACKNOWLEDGE TO HAVE READ, UNDERSTOOD AND ACCEPTED TO BE BOUND BY ALL THE TERMS AND CONDITIONS OF THIS LICENCE AGREEMENT AS INDICATED ABOVE

Barco ClickShare Product Specific Privacy policy

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Via the Software, Barco may gather technical information about (i) the functioning and the functionality of the products which are connected through the Software, and/or (ii) as provided by you or generated by your use of the Software ("Functional Information"). Barco may make use of such Functional Information for purposes of analytics, for developing and improving products and services, offering products and services to your organization and/or allowing third parties to access such Functional Information; based on the legitimate interest of Barco of evaluating the market, assessing and improving its products and conducting research and development. All knowhow, inventions and works derived by Barco from the Functional Information will be exclusively owned by Barco.

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In the development of the Software, the following Open Source Software components have been used:

PACKAGE	VERSION	SOURCE SITE
alsa-lib	1.1.3	ftp://ftp.alsa-project.org/pub/lib
alsa-utils	1.1.3	ftp://ftp.alsa-project.org/pub/utlis
libsamplerate	0.1.9	http://www.mega-nerd.com/SRC
libsndfile	1.0.28	http://www.mega-nerd.com/libsndfile/files
ncurses	5.9	http://ftpmirror.gnu.org/ncurses
avahi	0.6.32	https://github.com/lathiat/avahi/releases/download/v0.6.32
dbus	1.10.16	http://dbus.freedesktop.org/releases/dbus
expat	2.2.2	http://downloads.sourceforge.net/project/expat/expat/2.2.2
libselinux	2.6	https://raw.githubusercontent.com/wiki/SELinuxProject/selinux/files/releases/20161014
libsepol	2.6	https://raw.githubusercontent.com/wiki/SELinuxProject/selinux/files/releases/20161014
pcre	8.41	https://ftp.pcre.org/pub/pcre
xlib_libSM	1.2.2	http://xorg.freedesktop.org/releases/individual/lib

PACKAGE	VERSION	SOURCE SITE
xlib_libICE	1.0.9	http://xorg.freedesktop.org/releases/individual/lib
xlib_xtrans	1.3.5	http://xorg.freedesktop.org/releases/individual/lib
xproto_xproto	7.0.31	http://xorg.freedesktop.org/releases/individual/proto
xlib_libX11	1.6.4	http://xorg.freedesktop.org/releases/individual/lib
libxcb	1.12	http://xcb.freedesktop.org/dist
libpthread-stubs	0.3	http://xcb.freedesktop.org/dist
xcb-proto	1.12	http://xcb.freedesktop.org/dist
xlib_libXau	1.0.8	http://xorg.freedesktop.org/releases/individual/lib
xutil_util-macros	1.19.1	http://xorg.freedesktop.org/releases/individual/util
xlib_libXdmp	1.1.2	http://xorg.freedesktop.org/releases/individual/lib
xproto_inputproto	2.3.2	http://xorg.freedesktop.org/releases/individual/proto
xproto_kbproto	1.0.7	http://xorg.freedesktop.org/releases/individual/proto
xproto_xextproto	7.3.0	http://xorg.freedesktop.org/releases/individual/proto
xproto_xf86bigfontproto	1.2.0	http://xorg.freedesktop.org/releases/individual/proto
libdaemon	0.14	http://0pointer.de/lennart/projects/libdaemon
glib2	2.50.2	http://ftp.gnome.org/pub/gnome/sources/glib/2.50
elfutils	0.169	https://sourceware.org/elfutils/ftp/0.169
bzip2	1.0.6	http://www.bzip.org/1.0.6
zlib	1.2.11	http://www.zlib.net
libffi	3.2.1	ftp://sourceware.org/pub/libffi
util-linux	2.29.2	https://cdn.kernel.org/pub/linux/utils/util-linux/v2.29
busybox	1.26.2	http://www.busybox.net/downloads
linux-pam	1.3.0	http://linux-pam.org/library
flex	2.5.37	http://download.sourceforge.net/project/flex
python3	3.5.2	http://python.org/ftp/python/3.5.2
readline	7.0	http://ftpmirror.gnu.org/readline
bellagio	0.9.3	http://downloads.sourceforge.net/project/omxil/omxil/Bellagio%200.9.3
bitstream	1.1	https://get.videolan.org/bitstream/1.1
bluez5_utils	5.43	https://cdn.kernel.org/pub/linux/bluetooth
libical	1.0.1	https://github.com/libical/libical/releases/download/v1.0.1
eudev	3.2.1	http://dev.gentoo.org/~blueness/eudev
kmod	23	https://cdn.kernel.org/pub/linux/utils/kernel/kmod
bridge-utils	1.6	https://cdn.kernel.org/pub/linux/utils/net/bridge-utils

PACKAGE	VERSION	SOURCE SITE
collectd	5.7.1	http://collectd.org/files
libgcrypt	1.7.9	https://gnupg.org/ftp/gcrypt/libgcrypt
libgpg-error	1.26	ftp://ftp.gnupg.org/gcrypt/libgpg-error
lm-sensors	3.4.0	http://snapshot.debian.org/archive/debian/20170208T211941Z/pool/main/l/lm-sensors
crda	3.18	https://cdn.kernel.org/pub/software/network/crda
libnl	3.2.27	https://github.com/thom311/libnl/releases/download/libnl3_2_27
cryptodev-linux	1.8	https://github.com/cryptodev-linux/cryptodev-linux/archive/2b29be8ac41414ed19cb4f5d5626d9bd0d7b11a8
linux	4.4.11	https://G_SVN_HUDSON:kM4c11kz@git.barco.com/scm/clsh/linux-stable.git
cryptsetup	1.7.3	https://cdn.kernel.org/pub/linux/utils/cryptsetup/v1.7
lvm2	2.02.168	ftp://sources.redhat.com/pub/lvm2/releases
popt	1.16	http://rpm5.org/files/popt
dhcp	4.3.5	http://ftp.isc.org/isc/dhcp/4.3.5
dmidecode	3.0	http://download.savannah.gnu.org/releases/dmidecode
dnsmasq	2.78	http://thekelleys.org.uk/dnsmasq
dosfstools	4.0	https://github.com/dosfstools/dosfstools/releases/download/v4.0
dropbear	2017.75	http://matt.ucc.asn.au/dropbear/releases
dvblast	3.0	https://get.videolan.org/dvblast/3.0
libev	4.22	http://dist.schmorp.de/libev/Attic
e2fsprogs	1.43.3	https://cdn.kernel.org/pub/linux/kernel/people/tytso/e2fsprogs/v1.43.3
faad2	2.8.1	http://downloads.sourceforge.net/project/faac/faad2-src/faad2-2.8.0
fbv	1.0b	http://s-tech.elsat.net.pl/fbv
giflib	5.1.4	http://downloads.sourceforge.net/project/giflib
jpeg-turbo	1.5.1	http://downloads.sourceforge.net/project/libjpeg-turbo/1.5.1
libpng	1.6.28	http://downloads.sourceforge.net/project/libpng/libpng16/1.6.28
ffmpeg	2.8.6	http://ffmpeg.org/releases
fontconfig	2.12.1	http://fontconfig.org/release
freetype	2.7.1	http://download.savannah.gnu.org/releases/freetype
libva	1.8.3	https://github.com/01org/libva/releases/download/1.8.3
libdrm	2.4.82	http://dri.freedesktop.org/libdrm
mesa3d	11.2.2	ftp://ftp.freedesktop.org/pub/mesa/11.2.2
libva-dummy	1.8.3	https://github.com/01org/libva/releases/download/1.8.3
xlib_libXext	1.3.3	http://xorg.freedesktop.org/releases/individual/lib

PACKAGE	VERSION	SOURCE SITE
xlib_libXfixes	5.0.3	http://xorg.freedesktop.org/releases/individual/lib
xproto_fixesproto	5.0	http://xorg.freedesktop.org/releases/individual/proto
libvdpau	1.1.1	http://people.freedesktop.org/~aplattner/vdpau
xproto_dri2proto	2.8	http://xorg.freedesktop.org/releases/individual/proto
openssl	1.0.2m	http://www.openssl.org/source
xlib_libXdamage	1.1.4	http://xorg.freedesktop.org/releases/individual/lib
xproto_damageproto	1.2.1	http://xorg.freedesktop.org/releases/individual/proto
xlib_libxshmfence	1.2	http://xorg.freedesktop.org/releases/individual/lib
xproto_dri3proto	1.0	http://xorg.freedesktop.org/releases/individual/proto
xproto_glxproto	1.4.17	http://xorg.freedesktop.org/releases/individual/proto
xproto_presentproto	1.1	http://xorg.freedesktop.org/releases/individual/proto
xproto_xf86driproto	2.1.1	http://xorg.freedesktop.org/releases/individual/proto
libvorbis	1.3.5	http://downloads.xiph.org/releases/vorbis
libogg	1.3.2	http://downloads.xiph.org/releases/ogg
opus	1.1.4	http://downloads.xiph.org/releases/opus
speex	1.2rc1	http://downloads.us.xiph.org/releases/speex
file	5.32	ftp://ftp.astron.com/pub/file
flashrom	0.9.8	http://download.flashrom.org/releases
libftdi	0.20	http://www.intra2net.com/en/developer/libftdi/download
libusb	1.0.20	https://github.com/libusb/libusb/releases/download/v1.0.20
libusb-compat	0.1.5	http://downloads.sourceforge.net/project/libusb/libusb-compat-0.1/libusb-compat-0.1.5
pciutils	3.5.2	https://cdn.kernel.org/pub/software/utils/pciutils
gdb	7.11.1	http://ftpmirror.gnu.org/gdb
gnu-efi	3.0.1	http://downloads.sourceforge.net/project/gnu-efi
gnupg2	2.0.30	ftp://ftp.gnupg.org/gcrypt/gnupg
libassuan	2.4.3	ftp://ftp.gnupg.org/gcrypt/libassuan
libksba	1.3.5	ftp://ftp.gnupg.org/gcrypt/libksba
libpthsem	2.0.8	http://www.auto.tuwien.ac.at/~mkoegler/pth
gst1-libav	1.12.5	http://gstreamer.freedesktop.org/src/gst-libav
gst1-plugins-base	1.12.5	https://gstreamer.freedesktop.org/src/gst-plugins-base
gstreamer1	1.12.5	https://gstreamer.freedesktop.org/src/gstreamer
xlib_libXv	1.0.11	http://xorg.freedesktop.org/releases/individual/lib
xproto_videoproto	2.3.3	http://xorg.freedesktop.org/releases/individual/proto

PACKAGE	VERSION	SOURCE SITE
gst1-plugins-bad	1.12.5	https://gstreamer.freedesktop.org/src/gst-plugins-bad
libglu	9.0.0	http://cgkit.freedesktop.org/mesa/glu/snapshot
xlib_libXrender	0.9.10	http://xorg.freedesktop.org/releases/individual/lib
xproto_renderproto	0.11.1	http://xorg.freedesktop.org/releases/individual/proto
gst1-plugins-good	1.12.5	https://gstreamer.freedesktop.org/src/gst-plugins-good
libv4l	1.12.2	http://linuxtv.org/downloads/v4l-utils
pulseaudio	9.0	http://freedesktop.org/software/pulseaudio/releases
json-c	json-c-0.12-20140410	https://github.com/json-c/json-c/archive/json-c-0.12-20140410
libtool	2.4.6	http://ftpmirror.gnu.org/libtool
gst1-vaapi	1.12.5	https://gstreamer.freedesktop.org/src/gstreamer-vaapi
hostapd	2.6	http://w1.fi/releases
htop	2.0.2	http://hisham.hm/htop/releases/2.0.2
iperf	2.0.9	http://downloads.sourceforge.net/project/iperf2
iptables	1.6.1	http://ftp.netfilter.org/pub/iptables
iw	4.9	https://cdn.kernel.org/pub/software/network/iw
libarchive	3.3.2	http://www.libarchive.org/downloads
libxml2	2.9.5	ftp://xmlsoft.org/libxml2
libbsd	0.8.3	http://libbsd.freedesktop.org/releases
libconfig	1.5	http://www.hyperrealm.com/libconfig
libcurl	7.56.1	https://curl.haxx.se/download
libdri2	1.0.0	https://github.com/robclark/libdri2/archive/4f1eef3183df2b270c3d5cbef07343ee5127a6a4
libedit	20150325-3.1	http://www.thrysoee.dk/editline
libepoxy	v1.3.1	https://github.com/anholt/libepoxy/archive/v1.3.1
libestr	0.1.10	http://libestr.adiscon.com/files/download
libevdev	1.5.6	http://www.freedesktop.org/software/libevdev
libevent	2.1.8-stable	https://github.com/libevent/libevent/releases/download/release-2.1.8-stable
libfastjson	v0.99.4	https://github.com/rsyslog/libfastjson/archive/v0.99.4
liblogging	1.0.5	http://download.rsyslog.com/liblogging
libpciaccess	0.13.4	http://xorg.freedesktop.org/releases/individual/lib
libqrencode	3.4.2	http://fukuchi.org/works/qrencode
libsha1	0.3	https://github.com/dottedmag/libsha1/archive/0.3
libxkbcommon	0.7.1	http://xkbcommon.org/download

PACKAGE	VERSION	SOURCE SITE
libyaml	0.1.6	http://pyyaml.org/download/libyaml
lighttpd	1.4.45	http://download.lighttpd.net/lighttpd/releases-1.4.x
linux-firmware	unknown	http://git.kernel.org/pub/scm/linux/kernel/git/firmware/linux-firmware.git
logrotate	3.11.0	https://github.com/logrotate/logrotate/archive/3.11.0
memtester	4.3.0	http://pyropus.ca/software/memtester/old-versions
monit	5.20.0	http://mmonit.com/monit/dist
mtdev	1.1.4	http://bitmath.org/code/mtdev
netcat	0.7.1	http://downloads.sourceforge.net/project/netcat/netcat/0.7.1
netsnmp	5.7.3	http://downloads.sourceforge.net/project/net-snmp/net-snmp/5.7.3
nodejs	6.11.5	http://nodejs.org/dist/v6.11.5
ntp	4.2.8p10	https://www.eecis.udel.edu/~ntp/ntp_spool/ntp4/ntp-4.2
opkg	v0.3.1	http://git.yoctoproject.org/git/opkg
opus-tools	0.1.9	http://downloads.xiph.org/releases/opus
php	7.1.7	http://www.php.net/distributions
sqlite	3160200	http://www.sqlite.org/2017
pixman	0.34.0	http://xorg.freedesktop.org/releases/individual/lib
protobuf	v2.6.1	https://github.com/google/protobuf/archive/v2.6.1
python-pyyaml	3.12	https://pypi.python.org/packages/4a/85/db5a2df477072b2902b0eb892feb37d88ac635-d36245a72a6a69b23b383a
python-serial	3.1	https://pypi.python.org/packages/ce/9c/694ce79a9d4a164e109aeba1a40fba23336f3-b7554978553e22a5d41d54d
qt5base	5.6.3	http://download.qt.io/official_releases/qt/5.6/5.6.3/submodules
xcb-util-image	0.4.0	http://xcb.freedesktop.org/dist
xcb-util	0.3.9	http://xcb.freedesktop.org/dist
xcb-util-keysyms	0.4.0	http://xcb.freedesktop.org/dist
xcb-util-wm	0.4.1	http://xcb.freedesktop.org/dist
qt5declarative	5.6.3	http://download.qt.io/official_releases/qt/5.6/5.6.3/submodules
qt5xmlpatterns	5.6.3	http://download.qt.io/official_releases/qt/5.6/5.6.3/submodules
qt5imageformats	5.6.3	http://download.qt.io/official_releases/qt/5.6/5.6.3/submodules
qt5multimedia	5.6.3	http://download.qt.io/official_releases/qt/5.6/5.6.3/submodules
qt5quickcontrols	5.6.3	http://download.qt.io/official_releases/qt/5.6/5.6.3/submodules
qt5serialport	5.6.3	http://download.qt.io/official_releases/qt/5.6/5.6.3/submodules
qt5svg	5.6.3	http://download.qt.io/official_releases/qt/5.6/5.6.3/submodules
qt5websockets	5.6.3	http://download.qt.io/official_releases/qt/5.6/5.6.3/submodules

PACKAGE	VERSION	SOURCE SITE
qt5x11extras	5.6.3	http://download.qt.io/official_releases/qt/5.6/5.6.3/submodules
rsync	3.1.2	http://rsync.samba.org/ftp/rsync/src
rsyslog	8.22.0	http://rsyslog.com/files/download/rsyslog
strace	4.15	http://downloads.sourceforge.net/project/strace/strace/4.15
tpm-tools	1.3.8	http://downloads.sourceforge.net/project/trousers/tpm-tools/1.3.8
trousers	0.3.13	http://downloads.sourceforge.net/project/trousers/trousers/0.3.13
tzdata	2016j	http://www.iana.org/time-zones/repository/releases
unzip	60	ftp://ftp.info-zip.org/pub/infozip/src
wireless-regdb	2011.04.28	http://kernel.org/pub/software/network/wireless-regdb
wireless_tools	30.pre9	http://www.hpl.hp.com/personal/Jean_Tourrilhes/Linux
wpa_supplicant	2.6	http://w1.fi/releases
xapp_beforelight	1.0.5	http://xorg.freedesktop.org/releases/individual/app
xlib_libXScrnSaver	1.2.2	http://xorg.freedesktop.org/releases/individual/lib
xproto_scrnsaverproto	1.2.2	http://xorg.freedesktop.org/releases/individual/proto
xlib_libXaw	1.0.13	http://xorg.freedesktop.org/releases/individual/lib
xlib_libXmu	1.1.2	http://xorg.freedesktop.org/releases/individual/lib
xlib_libXt	1.1.5	http://xorg.freedesktop.org/releases/individual/lib
xlib_libXpm	3.5.12	http://xorg.freedesktop.org/releases/individual/lib
xapp_xauth	1.0.10	http://xorg.freedesktop.org/releases/individual/app
xapp_xclock	1.0.7	http://xorg.freedesktop.org/releases/individual/app
xlib_libXft	2.3.2	http://xorg.freedesktop.org/releases/individual/lib
xlib_libxkbfile	1.0.9	http://xorg.freedesktop.org/releases/individual/lib
xapp_xinit	1.3.4	http://xorg.freedesktop.org/releases/individual/app
xapp_xinput-calibrator	0.7.5	http://github.com/downloads/tias/xinput_calibrator
xlib_libXi	1.7.9	http://xorg.freedesktop.org/releases/individual/lib
xapp_xinput	1.6.2	http://xorg.freedesktop.org/releases/individual/app
xlib_libXineramal	1.1.3	http://xorg.freedesktop.org/releases/individual/lib
xproto_xineramaproto	1.2.1	http://xorg.freedesktop.org/releases/individual/proto
xlib_libXrandr	1.5.1	http://xorg.freedesktop.org/releases/individual/lib
xproto_randrproto	1.5.0	http://xorg.freedesktop.org/releases/individual/proto
xapp_xkbcomp	1.3.1	http://xorg.freedesktop.org/releases/individual/app
xapp_xrandr	1.5.0	http://xorg.freedesktop.org/releases/individual/app

PACKAGE	VERSION	SOURCE SITE
xdata_xbitmaps	1.1.1	http://xorg.freedesktop.org/releases/individual/data
xdriver_xf86-input-evdev	2.10.5	http://xorg.freedesktop.org/releases/individual/driver
xserver_xorg-server	1.19.5	https://xorg.freedesktop.org/archive/individual/xserver
xfont_font-util	1.3.1	http://xorg.freedesktop.org/releases/individual/font
xkeyboard-config	2.20	http://www.x.org/releases/individual/data/xkeyboard-config
xlib_libXcomposite	0.4.4	http://xorg.freedesktop.org/releases/individual/lib
xproto_compositeproto	0.4.2	http://xorg.freedesktop.org/releases/individual/proto
xlib_libXcursor	1.1.14	http://xorg.freedesktop.org/releases/individual/lib
xlib_libXfont2	2.0.1	http://xorg.freedesktop.org/releases/individual/lib
xfont_encodings	1.0.4	http://xorg.freedesktop.org/releases/individual/font
xlib_libfontenc	1.1.3	http://xorg.freedesktop.org/releases/individual/lib
xproto_fontsproto	2.1.3	http://xorg.freedesktop.org/releases/individual/proto
xlib_libXres	1.0.7	http://xorg.freedesktop.org/releases/individual/lib
xproto_resourceproto	1.2.0	http://xorg.freedesktop.org/releases/individual/proto
xlib_libXxf86vm	1.1.4	http://xorg.freedesktop.org/releases/individual/lib
xproto_xf86vidmodeproto	2.3.1	http://xorg.freedesktop.org/releases/individual/proto
xproto_bigreqsproto	1.1.2	http://xorg.freedesktop.org/releases/individual/proto
xproto_xcmiscproto	1.2.2	http://xorg.freedesktop.org/releases/individual/proto
xproto_xf86dgaproto	2.1	http://xorg.freedesktop.org/releases/individual/proto
xdriver_xf86-video-amdgpu	1.4.0	http://xorg.freedesktop.org/releases/individual/driver
xfont_font-alias	1.0.3	http://xorg.freedesktop.org/releases/individual/font
xfont_font-cursor-misc	1.0.3	http://xorg.freedesktop.org/releases/individual/font
xfont_font-misc-misc	1.1.2	http://xorg.freedesktop.org/releases/individual/font
xterm	327	http://invisible-mirror.net/archives/xterm
zbar	0.10	https://github.com/ZBar/Zbar/archive/854a5d97059e395807091ac4d80c53f7968abb8f
zip	30	ftp://ftp.info-zip.org/pub/infozip/src
alsa-plugins	1.1.1	ftp://ftp.alsa-project.org/pub/plugins
microstack	0.0.69	www.meshcommander.com/upnptools
libresample	0.1.3	ftp://ftp.ubuntu.com/ubuntu/pool/universe/libr/libresample
sazanami-fonts	20040629	http://sourceforge.jp/projects/efont/downloads/10087
unfonts	1.0	

PACKAGE	VERSION	SOURCE SITE
dejavu-fonts	2.34	http://downloads.sourceforge.net/project/dejavu/dejavu/2.34
arphic-uming-fonts	20080216	http://archive.ubuntu.com/ubuntu/pool/main/t/ttf-arphic-uming
ibmswtpm	4720	https://sourceforge.net/projects/ibmswtpm/files/
grub	2.02-beta2	https://github.com/coreos/grub/releases
rockbox	v3.10	https://github.com/Rockbox/rockbox/tree/v3.10
libcap	2.25	https://www.kernel.org/pub/linux/libs/security/linux-privs/libcap2
mtd	1.5.2	ftp://ftp.infradead.org/pub/mtd-utils
procps-ng	3.3.12	http://downloads.sourceforge.net/project/procps-ng/Production
strace	4.15	http://downloads.sourceforge.net/project/strace/strace/4.15
hidapi	0.5.2	https://github.com/signal11/hidapi
splashutils	1.5.4.4	http://dev.gentoo.org/~spock/projects/gensplash/archive
efitools	v1.7.0	git://git.kernel.org/pub/scm/linux/kernel/git/jejb/efitools.git
libresample	0.1.3	ftp://ftp.ubuntu.com/ubuntu/pool/universe/libr/libresample
linux	3.1.0	https://mirrors.edge.kernel.org/pub/linux/kernel/v3.x/

EN55032-CISPR32 Class B ITE (Information Technology Equipment)

This is a class B product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

If this equipment does cause interference to radio or television reception, the user may try to correct the interference by one or more of the following measures :

- Re-orientation of the receiving antenna for the radio or television.
- Relocate the equipment with respect to the receiver.
- Plug the equipment into a different outlet so that the equipment and receiver are on different branch circuits.
- Fasten cables connectors to the equipment by mounting screws.

Federal Communication Commission Interference Statement

You are cautioned that changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

You may also find helpful the following booklet, prepared by the FCC: "How to Identify and Resolve Radio-TV Interference Problems." This booklet is available from the U.S. Government Printing Office, Washington D.C. 20402.

Changes and Modifications not expressly approved by the manufacturer or registrant of this equipment can void your authority to operate this equipment under Federal Communications Commissions rules.

In order to maintain compliance with FCC regulations shielded cables must be used with this equipment. Operation with non-approved equipment or unshielded cables is likely to result in interference to radio & television reception.

FCC RF Radiation Exposure Statement: This device is capable of operating in 802.11a mode. For 802.11a devices operating in the frequency range of 5.15 - 5.25 GHz, they are restricted for indoor operations to reduce any potential harmful interference for Mobile Satellite Services (MSS) in the US. WIFI Access Points that are capable of allowing your device to operate in 802.11a mode (5.15 - 5.25 GHz band) are optimized for indoor use only. If your WIFI network is capable of operating in this mode, please restrict your WIFI use indoors to not violate federal regulations to protect Mobile Satellite Services.

1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
2. This equipment complies with RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and your body.

Base Unit FCC ID: 2AAED-R9861580

Button FCC ID (model R9861500D01): 2AAED-R9861500D01

Button FCC ID (model R9861500D01C): 2AAED-R9861500D01

ClickShare Button 2AAED-R9861500D01 has been tested and meets the FCC RF exposure guidelines. The maximum SAR value reported is 0.915W/kg.

Canada, Industry Canada (IC) Notices

This device complies with Industry Canada licence-exempt RSS standard (s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Radio Frequency (RF) Exposure Information

The radiated output power of the Barco Wireless Device is below the Industry Canada (IC) radio frequency exposure limits. The Barco Wireless Device should be used in such a manner such that the potential for human contact during normal operation is minimized.

Caution: Exposure to Radio Frequency Radiation.

1. To comply with the Canadian RF exposure compliance requirements, this device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.
2. To comply with RSS 102 RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.

Base Unit IC: IC: 21559-R9861580

Button IC (model R9861500D01): 9393B-R9861500D01

Button IC (model R9861500D01C): 9393B-R9861500D01

IC Antenna statement

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

This radio transmitter 21559-R9861580 has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Type: Dipole

Maximum Peak Gain: 2 dBi

Impedance: 50

Indoor use only warning

Operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems.

Informations concernant l'exposition aux fréquences radio (RF)

La puissance de sortie émise par l'appareil de sans fil Barco est inférieure à la limite d'exposition aux fréquences radio d'Industrie Canada (IC). Utilisez l'appareil de sans fil Barco de façon à minimiser les contacts humains lors du fonctionnement normal.

Avertissement: L'exposition aux rayonnements fréquences radio

1. Pour se conformer aux exigences de conformité RF canadienne l'exposition, cet appareil et son antenne ne doivent pas être co-localisés ou fonctionnant en conjonction avec une autre antenne ou transmetteur.
2. Pour se conformer aux exigences de conformité CNR 102 RF exposition, une distance de séparation d'au moins 20 cm doit être maintenue entre l'antenne de cet appareil et toutes les personnes.

IC Unité de Base: 21559-R9861580

IC Button (modèle R9861500D01): 9393B-R9861500D01

IC Button (model R9861500D01C): 9393B-R9861500D01

Déclaration d'antenne d'Industrie Canada (IC)

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

Le présent émetteur radio 21559-R9861580 a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

Type: Dipole

Gain maximum: 2 dBi

Impédance: 50

Utilisation à l'intérieur seulement

La bande 5 150-5 250 MHz est réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux.

Table of contents

1	Introduction to the Installation Guide	23
1.1	Documentation	24
1.2	Symbols and fonts	24
2	CSE-800 Specifications	25
2.1	About the CSE-800	26
2.2	CSE-800 specifications	27
2.3	About the Base Unit	28
2.4	About the Button	32
2.5	Mobile Device Support	33
2.6	Ports used by the ClickShare Base Unit	33
3	Getting started	35
3.1	Environmental Condition Check	36
3.2	Basic Workflow	36
4	CSE-800 Installation	37
4.1	Installation methods for the Base unit	38
4.2	Table mounting	38
4.3	Wall mounting	38
4.4	Ceiling mounting	40
4.5	Rack mounting	40
4.6	Recommendations about antenna placement and orientation	41
4.7	Video signal connections to the Base Unit	42
4.8	Audio connection	43
4.9	LAN connection	44
4.10	Power connection and switching on	44
5	Preparing the buttons	47
5.1	Pairing	48
5.2	ClickShare Extension Pack	49
5.3	ClickShare Extension Pack installer	49
6	CSE-800 Configurator	53
6.1	Accessing the Configurator	55
6.2	ClickShare Configuration Wizard	58
6.3	On-Screen Language and Text Size	60
6.4	Meeting room information	62
6.5	Personalisation, wallpaper	63
6.6	Personalisation, Personalized wallpaper	64
6.7	Manage configuration files	66

6.8	Display setup, output	68
6.9	Audio settings	70
6.10	Display setup, Inputs.....	71
6.11	WiFi settings	72
6.12	LAN Settings.....	75
6.13	LAN Settings, Wired Authentication	78
6.14	LAN Settings, EAP-TLS security mode	78
6.15	LAN Settings, EAP-TTLS security mode	80
6.16	LAN Settings, PEAP security mode	81
6.17	Network integration, activation	82
6.18	Network integration, EAP-TLS security mode	85
6.19	Network integration, EAP-TTLS security mode	86
6.20	Network integration, PEAP security mode.....	87
6.21	Network integration, WPA2-PSK security mode	88
6.22	Services, mobile devices	89
6.23	Service, ClickShare API, remote control via API.....	91
6.24	XMS/CMGS Server Integration.....	92
6.25	Services, SNMP	92
6.26	Services, Remote Button Pairing	94
6.27	Security, compatibility	95
6.28	Security, security level.....	96
6.29	Security, passwords	97
6.30	Security, HTTP Encryption	98
6.31	Status information Base Unit.....	101
6.32	Date & Time setup, manually	101
6.33	Date & Time setup, time server.....	103
6.34	Energy savers.....	103
6.35	Buttons.....	104
6.36	Blackboard.....	105
6.37	Firmware Update.....	106
6.38	Support & Updates, Troubleshoot, log settings	107
6.39	Factory defaults	108
7	Firmware updates	111
7.1	Firmware update	112
8	Troubleshooting.....	113
8.1	Troubleshooting list.....	114
9	Environmental information	117
9.1	Disposal information.....	118
9.2	Rohs compliance.....	118
9.3	Importers contact information	120
	Index.....	121

Introduction to the Installation Guide

1

1.1 Documentation

This guide

Partnumber	Description	Level
R5900049	Installation Guide	Installation engineer

This installation guide explains how to install your CSE-800 in a meeting room, It explains also how to make everything operational. It provides detailed information on how to configure your CSE-800.

Available System documentation

This guide is part of the documentation set describing the CSE-800 product.

Guide	Article number
User Guide	R5900050
Installation Guide	R5900049
Safety Guide	R5900047
Service Guide	R5900051
Button Guide	R5900007
Recycling Manual	R5900048
API Guide	R5900018

A printed copy of the Safety Guide is included in the CSE-800 box at purchase.



Always check for the latest version of the manual on www.barco.com/clickshare

1.2 Symbols and fonts

Symbol overview

The following icons are used in the manual :

	Caution
	Warning
	Info, term definition. General info about the term
	Note: gives extra information about the described subject
	Tip: gives extra advice about the described subject

Font overview

- Buttons are indicated in bold, e.g. **OK**.
- Menu items are indicated in *italic*.
- Step related notes, tips, warnings or cautions are printed in *italic*.
- Procedure related notes, tips, warnings or cautions are printed in **bold** between 2 lines preceded by the corresponding icon.

CSE-800 Specifications

2

2.1 About the CSE-800

CSE-800 sets

CSE-800 makes connecting to the meeting room's video system a matter of clicking a Button. This CSE-800 not only helps the presenter get the presentation on-screen in a second, but it also allows the other people in the meeting to participate more actively. The result is enhanced meeting efficiency and better decision-making.

At the moment 3 different sets are available on the market. Each set is sold in its specific region and it can only be used in that specific region because of WiFi regulations.

Components CSE-800 set

A standard CSE-800 set consists of a Base Unit, 4 Buttons and a Tray. Depending on the location where you buy the product, the software of the Base Unit is different. If needed, you can buy additional Buttons and Trays.

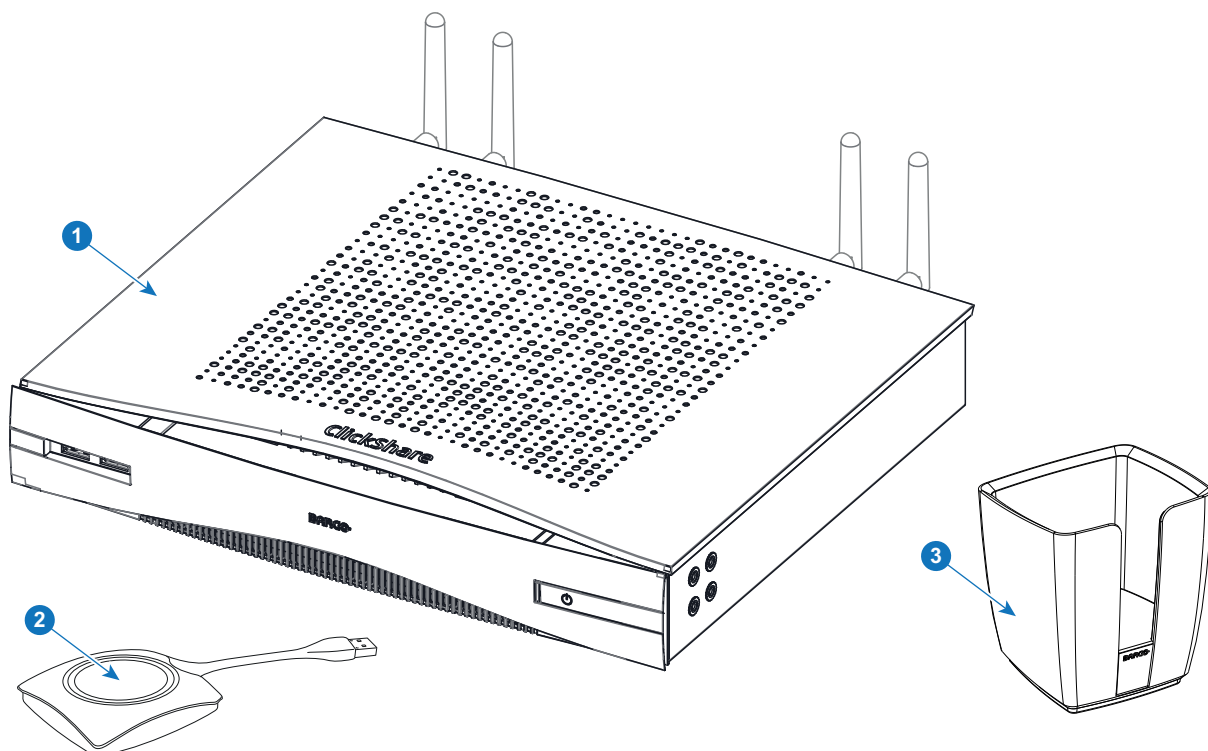


Image 2-1

Accessories included

Depending on the country where you buy the product, the following regionalized accessories are also included in the CSE-800 box.

Regional version	Contains	Accessories included
R9861580EU	<ul style="list-style-type: none"> • R9861580EU • 4x R9861500D01 • R9861500T01 	<ul style="list-style-type: none"> • power cables CEE7 and BS 1363 • wall/ceiling mounting brackets • antenna extension cables
R9861580CN	<ul style="list-style-type: none"> • R9861580CN • 4x R9861500D01 • R9861500T01 	<ul style="list-style-type: none"> • power cable GB 2099 • wall/ceiling mounting brackets • antenna extension cables
R9861580NA	<ul style="list-style-type: none"> • R9861580NA • 4x R9861500D01 • R9861500T01 	<ul style="list-style-type: none"> • power cable NEMA 5/15 • wall/ceiling mounting brackets • antenna extension cables

Contact your local sales representative for the correct regional variant to be used in your country.

2.2 CSE-800 specifications

Base Unit

Dimensions (HxWxD)	46.2mm x 282.3mm x 206.5mm (excl. antennas) / 1.8" x 11.1" x 8.1" 146.4mm x 282.3mm x 206.5mm (incl. antennas) / 5.8"x 11.1" x 8.1"
Power supply	Standard 110/220 V AC plug
Power consumption	Normal operation: 90W under full usage 52W under normal usage (connect 2 HDMI outputs, connect 1 HDMI input, share with 4 people) ECO mode: 30W Networked standby mode: < 1W Deep standby mode: < 0.5W
Weight	2.2kg / 4.85lbs
Operating system	Windows 7/8/8.1/10 32 & 64 bit macOS 10.12/10.13/10.14 (Mojave) Android v7 & v8 & 8.1 (ClickShare app) iOS 10, 11& 12 (ClickShare app)
Video outputs	2x HDMI
Video inputs	2x HDMI
Output resolution	4K DCI (4096x2160) @ 60Hz
AirPlay Support	iOS mirroring (AirPlay) from iOS 9.0 up to iOS 12 / Mac OS 10.14
Google Cast Support	Android 8.1 Oreo
Input resolutions	4K DCI (4096x2160) @ 60Hz
Frame rate	Using inputs: Up to 60fps with one input @ 4K Up to 30fps with two inputs @ 4K Using the ClickShare Button or Apps: Up to 30 fps
Noise Level	Max. 25dBA @ 0-30°C Max. 30dBA @ 30-40°C
Number of sources simultaneous on screen	8 (4 per screen)
Number of simultaneous connections	64
iPad, iPhone and Android compatibility	Sharing of documents, browser, camera for both Android and iOS devices via ClickShare app
Extended desktop	Available (depending on your operating system). May require ClickShare Extension Pack.
Authentication protocol	WPA2-PSK in stand alone mode WPA2-PSK or IEEE 802.1X using the ClickShare Button in network integration mode

Wireless transmission protocol	IEEE 802.11 a/b/g/n and IEEE 802.15.1
Reach	Adjustable with signal strength modulation; max. 30m (100 ft) between ClickShare Button and ClickShare Base Unit
Frequency band	2.4 GHZ and 5 GHZ (DFS channels not supported)
Connections	2x Ethernet LAN 1Gbit 2x USB 2.0; 2x USB 3.0 (back); 2x USB 3.0 (front) Audio analog line out on mini jack socket (3.5mm), digital S/PDIF
Temperature range	Operating: 0°C to +40°C (+32°F to +104°F) Max: 35°C (95°F) at 3000m Storage: -20°C to +60°C (-4°F to +140°F)
Humidity	Storage: 0 to 90% relative humidity, non-condensing Operation: 0 to 85% relative humidity, non-condensing
Anti-theft system	Kensington lock
Certifications	FCC/CE
Warranty	3 years standard Possible to extend to 5 years

Button

Weight	75 g/0.165 lb
Frequency band	2.4 GHZ and 5 GHZ
Wireless transmission protocol	IEEE 802.11 a/b/g/n
Authentication protocol	WPA2-PSK in stand alone mode WPA2-PSK or IEEE 802.1X in network integration mode
Dimensions (HxWxD)	16.3 mm x 59.3 mm x 162.52 mm / 0.64" x 2.335" x 6.398"
Power consumption	Powered over USB 5V DC 350mA Typical 500mA Maximum

2.3 About the Base Unit

Base Unit



The Base Unit receives the wireless input from the Buttons and controls the content of the meeting room display and the sound of the meeting room's audio system.

The Base Unit can be installed in two different ways.

Front and Top layout of the Base Unit

At the front of the Base Unit you can find a standby button and two USB ports. Status LED is mounted at the left of the standby button.

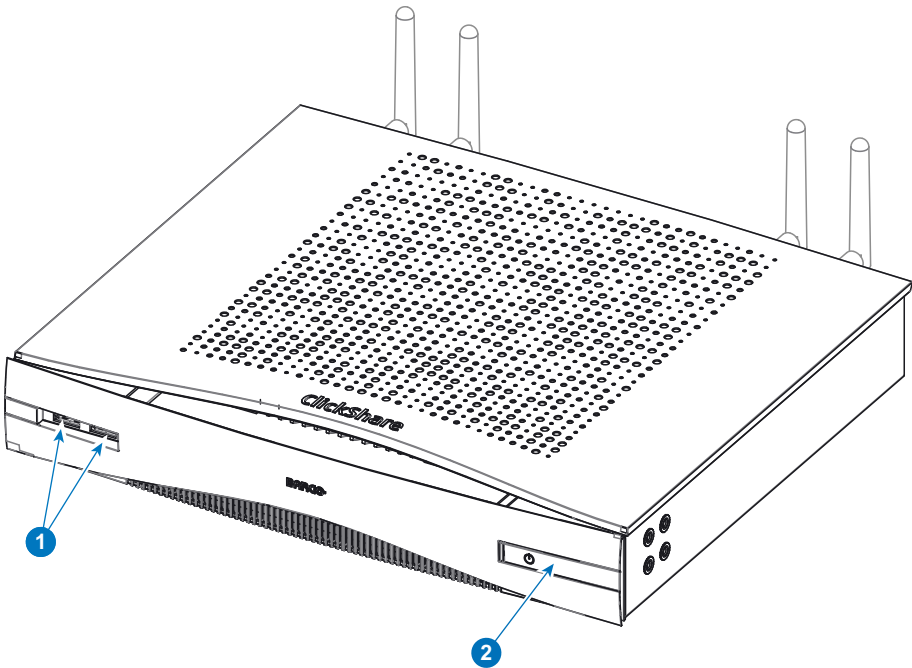


Image 2-2

1	2x USB port 3.0
2	Standby button

USB ports

The USB ports (front or back) are used to update the soft- and firmware of both the Base Unit and the Buttons. To pair the buttons, connect the touchscreen and saving blackboarding/annotation screen to USB stick².

When plugging in the Button into the Base Unit, the Button is paired to the Base Unit. The Base Unit checks whether the Button's software and firmware are up to date. If not, the Base Unit updates the software and/or firmware.

To update the Base Unit software, download the latest version of the software from the Barco website. Copy the file on a USB stick and plug it into the USB port of the Base Unit. Follow the progress and instructions on the display.

Status LED

The color of the LED at the front of the Base Unit give information on the status of the system.

LEDs behavior	Explanation
static red	<ul style="list-style-type: none">receiving content from the Buttons and streaming towards the display.pairing and software update of the Button is done. You can now unplug the Button from the Base Unit.during the first phase of the Base Unit boot process.
blinking white	<ul style="list-style-type: none">system is starting up (during the second phase)Button pairing is in progresssoftware update of the Base Unit
breathing white	<ul style="list-style-type: none">ECO standby mode
static white	<ul style="list-style-type: none">awake and ready (i.e. showing the welcome message on the display)pairing is done

2: touchscreen connection, blackboarding/annotation screen saving will be available in future releases

LEDs behavior**Explanation**

red blinking	• an error occurred
dark	• deep standby/off

Standby button

The button at the front of the Base Unit has a standby function once the Base unit is powered

- When the system is in normal operational mode, a push makes the system goes to a pre-defined standby mode.
- When the system is in a standby mode, a push triggers the system to start up and to go to normal operational mode.

Back layout of the Base Unit

The connection panel is situated at the back of the Base unit.

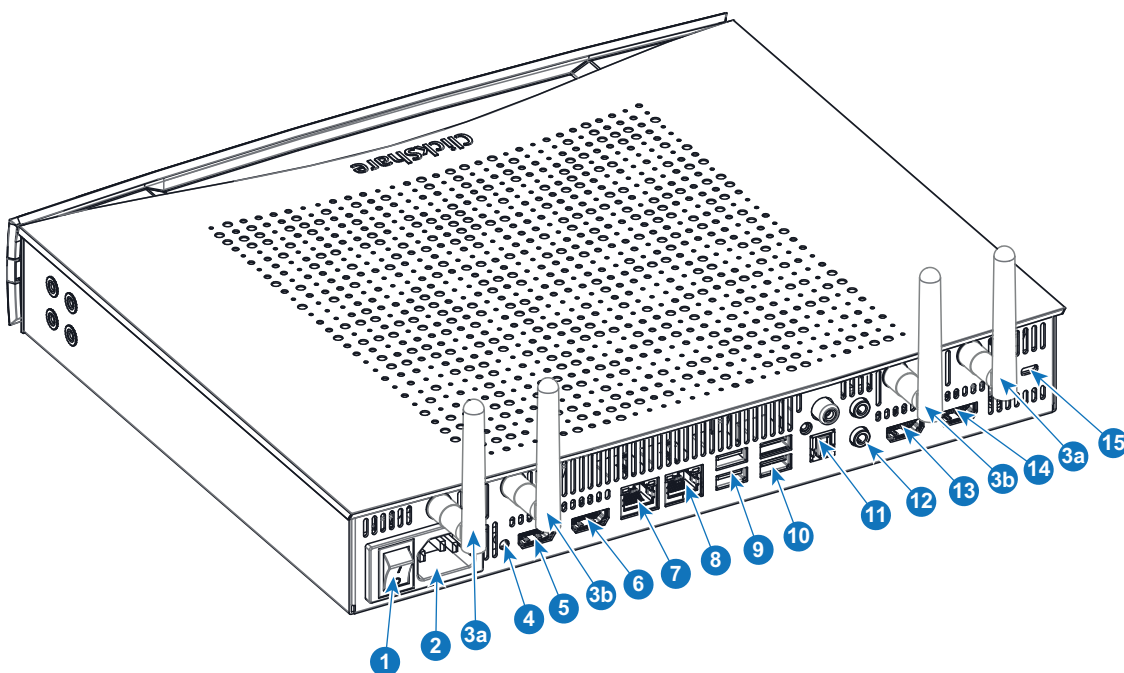


Image 2-3

1	Rocker switch
2	Power connection
3a	Fixture point for antenna WiFi 1
3b	Fixture point for antenna WiFi 2
4	Reset
5	HDMI out 1 connector
6	HDMI out 2 connector
7	LAN 1 connector (primary LAN interface)
8	LAN 2 connector (secondary LAN interface)
9	USB connectors 3.0
10	USB connectors 2.0
11	Audio connectors
12	Audio connectors

- 13 HDMI in 1 connector
- 14 HDMI in 2 connector
- 15 Kensington lock

Rocker switch

The rocker switch is used to power on and off the Base Unit.

- To switch on the Base Unit, set the rocker switch to “I”.
- To shut down the system, set the rocker switch to “0”.

Mechanical fixture points

The mechanical fixture points are located at the bottom of the Base Unit

Antenna

Four antennas are included in the CSE-800 box for concurrent dual band WiFi. To avoid damage during transport, they are not pre-mounted.

The antennas can rotate for a better wireless connection.

Usage of antennas other than the ones provided with the unit are allowed within the restrictions on usage of other antennas defined by local regulations. Barco does not take responsibility for damage or disturbance of other devices that may be caused by using a different antenna. The use of an active power amplifier is not allowed.

Antenna type : Dipole

Gain : Maximum 2 dBi peak gain in 2.4GHz and 5Ghz band

Ventilation grids

Ventilation grids are foreseen on the front side and on the back sides of the Base Unit.

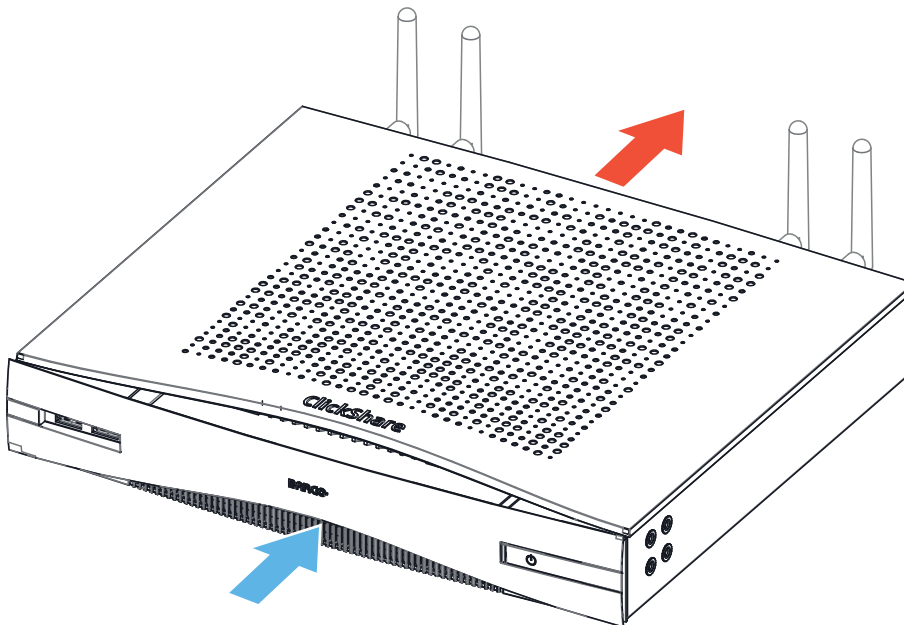


Image 2-4: Ventilation grids IN and OUT

The Base unit sucks air via the front side ventilation grid and push hot air out on the back side ventilation grid.



Make sure not to cover the ventilation grids during operation of the Base Unit. Always keep a free area of minimum 50 mm in front of all ventilation grids.

Bottom layout of the Base Unit

The serial number label containing the Barco part number, the revision number, production date (week-year) and the serial number.

The product label with the applicable certification logos.

The product label contains:

- the Barco logo
- the product name
- the Barco part number
- the power rating
- markings for applicable standards (CE, CCC, UL, ...)
- markings for waste regulation
- "Made in ..."

Bluetooth

Bluetooth functionality is currently not available and Bluetooth signal is disabled.

2.4 About the Button



Button

A Button toggles the sharing of the individual PC or MAC screen on the meeting screen.

Button layout

A Button consists of three main components.

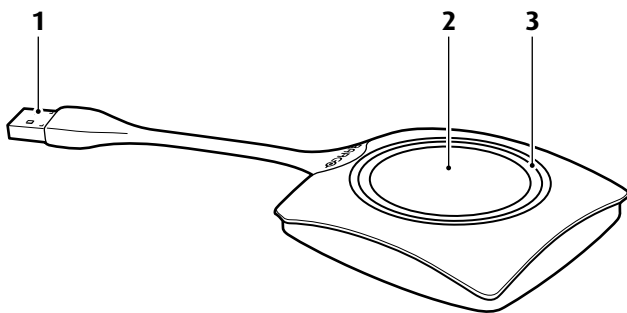


Image 2-5: Button layout

- | | |
|---|---------------|
| 1 | USB connector |
| 2 | Button |
| 3 | LED ring |

USB connector

Using the USB connector the Button can be plugged into a laptop (for sharing your screen) or the Base Unit (for pairing the Button to the Base Unit or updating its software). Button R9861500D1 has a USB Type-A connector, Button R9861500D1C has a USB Type-C™ connector. Depending on the type of USB port on your laptop or on the Base Unit a convertor must be use.

Button

Click the Button to display the content of the laptop's screen on the meeting room display. Clicking the Button during the meeting will toggle the sharing of the screen.

LED ring

The LED ring indicates the current status of your ClickShare.

LEDs behavior	Explanation
white blinking	<ul style="list-style-type: none"> the Button is plugged in the laptop and initializing or waiting for the user to start the ClickShare application. pairing/software update of the Button in the Base Unit is in progress.
static white	<ul style="list-style-type: none"> ClickShare is ready to start sharing your screen. pairing is done. You can now unplug the Button from the Base Unit.
static red	<ul style="list-style-type: none"> sharing your screen with the display. pairing and software update is done. You can now unplug the Button from the Base Unit.
red blinking	<ul style="list-style-type: none"> an error occurred.
off (no light)	<ul style="list-style-type: none"> the Button is not or not properly inserted into the USB port. the Button might be defective. the USB port or computer might be defective.

Button label

The label at the bottom of the Button contains:

- the Barco logo
- the Barco part number
- the serial number
- the revision number
- markings for applicable standards
- markings for waste regulation
- "Made in..."



Handle the Button cable with care. Rough handling might cause defects.

2.5 Mobile Device Support

Overview

The below list of Apps are supported by ClickShare and can be installed on your mobile device from Google Play or Apple App Store.

Before you can use your mobile device with ClickShare, you have to connect the mobile device Wi-Fi with the ClickShare Base Unit Wi-Fi. Follow the instructions as given in your mobile device user guide.

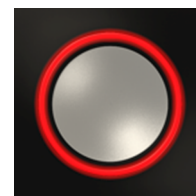
App

ClickShare App

Used on

iOS
Android

Logo



2.6 Ports used by the ClickShare Base Unit

Overview

Sender		CSE-800 Base Unit
ClickShare Button	TCP	6541; 6542; 6543; 6544; 6545

Sender	CSE-800 Base Unit	
	UDP	514
ClickShare Apps for Windows, MacOS, iOS and Android	TCP	6541; 6542; 6543; 6544; 6545
	UDP	5353
ClickShare Configurator	TCP	80; 443
ClickShare REST API & CMGS/XMS	TCP	4000; 4001
Airplay	TCP	4100-4200; 7000; 7100; 47000
	UDP	4100-4200; 5353
Google Cast	TCP	8008; 8009; 9080
	UDP	1900; 32768:61000 ³
Auto-update	TCP	80; 443
Button Manager	TCP	6546

If Proxy settings are enabled in the Configurator for auto-update functionality, additional ports may be used.

3: Google Cast will pick a random UDP port above 32768 to facilitate video streaming

Getting started

3

Overview

- Environmental Condition Check
- Basic Workflow

3.1 Environmental Condition Check

Environment condition check

For installations in environments where the device is subject to excessive dust, then it is highly advisable and desirable to have this dust removed prior to it reaching the device clean air supply. Devices or structures to extract or shield excessive dust well away from the device are a prerequisite; if this is not a feasible solution then measures to relocate the device to a clean air environment should be considered.

It is the customer's responsibility to ensure at all times that the device is protected from the harmful effects of hostile airborne particles in the environment of the device. The manufacturer reserves the right to refuse repair if a device has been subject to negligence, abandon or improper use.

Ambient temperature conditions

Max. ambient temperature : +40°C or 104°F

Min. ambient temperature: +0°C or 32°F

Storage temperature: -10°C to +60°C (14°F to 140°F)

Humidity Conditions

Storage: 0 to 90% relative humidity, non-condensing

Operation: 0 to 85% relative humidity, non-condensing

Environment

Do not install the device in a site near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust or humidity. Be aware that room heat rises to the ceiling; check that temperature near the installation site is not excessive.

3.2 Basic Workflow

Before using CSE-800

1. Unpack the ClickShare components and accessories from the box.
2. For a detailed overview of the content of the CSE-800 box, see "About the CSE-800", page 26.
3. Install the Base Unit in the meeting room using one of the 2 possible installation methods.
4. For more information on the installing procedures, see "Installation methods for the Base unit", page 38.
5. Mount the antennas.
6. Connect the video signals between the Base Unit and the displays.
7. Connect the audio from the Base Unit to the meeting room's sound system (only required for audio via jack, cinch or SPDIF).
8. If configuration via a network is needed, connect a network cable between the Base Unit and the local network.
9. Connect the Base Unit to the mains power.
10. For more information see "Power connection and switching on", page 44.
11. If needed, connect any input to the CSE-800.
12. If desired, configure CSE-800 via the Configurator.
13. For more information on the different ways to configure CSE-800, see "CSE-800 Configurator", page 53



For more information on using CSE-800, refer to the CSE-800 User Guide. This manual can be found on Barco's website www.barco.com/clickshare.

CSE-800 Installation

4

Overview

- Installation methods for the Base unit
- Table mounting
- Wall mounting
- Ceiling mounting
- Rack mounting
- Recommendations about antenna placement and orientation
- Video signal connections to the Base Unit
- Audio connection
- LAN connection
- Power connection and switching on



WARNING: Bottom surface can become hot. Never put the Base Unit on sensitive surfaces.

4.1 Installation methods for the Base unit



For optimal performance, install the Base Unit close to the display and avoid obstacles between the Base Unit and the Buttons. Do not block the fan inlets and outlets of the Base Unit!

Introduction to the installation methods

The base unit can be installed in different ways in a meeting room:

- Table mounted
- Wall mounted
- Ceiling mounted
- Rack mounted

The antennas are removable. They can be fixed to the Base Unit depending on the way the Base Unit is installed in the room. The antennas can rotate for better wireless connection.



Using extension cables for the antennas is allowed, but this can reduce the performance.

4.2 Table mounting

Overview

Put the Base Unit directly on the meeting room table.

The total weight of the Base Unit is 2.2 kg.

4.3 Wall mounting

About wall mounting

Use the mounting brackets, inserted in the CSE-800 box, to mount the Base unit on the wall.

Required tools

- a drill (type of drill depends on the type of wall)
- Torx T10 screwdriver
- Additional screwdriver that matches the mounting screws (mounting screws not delivered)

Required parts

- 2 mounting screws
- 2 plugs
- 2 Mounting brackets with fixation screws (included in the CSE-800 box)

How to install

1. Mount both brackets to the Base unit as shown. Use for each 4 screws.

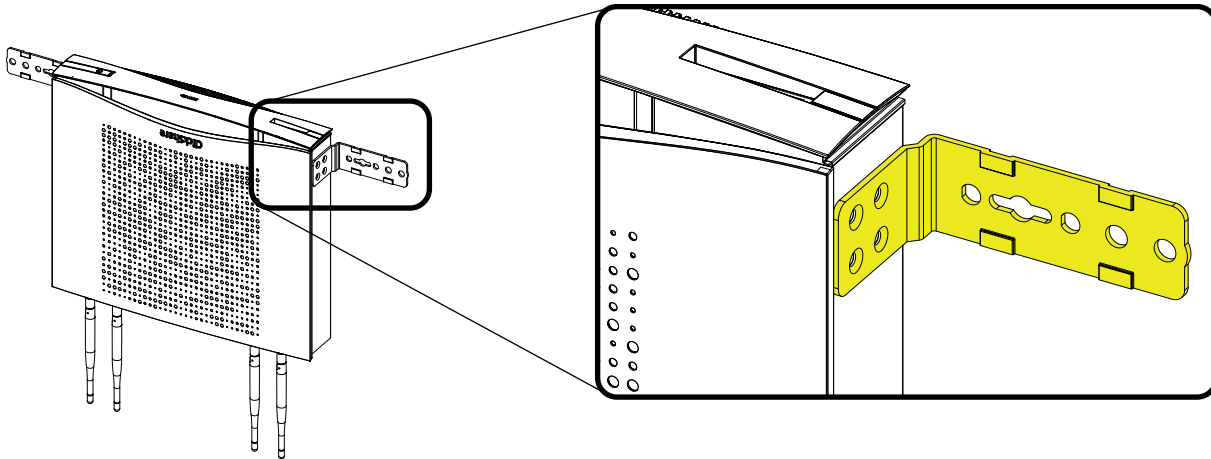


Image 4-1: Mount brackets

2. Drill 2 holes in the wall, at a distance of 370.8 mm (14.6 inch) or 464 mm (18.3 inch) from each other on a horizontal line.
3. Insert a plug in each hole (if needed, depends on the wall type).



Note: Mounting screws and plugs are not included in the CSE-800 box . The type of screws and plugs depend on the type of wall (stone, wood, plasterboard, ...) you are mounting the Base Unit to.

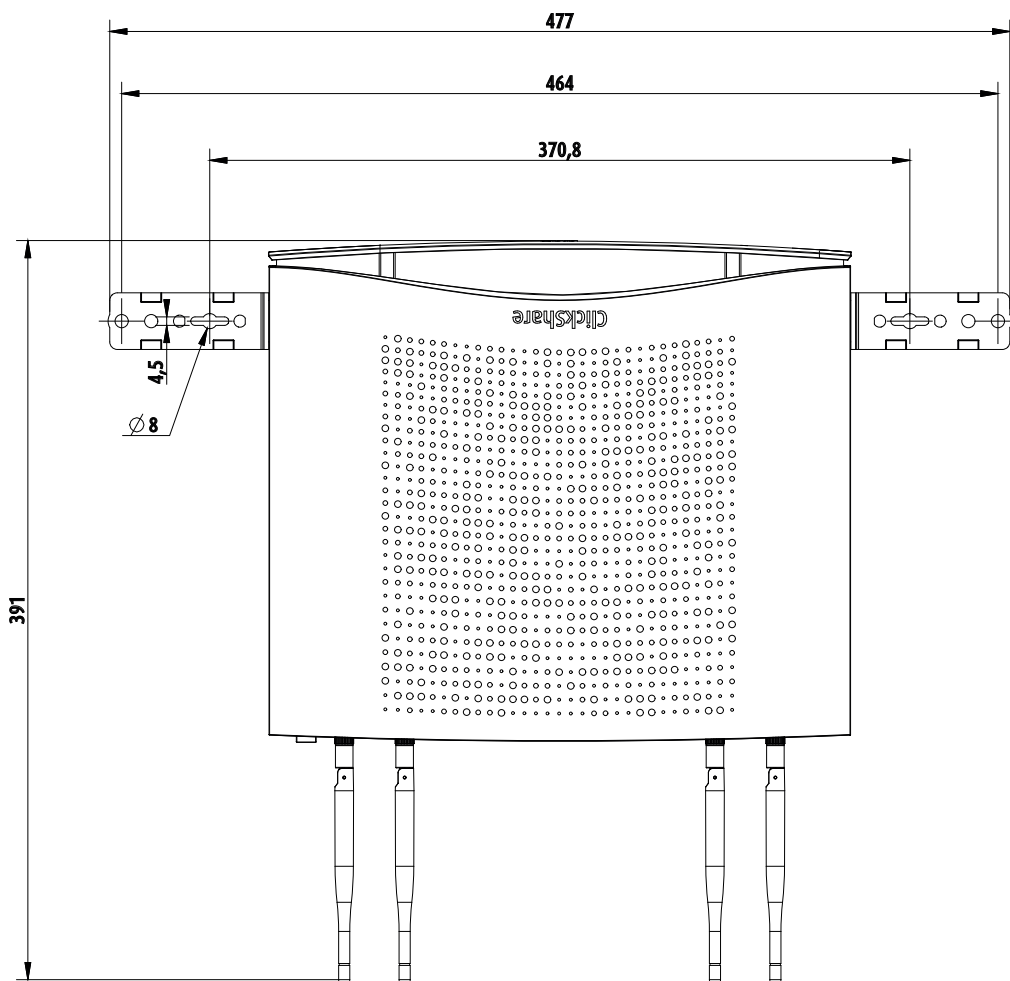


Image 4-2: Mounting hole dimensions

4. Install the Base Unit with the brackets on the wall so that the fixation holes matches the holes in the wall. Drive in 2 screws.



Note: Make sure the head of the screw is larger than the hole in the bracket. Otherwise, insert a washer between the screw and the bracket.

4.4 Ceiling mounting

About ceiling mounting

Use the mounting brackets, inserted in the CSE-800 box, to mount the Base unit to the ceiling.

Required tools

- a drill (type of drill depends on the type of wall)
- Torx T10 screwdriver
- Additional screwdriver that matches the mounting screws (mounting screws not delivered)

Required parts

- 2 mounting screws
- 2 plugs
- 2 Mounting brackets with fixation screws (included in the CSE-800 box)

How to install

1. Install in the same way as for wall mounting. See “Wall mounting”, page 38.

4.5 Rack mounting

About rack mounting

For meeting rooms with a dedicated AV rack, use the included brackets to mount the CSE-800 Base Unit. This integrates the CSE-800 seamlessly into the room’s existing high-end AV installation.

Necessary free space in the rack is 2U.

Required tools

- Torx T10 screwdriver
- Additional screwdriver that matches the mounting screws

Required parts

- 2 mounting brackets with fixation screws (included in the CSE-800 box)
- 2 mounting brackets covers (included in the CSE-800 box)
- 2 rack mounting screws (not included)

How to install

1. Clips the plastic cover (1) on each bracket (2).

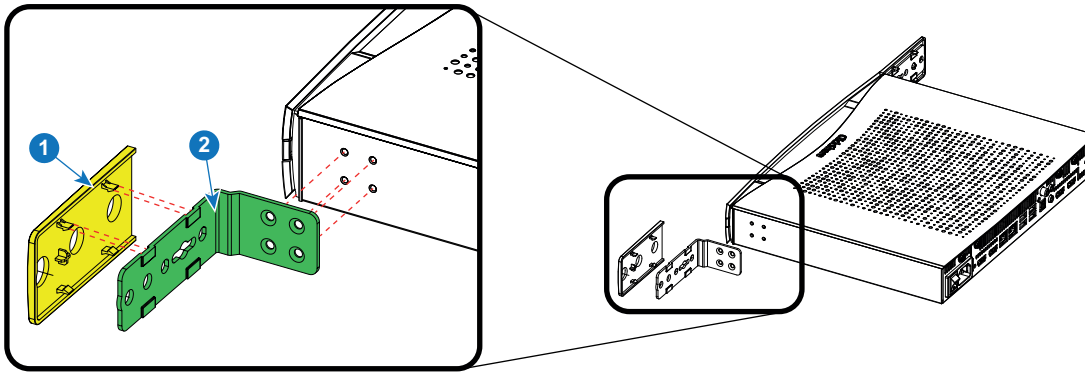


Image 4-3: Mount brackets

2. Place the bracket on fixation holes as indicated and drive in the 4 fixation screws.
3. Repeat for the other side.
4. Insert the antenna extension cables into the provided holes (3) and turn on the antennas (4).

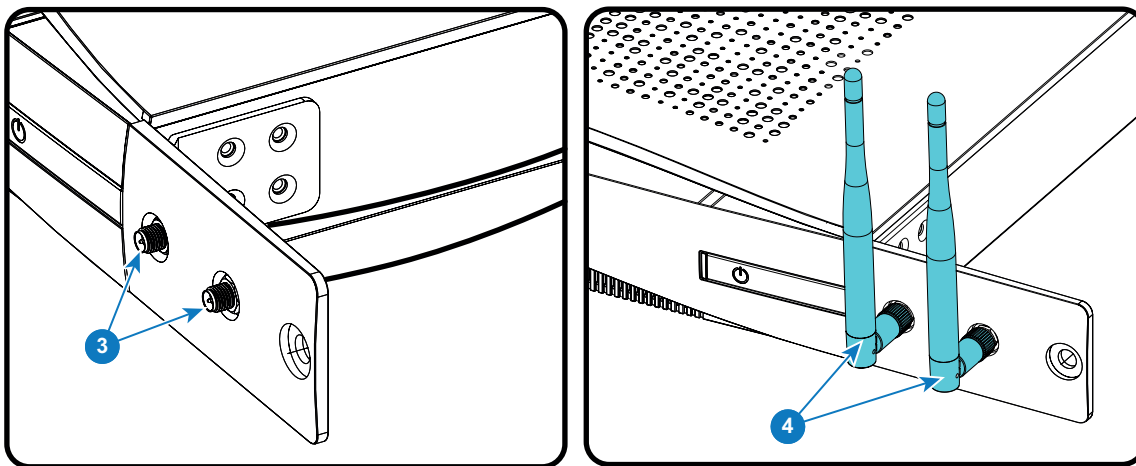


Image 4-4: Mount antennas

5. Repeat for the other side.
6. Mount the Base Unit into a rack. Use 2 mounting screws.
Diameter of the mounting holes: 7mm.

4.6 Recommendations about antenna placement and orientation

Antenna placement rules

- The antennas should be oriented vertically, so perpendicular to the ceiling and parallel to the walls.
- The antennas should be installed far enough (at least 50cm/1.6ft) from metallic surfaces to avoid unwanted reflections and far enough (at least 1m/3.3ft) from other radio equipment that operates in the same frequency range, e.g. other Wi-Fi access points, cordless telephone, microwave ovens, It is also best to install antennas at least 15 cm (6 inches) from concrete walls.
- The most favorable situation is a direct line of sight between antennas and Buttons. Any obstruction will cause the signal to follow a longer propagation path, which can result in performance degradation.
- Due to the particular radio pattern of the dipole antennas, the antennas should not be placed just above potential positions of ClickShare users. As a result, the advised position for the antennas is at the side of the meeting room.

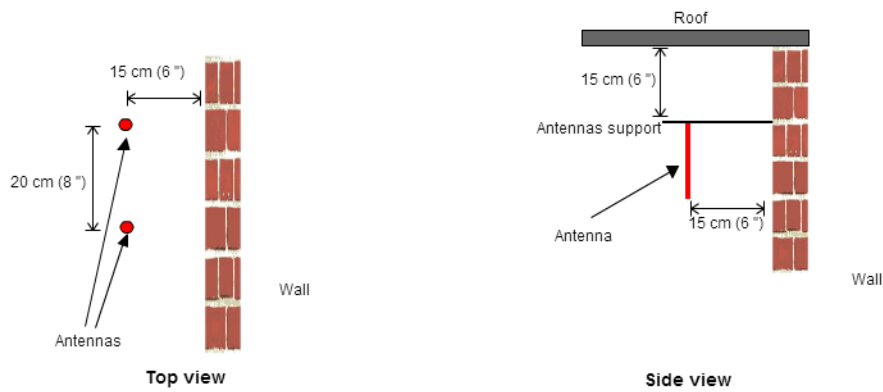


Image 4-5: Closer view of antennas installation in the meeting room

4.7 Video signal connections to the Base Unit



CAUTION: Make sure the Base Unit is installed properly before connecting.

About Video signal connection

Depending on the local setup, a single screen or dual screen setup is possible.

For a single screen setup, HDMI connection should be made between the Base Unit and the display.

You can use any HDMI output.

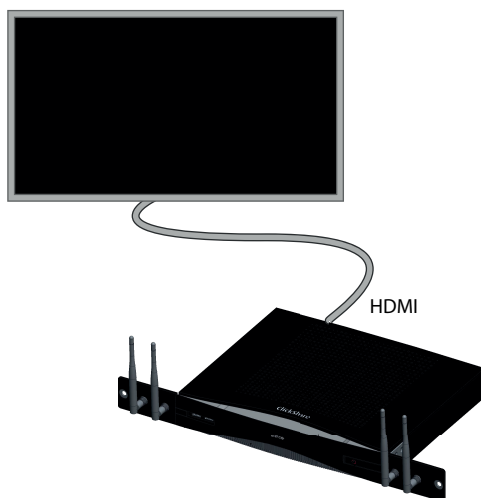


Image 4-6: One display

For a dual screen setup, 2 HDMI connections should be made between the Base Unit and the displays.

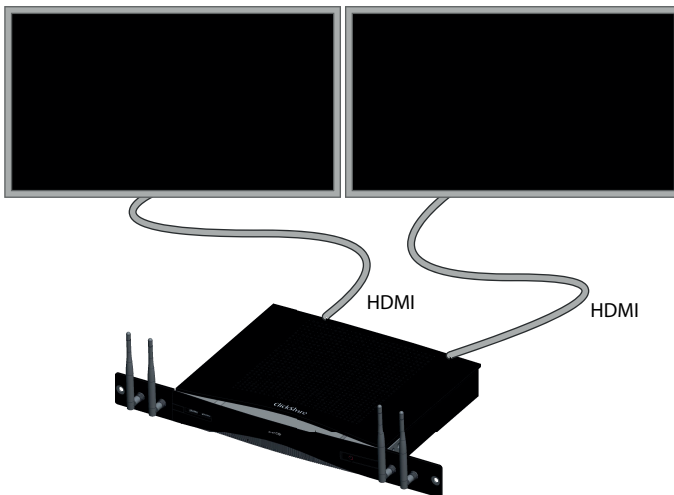




Image 4-7: Two displays

How to connect

1. Connect the Base unit to the displays using 2 HDMI cables.

 **Note:** No HDMI cables are included in the CSE-800 box at purchase.

When necessary, use an adapter piece to connect to a display port or a DVI port on the display side.

 To guarantee picture quality, 4K capabilities and limit EMC exposure 360-degree bond shielding HDMI cables supporting the HDMI 2.0 specification should be used.

4.8 Audio connection

About audio

The ClickShare Button captures the audio output of the user's laptop and sends it to the Base Unit together with the video signal. The audio will be output at line levels from the mini jack socket (3.5mm), TOSLINK socket, the cinch sockets and via the HDMI connectors.

It is up to the user to decide whether or not to send the audio signal together with the video signal. The user can decide this by using the same tools as he would to control the laptop's speakers or a headphone: the audio controls of the operating system (eg for Windows: Control Panel > Sounds and audio devices) or the physical buttons on the keyboard of their laptop (mute/unmute, lower volume, higher volume).

There will be synchronization between the audio and video signal.

Audio via HDMI

When your display is connected via HDMI and it supports audio, a separate audio connection is not necessary. The audio signal is sent together with the video signal to the display.

How to connect separate audio

1. When using the analog output via mini-jack, connect an audio cable with mini jack (3.5mm) into the analog audio output of the Base Unit.
When using the analog out via cinch, connect an audio cable with cinch connectors into the analog audio output of the Base unit.
When using the digital output, connect an fibre optical cable with TOSLINK connector into the digital audio output of the Base Unit.
2. Connect the other side to the meeting room's sound system.



Audio output needs to be selected in the Configurator, for more info, see “Audio settings”, page 70.

Sound is not sent out

In some Windows environments sound is not sent out. This can be solved as follow:

1. Right click on the sound icon in the system tray and select *Playback devices*. The *Sound* window opens.
2. Select Speakers ClickShare, select *Set default* and click **Apply**.

4.9 LAN connection



For the moment, only the primary network connector can be used for API, Management Suite and Network Integration.

About LAN connection

The Base Unit can be connected to a local network or directly to a laptop. For normal operation, a LAN connection is not necessary.

The LAN interface is split up in a primary interface and a secondary interface. During normal operation both LAN inputs have the same functionality. During standby, the primary interface acts as a network standby and the secondary interface is then switched off.

The LAN connection can be used:

- to configure your CSE-800 unit
- to update the software
- for maintenance purposes
- for network integration of your CSE-800 unit
- for network standby



CAUTION: Both LAN connections must be connected to two different networks.

How to connect

1. Insert a network cable with RJ-45 connector into the primary (LAN1) and/or the secondary (LAN2) LAN port.
2. Connect the other side to a LAN.
3. Configure the LAN interfaces, see “LAN Settings”, page 75.

Note

When the primary LAN input is configured with a manual set IP address and saved. Do not unplug the cable and plug this cable into the secondary LAN input which is DHCP enabled. This situation will lead to a conflict as the same subnet is still associated to the primary LAN input. The secondary LAN interface will go into fallback mode.

4.10 Power connection and switching on



WARNING: Use a power cord which complies to local regulations. If not included in the box, contact your local dealer for a correct power cord.

How to connect

1. Plug the power cable in the mains power connector at the back of the Base Unit



Note: The local variant of the power cable is included in the CSE-800 box.

European version	Type C and type G
Japanese version	Type A
Chinese version	Type I CCC
North American version	Type A

2. To power on the unit, set the rocker switch to “1”.

If the Base unit does not start up automatically, use the standby button.

The standby button at the front can now fully control the unit.

The standby button has the following functions:

- When the system is awake, a short push triggers the system to go into standby mode.
- When the system is in standby mode, a short push triggers the system to wake up.

Preparing the buttons

5



Not for HUDDLE type Base Units.

Overview

- Pairing
- ClickShare Extension Pack
- ClickShare Extension Pack installer

5.1 Pairing

Pairing of the Buttons with the Base Unit

To be able to use a Button it should be assigned to the Base Unit you are using. This process is called pairing. By default, the Button(s) delivered with the Base Unit are already paired to that specific Base Unit.

In case you buy additional Buttons or when a Button should be assigned to another Base Unit, the Button needs to be paired (again). The Button software update runs in the background and will not impact users while using the system. If desired, this feature can be disabled in the Web Interface. When downgrading or updating to an older version of the Base Unit software the Buttons need to be paired manually to update their software and that only in case the Button update over Wi-Fi is disabled.



A Button can only be paired to one Base Unit at a time.
The Button will always make connection to the Base Unit it was last paired to.

Pairing a Button can be done in two ways:

- by plugging the Button to the Base Unit.
- by using the Button Manager application running on your laptop.

To pair a Button to the Base unit by plugging in

1. Insert the Button in one of the USB port available on the Base Unit you are using (image is only given as example, all USB connectors can be used).



Note: For some ports or Buttons, it can be necessary to use a convertor.

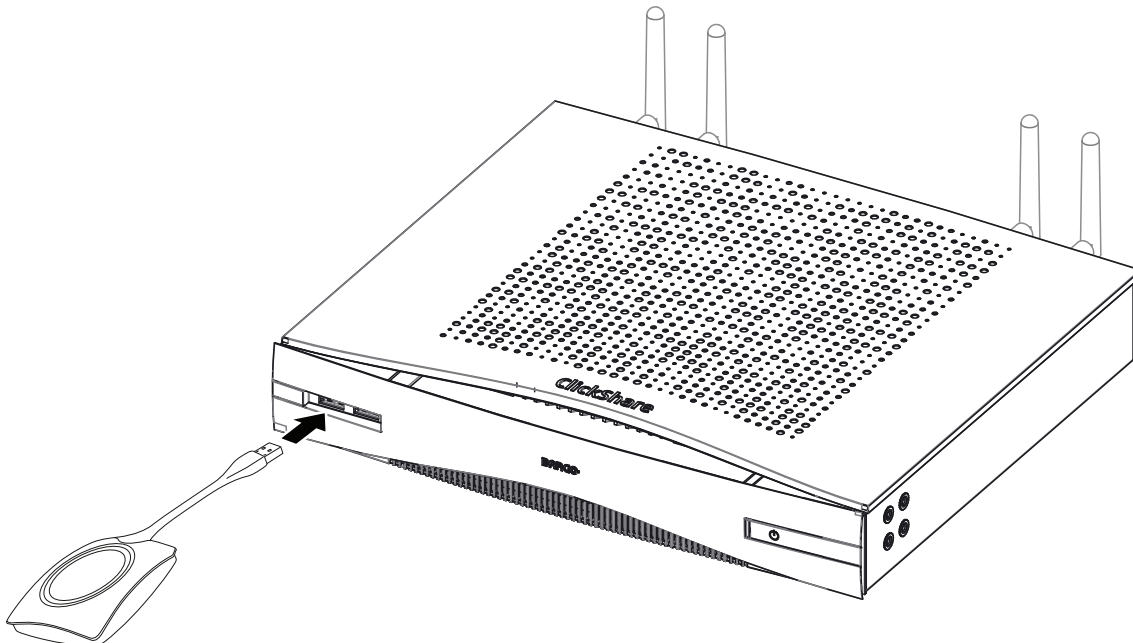


Image 5-1: Pair button

Both the LEDs of the Button and the LEDs of the Base Unit are blinking white. This means pairing is in progress.

The Base Unit automatically checks whether the software of the Button is up to date. If not, the Base Unit updates the Button software. This may take more time.

During the pairing and update process, a small status bar is display.

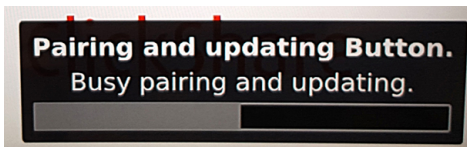


Image 5-2: Pairing message

The result of the pairing process can be as follows:

- When the LEDs become static white, the Button is paired to the Base Unit, but no software update was needed. You can unplug the Button from the Base Unit.
- When the LEDs become static red, the Button is paired to the Base Unit and the software update has finished. You can unplug the Button from the Base Unit.

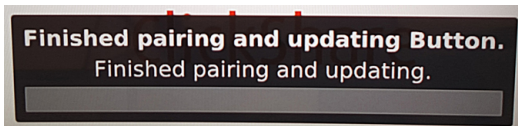


Image 5-3: Pairing finished

2. Unplug the Button from the Base Unit.

The Button is now ready for use.

To pair a Button to the Base Unit using the Button Manager

Via the Button Manager client application running on your laptop, up to 4 Buttons can be paired simultaneously to a Base Unit without plugging the Buttons to the Base Unit. The Buttons are plugged in to your laptop. For more information about the Button Manager, consult the Button Manager's user guide which can be downloaded from Barco's website.

5.2 ClickShare Extension Pack

About

The ClickShare Extension Pack is a collection of tools to upgrade your ClickShare user experience. This Extension Pack contains the ClickShare Launcher service and a driver to enable the Extended Desktop functionality. Both tools will be installed by default. To change the default behavior of the installer, the installer will need to be executed with command line parameters.

The ClickShare Extension Pack can be installed by the end user manually, pre-installed on your company's laptop image or deployed company-wide with SCCM or other tools.

The latest extension pack can be downloaded via <http://www.barco.com/en/product/clickshare-extension-pack>

5.3 ClickShare Extension Pack installer

Interactive setup

In this setup, the user runs the installer which will install the ClickShare Extension Pack on his computer after the user accepts the EULA.

After the setup finished, the ClickShare launcher will be started automatically. The Extended desktop driver can only be used after the user reboots his computer.

Starting the setup

1. Download the ClickShare Extension Pack using the link indicated in "ClickShare Extension Pack", page 49.
2. Unzip the downloaded file.
3. Click *ClickShare-Extension-Pack-01.00.01.0003.msi* to start the installation.

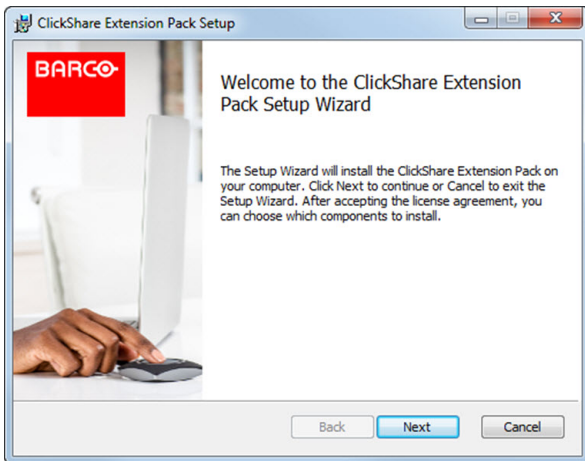


Image 5-4

4. Click **Next**, accept the License Agreement and click **Next** to continue.

If necessary, follow the on screen instructions.

Silent setup

In this setup, a user or an IT admin can install the ClickShare Extension pack using the Windows command prompt. Following is an example of a silent installation (version numbers are only given as example, always check Barco's web for the latest version):

Launcher only install:

```
msiexec.exe /i ClickShare-Extension-Pack-01.00.02.0003. msi ACCEPT_EULA=YES
INSTALLFOLDER=C:\ LAUNCH_APP=YES /qn
```

Extended desktop only install :

```
msiexec.exe /i ClickShare-Extension-Pack-01.00.02.0003. msi ACCEPT_EULA=YES
ADDLOCAL=ExtendedDesktopDriverFeature INSTALLFOLDER=C:\ LAUNCH_APP=YES /qn
```

Full install (launcher + extended desktop):

```
msiexec.exe /i ClickShare-Extension-Pack-01.00.02.0003. msi ACCEPT_EULA=YES
ADDLOCAL=ALL INSTALLFOLDER=C:\ LAUNCH_APP=YES /qn
```



The computer will reboot. This can be suppressed with /norestart. A reboot will be needed afterwards for the extended desktop feature to be working. In case the end-user should decide if they want to reboot, /promptrestart /QB!+ can be used (basic UI, no cancel option, but prompt to reboot)

Parameter Description

ACCEPT_EULA	This parameter shows that the installer accepts the EULA text as is. This parameters must be set to YES in order to continue to the installation.
INSTALLFOLDER	This parameter specifies the installation directory for ClickShare launcher. If not specified, the default folder will be the Program Files folder.
LAUNCH_APP	The ClickShare launcher application will be started right after the installation finishes if this parameter is set to YES. Otherwise, the launcher application will not be started.
/qn	This parameter indicates that the installation will be done in silent mode, meaning that there will be no visible windows during the installation.
ADDLOCAL	This parameter indicated the type of the installation. No parameter added, installs only the launcher.

Windows environment variable

A windows environment variable can be introduced to start the client software from a custom location, in case the client software of the Button was copied to a different location.

The variable to be used is CLICKSHARE_LAUNCHER_CLIENT_PATH. The value should be the path to the client software.

CSE-800 Configurator

6

Overview

- Accessing the Configurator
- ClickShare Configuration Wizard
- On-Screen Language and Text Size
- Meeting room information
- Personalisation, wallpaper
- Personalisation, Personalized wallpaper
- Manage configuration files
- Display setup, output
- Audio settings
- Display setup, Inputs
- WiFi settings
- LAN Settings
- LAN Settings, Wired Authentication
- LAN Settings, EAP-TLS security mode
- LAN Settings, EAP-TTLS security mode
- LAN Settings, PEAP security mode
- Network integration, activation
- Network integration, EAP-TLS security mode
- Network integration, EAP-TTLS security mode
- Network integration, PEAP security mode
- Network integration, WPA2-PSK security mode
- Services, mobile devices
- Service, ClickShare API, remote control via API
- XMS/CMGS Server Integration
- Services, SNMP
- Services, Remote Button Pairing
- Security, compatibility
- Security, security level
- Security, passwords
- Security, HTTP Encryption
- Status information Base Unit
- Date & Time setup, manually
- Date & Time setup, time server
- Energy savers
- Buttons

- Blackboard
- Firmware Update
- Support & Updates, Troubleshoot, log settings
- Factory defaults



Within some menus the *Configurator* is indicated as *WebUI*. E.g. WebUI password, that is the password to enter the Configurator.

6.1 Accessing the Configurator

Getting access to the Configurator

There are three ways to access the Configurator:

- Via the LAN
- Direct Ethernet connection between PC and Base Unit.
- Via the Base Unit's wireless network

When accessing the configurator for the first time, the ClickShare Configuration Wizard starts automatically.

This configuration wizard can be started at any moment to change your configuration instead of using the menus.

To access the Configurator via the LAN

1. Open a browser.



Note: Supported browsers are Internet Explorer 10 or higher, Firefox, Google Chrome and Safari.

2. Browse to the IP address you can find in the bottom left corner of the startup screen.



Note: The Wired IP address is only visible when the Base Unit is connected to the LAN.

A login screen appears.

Image 6-1: Login screen

3. To change the language of the Configurator, click on the drop down next to the current selected language and select the desired language.

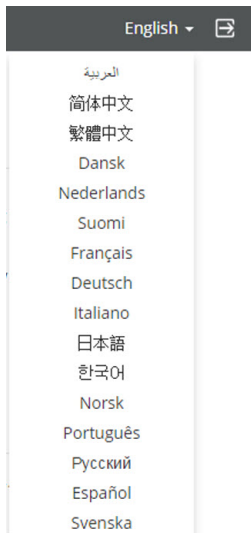


Image 6-2: Configurator languages

The following languages are possible:

- Arabic
- Simplified Chinese
- Traditional Chinese
- Danish
- Dutch
- English
- Finnish
- French
- German
- Italian
- Japanese
- Korean
- Norwegian
- Portuguese
- Russian
- Spanish
- Swedish

The Configurator language changes to the selected language.

4. Enter the user name 'admin' and the password, read and accept the EULA and click **OK**.

By default, the password is set to 'admin'.

Warning: It is strongly recommended to change the default password into a strong password on first use, to prevent that anyone else accessing the configurator can change the settings of the ClickShare Base Unit. See "Security, passwords", page 97.

The configurator opens.

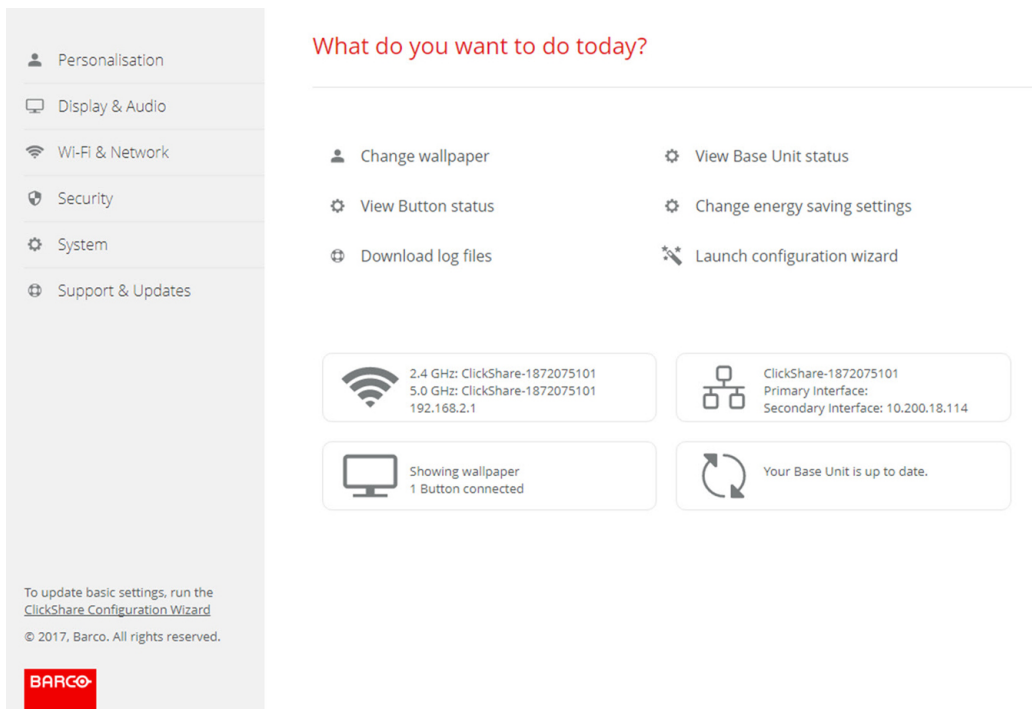


Image 6-3: Start screen

The language of the configurator can be changed on any page in the interface.

The screen is split up in 2 panes. Left pane with the selection buttons and a right pane to configure the selected function.

The startup screen itself shows:

- the wired IP address of the primary and secondary interface
- the wireless IP address
- the wireless SSID for both frequencies
- the number of Buttons connected
- the system state



If you cannot find the IP address (e.g. there is no screen available) you should connect to the Base Unit directly with your laptop via an Ethernet crossover cable and access the web interface using the fixed IP address 192.168.0.23. Make sure your own LAN adapter is set in the 192.168.0.x range.

To access the Configurator via a direct connection.

1. Connect the Base Unit to your laptop using an Ethernet cable.
2. On your laptop, open a browser.



Note: Supported browsers are Internet Explorer, Firefox and Safari.

3. Browse to <http://192.168.0.23>.

A login screen appears.

4. Enter the user name 'admin' and the password, read and accept the EULA and click **OK**.

By default the password is set to 'admin'.


The configurator opens.

To access the Configurator via the Base Unit wireless network

1. On your laptop, connect to the Base Unit wireless network.

The default SSID and password to connect to the Base Unit are respectively 'ClickShare-<serial base number>' and 'clickshare'.

2. On your laptop, open a browser.

 **Note:** Supported browsers are Internet Explorer, Firefox and Safari.

3. Browse to <http://192.168.2.1>.

A login screen appears.

4. Enter the user name 'admin' and the password, read and accept the EULA and click **OK**.

By default the password is set to 'admin'.

The web interface opens.



Older laptops might not support the 5 GHz Frequency Band. If your Base Unit is set to that frequency range, those devices will not be able to connect to the Base Unit via the wireless network.

6.2 ClickShare Configuration Wizard

About the configuration wizard

During the first start up of the Base Unit, the configuration wizard starts up automatically.

All basic settings necessary to configure the Base Unit are covered by the configuration wizard. Once the configuration wizard is finished, the Base Unit is ready to be used.

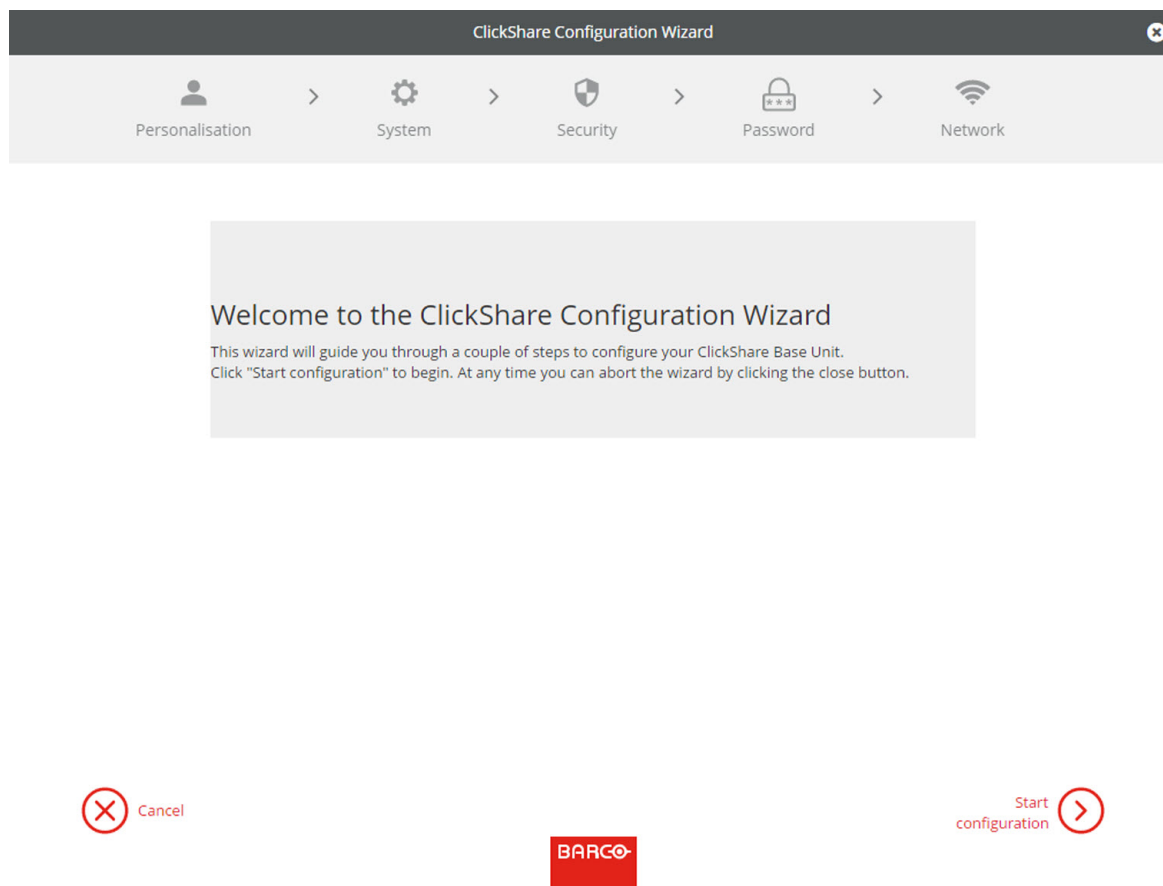


Image 6-4: Configuration wizard

To start the wizard, click on **Start Configuration**.

ClickShare Configuration Wizard

Personalisation > System > Security > Password > Network

Personalisation

Language for on-screen text: English

Meeting room name: Enter the name of the meeting room

Location name: Enter the name of the location

Welcome message: Enter a welcome message

Next

BARCO

Image 6-5: Configuration wizard, Personalisation

Fill out the necessary field and click **Next** to continue.

To return to the previous step, click on **Back**.

For more information about a specific topic, see one of the following topics.

The ClickShare Configuration Wizard can be started at any time to change the configuration just by clicking on **ClickShare Configuration Wizard** at the left bottom of each screen.

Personalisation	Language on-screen text	See “On-Screen Language and Text Size”, page 60.
	Meeting room name, location name and welcome message	See “Meeting room information”, page 62.
System	Time zone, manual time setup	See “Date & Time setup, manually”, page 101.
	Use NTP	See “Date & Time setup, time server”, page 103.
Security	Level settings	See “Security, security level”, page 96.
Password	ClickShare Configurator (WebUI) password	See “Security, passwords”, page 97.
Network	Frequency band, channel Wi-Fi passphrase	See “WiFi settings”, page 72.

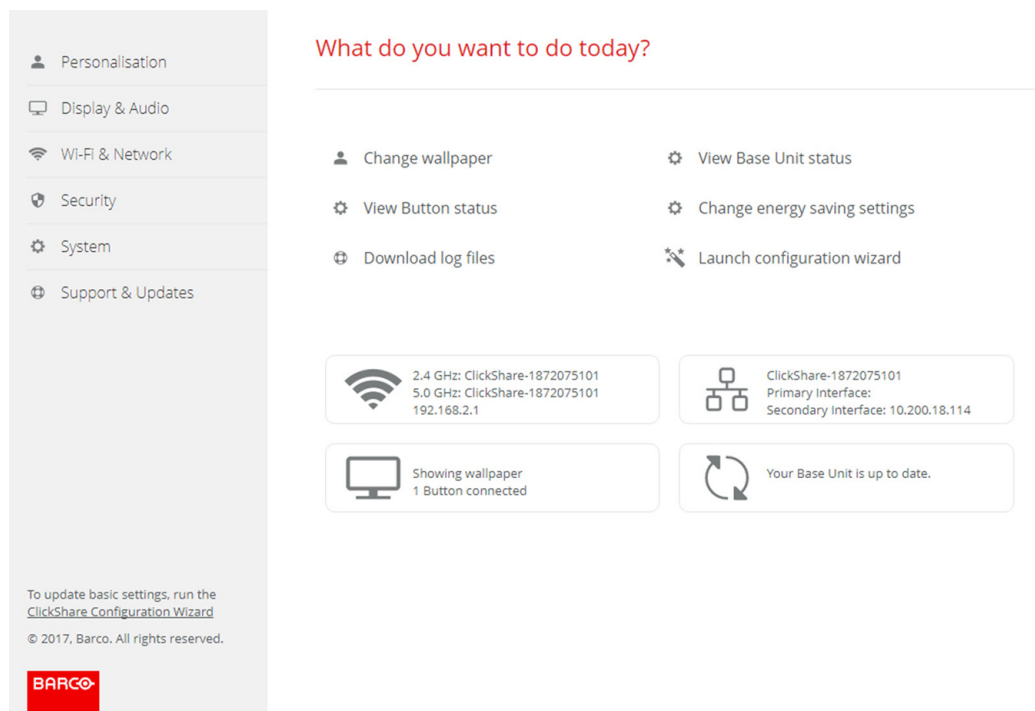


Image 6-6: Configuration Wizard start

6.3 On-Screen Language and Text Size

About the on-screen language.

The on-screen language can be set independent of the configurator language. The on-screen text size can be changed between small, medium or large.

Language selection

1. Log in to the *Configurator*
2. Click *Personalisation* → *On-Screen ID*.

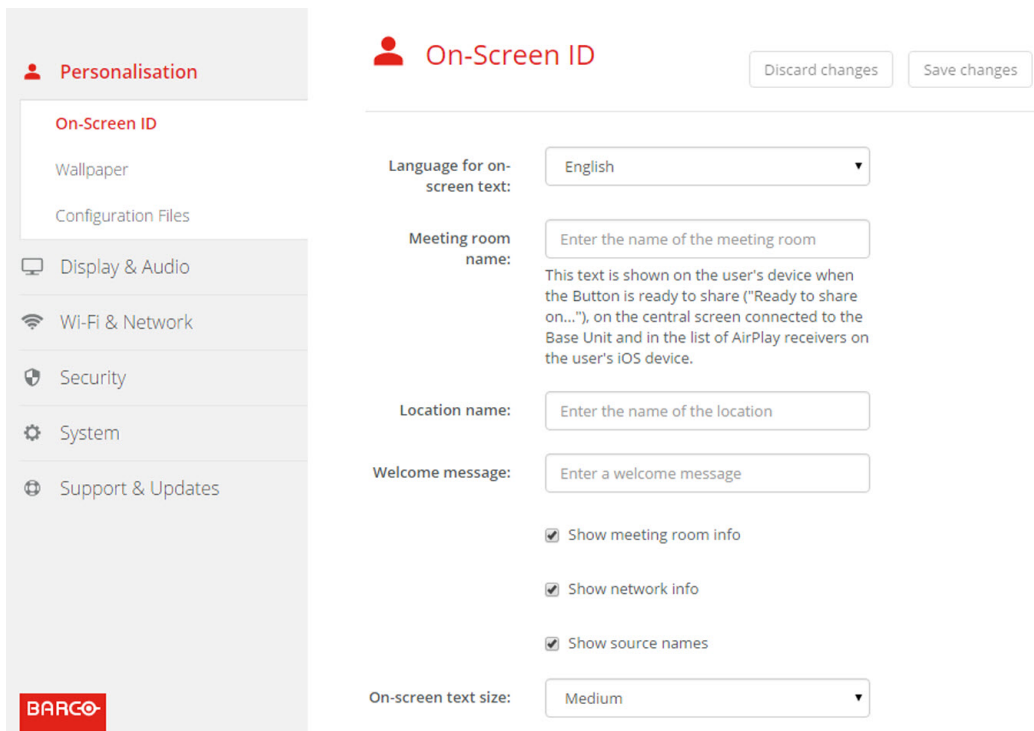


Image 6-7: Personalisation, On-Screen ID

3. Select the language of the on-screen text. Click on the drop down box next to *Language for on-screen text* and select the desired language.

The following languages are possible:

- Arabic
- Simplified Chinese
- Traditional Chinese
- Danish
- Dutch
- English
- Finnish
- French
- German
- Italian
- Japanese
- Korean
- Norwegian
- Portuguese
- Russian
- Spanish
- Swedish

Text size

1. Log in to the *Configurator*
2. Click *Personalisation* → *On-Screen ID*.
3. Click on the drop down box next to *On-screen text size* and select the desired font size.

The following sizes are possible:

- Small
- Medium
- Large

6.4 Meeting room information

About meeting room settings

The following settings are possible:

- Meeting room name
- Meeting room location
- Welcome message on the ClickShare screen
- Show meeting room info
- Show network info
- Show source names

Image 6-8: Personalisation, On-Screen ID

Meeting room name, location and welcome message

1. Log in to the Configurator.
2. Click *Personalisation* → *On-screen ID*.
3. Click in the input field next to *Meeting room name* and enter a name for the meeting room.

This text is shown on the user's device when the Button is ready to share ("Ready to share on..."), on the central screen connected to the Base Unit and in the list of AirPlay receivers on the user's iOS device.

4. Click in the input field next to *Location name* and enter the location.
5. Click in the input field next to *Welcome message* and enter the desired message.

Show on-screen information

1. Log in to the Configurator.
2. Click *Personalisation* → *On-screen ID*.
3. Check the check box in front of *Show meeting room info*.

Checked: meeting room name, location and welcome message are displayed on-screen when nothing is shared.

Not checked: nothing is shown on-screen.

4. Check the check box in front of *Show network info*.

Checked: LAN information such as wired IP address, hostname are displayed. Also the Wi-Fi IP address and SSID are displayed.

Not checked: no LAN nor Wi-Fi information is displayed.

5. Check the check box in front of *Show source names*.

Checked: the source name of the shared content is displayed on the screen.

Not checked: no source info displayed on the screen.

6.5 Personalisation, wallpaper

About wallpaper

When CSE-800 starts up, a background (wallpaper) is displayed. The display of this background wallpaper can be disabled.

By default a general ClickShare and a quick start wallpaper are available. The possibility exists to upload personal backgrounds (wallpapers). The default wallpapers cannot be removed from the system.

Wallpaper selection

1. Log in to the Configurator
2. Click *Personalisation* → *Wallpaper*.

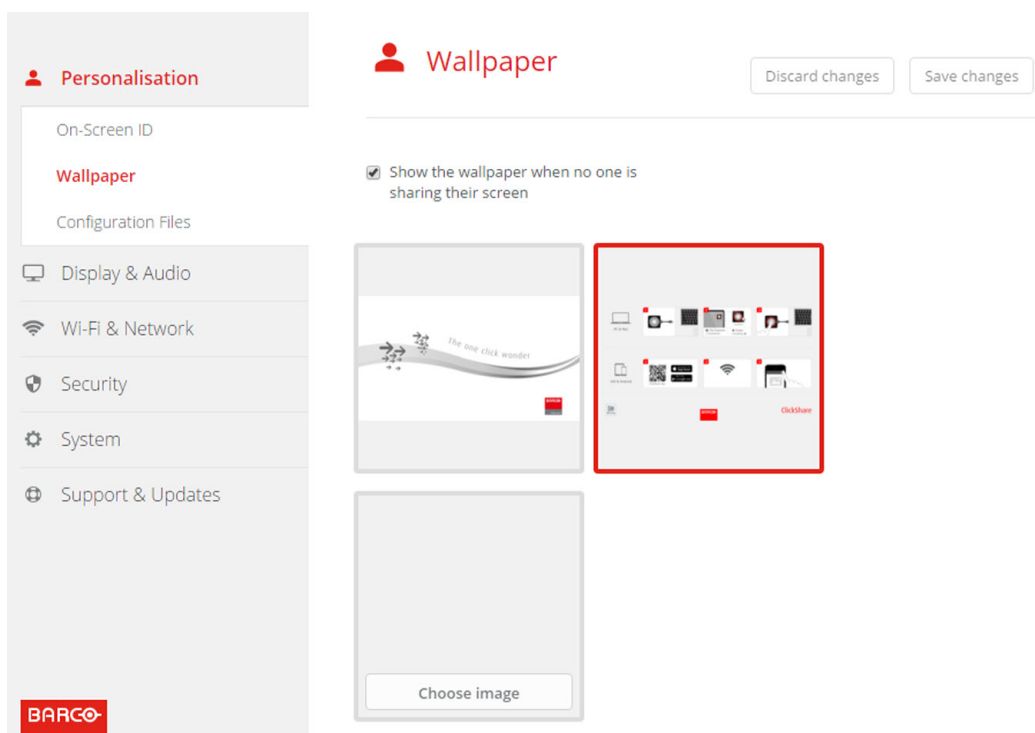


Image 6-9: Wallpaper selection

The *Wallpaper* selection pane is shown. The current selected wallpaper is shown with a red border.

3. Select one of the available wallpapers and click on **Save Changes**.



Note: By default a general Barco CSE-800 wallpaper and a CSE-800 Quick Start Guide wallpapers are available.

They are automatically resized to fit the aspect ratio of the screen.

The selected wallpaper is indicated with a red border.

The message **Successfully applied changes** appears on top of the wallpaper selection window.



You can also add a personal wallpaper, e.g. your company logo. For more information on adding a new wallpaper to the list, see “Personalisation, Personalized wallpaper”, page 64.

Download wallpaper

1. Hoover with your mouse over the wallpaper to download and click on the download symbol on the upper right corner.



Image 6-10: Download wallpaper

The wallpaper is downloaded to your PC.

Enable - disable Wallpaper

1. Within the Wallpaper pane, check the check box next to *Show the wallpaper when no one is sharing their screen*.

Checked: wallpaper will be displayed when no one is sharing content.

Not checked: no wallpaper will be displayed when no one is sharing content. The video output of the Base Unit is disabled when no content is shared. This feature is especially useful when the Base Unit is integrated in a larger AK system

6.6 Personalisation, Personalized wallpaper

About a personalized wallpaper

Via the Configurator it is possible to upload personalized backgrounds or wallpapers.

The upload file should be a JPEG, PNG, BMP or TIFF format with a maximum size of 2.5MB.

Maximum one custom wallpaper can be uploaded. To upload another, the first uploaded will be overwritten.

How to upload

1. Log in to the Configurator
2. Click *Personalisation* → *Wallpaper*.
The *Wallpaper* selection pane is shown. The current selected wallpaper is shown with a red border.
3. Hoover your mouse over the free place and click on **Choose image**.

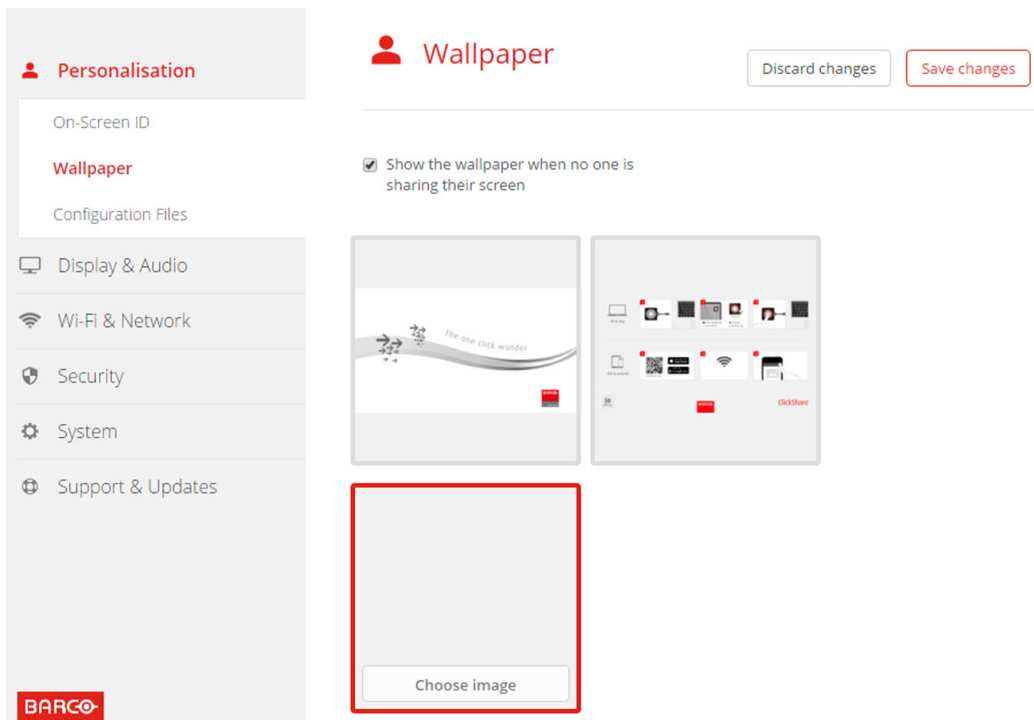


Image 6-11: Personalized wallpaper selection

A browser window opens.

4. Browse for the desired image, click Open to load the image.

The content of the file is checked and when valid (format and size), the file is uploaded. The new wallpaper gets a red border.

5. Click on **Save changes** to apply the personalized wallpaper

The message **Successfully applied changes** is displayed on top of the page.

Change personalized image

1. Click *Personalisation* → *Wallpaper*.
2. Hover your mouse over the current personalized image and click **Change image**.

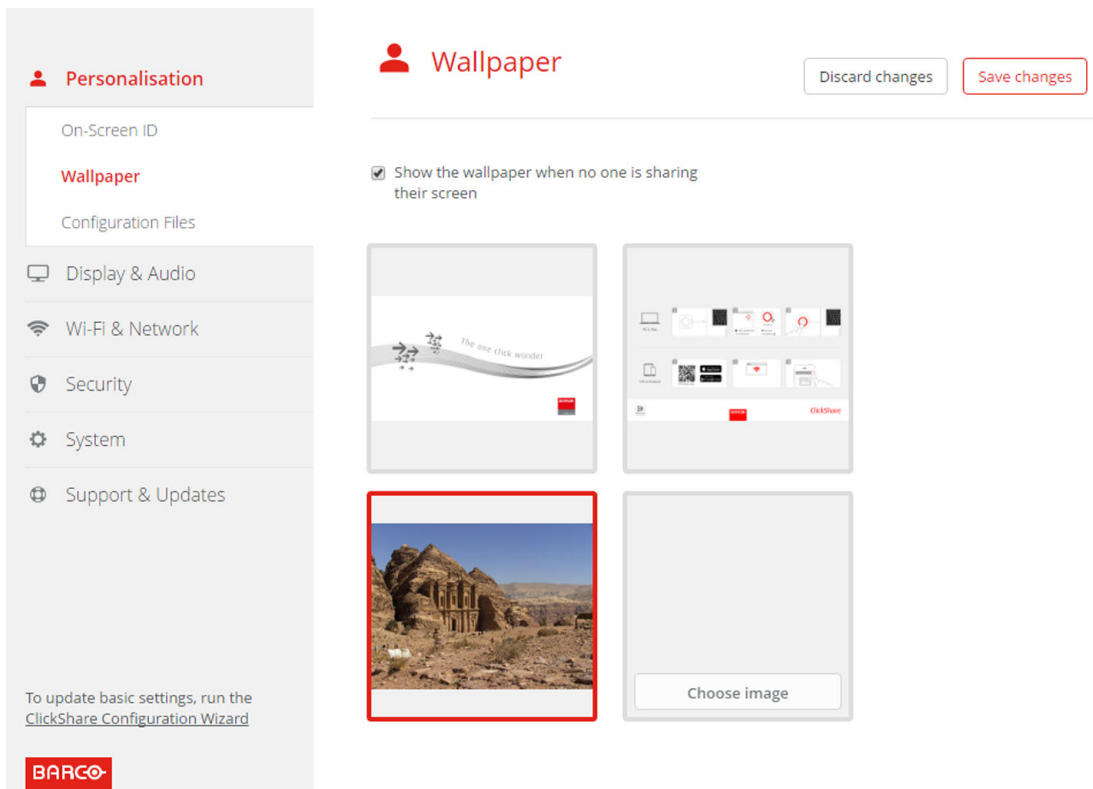


Image 6-12: Change image

3. Browse for the desired image, click Open to load the image.
The content of the file is checked and when valid (format and size), the file is uploaded. The new wallpaper gets a red border.
4. Click on **Save changes** to apply the personalized wallpaper and replace the previous file.
The message **Successfully applied changes** is displayed on top of the page.

Remove personalized wallpaper

1. Hover your mouse over the current image and click on the trash bin to remove the image.



Image 6-13: Remove wallpaper

The personalized wallpaper is removed and the default wall paper is activated.

6.7 Manage configuration files

About Manage configuration files

A full backup can be downloaded but cannot be used to duplicate configuration settings to other Base units. Therefore, it is possible to download a Portable version. This portable version can be uploaded via the upload

configuration button on other Base units (same type). Via the same button, the full backup can be uploaded on the original Base Unit.

A portable backup contains:

- Wallpapers
- Wallpapers settings
- Logging settings
- All display settings
- OSD language
- Location
- Welcome message
- WiFi channel
- WiFi frequency

To manage the configuration files

1. Log in to the *Configurator*.
2. Click *Personalisation* → *Configuration Files*.

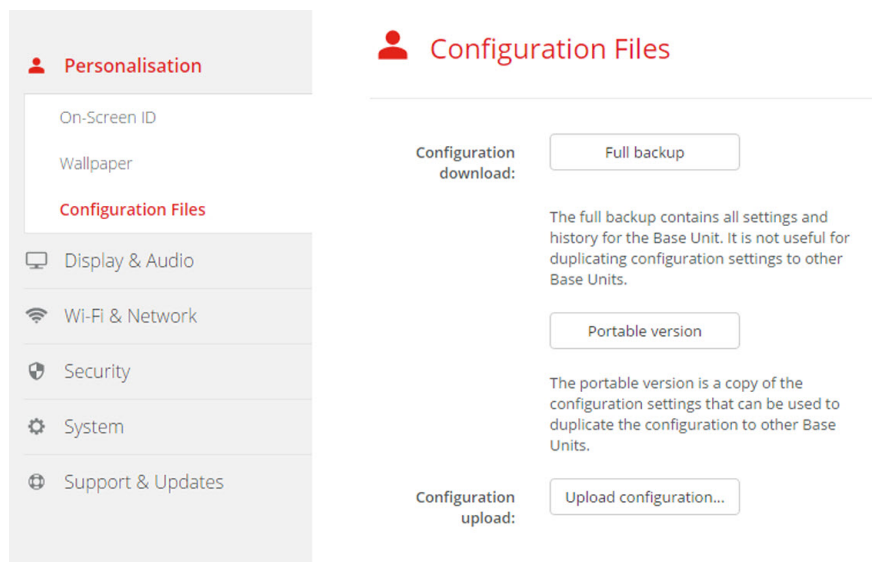


Image 6-14: Configuration files

3. To download a full backup, click on **Full Backup**.
An xml file, containing all information and history will be downloaded. This file can be reused on the same Base Unit only.
4. To download a portable version, click on **Portable Version**.
An xml file, containing portable information to duplicate settings on another Base Unit.
5. To upload a configuration, click on **Upload Configuration**.
A browser window opens. Navigate to the upload file (xml file) and click **Open** to upload.
A full backup can be uploaded on the Base Unit where the backup was created and a portable version can be uploaded on any other Base Unit of the same model.



When uploading a config file, the history of software updates and paired Buttons is lost. Paired buttons will however remain functional if the Base Unit has not changed from SSID or wireless password.

6.8 Display setup, output

Resolution

The output resolution to the display can be set to Auto or a predefined pixel aspect ratio. When set to Auto, the output resolution is automatically adapted to the resolution of the display.

ClickShare Position

The content of HDMI1 on display 2 and the content of HDMI2 on display 1 can be switched. This can be handy when the displays are mounted in a different order.

How to enable an output

1. Log in to the *Configurator*.
2. Click *Display & Audio* → *Outputs*.

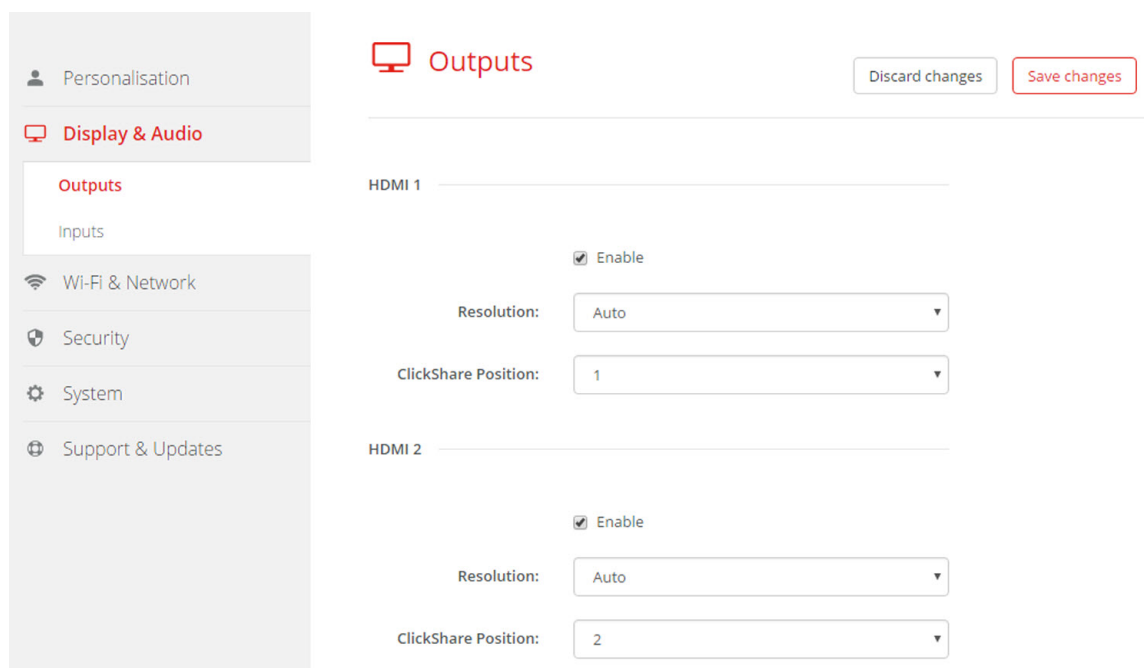


Image 6-15: Display outputs

3. Check the check box in front of *Enable* to enable the output.

Checked: output enabled.

Not checked: output blocked

How to set up

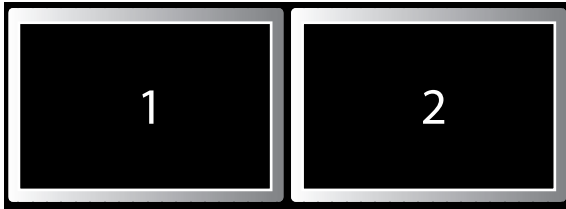
1. Log in to the *Configurator*.
2. Click *Display & Audio* → *Outputs*.
3. Click on the drop down box next to Resolution and select the desired resolution.
When Auto is selected, the output resolution is automatically adapted to the resolution of the display.
4. To change the ClickShare position, click on the drop down box next to *ClickShare Resolution*.
The position can be set to 1 or 2.
Default value,
for HDMI1, ClickShare position is set to 1, the content will be displayed on display 1
for HDMI2, ClickShare position is set to 2, the content will be displayed on display 2

By changing the ClickShare position it is possible to show the content of HDMI1 on display 2 and the content of HDMI2 on display 1. This can be handy when the displays are mounted in a different order.

5. Click on **Save changes** to apply the new settings.

About Display mode

Extended mode

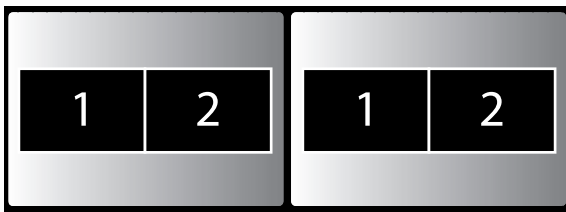


2 users

Image 6-16

The content of multiple users will be divided over both screen.

Clone mode



2 users

Image 6-17

The content of multiple users will be shown on one screen. The content of that first screen will be duplicated on the second screen.

Display mode selection

1. Log in to the *Configurator*.
2. Click *Display & Audio* → *Outputs*.

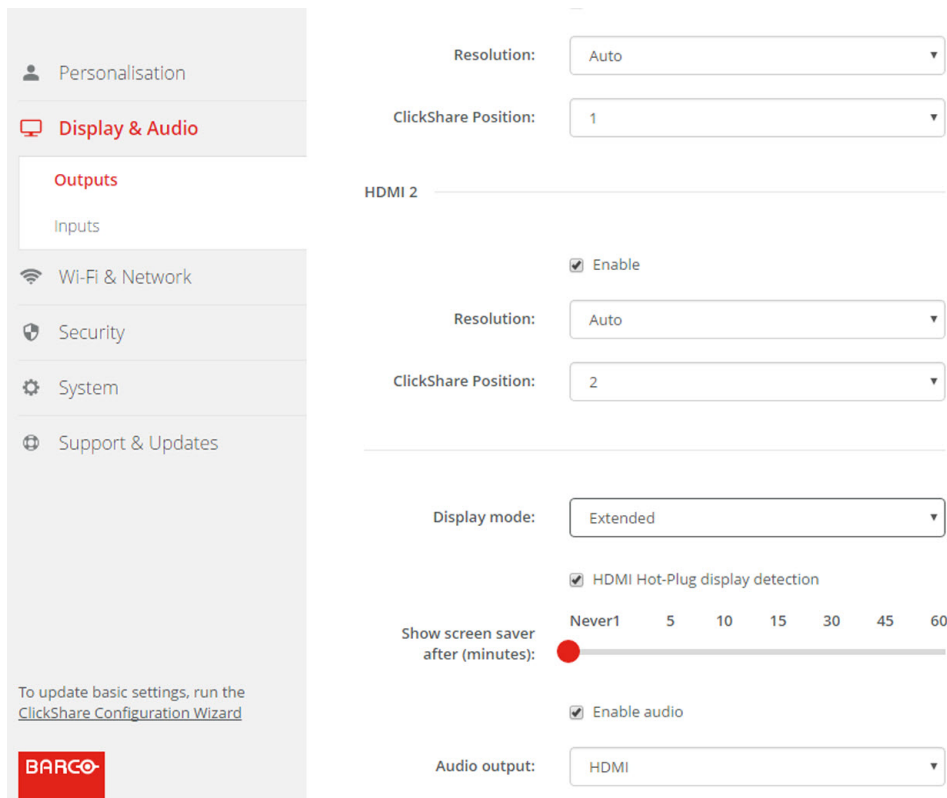


Image 6-18: Display mode

- Click on the drop down box and select the desired mode.

The following modes are available

- Extended
- Clone

- Click on **Save changes** to apply the new settings.

Screen saver setup

- Log in to the *Configurator*.
- Click *Display & Audio* → *Outputs*.
- To activate the screen saver, drag the slider bar to the left or to the right until the desired delay time is reached. When the slider is set completely to the right, the screen saver will never be activated.
- Click on **Save changes** to apply the new settings.

6.9 Audio settings

About the audio settings

The audio functionality can be disabled or enabled. When the enable and/or disable setting is changed, the Buttons must be re-paired before the setting becomes active.

How to change

- Log in to the *Configurator*.
- Click *Display & Audio* → *Display & Audio* → *Output*.

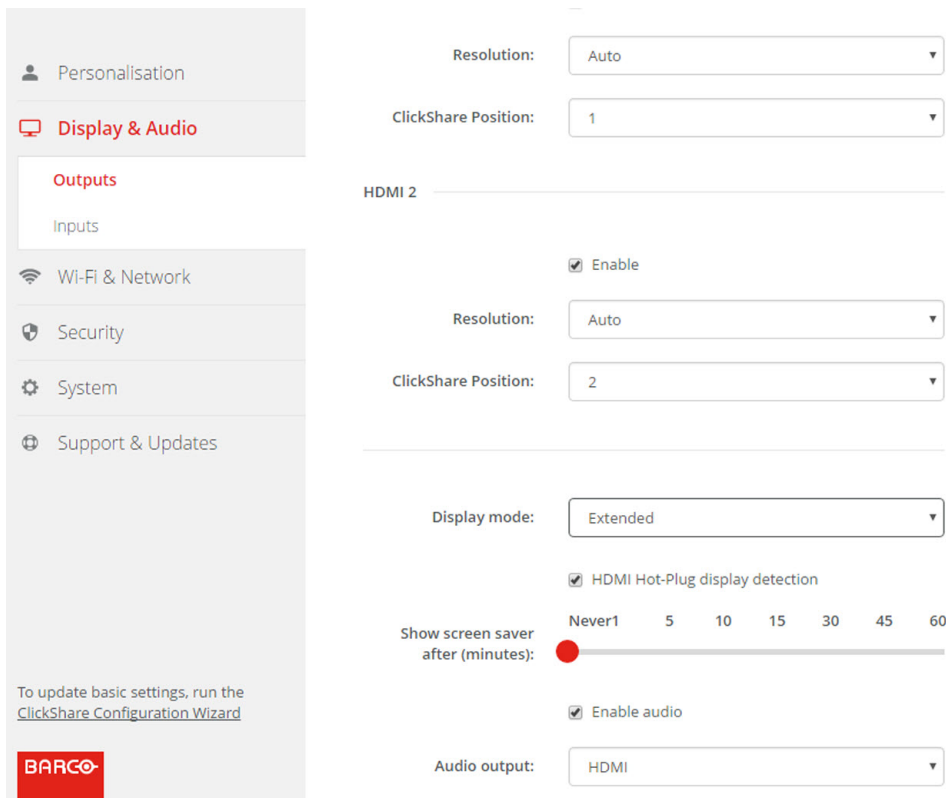


Image 6-19: Audio settings

3. Check or uncheck the check box next to Enable Audio.
Checked: audio is enabled.
Unchecked: audio is disabled.
4. To select the audio output, click on the drop down box and select the desired audio output.
Jack: audio output via jack.
HDMI: audio output via HDMI.
SPDIF: digital audio output via TOSLINK
5. Click on **Save changes** to apply the new settings.

6.10 Display setup, Inputs

About the inputs

When an input source is connected to one of the inputs (HDMI1 or HDMI2), the corresponding Signal LED lights up. The name of the source is displayed next to Source Name but can be changed. This source name is displayed on the screen. Each input can be enabled or disabled.

How to change the source name

1. Log in to the *Configurator*.
2. Click *Display & Audio* → *Inputs*.

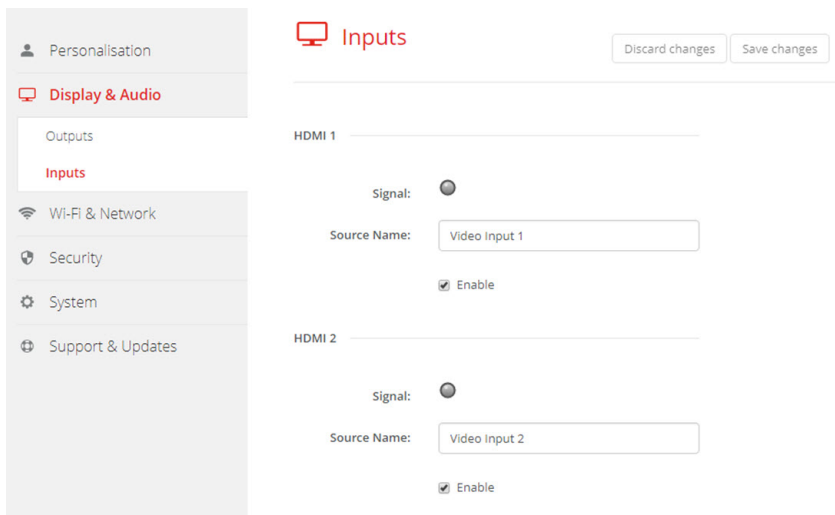


Image 6-20: Inputs

3. Click in the input field, select the current name and enter a new name.
4. Click on **Save changes** to apply the new settings.

6.11 WiFi settings



WARNING: It is not allowed to operate the Base Unit outside its intended geographical region.

About WiFi

A connection with the Base Unit can be made via a wireless connection. A fixed wireless IP address is used to establish the connection.

The transmission power of the wireless signal can be reduced. When reducing the transmission power, it is reduced for both frequencies.




Changing the IP address will require a repairing of the Buttons used with this Base Unit.

Image 6-21: WiFi settings

IP address & subnet mask

1. Log in to the *Configurator*.
2. Click *Wi-Fi & Network* → *WiFi Settings*.
3. To change the IP address or subnet mask, click in the input field and enter the 4 octets of the new IP address or subnet mask.

 **Note:** This must NOT be 0.0.0.0 for static IP-Address assignment.

About frequency band & channel selection

In an ideal setup, overlapping channels should not be used for two ClickShare Base Units within range of each other. As the channels in the 2.4 GHz band overlap with each other, best practice is to use channels 1, 6 and 11 on a single floor. On floors above and below, the channel pattern will be shifted to avoid overlap between floors, e.g. by placing channel 6 at the center of the illustrated pattern.

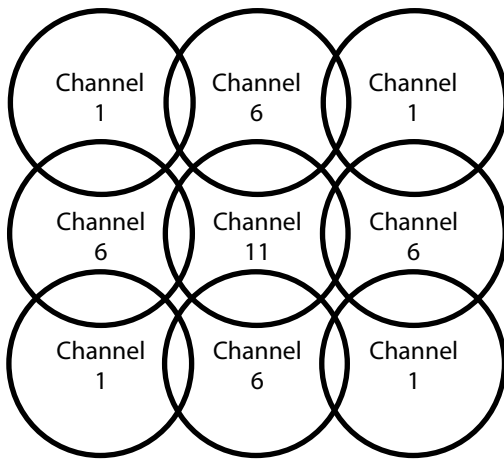


Image 6-22

To limit the effect of overlapping networks, it is highly recommended to reduce the signal strength (standard range of about 30m) of the ClickShare Base Units. Reducing the signal strength to its minimal value will reduce the actual range of the ClickShare to about 10m. By doing so, the size of coverage overlapping area will shrink and the risk for quality degradation will decrease or even disappear.

The 5 GHz channels do not overlap with each other and are less used by non-Wi-Fi devices than the 2.4 GHz channels. Moreover, 5 GHz signals are more rapidly damped than 2.4 GHz signals. Therefore, the use of a 5 GHz channel is recommended. This will limit the impact of a ClickShare system on other installed ClickShare units and on other WLAN users.

WiFi Mode and channel selection

1. Select the wireless connection mode by clicking on the drop down box and selecting the desired mode.

The following modes are possible:

- Concurrent
- 2.4 GHz only
- 5 GHz only

Depending on the selection the bottom pane will change. When Concurrent is selected, the panes for 2.4 GHz and 5 GHz are available each with the SSID and the MAC address. When typical frequency is selected, only that pane will be available, the other one is blanked out.

2. Select the channel for the selected frequency. Click on the drop down box and selecting the correct band. If Concurrent is selected you have to select the channel for each frequency.

2.4 GHz

Channel A:

✓ Sufficient bandwidth available.

SSID:

MAC address: 28:24:FF:4D:1E:4F

Image 6-23

Below the channel selection pane, an indication is given of the available bandwidth of the current channel. To see if sufficient bandwidth is available in a different channel, select the channel in the dropdown and save the changes. The page will reload with the new settings and an indication of the channel fit will be given after approximately 1 minute. There is no need to reload the page to see the result.

The channels available in the list vary according to the regional version of your Base Unit. Re-pairing the Buttons is not required when changing the frequency band or wireless connection channel.



Make sure your PC's wireless interface supports the 5 GHz band before selecting it on the Base Unit.

SSID

1. Enter a public name (SSID) for the wireless network.
The default SSID is *ClickShare-<serial number Base Unit>*.
2. If you want to broadcast this SSID, check the checkbox before *Enable SSID broadcast*.


WiFi passphrase

1. Enter a new WiFi passphrase.
2. Confirm that new WiFi passphrase.




CAUTION: It is strongly recommended to change the Wi-Fi passphrase on first use to prevent anyone else accessing the Wi-Fi network.

Signal strength

1. Select the Signal Strength. Click on the slider and reduce the broadcasted power (signal strength) until the desired strength is obtained.
 *Note:* Too low power and interference by others might lead to connection issues. If so, increase again the signal strength until the issues are solved.

By default the strength is set to 100%.

Button connect

1. Click on the drop down box next to *Button connects to* and select the WiFi frequency to which the buttons are connected.
 *Note:* Changing that setting will require a repairing of the buttons.

ClickShare Configurator (WebUI) access via Wi-Fi

1. To allow access to the configurator via Wi-Fi, check the check box in front of *WebUI available via Wi-Fi*.
Checked: Configurator accessible via Wi-Fi.
Not checked: access to the configurator via Wi-Fi is blocked.

6.12 LAN Settings

About LAN network settings

A network connection can be configured through DHCP or by manually entering a fixed IP address.

The LAN interface is split up in a primary interface and a secondary interface. During normal operation both LAN inputs have the same functionality. During standby, the primary interface acts as a network standby and the secondary interface is than switched off.

A practical example as use case:

Integrate ClickShare within a network to manage and integrate into a network to share. For integration, one should preferably use the primary network connector as the Buttons can only wake up the Base Unit from network standby using the primary connector.



CAUTION: Both LAN connections must be connected to two different networks.

DHCP

Dynamic host configuration protocol. DHCP is a communications protocol that lets network administrators manage centrally and automate the assignment of IP addresses in an organization's network. Using the Internet Protocol, each machine that can connect to the Internet needs a unique IP address. When an organization sets up its computer users with a connection to the Internet, an IP address must be assigned to each machine. Without DHCP, the IP address must be entered manually at each computer and, if computers move to another location in another part of the network, a new IP address must be entered. DHCP lets a network administrator supervise and distribute IP addresses from a central point and automatically sends a new IP address when a computer is plugged into a different place in the network.

Hostname

1. Log in to the *Configurator*.
2. Click *Wi-Fi & Network* → *LAN Settings*.



Image 6-24: LAN settings

3. Click in the input field next to *Hostname* and enter a host name for the Base Unit.
The default host name is *ClickShare-**<serial number Base Unit>***.
4. Click **Save changes** to apply the settings.

Setup the primary and secondary interface

1. To select the method, click on the drop down box next to Method and select the *Automatic (DHCP)* or *Manual*.
When Automatic (DHCP) is selected, the IP address, subnet mask and default gateway fields are grayed out but the currently used settings are filled out.
For manual setup, see “Manual (fixed) IP address”.

Manual (fixed) IP address

1. Click on the drop down box next to *Method* and select *Manual*.
The IP address, subnet and gateway input fields are activated.
The default IP addresses are filled out.
For the primary interface: "192.168.0.23" . For the secondary interface: "192.168.1.23". Both with subnet mask "255.255.255.0".
2. Click in the input field of the *IP address* and fill out the 4 octets.
 **Note:** An address contains 4 octets with a maximum value of 255.
This must NOT be 0.0.0.0 for static IP-Address assignment
3. Click in the *Subnet mask* input fields and fill out the 4 octets as appropriate for the local subnet.
4. Click in the *Default Gateway* input fields and fill out the 4 octets. Set the Default-Gateway to the IP-Address of the router (MUST be on the local subnet!).
 **Note:** This must NOT be 0.0.0.0.
If there is no router on the local subnet then just set this field to any IP-Address on the subnet.
5. Click in the DNS Servers input field and fill out the preferred DNS servers (maximum 5) in a comma separated list.
6. Click **Save changes** to apply the settings.



Do not use IP address 192.168.2.x for a Subnet mask 255.255.255.0 and IP address 192.168.x.x for a Subnet mask 255.255.0.0

Use a proxy server

This setting is important for the auto-update feature of the Base Unit, which require internet access.

1. Check the check box next to Use a proxy server.

☒ Use a proxy server

Server address:

Server port (optional):

User name (optional):

Password (optional):

Image 6-25: Proxy settings

The proxy settings become available.

2. Enter the proxy server address. Enter the IP address or hostname.
Some proxy servers need a port number, user name and password, for others is this optional.
3. Optionally, enter the used server port.
4. Optionally, enter the user name.
5. Optionally, enter the password.
6. Click **Save changes** to apply the settings.



For the moment, only the primary network connector can be used for API, Management Suite and Network Integration.

6.13 LAN Settings, Wired Authentication

How to setup

1. Click on **Setup wired authentication...**

Image 6-26: Wired authentication

The setup wizard starts.

2. Select the authentication method. Click on the drop down and select the desired method.

The following methods are available:

- No authentication: no authentication mechanism will be applied to the wired interface.
- EAP-TLS
- EAP-TTLS
- PEAP

6.14 LAN Settings, EAP-TLS security mode

About EAP-TLS

EAP-TLS (Transport Layer Security) is an EAP method based on certificates which allows mutual authentication between client and server. It requires a PKI (Public Key Infrastructure) to distribute server and client certificates. For some organizations this might be too big of a hurdle, for those cases EAP-TTLS and PEAP provide good alternatives. Even though a X.509 client certificate is not strictly required by the standard it is mandatory in most implementations including for ClickShare. When implemented using client certificates, EAP-TLS is considered one of the most secure EAP methods. The only minor disadvantage, compared to PEAP and EAP-TTLS, is that the user identity is transmitted in the clear before the actual TLS handshake is performed. EAP-TLS is supported via SCEP or manual certificate upload.

How to setup EAP-TLS

1. Select Authentication Mode *EAP-TLS*.

ClickShare Wired Authentication Wizard

Authentication Mode:

Domain:

Identity:

Provide certificate:

Upload client certificate: Geen bestand gekozen
Allowed file formats: .pfx (PKCS#12), .p12 (Base64 encoded DER). File should at least include the client certificate and corresponding private key.

Client certificate Password:

Upload CA certificate: Geen bestand gekozen
Allowed file formats: .pem, .cer, .crt, .p7b (Base64 encoded DER). File should at least contain the root CA certificate for your domain.

Save configuration

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Image 6-27: EAP-TLS

2. Fill out the *Domain* and *Identity*.
3. Select the certification method. Click on the drop down box and select the desired method.
 - Manually provide Client & CA certificates
 - Auto enrollment via SCEP

Manually providing certificates

1. Upload client certificate. Click on Choose file and browse to the desired file.

Allowed file formats:

- .pfx (PKCS#12)
- .p12 (Base64 encoded DER)

The should at least include the client certificate and corresponding private key.

2. Enter the Client certificate Password.
3. Upload CA certificate. Click on Choose file and browse to the desired file.

The following formats are allowed:

- .pem
- .cer
- .crt
- .pb7 (Base64 encoded DER)

File should at least contain the root CA certificate for your domain.

4. Save configuration

Using SCEP

The Simple Certificate Enrolment Protocol (SCEP) is a protocol which enables issuing and revoking of certificates in a scalable way. SCEP support is included to allow a quicker and smoother integration of the ClickShare Base Unit and Buttons into the corporate network. Since most companies are using Microsoft Windows Server and its active directory (AD) to manage users and devices our SCEP implementation is

specifically targeted at the Network Device Enrolment Service (NDES) which is part of Windows Server 2008 R2 and Windows Server 2012. No other SCEP server implementations are supported.

ClickShare Wired Authentication Wizard

Authentication Mode:

Domain:

Identity:

Provide certificate:

SCEP server:

SCEP username:

SCEP password:

Save configuration

BARCO

Image 6-28: EAP-TLS — SCEP

SCEP ServerIP/ hostname	This is the IP or hostname of the Windows Server in your network running the NDES service. By default HTTP is used. E.g.: http://myserver or http://10.192.5.1
SCEP User name	This is a user in your Active Directory which has the required permission to access the NDES service and request the challenge password. To be sure of this, the user should be part of the CA Administrators group (in case of a stand-alone CA) or have enroll permissions on the configured certificate templates.
SCEP Password	The corresponding password for the identity that you are using to authenticate on the corporate network. Per Base Unit, every Button uses the same identity and password to connect to the corporate network.

Click on **Save configuration** to save the settings.

6.15 LAN Settings, EAP-TTLS security mode

About EAP-TTLS

EAP-TTLS (Tunneled Transport Layer Security) is an EAP implementation by Juniper networks. It is designed to provide authentication that is as strong as EAP-TLS, but it does not require each user to be issued a certificate. Instead, only the authentication servers are issued certificates. User authentication is performed by password, but the password credentials are transported in a securely encrypted tunnel established based upon the server certificates.

User authentication is performed against the same security database that is already in use on the corporate LAN: for example, SQL or LDAP databases, or token systems. Since EAP-TTLS is usually implemented in corporate environments without a client certificate we have not included support for this. If you prefer using client certificates per user we suggest using EAP-TLS.

How to setup EAP-TTLS

1. Select Authentication Mode *EAP-TTLS*.

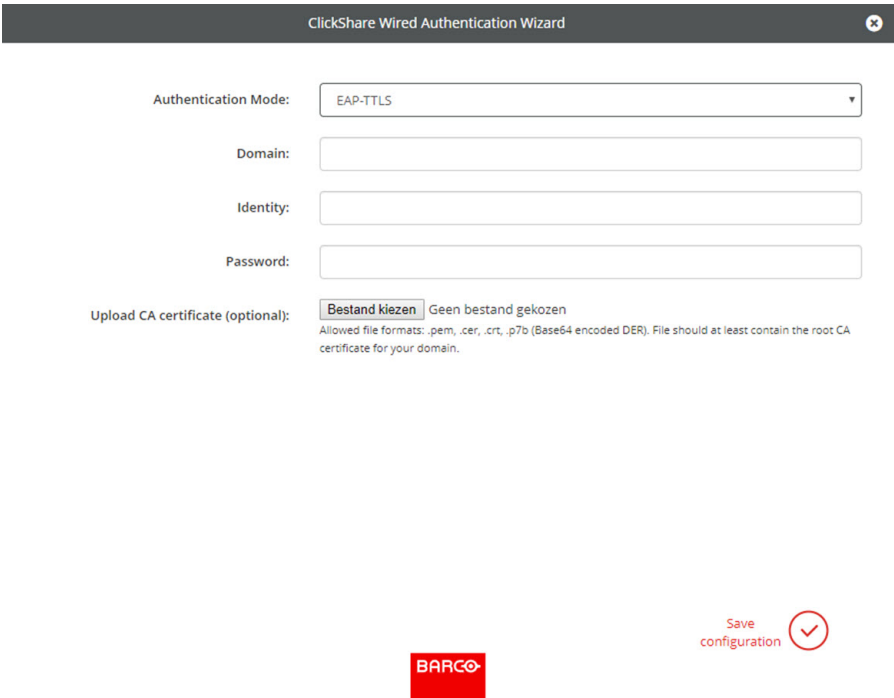


Image 6-29: EAP-TTLS

2. Fill out the *Domain* and *Identity*.

Domain	The company domain for which you are enrolling, should match with the one defined in your Active Directory.
Identity	Identity of the user account in the Active Directory which will be used by the ClickShare Buttons to connect to the corporate network.

3. Enter the *Password*.

The corresponding password for the identity that you are using to authenticate on the LAN network. Per Base Unit each Button will use the same identity and password to connect to the corporate network.

4. Optionally, upload the CA certificate.

The following formats are allowed:

- .pem
- .cer
- .crt
- .pb7 (Base64 encoded DER)

File should at least contain the root CA certificate for your domain.

5. Click **Save configuration**.

6.16 LAN Settings, PEAP security mode

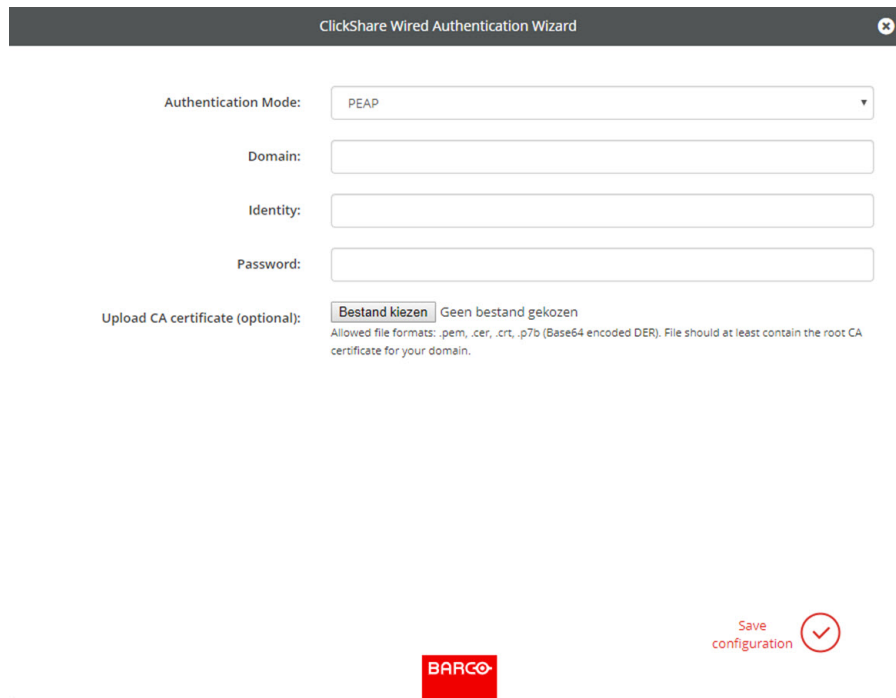
About PEAP

PEAP (Protected Extensible Authentication Protocol) is an EAP implementation co-developed by Cisco Systems, Microsoft and RSA Security. It sets up a secure TLS tunnel using the servers CA certificate after which actual user authentication takes place within the tunnel. This way of working enables it to use the security of TLS while authenticating the user but without the need for a PKI.

The standard does not mandate which method is to be used to authenticate within the tunnel. But in this application note, with regard to PEAP, we are referring to PEAPv0 with EAP-MSCHAPv2 as the inner authentication method. This is one of the two certified PEAP implementations in the WPA and WPA2 standards – and by far the most common and widespread implementation of PEAP.

How to setup PEAP

1. Select Authentication Mode *EAP-TTLS*.



ClickShare Wired Authentication Wizard

Authentication Mode: PEAP


Domain:

Identity:

Password:

Upload CA certificate (optional): Geen bestand gekozen

Allowed file formats: .pem, .cer, .crt, .p7b (Base64 encoded DER). File should at least contain the root CA certificate for your domain.

Save configuration 

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Image 6-30: PEAP

2. Fill out the *Domain* and *Identity*.

Domain	The company domain for which you are enrolling, should match with the one defined in your Active Directory.
Identity	Identity of the user account in the Active Directory which will be used by the ClickShare Buttons to connect to the corporate network.

3. Enter the *Password*.

The corresponding password for the identity that you are using to authenticate on the LAN network. Per Base Unit each Button will use the same identity and password to connect to the corporate network.

4. Optionally, upload the CA certificate.

The following formats are allowed:

- .pem
- .cer
- .crt
- .p7b (Base64 encoded DER)

File should at least contain the root CA certificate for your domain.

5. Click **Save configuration**.

6.17 Network integration, activation

Introduction

“ClickShare Network Integration” aims at deploying ClickShare in larger organizations without interfering with the existing wireless network infrastructure. In a default stand-alone setup, the ClickShare Base Unit creates its own wireless access point (AP) which the ClickShare Buttons use to connect. These so-called “rogue” APs can become a nuisance in larger installations. Next to that, meeting participants who are sharing content from mobile devices have to switch networks to connect with the ClickShare Base Unit.

This is where ClickShare Network Integration comes in. Once fully configured and enabled, the built-in AP of the Base Unit is disabled. The Button or the mobile devices can then connect to a wireless access point that is part of the corporate network. At this point, the Base Unit needs to be connected to the corporate network via the wired Ethernet interface so that the Buttons and mobile devices can share their content on the Base Unit.

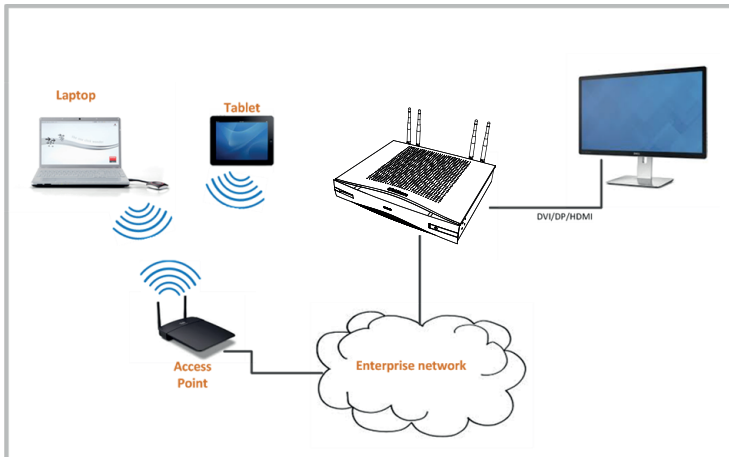


Image 6-31

Security modes

There are 2 security modes supported by the Button to connect to the corporate network:

- The first one, which applies to a typical corporate network setup, is WPA2-Enterprise with 802.1X.
- As we also want to support smaller organizations, which might have a more traditional Wi-Fi setup, there is also support for WPA2-PSK, also known as WPA2-Personal.

Both modes are based on Wi-Fi Protected Access (WPA). We talk about WPA2, an improved version of the original WPA standard, which adds AES encryption to improve security.

WPA2-Enterprise with 802.1X

WPA2-Enterprise relies on a server (using RADIUS) to authenticate each individual client on the network. To do this, authentication 802.1x is used (also known as port-based Network Access Control). 802.1x encapsulates the Extensible Authentication Protocol (EAP) for use on local area networks. This is also known as “EAP over LAN” or EAPoL. Using RADIUS, these EAPoL messages are routed through the network in order to authenticate the client device on the network – which, in the case of ClickShare, are the Buttons.

The 802.11i (WPA2) standard defines a number of required EAP methods. However, not all of them are used extensively in the field, and some other ones (which are not in the standard) are used much more often. Therefore, we have selected the most widely used EAP methods. The list of EAP methods supported in the ClickShare system is:

- EAP-TLS
- PEAP
- EAP-TTLS

Considerations

When you choose to integrate the ClickShare system into your corporate network, there are a few things to consider up front. First of all, make sure that all your Base Units can be connected to your network via the wired Ethernet interface. Also, take into account the amount of bandwidth that each Button needs to stream the captured screen content to the Base Unit – this is usually somewhere between 5 and 15 Mbps. So, prevent bottlenecks in your network (e. g. 100 Mbps switches) that could potentially degrade your ClickShare experience due to a lack of bandwidth.

Prerequisites

Before rolling out ClickShare Network Integration, make sure your infrastructure meets the following prerequisites.

Network

Once you enable the corporate network, the internal Wi-Fi access point of the ClickShare Base Unit is disabled. Make sure your Base Unit is connected to the corporate network via its wired Ethernet interface.

Firewall

To ensure that you can successfully share content via the ClickShare Button, or from mobile devices, to the Base Unit, make sure the ports mentioned in “Ports used by the ClickShare Base Unit”, page 33 are open on your network:

VLAN

A lot of corporate networks are divided into multiple VLANs – for example, to separate BYOD (Bring Your Own Device) traffic from the “core” corporate network. Take this into consideration when integrating ClickShare into your network. ClickShare Buttons connecting to your wireless infrastructure should be able to connect to the Base Units. Furthermore, if you want to use the mobile apps, these should also be able to reach the Base Units. It is advisable to put all ClickShare Units into a separate VLAN so they are easily manageable.

DNS

For the Buttons to be able to stream their content to the Base Unit, they must be able to resolve the Base Unit’s hostname within the network. If no DNS is available Buttons will fall back to the IP of the Base Unit at the moment of USB pairing. Because of this we strongly advise to reserve IP addresses in your DHCP server for each Base Unit to prevent issues when the hostname is not resolvable.

NTP

When using EAP-TLS, you must also configure NTP on the Base Unit. This can be done via the Base Unit’s Configurator (WebUI). The Base Unit must have the correct time to handle the certificates required for EAP-TLS. Preferably, you should use an NTP server with high availability on the local corporate network. Be advised that, when using an NTP server on the internet, the Base Unit cannot connect through a proxy server.

Advice

To check if a button could reach the Base Unit please connect a PC in the same way a Button would connect (same user name, pw, certificates) and ping the Base Unit’s hostname, you can find the hostname in the Base Units Configurator. If the ping fails try pinging the IP adjust your network setup so pinging the hostname is successful.

We strongly advise to reserve IP addresses in your DHCP server for each Base Unit to prevent issues when the hostname is not resolvable.

Start up

Due to the complexity of the ClickShare Network Integration feature, you must activate it first. To activate, go to the Network integration and click **Change configuration** button.



The Corporate Network Integration feature is provided “AS IS”, without any liability or obligation of or on behalf of Barco. Barco cannot guarantee that the feature works in your corporate network. The reliability, quality and stability when sharing using the Corporate Network Integration depends on your network infrastructure.

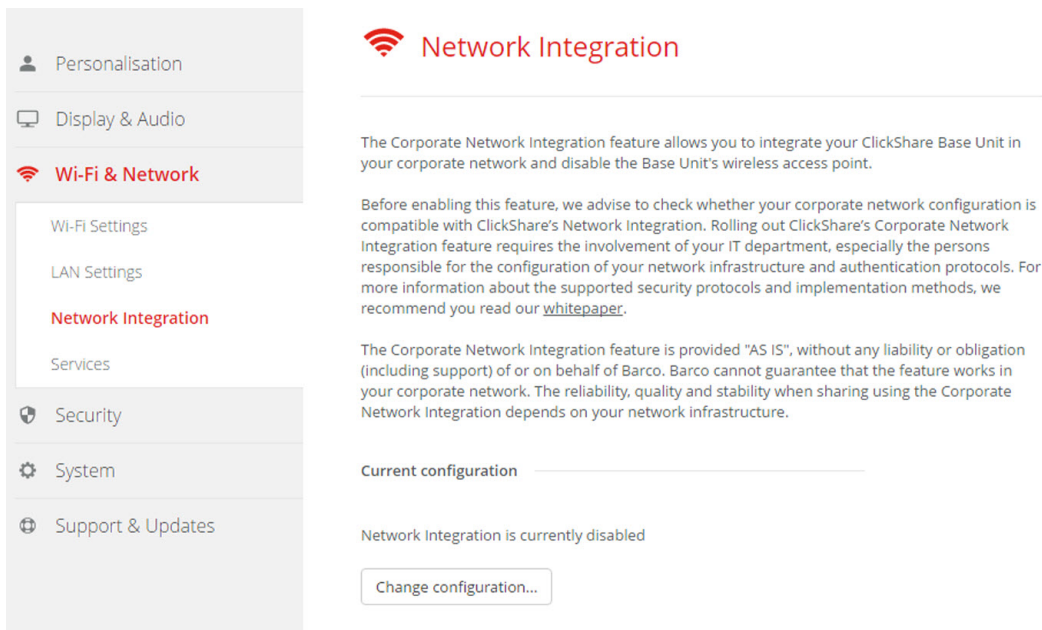


Image 6-32: Network integration, activation

A setup wizard starts up.

Apps

To allow mobile devices connected to the corporate network to share content with any Base Unit on the network, you need enable those via the *Wi-Fi & Network > Services* page of the Configurator. Make sure the proper Services are enabled and the *Enable over LAN* box is checked.



You must re-pair all the Buttons after completing the setup wizard !

6.18 Network integration, EAP-TLS security mode

About EAP-TLS

EAP-TLS (Transport Layer Security) is an EAP method based on certificates which allows mutual authentication between client and server. It requires a PKI (Public Key Infrastructure) to distribute server and client certificates. For some organizations this might be too big of a hurdle, for those cases EAP-TTLS and PEAP provide good alternatives. Even though a X.509 client certificate is not strictly required by the standard it is mandatory in most implementations including for ClickShare. When implemented using client certificates, EAP-TLS is considered one of the most secure EAP methods. The only minor disadvantage, compared to PEAP and EAP-TTLS, is that the user identity is transmitted in the clear before the actual TLS handshake is performed. EAP-TLS is supported via SCEP or manual certificate upload.

How to start up for EAP-TLS

1. Log in to the *Configurator*.
2. Click *WiFi & Network* → *Network integration*. Click on **Setup network integration...** ..
3. Select the authentication mode. Click on the drop down and select *EAP-TLS* .