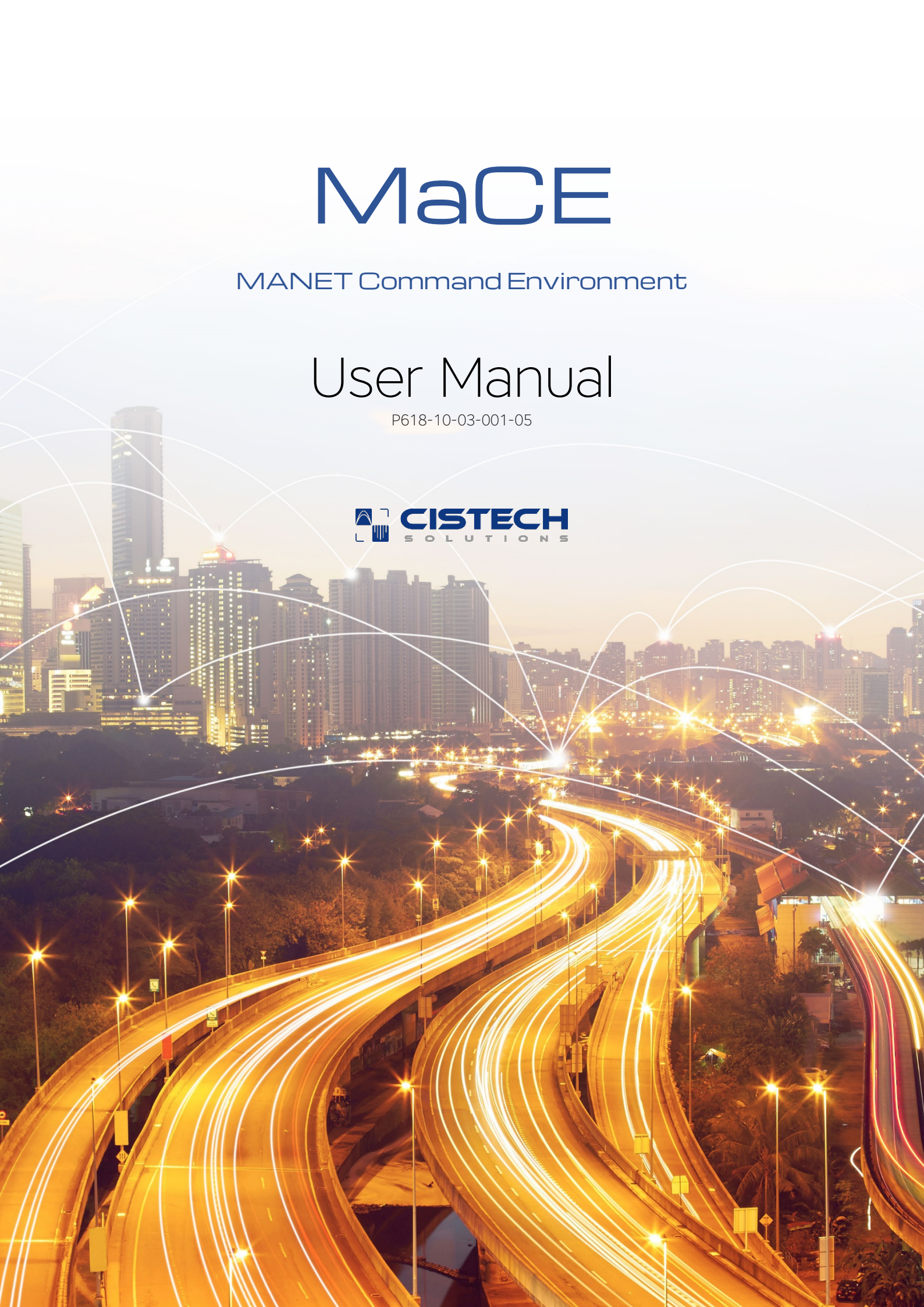


MaCE

MANET Command Environment

User Manual

P618-10-03-001-05



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MaCE Application Components

MaCE is divided into two key application components, MaCE Manager and the MaCE application itself.

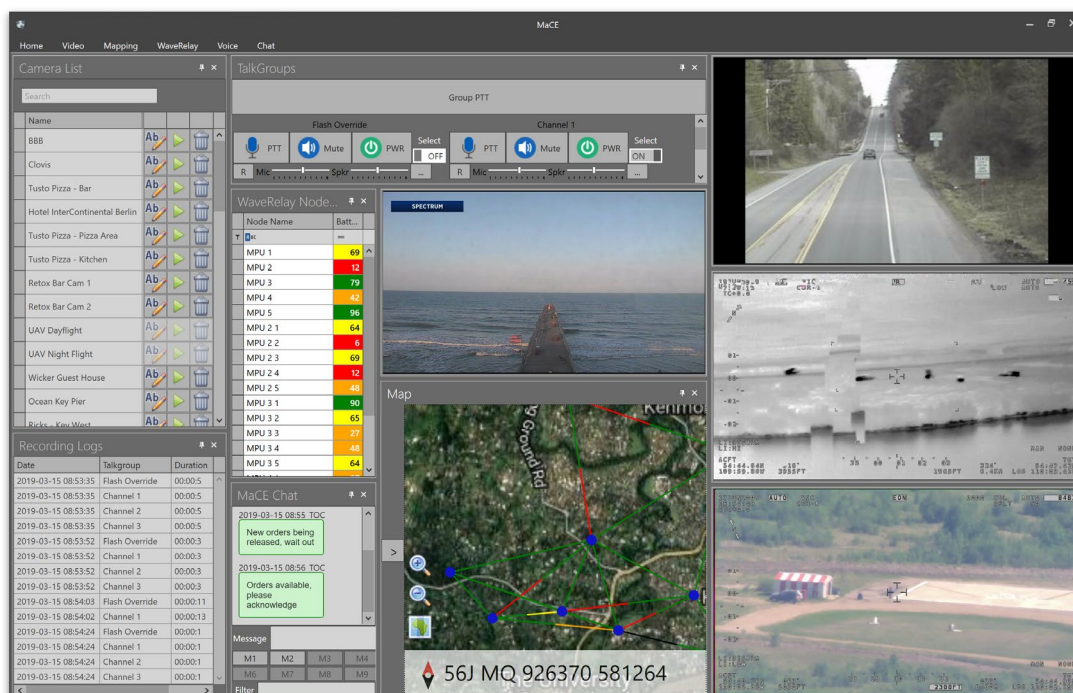
The separation of the Manager and Application components is intended for use in Windows Group Policy environments where a user may require escalated privileges in order to change underlying license and control functions of the main application.

MaCE Manager

MaCE Manager is used to manage licencing, modules and online mapping servers. Individual modules can be enabled and disabled prior to opening the MaCE application, and online mapping sources can be added or removed.

MaCE

MaCE is the core Graphical User Interface for all application modules, providing a modular work station for flexible command and control in any situation. All enabled modules can be arranged to specific user requirements, allowing the user to access voice, view video and interact with the network in any way the user chooses.





Installation

Pre-Requisites

Minimum Requirements:

Software:

- Windows 7 (SP1), Windows 8, Windows 8.1 or Windows 10
- 600 MB hard disk space available
- Microsoft .NET Framework 4.5.2 minimum

Hardware:

- Minimum 2 GB of spare available RAM
- 1 gigahertz (GHz) or faster x86-bit or x64-bit processor
- Video card with minimum 1GB available memory (dependant on use of application)

Recommended Requirements:

Software:

- Windows 10

Hardware:

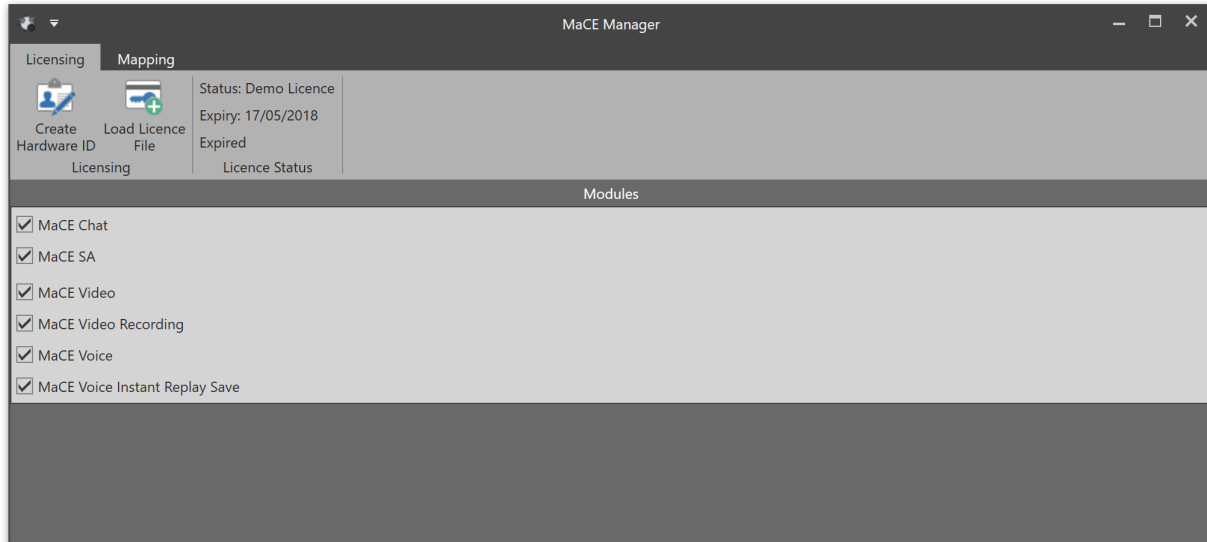
- 6 GB of available RAM
- 1.9 gigahertz (GHz) x86-bit or x64-bit processor
- Video card with minimum 4GB available memory

Note: All versions of MaCE v2 must be uninstalled before starting install process.

Note: When using Surface Pro / Surface Book or similar laptops, performance will be degraded when not connected to power. This is mainly relating to touch screen map functions (ie. Rotation, zoom etc).

MaCE Manager

MaCE Manager provides access to Module Activation, Licensing, and Mapping services to be used within the main MaCE Application.



Licence Generation

MaCE is a perpetually licensed application and will continue to operate forever when correctly licensed. MaCE licence expiry relates to your product support and if expired, you will be unable to install the latest features and updates. MaCE also includes a demonstration period from first installation and will operate without the requirement to install a licence during this period.

The installation of MaCE will provide access to all module features for a period of 30 days from initial installation and allows for demonstration and trial purposes. Beyond the 30 days, MaCE will need to be licensed for continued operation. Each licence will activate the MaCE main application on a perpetual, per machine basis. Licensing is an offline process and does not require connection to the internet.

To license the application, a per machine hardware ID will need to be generated from MaCE Manager and sent to activation@cistechsolutions.com. A licence will then be generated and returned for installation.

The main Licensing Ribbon Menu allows for Hardware ID generation used within the licensing process. This area also provides the ability to upload and activate a licence when generated.

Private and public modules will be listed in the Module windows if an appropriate licence has been installed. If a private module licence is not installed, no indication of that Module will be seen in this window. Private modules are those modules that have been requested by customers that are unique to that customer and will only be visible if that module is licensed. Public modules are modules available to all customers and will be accessible if an appropriate licence is installed.

Module Activation

Each module can be activated and deactivated through the MaCE Manager Modules window. This provides a mechanism for administrators to disable modules should they not be required by an operator of the main application.

To activate or de-activate a module, simply check or uncheck the checkbox next to the module and close the MaCE manager application. When the main MaCE application loads, only the activated components will be visible to the user.

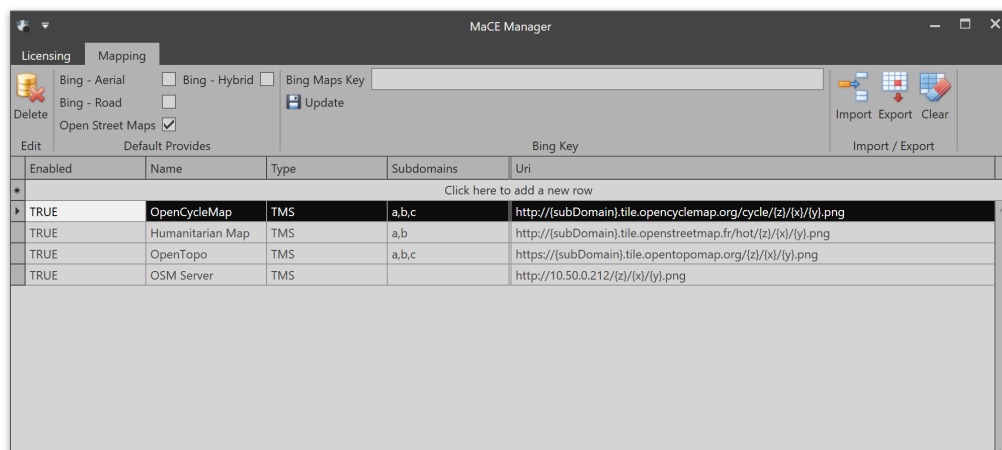
Mapping

The Mapping tab allows the activation of inbuilt mapping components as well as the addition of custom map sources for users with proprietary or custom mapping sources.

Selection of the check boxes for the internal map sources will activate them in the MaCE application.

If a Bing based mapping provider has been selected but no Bing Map Key is provided, a warning will appear as an overlay in the main MaCE application on selection of that map source.

If you have a personal or corporate Bing Maps key, you can enter it into the field provided and save using the "Update" button.



Custom Map Providers

Custom map providers allow the user to enter in online, local server product into the Mapping database to be used by the MaCE application. At this point in time, the mapping provider supported is Tile Map Service (TMS) provides.



Map Source Import, Export and Clear

Map Source Importing

Importing map sources into the MaCE Manager allows for a complete map provider database to be setup using a file rather than entering each map source line by line. The import file is a structured CSV file and can be hand edited in a separate application if require.

Importing of a custom map source file will overwrite the data base and delete all existing entries prior to importing.

To import a map file, select the import button and use the file explorer to locate the appropriately formatted CSV file.

NOTE: You cannot import a map source file from MaCE Version 2. Map URI's will need to be manually entered in the Z / X / Y format.

Exporting Map Sources

Exporting of the Custom Map Provider database allows dissemination of custom map sources generated in the application.

NOTE: The Bing Map Key will not be exported in the Map Sources CSV file. This is by design to prevent inadvertent dissemination of key license information.

Clearing Map Sources

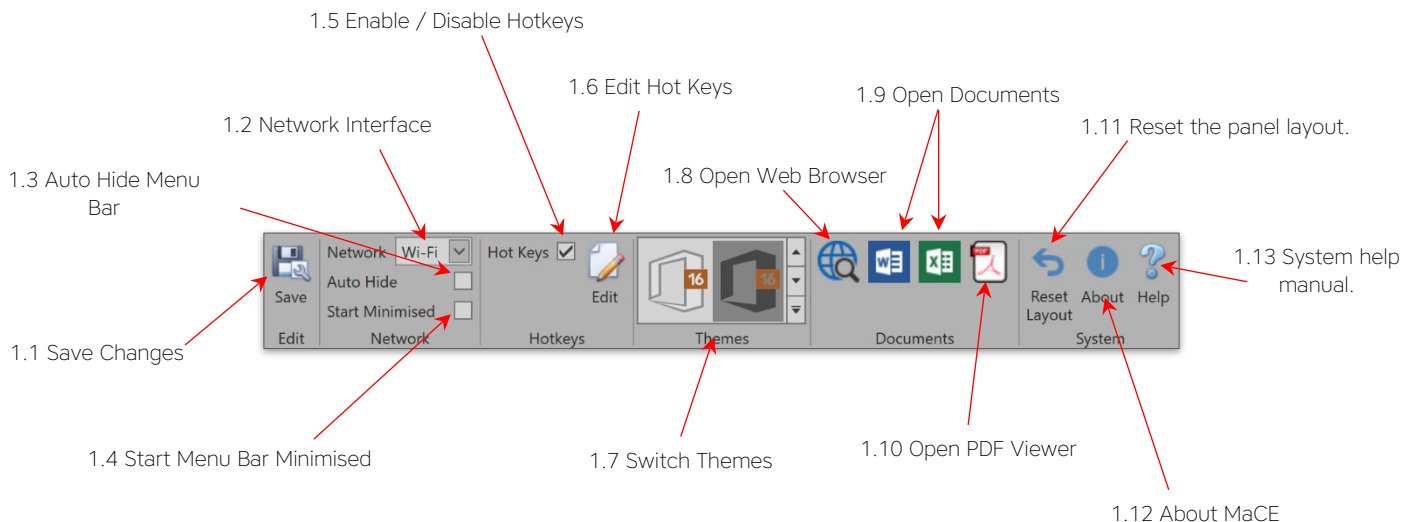
The online map source list can be cleared by clicking the Clear button. This will wipe every item in the list and cannot be undone.

MaCE Menu Items



1. Home

The MaCE home menu provides access to base applications and settings.



1.1 Save Changes

Any changes made in this menu panel will take effect immediately but will not persist over application restart. If you'd like the changes you make to persist, press the Save button after each change is made.

1.2 Network Interface

This drop down allows you to select which interface you'd like your traffic to pass over, if you are connected to multiple networks. When a network connection is lost, you will be notified by MaCE and have to select a new Network Interface from this menu.

1.3 Auto Hide Menu Bar

When the Auto Hide checkbox is checked, it will remove the menu bar and menu items, to provide more screen real-estate for the functions of MaCE. The menu bar can be brought back by clicking the menu item in the top right and unchecking the Auto Hide checkbox.

1.4 Start Menu Bar Minimised

With this selected, the application will start with the menu bar minimised. To expand the menu bar, single click a menu item to display the menu while in use, and double click a menu item to pop out the menu bar. If the Start Minimised checkbox is checked, regardless of the menu bar state when the application is closed, it will not be shown on application start.

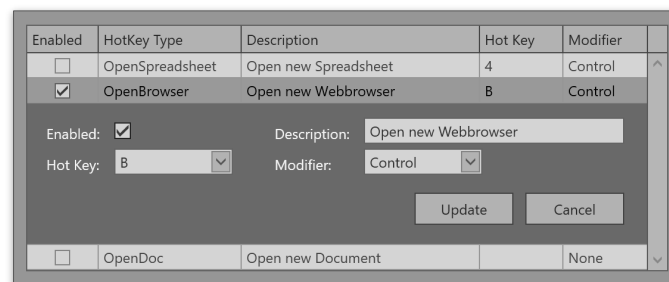


1.5 Enable / Disable Hot Keys

Checking the Hot Keys checkbox allows hotkeys to be used to open a browser or document using the edit button.

1.6 Edit Hot Keys

The hotkeys can be edited using the 'Edit' button, to enable and disable specific hotkeys, change the description, and set the Hot Key and the Modifier. For the hotkey to be functional, the Enabled check box must be checked.



1.7 Switch Themes

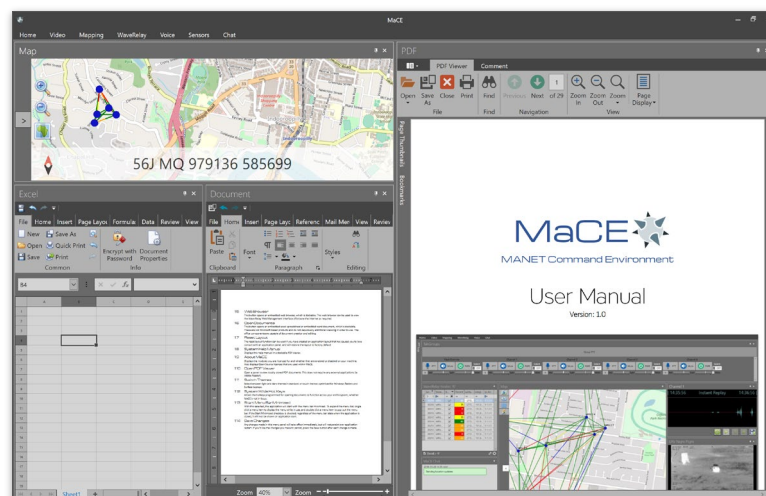
Select between light and dark themes in standard or touch themes optimised for Windows Tablets and Surface Laptops.

1.8 Open Web Browser

This button opens an embedded web browser, which is dockable. This web browser can be used to view the Wave Relay Web Management Interface or browse the internet as required. The browser is chrome based and flash capable.

1.9 Open Documents

This button opens an embedded excel spreadsheet or embedded word document, which is dockable. These are not Microsoft based products and do not require any additional licensing in order to use. The office components are capable of document creation and editing.





1.10 Open PDF Viewer

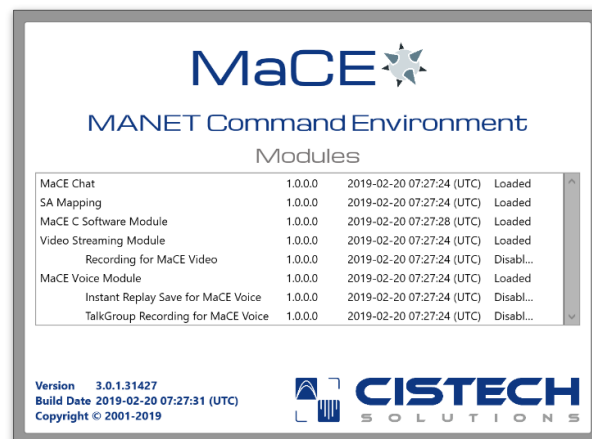
Open a panel to view locally stored PDF documents. This does not require any external applications (i.e. Adobe Reader).

1.11 Reset Layout

The reset layout function can be used if you have created an application layout that has caused you to lose contact with an application panel, and will restore the layout to factory default

1.12 About MaCE

Displays the modules you are licenced for and whether they are enabled or disabled on your machine. Disabled modules will not load, saving your machines processing for the modules that are being loaded.



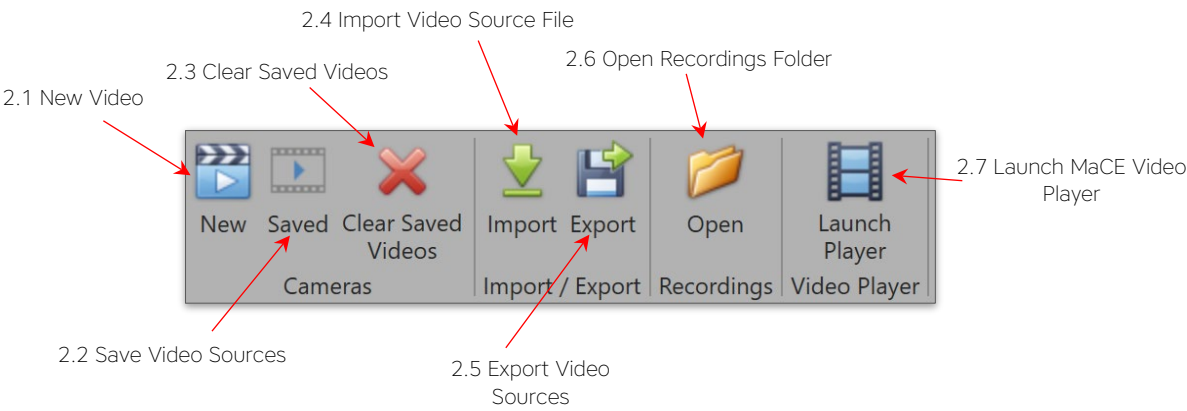
1.13 System Help Manual

Displays this help manual in a dockable PDF viewer. This can also be launched by pressing the F1 key.



2. Video

MaCE video allows for access, configuration, and import/export of video services.



2.1 Create New Video

Users can create a new video through the New button. The New button will be greyed out and will only become active once the Saved panel is open. To create a new video, open the Saved Video Panel and then click the New button. This video will automatically be saved into the saved videos and will be available when the application is restarted.

The 'New Video' configuration dialog box contains the following fields and options:

- Name: Video Source
- Connection Type: Auto (dropdown)
- Url: udp://239.1.1.1:1234
- Show Overlay: ☒ Overlay Text: This is a Video Source
- Auto Start: ☒ Enable Recording: ☐
- Single Thread: ☐ Low Delay: ☒ Vid Sync: ☒
- Buffer: 200 Jitter: 0 Device Lost Timeout: 5
- Auth Required: ☐ Username: Password:
- Use Proxy: ☐ RTSP Proxy:
- Audio: ☐ Muted: ☐ Vol: (slider)
- Buttons: Save, Cancel

Name: Provides a name for the camera. This name is dynamically generated on a new camera creation

Connection Type: The connection type determines how the stream should connect. The options are Auto, Multicast, Unicast, TCP Interleave, and RTSP over HTTP. If you know the connection method required, select the correct method otherwise select auto (This will poll through the connection methods until a connection is successful).

URL: Enter the URL of the video including any port information. The @ symbol is required if using URL's in VLC.



Overlay: Enables the placement of the Overlay text on the video stream

Auto Start: Determines if the video is auto started on application load. Regardless, the MaCE application will remember the placement of any video panel within the main application and reload that video when the application starts. This setting determines if the video will auto connect on load.

Enable Recording: Determines if the video stream can be recorded. Recording requires that the stream be informed about the potential of recording and if you need the ability to record mid-stream, enable recording. This will not record the whole stream, just provide the ability to record if required.

Single Thread: Determines if the video stream should use single or multi thread processing. Note: for low latency, Single thread should be used as multi thread processing has additional latency. Typically, any TCP based video should use Multi thread.

Low Delay: Enables Low Delay processing of the video stream

Video Sync: Determines if the video should be buffered when required in order to maintain sync with the audio stream. In low delay UDP based video environments, this should be disabled

Buffer: Amount of network buffer in milliseconds. Set this to 0 for low latency applications

Jitter: Amount of packet jitter to accept (in milliseconds)

Device Lost Timeout: Determines the amount of time that the video decoder has not received a valid inbound packet before presenting a connection lost message to the user

Auth Required: Determines if the stream requires authentication

Use Proxy: If the stream requires connection through a proxy, enable this and enter the IP for the RTSP proxy to be used.

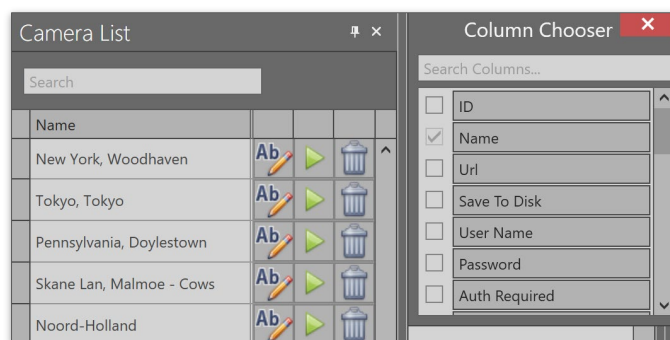
Audio: Determines if the video stream connection should decode audio. If this is not enabled, no audio will be available in the stream presentation.

Muted: If audio is available and desired, this will mute the audio by default. This is designed to prevent saturation of video noise if multiple streams are selected for auto connection and audio is enabled.

Volume: This provides the ability to adjust the audio level at start-up on a per stream basis.

2.2 Saved Video Sources

The saved videos button provides access to pre-configured and saved video sources. Each stream is presented as a single line in a flyout panel with the ability to edit, play or delete the stream. If you right click the tables top bar, you can select which columns are displayed in your camera list and customize your screen to what you need to see.



When a video source is played by pressing the Play button, the connection properties of the video are displayed as a translucent overlay onto each video panel.

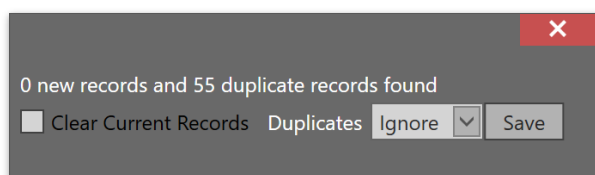
The ability to start and stop the stream are displayed when the video is clicked, as well as a number of functions based on what was enabled in the stream connection information. Non-accessible items will be greyed out.

2.3 Clear Saved Videos

This button will clear the entire list of videos in your saved panel. You will be prompted with a confirmation before the list will be cleared.

2.4 Import Video Source File

You can use the import button to import a video file created on another instance of MaCE. To import, select the file you wish to import, and the application will prompt you with any duplicates, with an option to Add New, Ignore or Replace these duplicates in your Videos list.



2.5 Export Video Sources

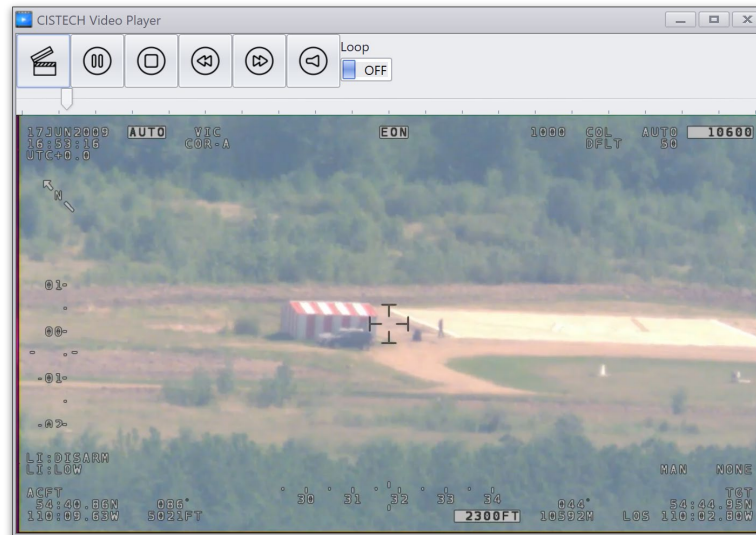
You can export your video sources for another instance of MaCE to import. To export, simply click the Export button and select the location you'd like to export your video source file to.

2.6 Open Recordings Folder

If you are licenced for recordings, this option will allow you to open the folder that the video recordings are saved in.

2.7 Launch MACE Video Player

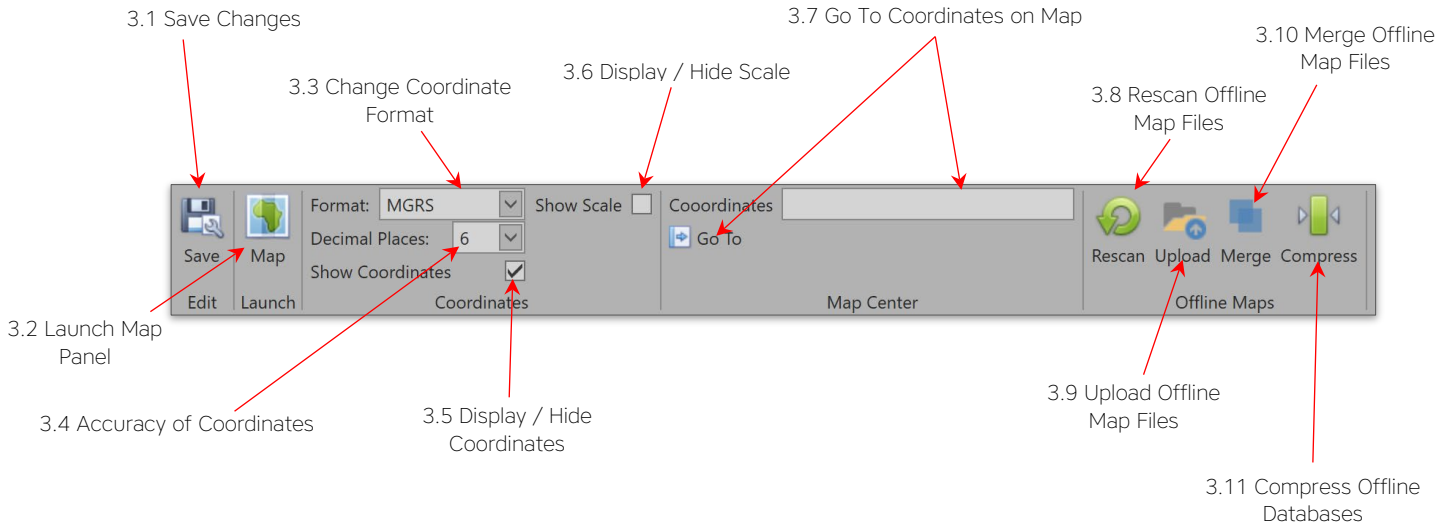
MaCE includes the MaCE video player, which can be access through the Video menu. This video player runs externally to the MaCE application and can be used to view your saved video recordings.





3. Mapping

The Mapping menu provides access to controls relating to the map selection, coordinates system and caching timers.



3.1 Save Changes

Any changes made in this menu panel will take effect immediately but will not persist over application restart. If you'd like the changes you make to persist, press the Save button after each change is made.

3.2 Launch Map Panel

Launch the Map Panel if it has been closed.

3.3 Changes Coordinate Format

Allows changes of the coordinate format within the Map Panel to any listed. This will also change which format the coordinates are copied to clipboard when the user right clicks on the map.



3.4 Accuracy of Coordinates

This allows specification of how accurate the coordinates displayed at the bottom of the Map Panel are, from 1 decimal place to 6 decimal places. These do not affect the GARS or UTM coordinate formats.

3.5 Display / Hide Coordinates

Show or hide the coordinates displayed at the bottom of the Map Panel. This prevents overlapping of the scale and the coordinates when the Map Panel width it too small to accommodate both.

3.6 Display / Hide Scale

Show or hide the scale at the bottom of the Map Panel. This prevents overlapping of the scale and the coordinates when the Map Panel width it too small to accommodate both.



3.7 Go To Coordinates on Map

Enter coordinates in the text box and press the 'Go To' button to centre the map on that location. You can only enter coordinates in the format that you have selected in the Coordinates Format in this panel.

3.8 Rescan Offline Map Files

This allows you to rescan your offline map folder, allowing transfer of files to the Offline Map folder in *C:\ProgramData\CISTECH Solutions\MaCE\MaCE_Mapping\OfflineMaps* instead of through the Merge functionality. To populate your list with all the map files within that folder, hit the rescan button.

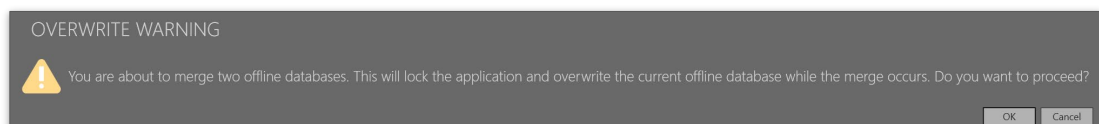
3.9 Upload Offline Map Files

Local mapping is supported within MaCE to allow for full application use in offline environments. The offline map file type that is supported by MaCE is .mbtiles. To upload mapping, select the 'Upload' button and select your .mbtiles file. Once the file has been uploaded, the program will automatically load it into your offline map list, which can be opened and changed from the map panel.

3.10 Merge Offline Map Files

To merge another .mbtiles file into your current offline map database, select the 'Merge' button and select the map file you wish to merge into your offline tile database. Wait for the file to finish loading before continuing to use the application. Depending on the file size, it will take a while to finish compressing the tile database.

Note: The application will overwrite any existing tiles with the new tiles being merged, if you are merging two different map sources (ie. Open Street Maps and Bing) be aware that data may be lost from your existing map source.



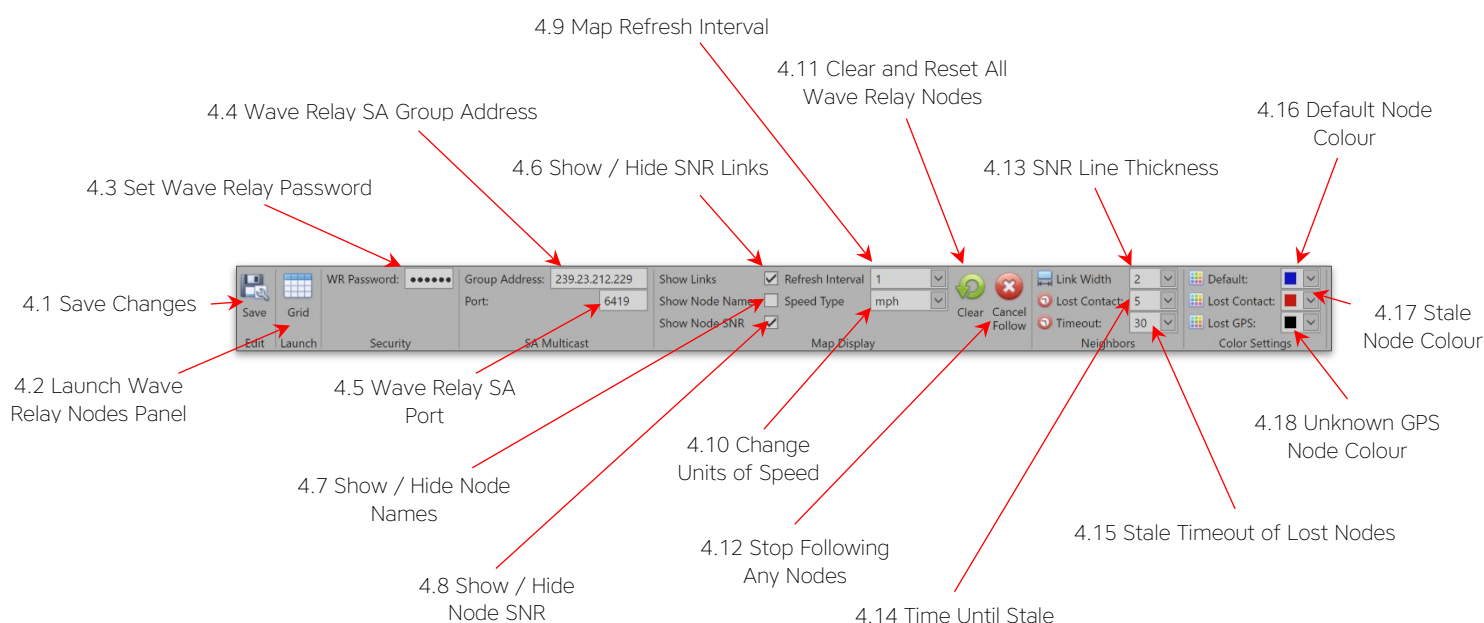
3.11 Compress Offline Databases

When two offline databases are merged together, duplicate tiles are not deleted. This compress function allows the user to delete any duplicate tiles within the database. This process might take a while, do not close the application until it has finished this process.



4. WaveRelay

The WaveRelay Menu provides access to system elements relating to the WaveRelay MPU radio and SA data.



4.1 Save Changes

Any changes made in this menu panel will take effect immediately but will not persist over application restart. If you'd like the changes you make to persist, press the Save button after each change is made.

4.2 Open Wave Relay Nodes Panel

When the Wave Relay Nodes Panel is closed, it can be reopened by clicking the Grid button. It will automatically open to the last location it was opened.

4.3 Set Wave Relay Password

If the Wave Relay password is set in this panel, it will automatically be entered when a user selects 'Advanced Options' in the Wave Relay Nodes Panel, or from the pop out menu when a node is clicked on the Map. If the password is not set, or is incorrect, the user will be prompted to enter the correct password in the Web Management Interface before it can be accessed.

4.4 Wave Relay SA Group Address

This is the multicast IP address that the application will subscribe to in order to receive and display Wave Relay Situational Awareness. It will automatically set to the default.

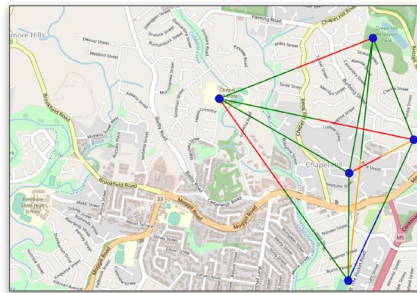
4.5 Wave Relay SA Port

This is the port that the application will use in order to receive and display Wave Relay Situational Awareness. It will automatically set to the default.



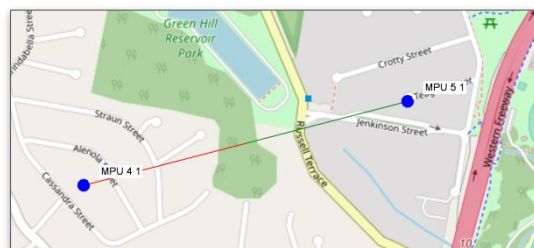
4.6 Show / Hide SNR Links

This allows the user to display or hide the SNR lines between Wave Relay nodes, depending on requirement. The SNR lines show forward and reverse SNR, occasionally providing a line with two colours. Each radio will display the quality of the received signal from its partnered radio.



4.7 Show / Hide Node Names

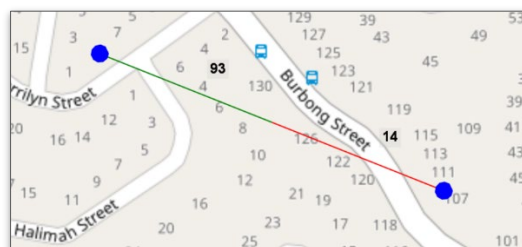
Allows the user to show or hide the names of the nodes next to the node on the Map.



4.8 Show / Hide Node SNR

Allows the user to show or hide the numerical SNR values that are displayed alongside the SNR line on the Map. The number indicates Receive SNR from the perspective of the closest node. In the image below, the right node can receive the left node with a SNR of 14.

Large discrepancies such as this can indicate an imbalance between the two nodes such as incorrect or imbalanced power settings.



4.9 Map Refresh Interval

This interval sets how often the Map will refresh the received information about the nodes on the map. The more nodes in your network, the longer this refresh interval should be set to due to the higher amount of processing required per refresh.

4.10 Change Units of Speed

This will change the units of speed that are shown in the Wave Relay Nodes Panel column. The units available are:

Kilometres / hour : km/h

Miles / hour : mi/h

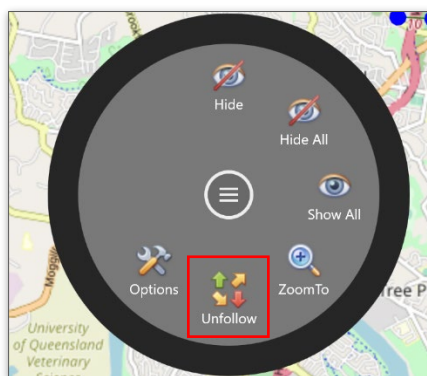
Metres / second : m/s

4.11 Clear and Reset All Wave Relay Nodes

If any changes are made to your network, or if you are having trouble displaying any nodes in your Map Panel, press the Clear button to restart the Wave Relay decoder and restart its process. This will remove all nodes from your Wave Relay Map Panel and your Wave Relay Nodes Panel until it detects nodes on the Wave Relay Group Address.

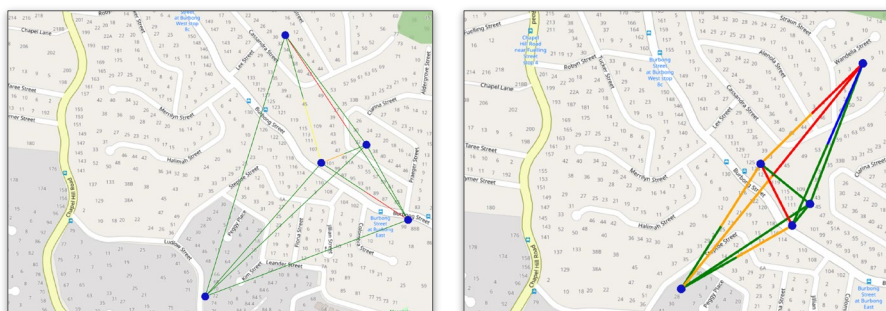
4.12 Stop Following Any Nodes

If a node is being followed on the map, this follow can be cancelled by pressing the Cancel Follow button, or by clicking the node and selecting Unfollow in the radial menu.



4.13 SNR Line Thickness

Sets the thickness of the line marked on the Map Panel between nodes. This allows a more or less obvious line, depending on the situation and use of the application.



4.14 Time Until Stale

This sets the time until a node is classified as stale. A stale node is a node that MaCE has not received a packet from in this specified amount of time. Once this time is reached, the node will change to the colour selected in Lost Contact in this menu. The node will remain stale until the Timeout is reached, at which point it will be removed from the Map Panel and the Wave Relay Nodes Panel.

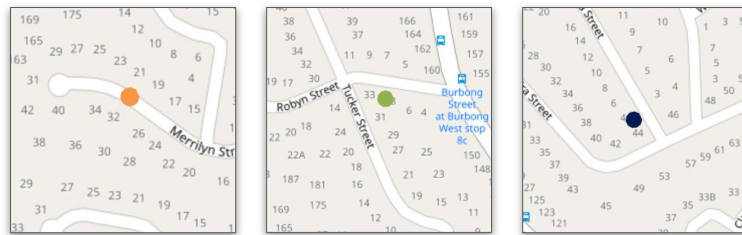


4.15 Stale Timeout of Lost Nodes

This sets a time until stale nodes are removed from the Map. They will stay in their last known location with the colour specified in the Lost Contact field in this menu panel until this timeout is reached. Once the time is reached, they will be removed from the Map Panel and the Wave Relay Nodes Panel.

4.16 Default Node Colour

Sets the default colour of a node displayed on the map. This allows choice of different colour for use on different maps that require more obvious colours for visibility. This will apply for all nodes on the map and cannot be individually specified.



4.17 Stale Node Colour

Sets the colour of a node that has been uncontactable for the amount of time specified in the 'Lost Contact' field in this menu. This colour will be applied to all nodes that are classified as stale. They will remain on the map until the Timeout time is reached.

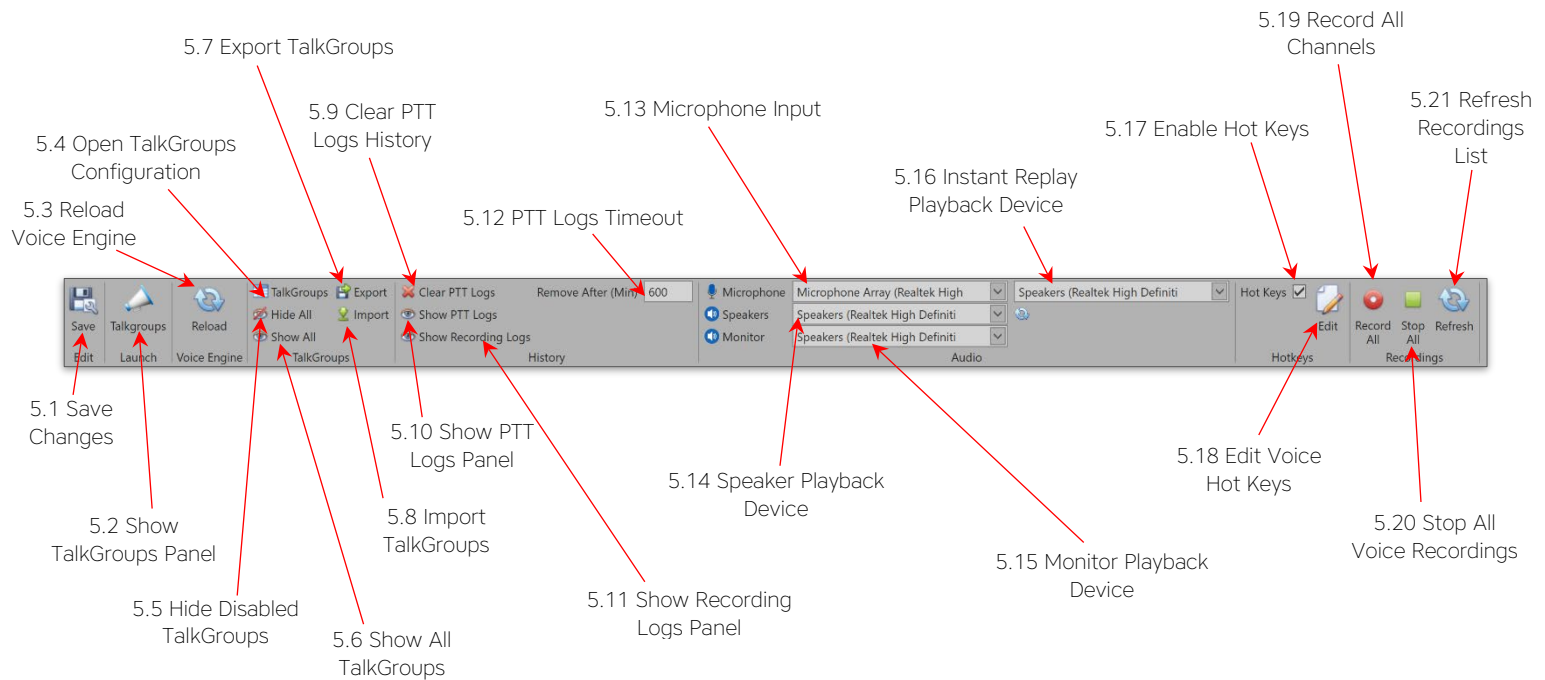
4.18 Unknown GPS Node Colour

Sets the colour of a node that has lost GPS. The node will stay this colour until it regains GPS location or is removed from the network.



5. Voice

The MaCE Voice menu provides access to control the TalkGroups used within the MaCE application. By default, 16 TalkGroups are provided and configured to operate on the default WaveRelay multicast IP addresses and codec.



5.1 Save Changes

Any changes made in this menu panel will take effect immediately but will not persist over application restart. If you'd like the changes you make to persist, press the Save button after each change is made.

5.2 Show TalkGroups Panel

If you have closed the TalkGroups Panel, you will be able to reopen it by clicking the Launch TalkGroups button. When you close the TalkGroups panel, it will stop the voice process, and reopening the panel will restart the voice process which could take a few seconds. This is so no extra network traffic is coming through your device, when you are not using voice as a service.

5.3 Reload Voice Engine

If you have made any changes to the voice settings or are seeing any playback problems with your TalkGroups, reload the voice engine to restart the voice process.

5.4 Open TalkGroups Configuration

The TalkGroups will be defaulted to Persistent Systems default TalkGroup settings. To change these to your custom TalkGroups, open the TalkGroups configuration.

Double clicking on a talk group will allow configuration of that TalkGroup settings and codec. The Visible check box determines if the TalkGroup PTT control is visible in the Voice Panel.

#	Name	Codec	Payload_Size	Payload Type	IP	Port
Name: Flash Override						
Codec: G.711 uLaw		Payload_Size: 60	Payload Type: Default		IP: 239.192.60.0	
		Port: 60000		Update Cancel		
2	Channel 1	G.711 uLaw	60	Wave Relay	239.192.60.1	60001
3	Channel 2	G.711 uLaw	60		239.192.60.2	60002
4	Channel 3	G.711 uLaw	60		239.192.60.3	60003
5	Channel 4	G.711 uLaw	60		239.192.60.4	60004
6	Channel 5	G.711 uLaw	60		239.192.60.5	60005
7	Channel 6	G.711 uLaw	60		239.192.60.6	60006
8	Channel 7	G.711 uLaw	60		239.192.60.7	60007
9	Channel 8	G.711 uLaw	60		239.192.60.8	60008
10	Channel 9	G.711 uLaw	60		239.192.60.9	60009
11	Channel 10	G.711 uLaw	60		239.192.60.10	60010
12	Channel 11	G.711 uLaw	60		239.192.60.11	60011
13	Channel 12	G.711 uLaw	60		239.192.60.12	60012

Name: The name of the channel as it will be displayed in the TalkGroups panel and will appear in the saved recording files names.

Codec: Selects the audio codec used for transmission and reception. This setting should be common across all endpoints on a TalkGroup

Payload Size: This defines the size of the payload of the IP packet and equates to the sample size or scale of the packet. Every codec has a different base sample size so calculations will need to be done to ensure that you have selected the right size. For Wave Relay, the Codec is G711uLaw with a Payload size of 60ms (the default is 20)

Payload Type: This setting is only applied if the CODEC selected is OPUS. As OPUS is a dynamic codec, multicast implementations between vendors can change. This setting allows you to set the payload type for OPUS to align with either Wave Relay, Motorola Wave, or the CISTECH GV1 (Default)

IP: The IP that this channel will subscribe to for incoming and outgoing voice transmissions

Port: The port that this channel will subscribe to for incoming and outgoing voice transmissions

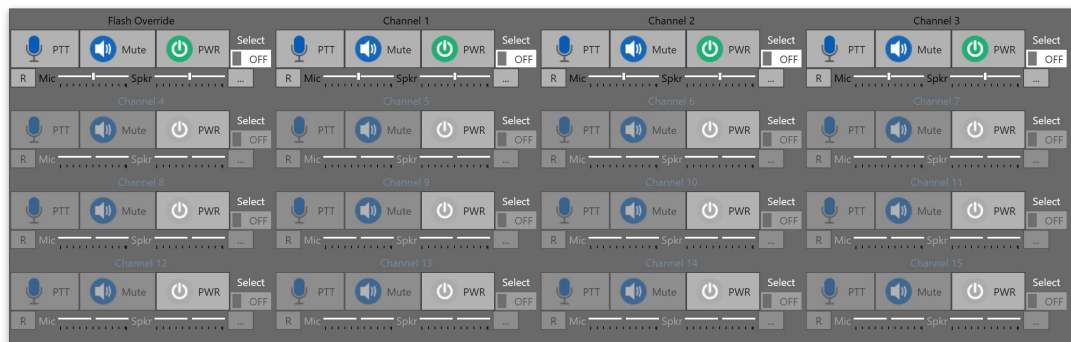
5.5 Hide Disabled TalkGroups

After you have enabled the TalkGroups you wish to use, the disabled TalkGroups can be hidden using the Hide All button. It will remove all TalkGroup controls that are turned off in the Voice panel. This is designed to save screen real estate in environments where not all 16 TalkGroups are required by the operator.



5.6 Show All TalkGroups

If you have hidden TalkGroups, you can show them all by pressing the Show All button. This will display all 16 TalkGroups, whether they are enabled or not. This gives you an opportunity to enable any TalkGroups before hiding the excess TalkGroups again.



5.7 Export TalkGroups

To share your TalkGroups to another device, you can export your file to be imported elsewhere. Simply click Export and select the location you'd like the exported file to be located.

5.8 Import TalkGroups

If you have TalkGroups that have been configured on a different device, you can import them here instead of having to reconfigure all the TalkGroups individually. Select the file that you'd like to import, and it will overwrite all your TalkGroups with those set in the imported file. This will cause the Voice Engine to restart, which could take a few seconds.

5.9 Clear PTT Logs History

To clear all records in your PTT Logs, click the Clear PTT Logs button. These logs will automatically be removed after the PTT Logs Timeout has been reached.

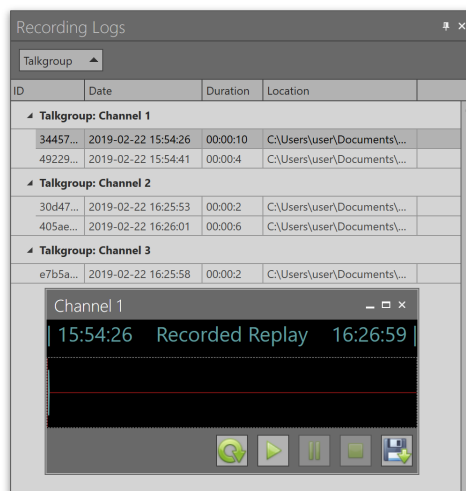
5.10 Show PTT Logs Panel

Similar to the Recording Logs panel, the PTT logs can be viewed by opening the PTT Logs Panel. These logs will be removed when the PTT Logs Timeout has been reached, or when the user clears the PTT Logs.

PTT Logs				⌵	×
Date	Label	Channel	Duration		
16:14:24	RTP2	Channel 1	00:00:00		
16:14:24	RTP3	Channel 2	00:00:00		
16:14:24	RTP4	Channel 3	00:00:00		

5.11 Show Recording Logs Panel

The recording logs panel will display all your voice recordings that are located by default in Documents\MaCE\MaCE_Voice\Recordings. From this panel, you can double click on a recording to have playback through the Instant Replay panel. By right clicking the top menu bar, you can change which columns are visible, and Group By certain channels.



5.12 PTT Logs Timeout

Sets the amount of time until PTT Logs are removed from the PTT Logs list. This time is set in minutes.

5.13 Microphone Input

Sets the device that will accept the microphone input for voice. If a device has been plugged in but is not displayed in this menu, press the refresh button to repopulate this list.

5.14 Speaker Playback Device

Sets the primary device that will be used to playback the audio for monitoring. This will be the default for all channel playback. If a device has been plugged in but is not displayed in this menu, press the refresh button to repopulate this list.

5.15 Monitor Playback Device

Sets the device that will be used to playback the audio for monitoring. This is designed so a user can have some channels in headphones, but also select channels over a loud speaker for wider situational awareness. If a device has been plugged in but is not displayed in this menu, press the refresh button to repopulate this list. To select a device for monitoring, click the three dots next to that channel and check the Mon checkbox.

5.16 Instant Replay Playback Device

Sets the device that will be used to playback the audio from Instant Replays. If a device has been plugged in but is not displayed in this menu, press the refresh button to repopulate this list.

5.17 Enable Hot Keys

If you wish to use Hot Keys for voice, make sure this checkbox is checked. You will not be able to edit the Hot Keys until this has been enabled.



5.18 Edit Voice Hot Keys

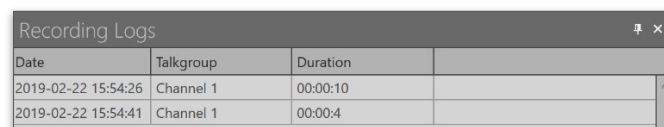
Similar to the Home menu, the voice Hot Keys can be edited using the edit button. You cannot have one Hot Key set up for two functions. Select a Hot Key and a Modifier, and make sure that Enabled is checked you will be able to use your Hot Keys. These will be functional even when MaCE is not in the foreground.

5.19 Record All Channels

If you have a licence for recording, this is an easy way to start recordings on all active channels. Recordings will be saved into Documents\MaCE\MaCE_Voice\Recordings. This will not record on channels that are powered off and will continue recording until you stop all recordings or stop each channel individually.

5.20 Stop All Voice Recordings

This stops all voice recordings that are currently running and will then list these completed recordings in the Recording Logs list.



Recording Logs			
Date	Talkgroup	Duration	
2019-02-22 15:54:26	Channel 1	00:00:10	
2019-02-22 15:54:41	Channel 1	00:00:4	

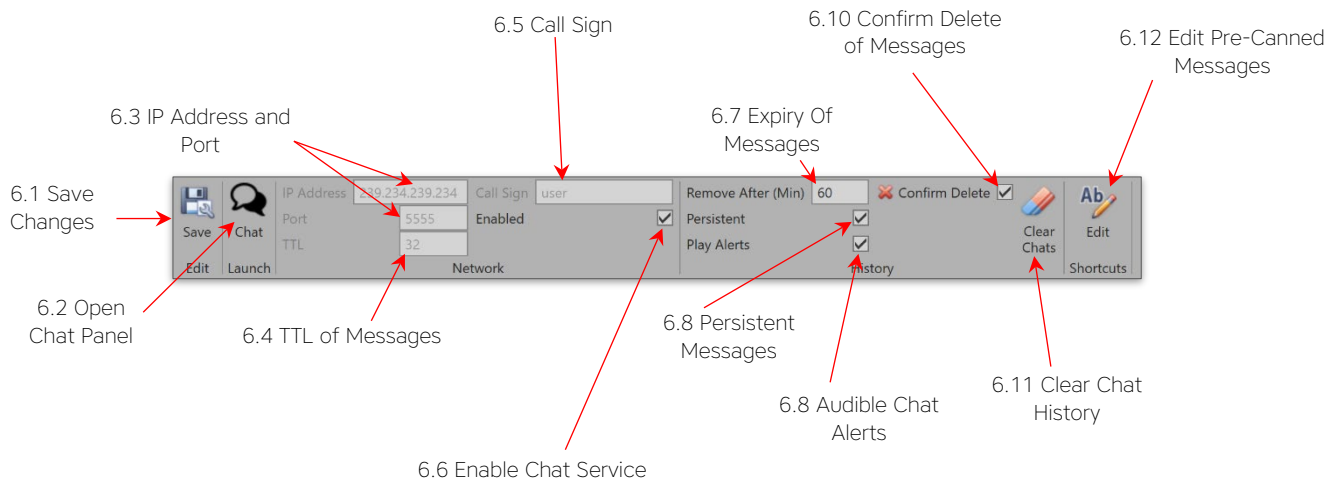
5.21 Refresh Recordings List

If you have removed recordings from your Documents recordings folder or would like to make sure your list replicates your recordings directory, click Refresh to recreate your Recording Logs list.



6. Chat

The chat menu allows for the configuration of the embedded application chat functions.



6.1 Save Changes

Any changes made in this menu panel will take effect immediately but will not persist over application restart. If you'd like the changes you make to persist, press the Save button after each change is made.

6.2 Open Chat Panel

If the chat panel is closed, this button will reopen the chat panel in its last docked location. This can then be moved as the user requires.

6.3 IP Address and Port

These set the IP address and port that chat will subscribe to. MaCE chat cannot subscribe to any other applications chat messaging and will only function with other MaCE applications.

6.4 TTL Of Messages

Sets the Time-To-Live of the chat messages being sent. Each time the message packet passes through a router, this TTL will decrease by 1. If the user would like to ensure all messages being sent are remaining local and not be relayed over a Router, a TTL of 1 would destroy the message before it is transmitted over any Router.

6.5 Call Sign

Set the call sign that your messages will be sent from.

6.6 Enable Chat Services

If chat is disabled, users will not be able to send or receive messages. Chat must be disabled before settings (ie. IP Address, Call Sign) can be edited.

6.7 Expiry of Messages

Sets the time until messages are deleted from the chat panel. Time is in minutes.

6.8 Persistent Messages

Allows user to set whether messages will be persistent upon application close. If this is not selected, messages will be lost on application close, and cannot be retrieved.

6.8 Audible Chat Alerts

Enables and disables audible alerts when a message is received.

6.10 Confirm Delete of Messages

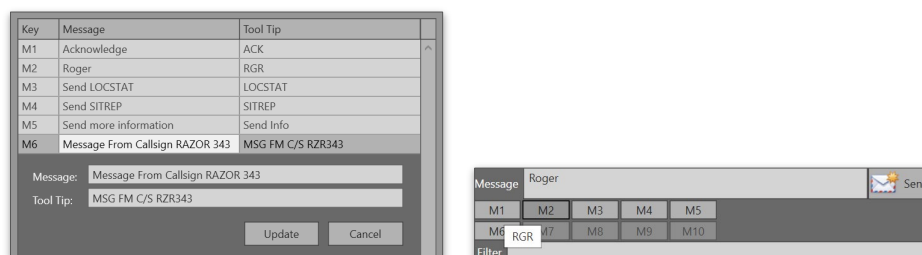
This will enable and disable a confirmation message being displayed after a message has been deleted. This reduces risk of accidentally message deletion during high tempo periods.

6.11 Clear Chat History

Removes all chat messages within the chat panel. This cannot be undone

6.12 Edit Pre-Canned Messages

Opens a panel to edit of the pre-canned messages, allowing for faster messaging. These messages will then populate in the MaCE Chat panel underneath the message composure text area, with the Tool Tip displaying on hover.



The pre-canned messages can be sent by double clicking in quick succession the button relevant to the message to be sent. This will immediately send the message.

6.13 Chat Functions

By right clicking messages within the MaCE Chat panel, you can copy, resend or delete messages.

Application Panel Functions

7. Map Node Panel

The Map Node panel provides a list of the WaveRelay nodes that are connected to the network.

7.1 Node Panel Contents

7.2 Table Heading Right Click Menu

7.3 Node Right Click Menu

Serial	Node Name	Batt %	Latitude	Longitude	Ip Address
35007	MPU 8	85	-27.511954	152.962071	1.1.1.1
35003	MPU 4	32	-27.511248	152.94716	1.1.1.1
35004	MPU 5	88	-27.505926	152.970793	1.1.1.1
35008	MPU 9	90	-27.499298	152.932798	1.1.1.1
35006	MPU 7	8	-27.496798	152.981651	1.1.1.1
35002	MPU 3	93	-27.493526	152.995853	1.1.1.1
35000	MPU 1	14	-27.49071	153.008048	1.1.1.1
35009	MPU 10	78	-27.487358	152.990482	1.1.1.1
35005	MPU 6	50	-27.476144	152.946856	1.1.1.1
35001	MPU 2	81	-27.475072	152.938994	1.1.1.1

7.1 Node Panel Contents

The application listens to the multicast address of the WaveRelay SA packets, configured in the WaveRelay Settings menu, and decodes the information for presentation on the Node Panel and the map.

7.2 Table Heading Right Click Menu

Right clicking on the table headings will present some options for column selection and filtering.

WaveRelay Nodes: 7

Serial Node Name Batt % Latitude Longitude Ip Address

Sort Ascending

Sort Descending

Clear Sorting

Hide Column Chooser

Best Fit

Best Fit (all columns)

Filter Editor...

Show Search Panel

Column Chooser

Search Columns...

☒ Serial

☒ Node Name

☒ Batt %

☒ Latitude

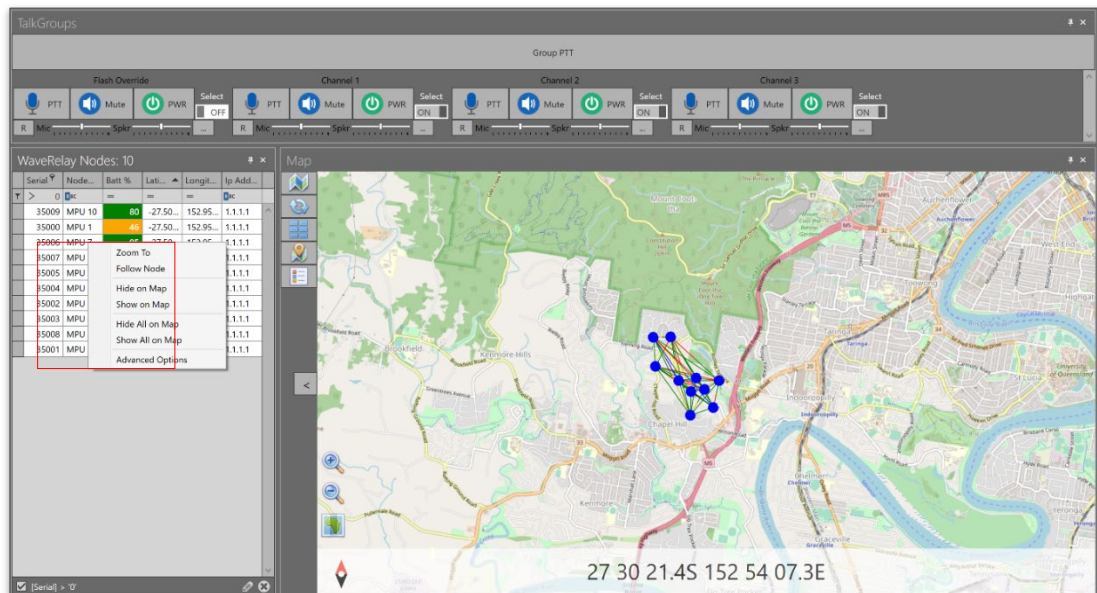
☒ Longitude

☒ Ip Address

☐ Altitude

7.3 Node Right Click Menu

This panel provides a right click context menu to control presentation of the nodes on the map as well as some shortcuts for zooming to a node and management of that node



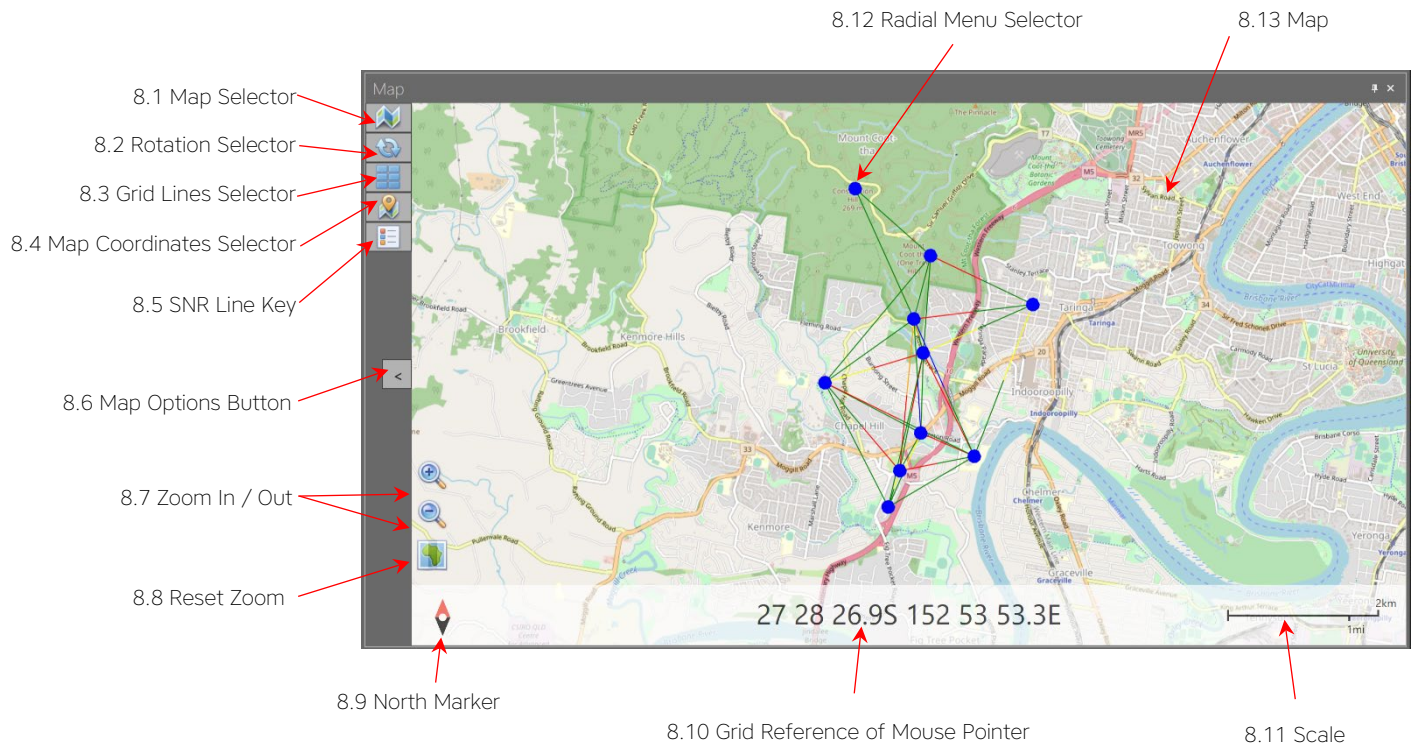
The concept behind Show All on Map / Hide All on Map is to reduce the screen clutter in busy environments where an operator may only be interested in monitoring a subsection of the network. By selecting Show All on Map / Hide All on Map, we can quickly modify the nodes displayed and categorise them by their display status.

Individual nodes may also have their visibility status changed if required.

The advanced option connects to the web management interface of the node and displays this in the embedded browser (entering the password of the WaveRelay device in the WaveRelay menu will negate the requirement for the user to login manually as well)

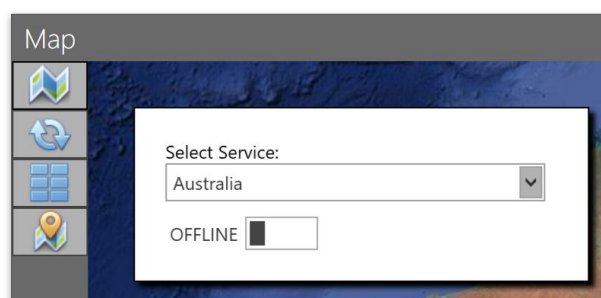
8. Map Panel

The map panel is the visual representation of your nodes placed over the map of your choice. Within this map panel, the user can rotate, zoom, select mapping, place grid lines and find accurate coordinates.



8.1 Online / Offline Map Selector

After maps have been uploaded using the Mapping Settings menu, different map files can be selected through the Online / Offline Map Selector. Toggle the Offline Map Selector to 'Online' to view the map sources that are created through the MaCE Manager Application.





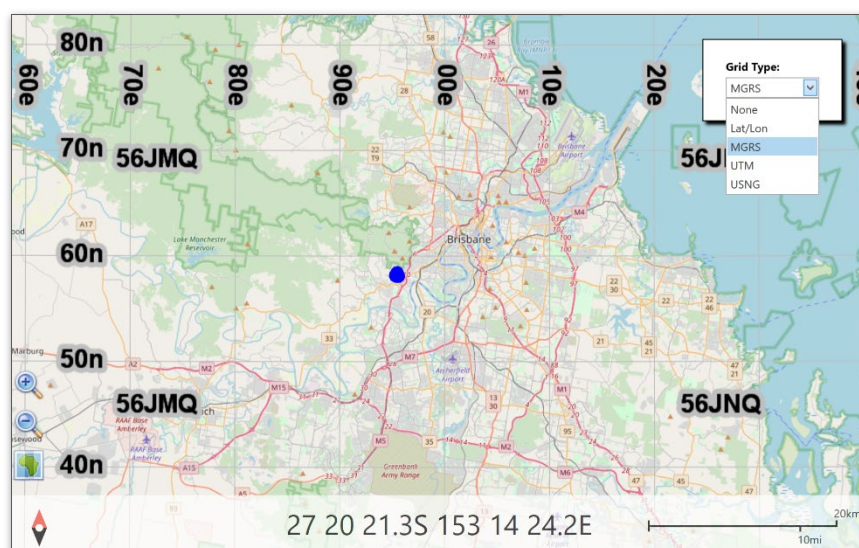
8.2 Change Map Rotation Selector

The rotational view of the map can be changed using the Map Rotation function, or by using a touch screen device. Using your mouse, scroll to the correct rotation on the map. The map can be quickly returned to North by clicking the Return to Map button in the bottom left of the Map Panel.



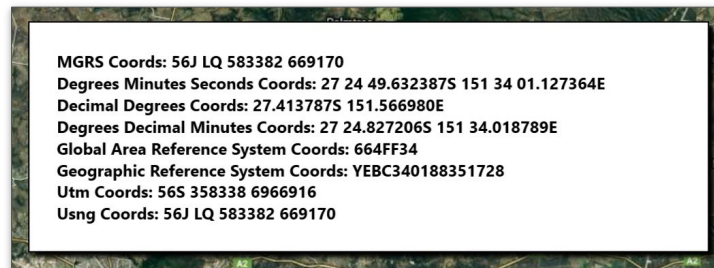
8.3 Grid Lines Selector

Different grid types can be displayed on the map using the Grid Lines function of the application. Once the Grid Lines Selector button has been pressed, select which Grid Type to be displayed from the box at the top right of the Map Panel. The choices are None, Lat/Long, MGRS, UTM and USNG.



8.4 Map Coordinates Selector

To view accurate coordinates of the map, open the Map Coordinates box. This panel will show accurate coordinates of your current pointer location on the map. It will display MGRS, DMS, Decimal Degrees, Degrees Decimal Minutes, Global Area Reference System, Geographic Reference System, UTM and USNG.



8.5 SNR Line Key

To view the key for the SNR Line colours, press the SNR Line Key button in the Map Panel. This will display the below box, which indicates the numerical values for each SNR Line colour.

SNR Line Key		
Black	—	0
Red	—	1 - 15
Orange	—	16 - 20
Yellow	—	21 - 25
Blue	—	26 - 30
Green	—	31 - 99
Purple	—	100+
The attached line indicates the received signal from the remote end.		

8.6 Map Options Button

This button will expand or hide the Map Options list, depending on which state the application is in. Hide the Map Options list for more real estate on your screen.

8.7 Zoom In / Out

Allows the user to increase or decrease zoom on the map by one level. The map will zoom in regardless of whether there are tiles loaded for that area being zoomed in on. The map engine will blur the tile that is closest to the zoom level being viewed.

8.8 Reset Zoom

This will reset the map zoom to level 1, allowing a fast view of the entire earth, instead of having to step back out using the Zoom Out button.

8.9 North Marker

If the map has been rotated, this will reset the rotation to 0, allowing a quick and precise rotation setting to north up.

8.10 Grid Reference of Mouse Pointer

Displays the grid reference of the mouse location at that time. The coordinates displayed here will be of the format selected in the Mapping menu and will update only when the mouse is over the Map Panel. These coordinates can be hidden by checking the 'Show Coordinates' button in the Mapping menu.

8.11 Scale

This is the scale of the map at this time, and it will change as the zoom level changes. The scale can be hidden by checking the 'Show Scale' button in the Mapping menu.

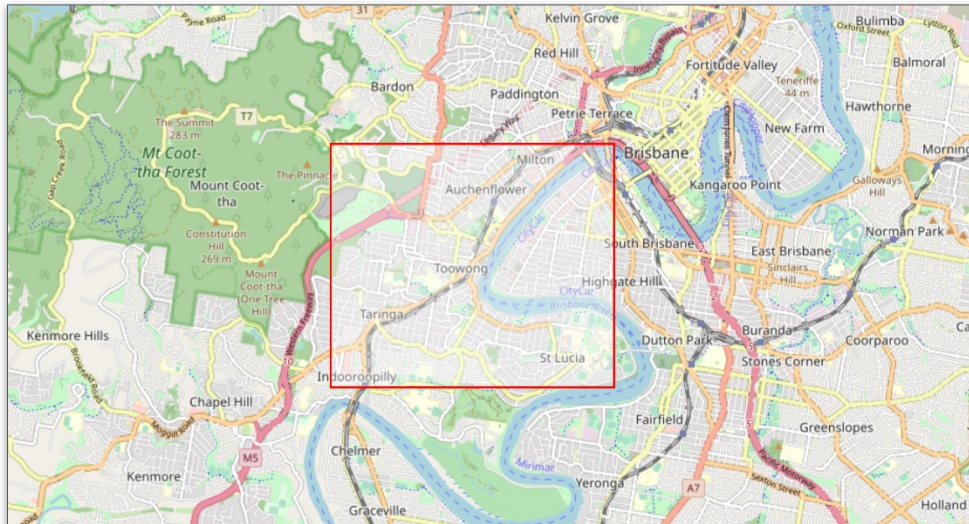
8.12 Radial Menu Selector

By clicking on a specific node, a radial menu will display with options for the node you selected. This menu provides the same options as the Wave Relay Node panel described above, being Hide, Hide All, Show All, Zoom To, Follow and Advanced Option.

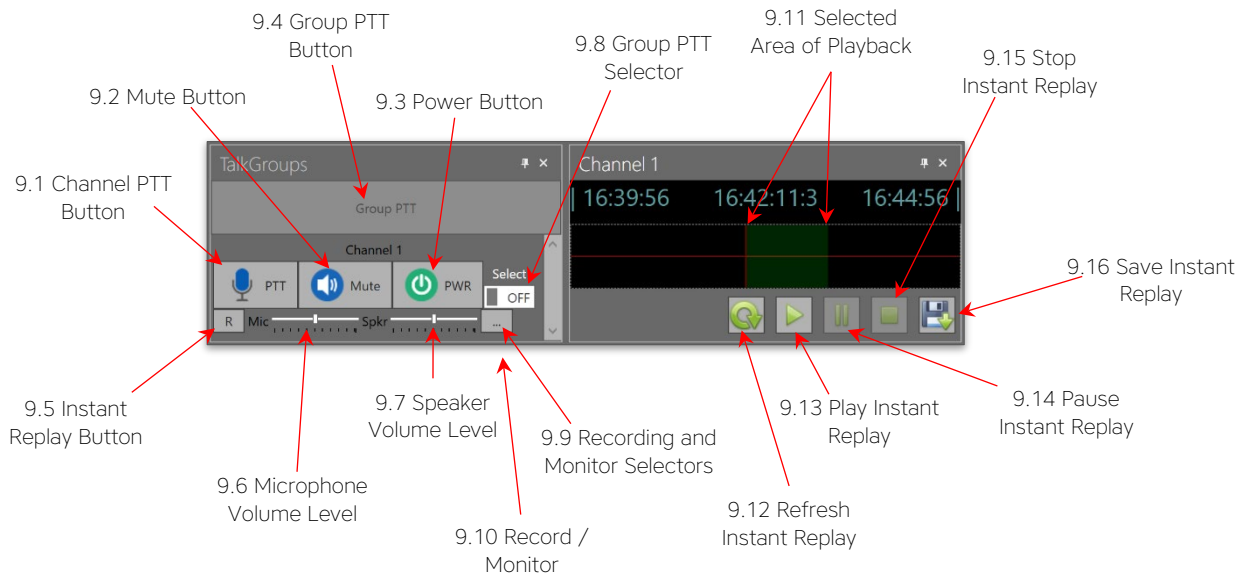


8.13 Map

You can double click the map area to zoom in or use the scroll on your mouse while the mouse is over the map in the location you wish to zoom in on. You can also press Shift + click and drag a square on the map to zoom in to that area.

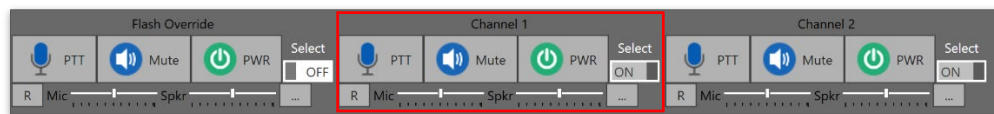


9. TalkGroups Panel and Instant Replay



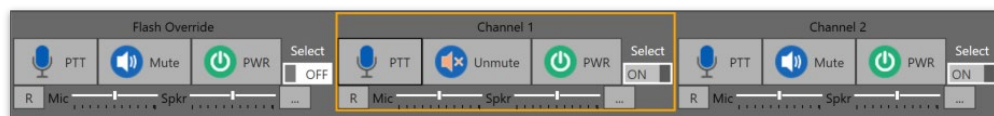
9.1 Channel PTT Button

A single channel can be transmitted on by pressing the PTT button for that channel. The channel that is being transmitted on will be given a red border.



9.2 Mute Button

A channel can be enabled by muted by pressing the Mute button. This will allow the user to see transmissions coming in on that channel, but they will not be transmitted through any playback devices. The muted channel will be given a yellow border.

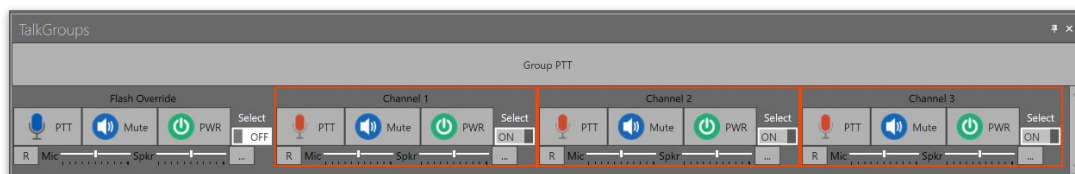


9.3 Power Button

The power button allows channels to be enabled and disabled. When channels are disabled, they can be hidden by pressing the 'Hide All' button within the Voice menu. A channel that is disabled will not subscribe to the multicast designated for it, saving network bandwidth.

9.4 Group PTT Button

Group PTT allows for multiple channels to be selected with the press of one button. Using the Group PTT Selector, turn on the individual channels the operator wishes to communicate through with the Group PTT button. The channels will be displayed with a red border when they are being used for Group PTT.



9.5 Instant Replay Button

Instant replay in the voice module is designed to allow the operator to review any incoming audio on a TalkGroup that they may have missed and thereby reduce the requirement for increased radio communications by asking the sender to repeat their last message.

To access the instant replay function on a TalkGroup, click the "R" button on the TalkGroup that you wish to review audio on. The instant replay feature stores the last 60 seconds of audio per TalkGroup in memory (not disk) to be accessed whenever the operator requires.

When the Replay button is clicked, the last 60 seconds of audio is captured and presented in a popup panel allowing the operator to review the audio.

If required, the Replay button on the TalkGroup can be clicked again and an updated snapshot of the channel audio will be presented in a new panel. This allows the operator to have multiple replay snapshots of audio from a single channel if required. This can be used in events where an operator may need to present a snapshot of replay audio to a co-worker that is not currently available and allow the operator to continue using the voice TalkGroup with continued Instant Replay features.

9.6 Microphone Volume Level

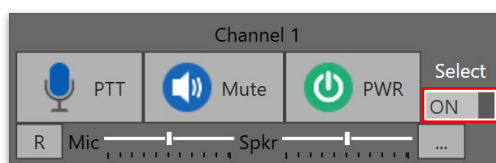
This allows microphone volume to be increased and decreased as the user requires.

9.7 Speaker Volume Level

This allows volume to be increased and decreased as the user requires. This will not affect the volume on the wider network.

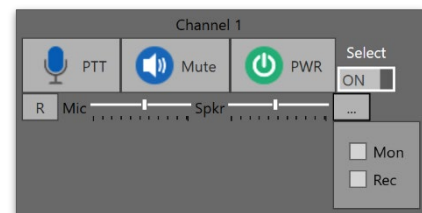
9.8 Group PTT Selector

The Group PTT Selector is the designator for which channels will transmit when the GroupPTT button is selected. To turn on Group PTT on an individual channel, switch the selector to on.



9.9 Recording and Monitor Selectors

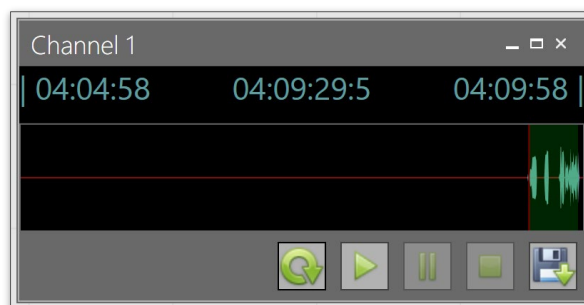
The recording and monitor selectors are used to start recording on a channel or designate a channels audio to be transmitted through the selected Monitor speaker device. To select which device the monitored channels shall transmit out, use the Monitor dropdown within the Voice menu. This is designed so a user can have some channels in headphones, but also select channels over a loud speaker for wider situational awareness.



Channels can start and stop recording individually by checking the 'Rec' checkbox and can be started or stopped as a group using the 'Start All' and 'Stop All' buttons in the voice menu.

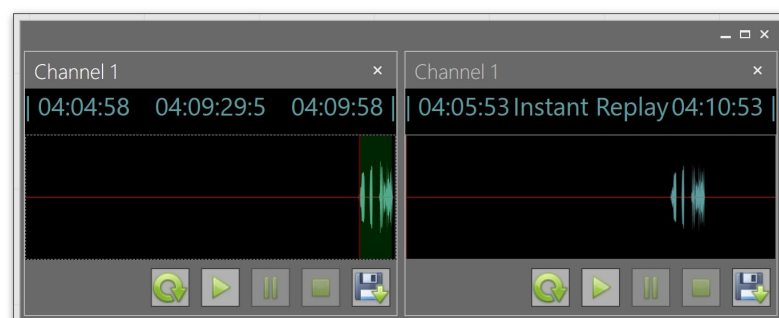
9.10 Selected Area of Playback

A selection of audio from within the Instant Replay Panel can be selected in order to play just that segment or to loop through automatically to allow deciphering of the message in poor audio environments.



9.11 Refresh Instant Replay

To keep the same panel open, but refresh the audio within the instant replay panel, press the refresh button. If you would like to keep this audio, but listen to more recent playback, you can open a new Instant Replay panel to have more than one open for each channel at a time.





9.12 Play Instant Replay

To play the entire Instant Replay, press the Play button with no time or portion selected. A start point of playback can be set by clicking at the specified time within the Instant Replay panel, and a portion can be selected by clicking and dragging to select within the Instant Replay panel.

9.13 Pause Instant Replay

When playing a portion of or the entire captured Instant Replay, you can stop the playback by pressing the Pause button

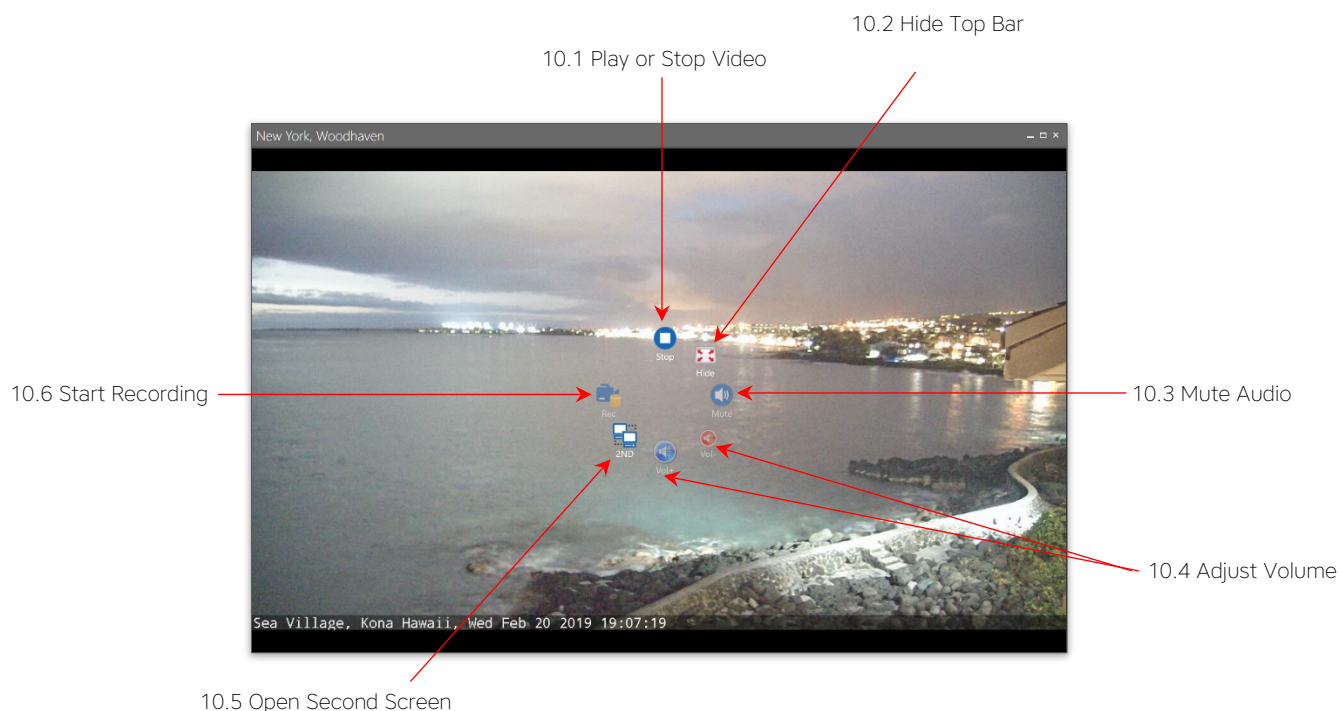
9.14 Stop Instant Replay

When playing a portion of or the entire captured Instant Replay, you can stop the playback by pressing the Stop button. This will cause your playback position within the Instant Replay to be lost.

9.15 Save Instant Replay

If required, the snapshot of audio may also be saved to disk. Note: Saving to disk does require an additional license to activate this capability. If the license for the Instant Replay Save to Disk feature is not installed, the save button will not appear.

10.Video Panel



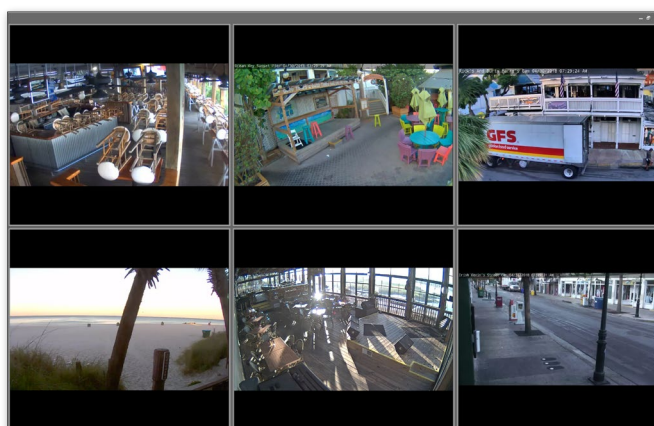
10.1 Play or Stop Video

Once the MaCE Video Player has loaded, if you do not have your video set to auto start, you will be required to start the video by clicking inside the video panel and pressing Play. This is also the method to stop the video when it is playing. If the video is not detected within the Device Lost Timeout time which is set in the video settings, the video will attempt to auto-reconnect. This reconnect attempt will occur up to 10 times, after which the video will need to be stopped and restarted.

10.2 Hide Top Bar

The top of bar of the video can be hidden by clicking the Hide button. This will provide more real-estate on the screen for the video.

The top bar is used to move the video and dock it with other panels. Multiple videos can be docked into a single view if required and moved to a second screen to increase real-estate or to provide a video display wall capability.





10.3 Mute Audio

Audio can be muted by clicking the Mute button. If the video has been configured to be muted when started, the video will have to be unmuted for the audio to play.

10.4 Adjust Volume

Volume for the video can be adjusted by clicking and holding on the Volume Up and Volume Down buttons.

10.5 Open Second Screen

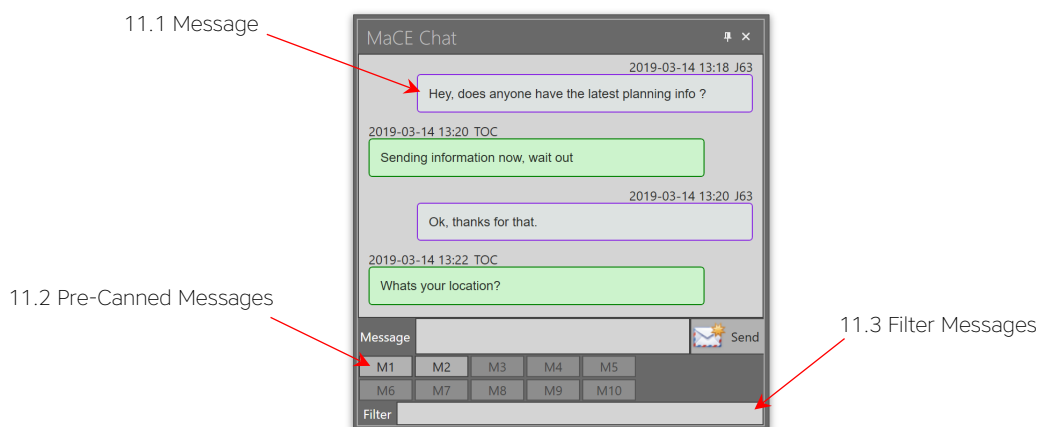
The second screen option will present a duplication of the video in a separate panel. This is intended for scenarios where the main application is required to be on a private screen however, presentation of a live stream is required to be output to a second screen for general viewing.

Display of the second screen will not create a second network connection but instead duplicates the display in a separate panel. This is intended to reduce network congestion on unicast streams.

10.6 Start Recording

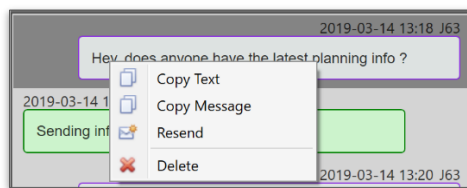
If you have a licence for recording, recording for the video can be started or stopped by pressing the Rec button. This option will be greyed out if you do not have a licence that supports recording. The video recordings will be saved to the Documents\MaCE\MaCE_Video\Recordings folder and can be opened in the CISTECH Video Player.

11. Chat Panel



11.1 Message

The message box will show the content of the message, along with the date and time the message was sent and the senders Call Sign above the message.



By right clicking the message, the message popup menu will appear. Copy Text copies the content of the message to your clipboard, Copy Message copies the content of the message as well as the date and time the message was sent and the senders Call Sign.

The message can be resent immediately by pressing Resend and deleted immediately by pressing Delete. If you have the Confirm Delete checkbox in the Chat menu selected, then you will be prompted to confirm you'd like to delete the message before it is deleted.

11.2 Pre-Canned Messages

These buttons relate to the pre-canned messages that can be configured in the Chat menu. By single clicking one of the shortcut buttons, the content of the pre-canned message will be copied to the end of your message textbox. If you double click one of the shortcut buttons it will immediately send all the content in your message textbox.

11.3 Filter Messages

To filter your messages by content, you can enter a keyword or keywords into the filter textbox and all messages containing that filter content will be displayed in the Chat Panel.

Frequently Asked Questions





FAQs Contents

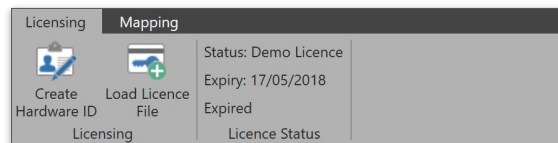
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How do I license the application?

MaCE Licensing is based on a machine Hardware ID (HID) and is licensed per feature. Each instance of MaCE is licensed separately as MaCE requires no server infrastructure to operate. MaCE licensing is perpetual and allows the machine, once licensed, to operate indefinitely.

In order to license MaCE, you will need to generate a Hardware ID for submission to the CISTECH Support team, and to have a PO Reference number so that the appropriate features can be added to your HID and allow MaCE to operate as intended.

To generate a HID, open the MaCE Manager application.

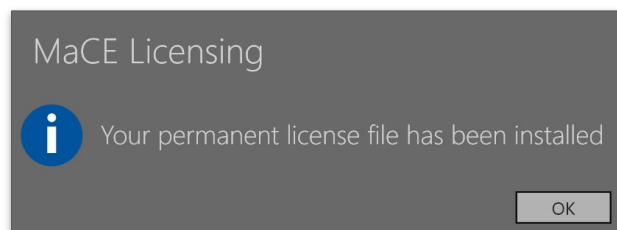


If you do not have an existing licence file, click "Generate Hardware ID" and save the file to disk.

This HID file will need to be submitted to CISTECH Solutions for proper licensing of the machine that the HID was generated on.

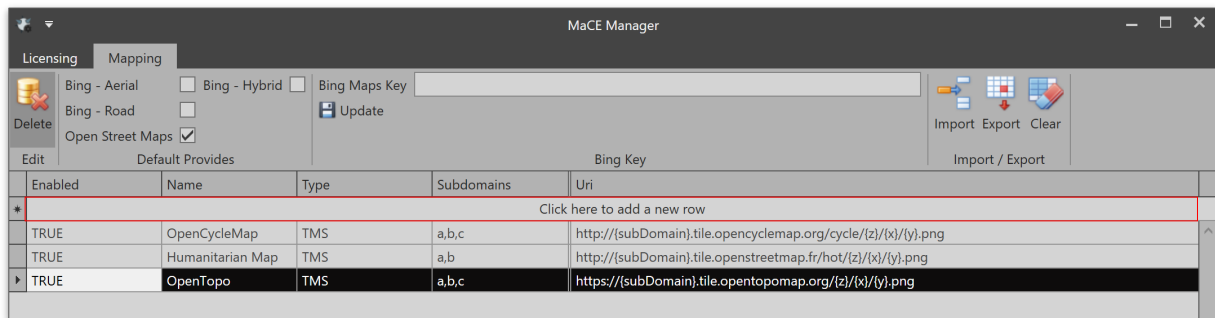
If you already have a licence file, you can load the licence file by clicking on the "Load Licence File" button.

Once uploaded, you will be provided with a notification about the state of the application and its licence.



How do I add an Online Map Source / Offline Server URL?

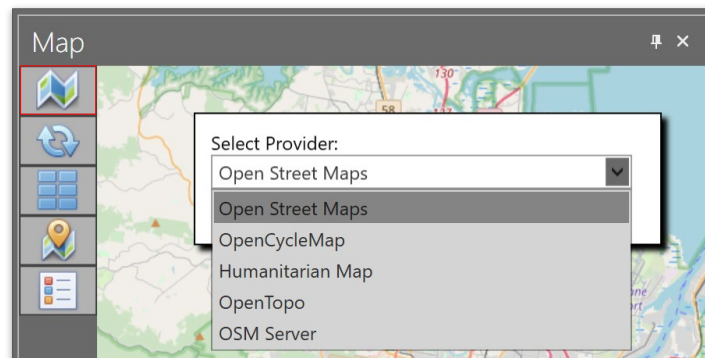
Online Map Sources / Offline Server URLs are added through the MaCE Manager application.



Add a new row by clicking 'Click here to add a new row' and enter all the relevant details.

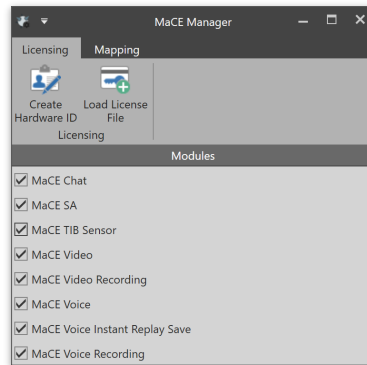
TRUE	OSM Server	TMS		http://10.50.0.212/{z}/{x}/{y}.png
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After closing MaCE Manager and opening MaCE, you will now be able to select this map source from the Online / Offline Map Selector in the Map Panel.



How do I enable and disable modules?

Enabling and disabling modules (i.e. voice, chat, video) is done through the Mace Manager Application.



Simple check / uncheck the modules you want to enable / disable and start the MaCE application.

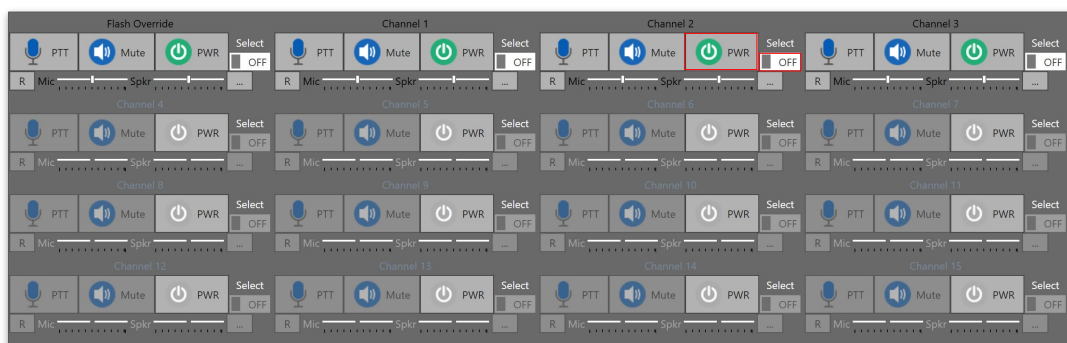
Why can't MaCE decode my video?

Some video codecs require external decoders before MaCE will be able to decode them. We recommend downloading and installing LAV Filters (<https://www.videohelp.com/software/LAV-Filters>) if you are having problems decoding your video inside MaCE. Run the installer and restart your laptop before attempting to view your video in MaCE again. If you continue to see issues with the MaCE Video Player, please contact us.

How do I use Group PTT in Voice?

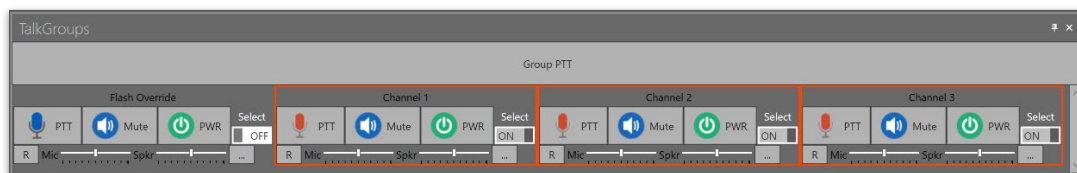
The Group PTT setting allows multiple channels to be keyed at the same time using one button press / hot key. Group PTT is configured under the Voice Settings menu.

Press the Show All button to display all TalkGroups and ensure all channels you wish to key with the Group PTT function are powered on (extra channels can also be powered on at the same time without including them in the Group PTT).



To activate Group PTT, change the Select slider from Off to On for each channel you wish to be keyed by the Group PTT function.

You can now key the Group PTT button, or use a configured hot key to activate selected channels simultaneously. You will get a red box around the keyed channels while the PTT is keyed.

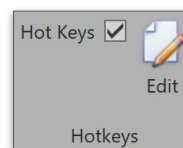


GroupPTT selections will not persist over application restart. This is to prevent inadvertent communication on a channel after application has been restarted.

How do I set Hotkeys?

Hotkeys can be configured in the Voice settings menu. These hotkeys allow individual channel PTT, individual channel mute and group PTT using the keyboard while focus is not on the MaCE application.

To enable and configure hotkeys, click the Edit button under the Voice settings menu. This will give you a list of the Hotkeys and their configuration.



Enabled	HotKey Type	Description	Hot Key	Modifier
<input checked="" type="checkbox"/>	GroupPTT	Group PTT	Space	Shift
<input type="checkbox"/>	ToggleSelectMute	Toggle mute on selected channels		None
<input type="checkbox"/>	ToggleUnselected...	Toggle mute on unselected chann...		None
<input type="checkbox"/>	ChannelPTT	PTT on Flash Override		None
<input type="checkbox"/>	ChannelSelect	Toggle Select on Flash Override		None
<input type="checkbox"/>	ChannelPTT	PTT on Channel 1		None
<input type="checkbox"/>	ChannelSelect	Toggle Select on Channel 1		None
<input type="checkbox"/>	ChannelPTT	PTT on Channel 2		None
<input type="checkbox"/>	ChannelSelect	Toggle Select on Channel 2		None
<input type="checkbox"/>	ChannelPTT	PTT on Channel 3		None
<input type="checkbox"/>	ChannelSelect	Toggle Select on Channel 3		None
<input type="checkbox"/>	ChannelPTT	PTT on Channel 4		None
<input type="checkbox"/>	ChannelSelect	Toggle Select on Channel 4		None
<input type="checkbox"/>	ChannelPTT	PTT on Channel 5		None
<input type="checkbox"/>	ChannelSelect	Toggle Select on Channel 5		None
<input type="checkbox"/>	ChannelPTT	PTT on Channel 6		None
<input type="checkbox"/>	ChannelSelect	Toggle Select on Channel 6		None
<input type="checkbox"/>	ChannelPTT	PTT on Channel 7		None

Double click on any Hotkey type to edit the configuration of that individual Hotkey.

☒ GroupPtt Group PTT Space Shift

Enabled: ☒ Description: Group PTT

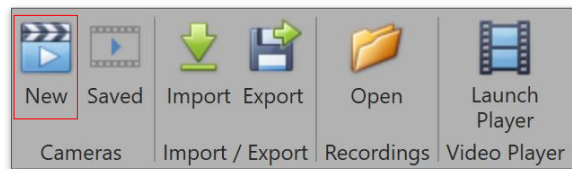
Hot Key: Space Modifier: Shift

Update Cancel

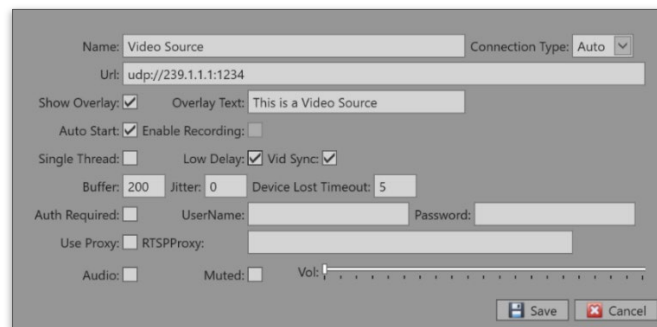
Ensure the Hotkey is enabled for it to function. Select a Modifier from None, Control, Alt and Shift, and select a Hotkey from options of the rest of the keys on the keyboard. The Hotkey will be disabled if 'None' is selected as a modifier. Once all fields have been completed, click Update to enable your hotkey.

How do I add a network video source?

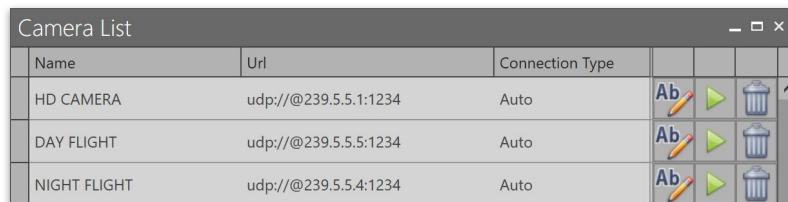
Videos can be created under the Video settings menu. Open the Saved panel, which will make the New button active. Click the 'New' button which will show a popup to configure the new video stream.



Configure the settings in the new video popup to match your required video stream inputs.



Once new video has been configured, open the Saved button to view all video streams.



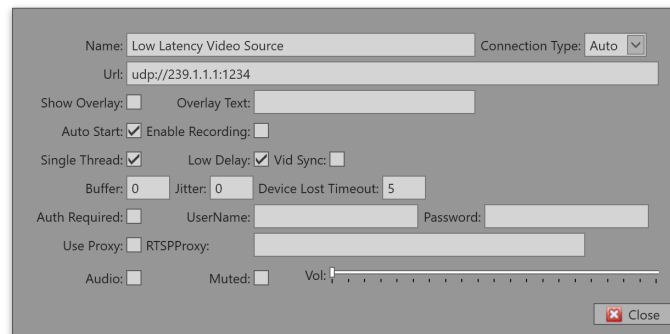
Click the play button on the right-hand side of the Camera List panel to bring up the video player.



Once the video is playing, you can stop the video, hide the top bar, toggle volume if available, create a second screen for projection and record (if available with your licence).

How do I configure video for low latency?

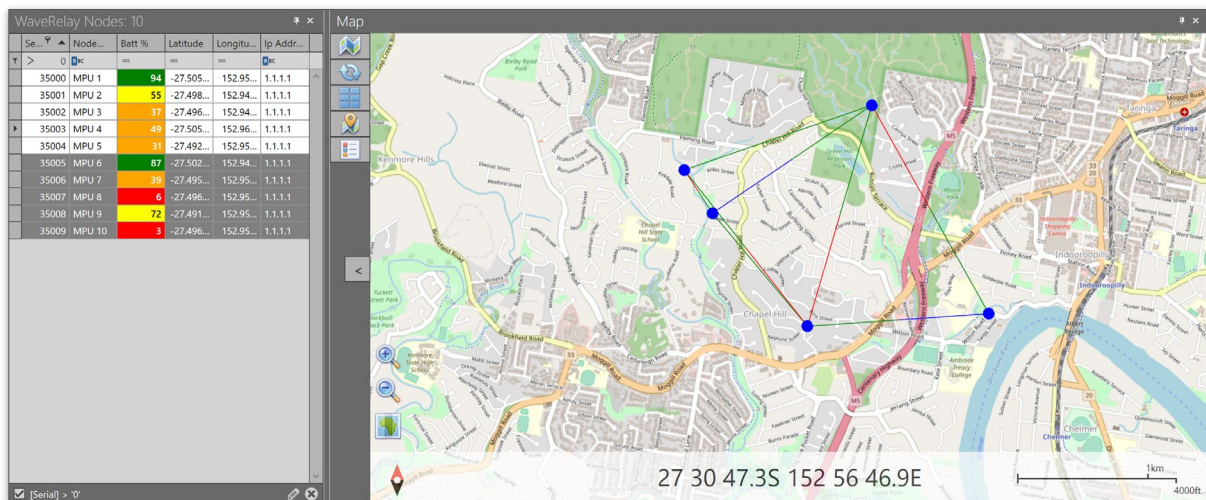
You can configure a video for low latency either in initial creation of the video or by editing the created video stream. In the video edit popup, turn on Single Thread and Low Delay, and set Buffer to 0.



How do I toggle display of nodes on the map?

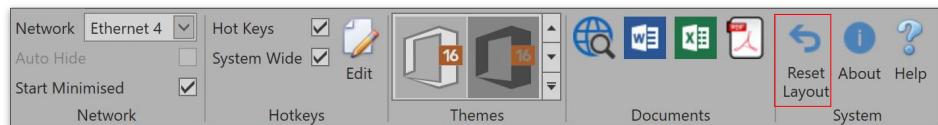
Nodes can be individually toggled to be visible / hidden or toggled as a group. Right click on the node you wish to hide / show and select Show on Map / Hide on Map. To toggle all nodes, select Show All on Map / Hide All on Map.

Nodes that are hidden will be marked as grey in the Node Panel.



How do I reset the layout?

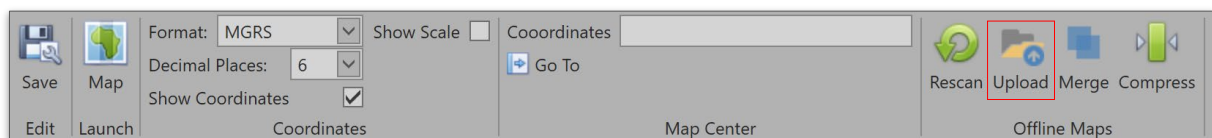
If you have altered the layout of the MaCE application and are missing panels from your display, you can reset the layout to default which will display all panels on one screen. This is done through the Home settings menu.



Click the Reset Layout button and you will be prompted to confirm the reset of layout. Select Yes and the application will revert to default display. This will not affect any of your customised settings in the application.

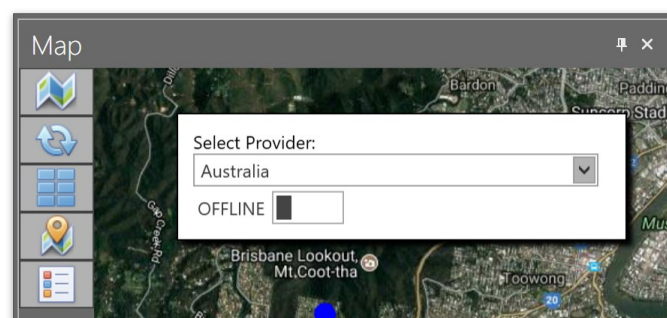
How do I import offline mapping files?

Local mapping is supported within MaCE to allow for full application use in offline environments. The offline map file type that is supported by MaCE is .mbtiles.

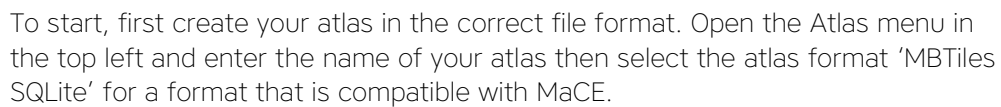


To upload mapping, select the 'Upload' button and select your .mbtiles file. Once the file has been uploaded, the program will automatically load it into your offline map list.

Your map list can be viewed from the map panel. Change between online and offline mapping with the toggle switch and select your map file.



MobAC can be downloaded from <https://mobac.sourceforge.io/>.



Settings for new Atlas

Name of the new atlas:
Australia

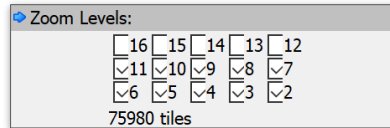
Please select the desired atlas format

- MBTiles SQLite
- MGMTaps/MyTrails (MGM)
- Mobile Trail Explorer
- Mobile Trail Explorer Cache
- NaviComputer (NMAP)

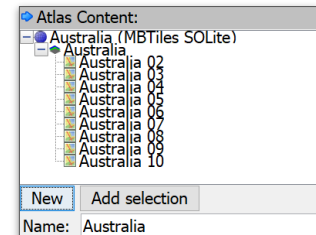
OK Cancel



Once you have your area selected, you must select the zoom levels you'd like to be able to view that area down to. You will be able to preview each zoom level on your map, with the scale at the top left of the map showing your current zoom level. When you check each zoom level box, it will display how many tiles your map will contain. Each atlas download cannot exceed 300,000 tiles.

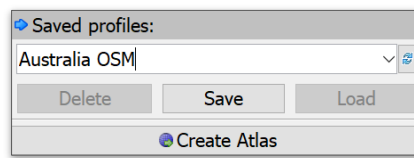


Once you have selected your zoom levels, to add your selection to the atlas, enter a name for your selected area under Atlas Content > Name and press the Add selection button. You can add multiple selections to one map, which allows you to have a selection of a broad area to low level tiles and select a smaller area to go to higher level tiles with more detail.

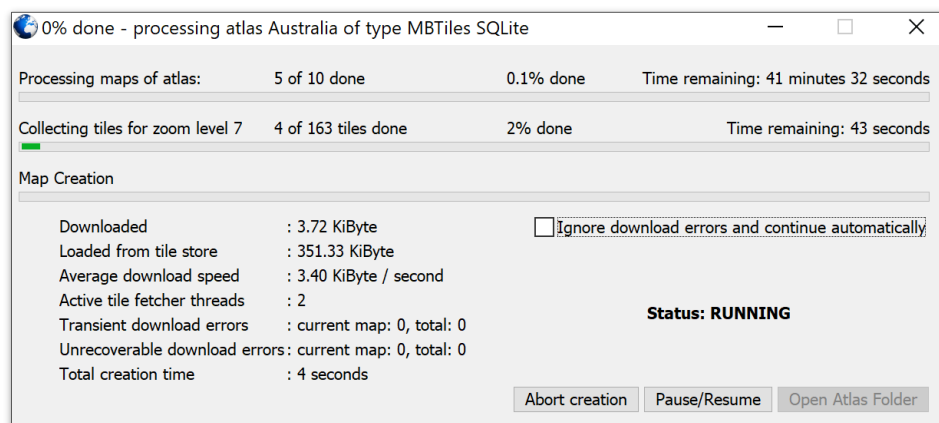


Once you have added all your selections to the atlas, you can save this selection as a profile by entering a name under the Saved Profiles tab and pressing the Save button.

To create your atlas file, press the Create Atlas button.



You will be able to view the process of your atlas creation on the following screen. If there are multiple tiles that fail to download, you will be prompted as to whether you would like to continue creating the atlas. There are some areas of the world that do not have high level tiles created in some Map Sources, so download errors can occur on these areas.



Troubleshooting





Sometimes the application may not operate as expected. Please work through the troubleshooting guide in an attempt to resolve any issues you may be having.

Note: As the main functions of this application rely on IP Multicast traffic, it is important that prior to attempting any of the following issue resolutions guides that you ensure that you are only connected to a single network. This is because IP Multicast data operates in a very specific manner and multiple network interfaces can severely impact on this function.

Why aren't any of my radios showing up in my node list?

If you cannot see any nodes in your node list, ensure that you are only connected to your Wave Relay network, and check connection to the radios external to the MaCE application (ie. load the Web Management Interface in Chrome). If connection to the radio is ok, check the correct Network adaptor in the Home menu is selected, and select the 'Clear' button from the Wave Relay menu. If this does not prompt your radios to display, restart the program. Once the program has reloaded, if you still can't see any nodes in your node list, restart your computer, disable all other network adapters through Network Sharing Centre > Change Adaptor Settings and load the application. This will ensure that the program loads looking at the correct network adaptor.

Why can't I see any nodes on my map but I can see them in the node list?

If you cannot see any nodes on your map but they are visible on your node list, try showing all nodes on your map. You can do this by right clicking a node in your node list and selecting 'Show All on Map'. This will populate all your nodes onto your map. If you still cannot see your node, right click the node and select 'Zoom To'. This will position your map directly over your selected node. If your nodes have no GPS location, they will not display on the map until they get a GPS location.

Why can't I connect to my radio?

If you cannot connect to your radio using the node radial menu 'Options', check your node list and make sure that your node has an associated IP Address. Your radio's IP Address is only sent once every 30 seconds, unlike the PLI which is sent every 1 second. If the problem persists, open Chrome or Firefox and open the Web Management Interface to test connection to the radio and ensure that your WR Password under the WaveRelay menu is set and correct.

Why can't I see my offline mapping?

If your offline mapping hasn't loaded into your offline map list, try pressing the "Rescan" button in your Mapping menu. This will recheck the mapping file location and reload the map list. If this does not display your offline mapping, try to reupload your mapping .mbtiles file using the 'Upload' button in your Mapping menu. If you are not using an .mbtiles file for your mapping, it will not load into your offline map list.

Why has one of my panels disappeared?

If you are having problems seeing any of your map panels, try resetting your layout by clicking the 'Reset Layout' button in your Home menu. Panels can be individually opened from underneath their respective menu items. For example, if you close the Map, you can re-open the Map using the Launch Map icon underneath the Mapping menu.



Why are my videos broken or intermittent?

If you are having issues with broken or disjointed video and audio, check your video settings and ensure that Single Thread is unchecked, and the buffer is set to 1000. This is to prevent delay in presentation of your video or audio by increasing the buffer size.

Why are my nodes not updating simultaneously?

If you are using a computer that does not have the processing capability to perform a refresh interval of all your nodes at the required rate, you need to lower the refresh rate of your Wave Relay update interval as your computer cannot process the update simultaneously. This is done by selecting a time (in seconds) in the Refresh Interval dropdown in the Wave Relay menu. This will set the refresh interval of the nodes in the Map Panel to the amount of time selected in the drop down.



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