

Mercury Quick Start Guide

trilogy▲
A CLEAR-COM COMPANY

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This guide is intended as a Quick Start Reference only. Comprehensive information covering these products is provided on the accompanying CD.

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Overview

Thank you for purchasing this Mercury system from Trilogy Communications. Please check all the equipment supplied to ensure it matches both your purchase order and the delivery paperwork. Inspect the equipment for damage and immediately report any discrepancy or problem to your supplier or direct to Trilogy.

This Quick Start Guide is designed to take you through the initial stages of setting up your Mercury system. More detailed information is provided in the Implementation and Configuration Guides which are available for download from www.trilogycomms.com.

Here is an outline of the contents of this guide:

- Plan your network and IP addresses
- Mercury Database overview
- Gateway Configuration Editor software installation
- Mercury Software Components
- MIU (Mercury Interface Unit) Key Connections
- MIU Option Boards
- MCU (Mercury Communicator Unit) Key Connections
- Initial setup
- Using Gateway Configuration Editor – the basics

Advance planning is key to a successful deployment and we suggest that you complete the first two points above before starting to power up the Mercury system.

Network plan and IP addresses

The Mercury Host will normally be connected to an IP network. This allows it to communicate with other Trilogy IP-based intercom products and to connect to the Gateway Configuration Editor software. However, once correctly configured, a single Host can operate in isolation.

Each Host requires the following IP addresses:

1. Windows OS -- the default ex-factory values are below.
2. The internal IP audio card which is set by the configuration data.
3. Two further addresses for the internal digital signal processing (DSP) module, also set by the configuration.

Your laptop or PC must use an address in the same subnet ("range") as the host(s). If it is not convenient to adjust the address of your PC then the default addresses used by the host must be changed, as described later. Make a note of the values which you plan to use. See the next section for help with an appropriate database location.

Any mistakes or inconsistencies in these values may lead to unpredictable audio behaviour. For example, if you declare a gateway address on your PC, this must also be declared within the configuration data for the MIU Windows Host.

Mercury Database

The Mercury Database holds the master configuration for all hosts of the Mercury system. Any changes to the configuration are saved to the database and these changes are then retrieved individually by each host in the Mercury system. The database operates in “served” mode, so all Mercury hosts connect as clients to retrieve their individual data. The database runs as a Windows service and starts automatically. Regardless of the scale of the system, from single MIU to multi-site, there must only be one instance of the database. An important aspect during planning is to consider the correct location of the database. On delivery, every MIU has an instance of the database pre-installed, which allows it to start and run cleanly during the setup phase. For anything other than a single or small MIU based system, a different approach is needed and some guidelines are offered below.

- The database must only be active on one MIU: any other MIUs should have the database disabled or removed, and then connect as clients to the single database on the designated MIU.
- As the database increases in size and complexity it will place additional demands on the platform. For 4 or more hosts we advise a separate PC or rack mounted server, with all hosts connecting as clients.
- The database must not reside on an MCU.

In normal operation, once any changes have been effected, each host runs from a local cache of relevant data – not the entire database, but the data relevant to itself. When you have decided the best location, note the IP Address on your network plan.

Install Gateway Configuration Editor

Gateway is the Windows application used to create or edit the configuration which governs how the panels are arranged, what type of keys are present and the membership of groups and conferences. Gateway also manages the deployment of your revised configuration to the entire Mercury system. Gateway should never be installed on a Mercury Host.

Insert the supplied CD into your PC and from the menu, select the option to “Install Software”. Select “Gateway Configuration Editor”: any additional components depend on the location of the database as previously decided. You should normally accept all other default options.

When prompted for the address of the database, enter the IP address as recorded on your network plan earlier. If the database is located on the same PC as Gateway, you can use the network “shorthand” of localhost, or 127.0.0.1. When complete, close the installation program. Before removing the CD, use Windows Explorer to browse the CD and to copy the documents and configurations to your PC.

Windows firewall

In order to allow your PC to connect to the database, a number of ports must be opened on the PC firewall. We can supply scripts to automate this process for Microsoft Windows Firewall: for other firewalls please consult the documentation supplied with that product.

To carry out the task manually, the following ports must be opened to allow inbound access:

- TCP 12005 management database data
- TCP 12006 management database control
- TCP 13001 management database supervisor

Mercury Software Components

Each Mercury Host is supplied with software pre-installed and ready to run. The main software components are:



Talkback Controller (TBC)

This Windows service manages all the audio traffic both within and (where needed) outside each Mercury Host. Data describing the system layout is provided to the TBC by the database.



Database Supervisor (MIU only)

This Windows service manages the database files and converts them to the correct format for the TBC. The database is edited using Gateway, which was installed on your PC in the preceding section. As mentioned previously, only one instance of the Mercury database is permitted across an entire system ("Enterprise") and during the implementation process, any which are not required should be disabled or removed.

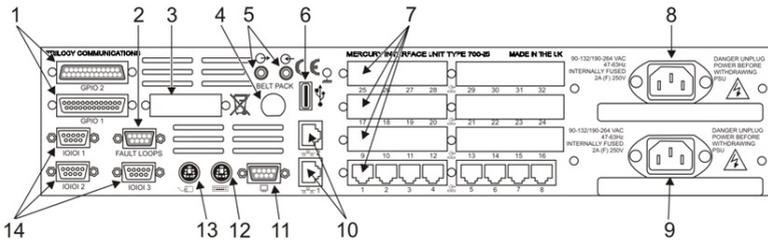
Each service is managed by its own small graphical user interface (GUI) which normally run minimised in the Windows system tray. Click on the respective icon (see above) to show options including the management tools.

Windows services start automatically as the Host boots-up, allowing unattended operation without being logged in to Windows. The GUIs are entirely separate and not required for normal operation.

MIU - Key Connections

Full details of all connectors are provided in the Implementation Guide. At this stage please identify the following key connectors from the MIU rear panel:

- 8,9 - Mains IEC inlet (optional second inlet)
- 12,13 - Keyboard and Mouse PS/2 connectors (alternatively, rear and front mounted USB 6)
- 11 - Monitor SVGA
- 10 - Ethernet RJ-45 (default connection to lower RJ-45)



Item	Description	Item	Description
1	GPI Input & Output	8	Mains inlet 2
2	Fault Loops	9	Mains inlet 1
3	Mix (option)	10	Network 1 & 2
4	Aux Power	11	Monitor SVGA
5	PC audio (not used)	12	Keyboard
6	USB	13	Mouse
7	Option Boards 1 - 4	14	COM Port 1,2,3

MIU – Option Boards

The following option boards are currently available and up to 4 may be fitted to each MIU.

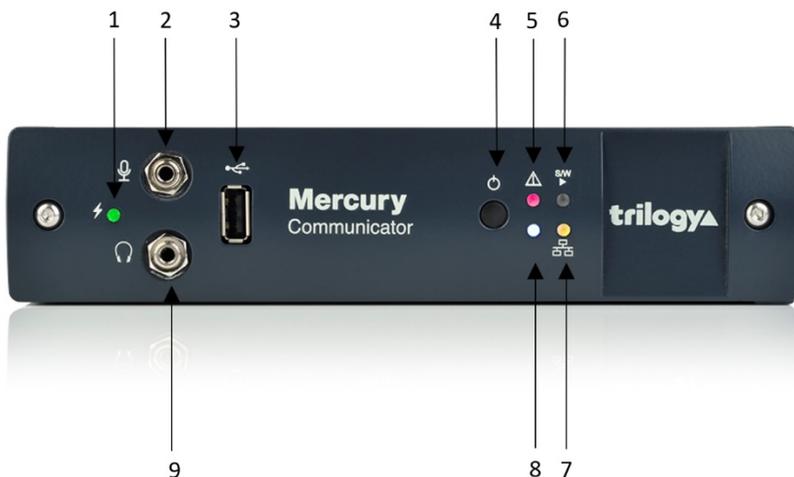
<i>Option</i>	<i>Description</i>
700-11-01	Audio expansion board (AEB), 8 channel
700-15-03	Telephone Interface Board, FXO, 4 channel
700-15-04	Telephone Interface Board, FXS, 4 channel
700-16-03	Radio Interface Board (RIB), 8 channel (STD or ASF)
700-18-00	Analogue Voice Bridge (AVB) Expansion Board

For correct functionality, the physical placement of option boards and the definitions within the configuration data must match exactly. If your system contains a mix of board types, we suggest you identify them and note their positions now. Remember that board 1, corresponding to Ports 1 – 8 is the lower board and board 4, corresponding to ports 25 – 32 is the uppermost board. See the diagram on page 8.

The following table will aid identification.

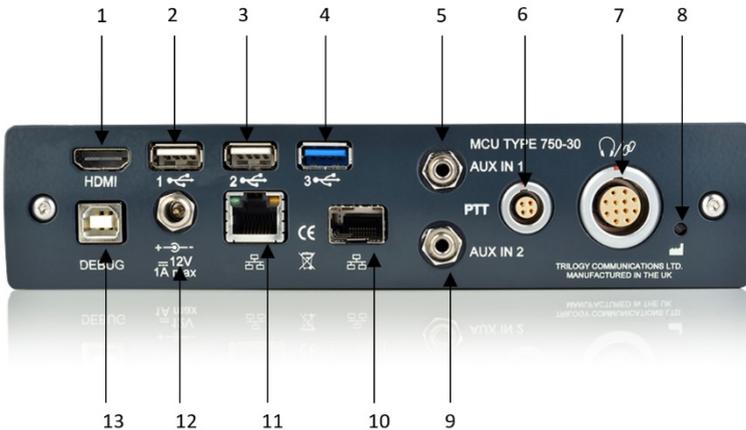
<i>Option</i>	<i>Identification</i>
700-11-01	AEB: 8 x RJ45 connector, blue marker
700-15-03	FXO: 8 x RJ12 connector
700-15-04	FXS: 4 x RJ12 connector
700-16-03	RIB: 8 x RJ45 connector, red marker
700-18-00	AVB: 2 x VHDCI 68-way female connector

MCU – Key Connections -- Front



<i>Item</i>	<i>Description</i>
1	System status LED
2	Audio loudspeaker connector
3	USB 2.0 (currently disabled)
4	Shutdown / Restart button
5	System operation/Input power status LED (green/red)
6	Software status LED (green/red)
7	Network link status LED (yellow)
8	Indicator: not used
9	Audio headphone connector

MCU – Key Connections -- Rear



<i>Item</i>	<i>Description</i>
1	Video output HDMI
2,3,4	USB
5	Audio input channel
6	Auxiliary PTT
7	Customer Interface Adapter (CIA)
8	Factory reset button
9	Audio input channel
10	Network connector
11	Gigabit Network
12	Power connector
13	SPY Debug USB

Mercury Host – Initial setup

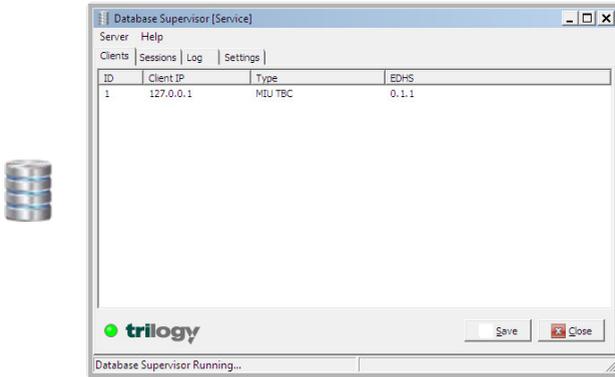
During the initial phase, a keyboard, mouse and monitor are required but may be removed later. The Host and your PC will normally be connected to an IP network. For initial setup, this may be as simple as a single Ethernet cable connected between the Host and your PC. However, do not connect the Host to your LAN at this stage.

Please follow the instructions below step-by-step for initial setup.

1. Connect a keyboard, mouse and monitor to the Host.
2. Connect power to the Host: if your MIU has two power supplies, one mains input is enough for now. The Host will boot automatically.
3. When prompted, log-in to Windows with the built-in account, username **trilogy** password **trilogy**.
4. The TBC screen will be displayed, as shown below. You can show it again by double clicking the icon in the System Tray.



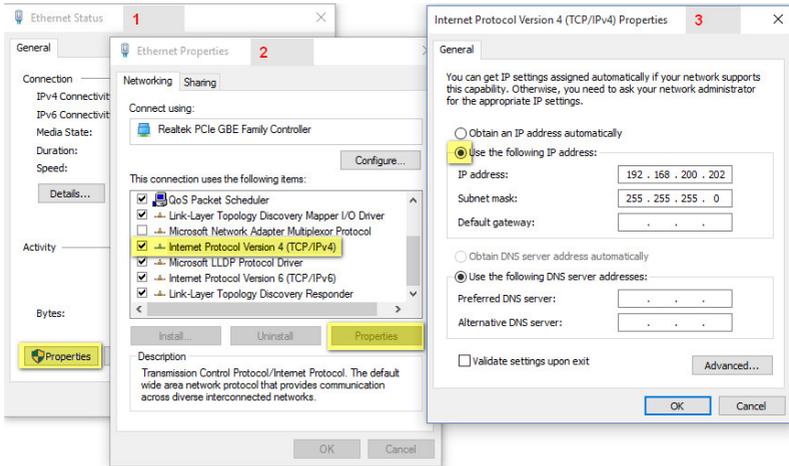
5. Check the status of the Database Supervisor by double clicking the icon in the System Tray.



This shows that only one client is currently connected to the database: the TBC application, which is running locally on the MIU.

6. Refer back to the IP address plan created earlier.
 - a. If you are confident that the default values will not cause any conflicts on your network, it is now safe to connect the Ethernet cable from the rear of the Host (lower RJ45 connector on an MIU) to your network. You can skip the next section and move ahead to Gateway – the Configuration Editor on page 15.
 - b. If you need to adjust these values, then follow the instructions on page 14.

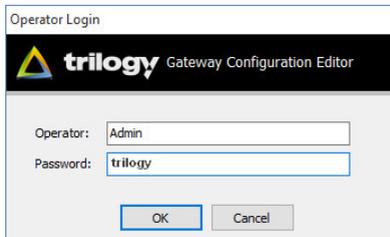
- Use normal Windows techniques to change the IP settings of the Host Windows IP connection.



- The configuration must always match. Any mistakes or inconsistencies in these values may lead to unpredictable audio behaviour. For example, if you declare a default gateway IP address for the Windows Host, this must also be declared within the configuration data. See Gateway – the Configuration Editor, on page 15 for instructions.

Gateway – the Configuration Editor

- Start Gateway from Programs > Trilogy > Trilogy V5 > Configuration Editor.
- On first run you will be prompted for a licence code. This is provided on a sticker attached to the original Trilogy CD supplied with your order. Please keep it safe – you will require it if the software is installed elsewhere in the future.
- ***If Gateway cannot connect to the database, it will appear to freeze and the log-in box will not appear. Check carefully the IP settings of your PC and the Host Windows address. Remember – they must lie in the same subnet (“range”) and the firewall ports must be open.***



Log-in using the default credentials
Operator | **Admin**
Password | **trilogy**



Create a new configuration by clicking the “New....” Icon in the toolbar

- Use the simple editors by single clicking items in the navigation “tree”. Open the editor for “Domain 1”: currently this branch of the tree is empty.
- Add a single MIU of the correct size to Domain 1 by pressing the green “plus” button (centre right of screen)

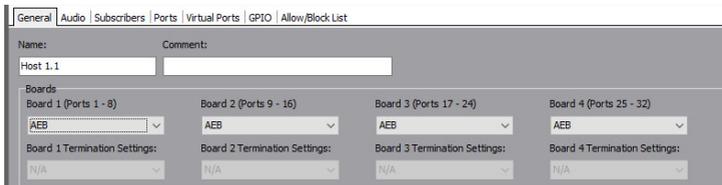
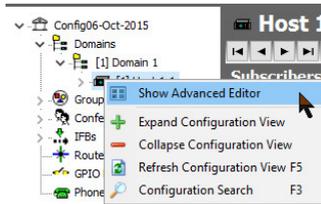
and selecting one of the four MIU choices, dependent on the number of option boards fitted in your MIU.

- To post your edited values to the database, press the “tick” button, seen upper left in the image above, just below the text “Domain 1”.
- Refer to your IP Address plan and add the Host and Audio Card addresses to match your planned values.

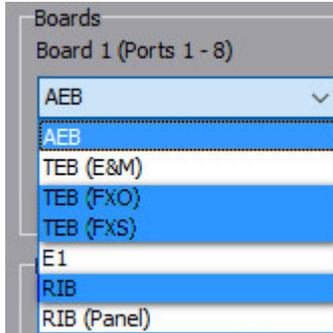


- Next, set the correct Option Board types within the configuration, to match your hardware. Refer to page 9.

Open the Advanced Editor for the MIU by right-clicking the entry in the navigation tree: the General tab is displayed.



- The example illustrated is a fully-loaded MIU with 4 option boards which have defaulted to the most common type, Audio Expansion Board (AEB).



If necessary, change the board type by selecting from the list.

- As before, post your changes to the database by pressing the “tick”. Accept any warning messages by clicking “OK”.
- Save a backup of your edited configuration by opening the menus again and choosing “File >> Save As...” Choose a suitable location on your PC.
- Now the data held in the database and the settings in place on the hardware both match the IP Address plan.
- The final step in this initial process is to transfer data from the database to the TBC application and hence to the intercom system itself. This process is also managed by Gateway and is described next.

Gateway – upload and restart

This is a two-stage process:

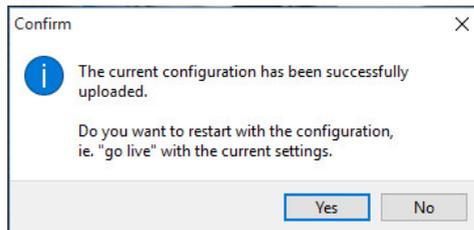
1. **Upload**, when data is transferred from the database to a “buffer” memory location on the MIU. This happens in the background and the running system is not disturbed. Depending on the size and complexity of the system, it can take up to 30 seconds.
2. **Restart**, when data is written from buffer to active memory. The system will restart, which means all existing audio routes are cancelled and panel layouts cleared down. This is disruptive and in a live environment requires careful scheduling. It takes around 20 seconds.

Check the toolbar at the top right of the screen and note that the status drum at the right side of the toolbar is currently red.

Press the “Upload” button.

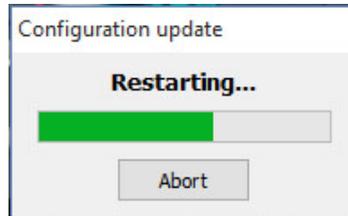


After a few seconds, this message will be displayed:



If you choose “Yes”, the MIU will restart immediately. Selecting “No” allows you to defer the restart until a more convenient time.

The progress bar will remain on screen until the system has fully restarted and is ready for operation.



Now the sequence is complete, the MIU is back in service and the status drum indicator is green.



Check the status of the TBC application running on the MIU: it should show a green icon and no errors on the status page of the TBC application. If any errors are apparent, then resolve these before moving on.

If you have been supplied with a custom configuration for your application, then follow the steps above to load this, ensuring at all times that IP settings are correct.

You can now go ahead and connect panels and audio signals to the ports on the rear of the MIU. Control panel displays will now show appropriate labels and by pressing a key down, you will be able to speak from panel to panel.

More information is provided in the complete Mercury Implementation Guide and Gateway Configuration Guide which are included on the accompanying CD or by download from the support section of the Trilogy website at:

www.trilogycomms.com.

Next Steps

- Within Gateway, define some Subscribers, ideally hardware control panels. Connect them to the corresponding MIU matrix ports.
- Initially the panel display will show “Not Yet In service.....” but after completing an upload and restart sequence, the displays will be blank. The panel is now defined but does not have any key or label definitions.
- Return to Gateway and open the basic panel editor by single clicking the entry in the navigation tree. This editor shows a pictorial view of the panel and below, all available targets for this panel.
- To add keys to the panel, simply drag and drop from the lower section to the upper. As before, press the tick to post your data, then follow upload and restart steps. The new labels will now be shown on the panels and you can test communication between them.

Hints and Tips

- Take small steps. Just make one or two changes to the configuration, then test. If it doesn't work out as you hoped, it's easy to backtrack.
- Take frequent backups. Establish a file naming plan and stick to it. For example, use the date format *yyyymmdd* with a letter suffix – 20191225a.
- On Trilogy panels, red is for speaking, yellow for listening. Remember that panels interact by speaking. Operator ***speaks*** to Manager – Manager replies to Operator by ***speaking***. Listening happens automatically.
- Third party equipment such as radios don't have intercom keys and must be programmed differently. So Manager still ***speaks*** to Radio 1 but for the reply, Manager must ***listen*** to the radio. This means that for radios and similar equipment, a different key type - Speak/Listen - must be used on the Manager's panel.
- With many variables, troubleshooting third-party links can appear difficult. First, make sure your panel has the correct key type as explained above. Now completely disconnect the other device from the port on the rear of the MIU. In its place, temporarily connect a spare Trilogy panel, on a short 1:1 Ethernet cable. The displays on the spare panel will say "Not yet in service", but ignore that because the panel audio will be active. Now try speaking, in both directions. This should help you to narrow down the location of any problem.

Notes

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