

Synchronising Unit Operation (TDM Sync)

For units with SYNC IN and SYNC OUT ports

DGW 49.2.2941

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TDM Sync Feature

The TDM Sync feature provides a means to synchronise the operation of T1/E1/BRI circuits spanning across multiple units and to specify which port of a unit should be used as the reference.

All ISDN ports must be synchronised. When using one device, it is possible to specify a "source" port for the clock on which the other ports can be synchronised on. With several devices, the ports of the different units can also be synchronised. Therefore, it is very helpful to have a special TDM Sync port, with the clock, which can be shared between the devices.

Bad synchronisation can cause, for example:

- Choppy video communications
- Failure of fax transmissions
- Lost of audio frames

The Sync signal transferred between units is an 8 KHz Frame Sync Pulse.

Cabling Several Units for TDM Synchronisation

Information

Cabling is done using straight cables in a daisy chain.

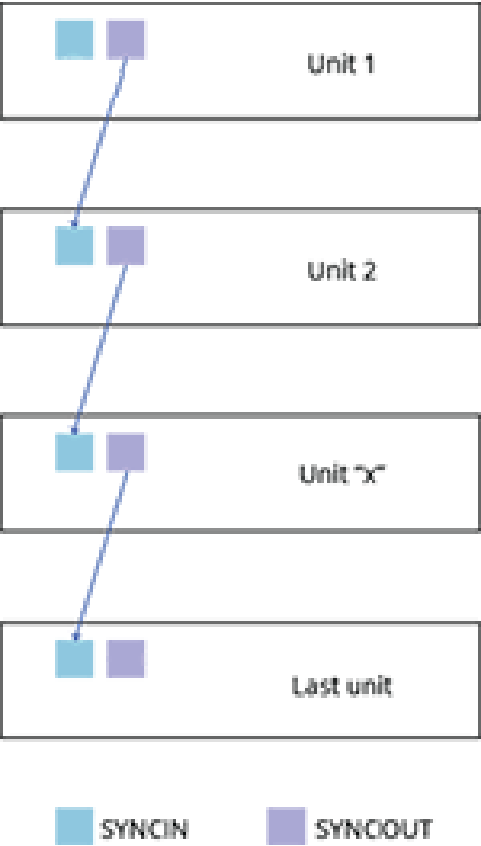
Before you start

The common practice is to have the first unit act as the Clock Master.

Steps

- 1) Connect a standard Ethernet cable to the **SYNC OUT** port of the first device.
- 2) Connect the other end of the Ethernet cable to the **SYNC IN** port of another device.
- 3) Connect all your units in the same fashion.

Result



Next Step

[Selecting the Port Used for Synchronisation \(p.4\)](#)

Selecting the Port Used for Synchronisation

Steps

- 1) Access the DGW Web interface of your unit.
- 2) Go to **System/Hardware**.
- 3) In the **Clock Reference Configuration** table, from the **Suggestion** selection list, choose **SYNCIN**.

Result

The unit will be synchronised on the **SYNC IN** port.

Clock Reference Configuration		Suggestion	
	Value		
Clock Reference Source:	SYNCIN	--- Suggestion --- ▼	

Examples

Using the Clock of 1 Unit to Synchronise Other Units

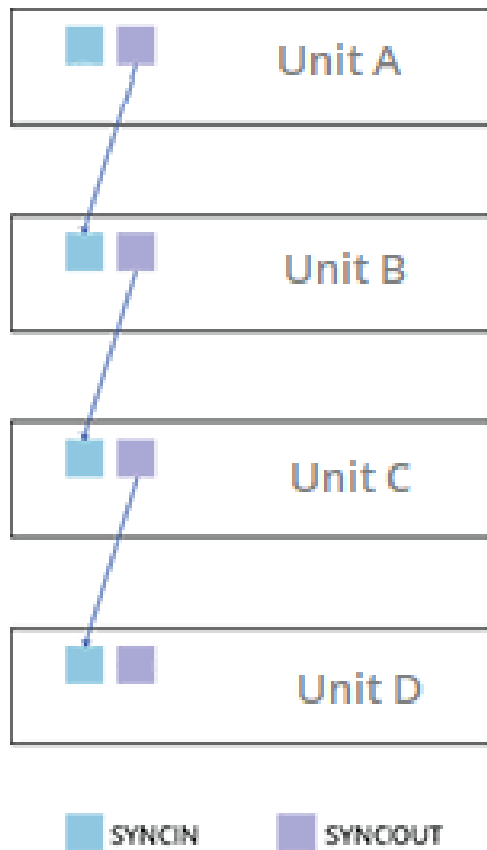
Information

In this example, four Mediatrix G7 are used. Unit A will share its clock with the other three G7 units (B,C, and D)

Steps

- 1) For all units, go to **ISDN/Primary Rate Interface**.
- 2) From the **Endpoint Type** selection, choose **NT**.
- 3) From the **Clock Mode** selection list, choose **Auto**.
- 4) For each unit, go to **System/Hardware**.
- 5) In the **Clock Reference Configuration** table, from the **Suggestion** selection list, choose **SYNCIN** or leave it empty.
- 6) Connect the units as follows:
 - a) No cable in **SYNCIN** of unit A.
 - b) **SYNC OUT** of unit A to **SYNCIN** of unit B.
 - c) **SYNC OUT** of unit B to **SYNCIN** of unit C.
 - d) **SYNC OUT** of unit C to **SYNCIN** of unit D.

Result



Using the Clock Provided by the PBX to Synchronise Units

Steps

- 1) For all units, go to **ISDN/Primary Rate Interface**.
- 2) From the **Endpoint Type** selection, choose **TE**.
- 3) From the **Clock Mode** selection list, choose **Auto**.
- 4) No cabling is required.

Result

No cabling is required between units. All units will be slaves and will get the clock from the ISDN PBX.

Using an External Clock Source To Synchronise Units

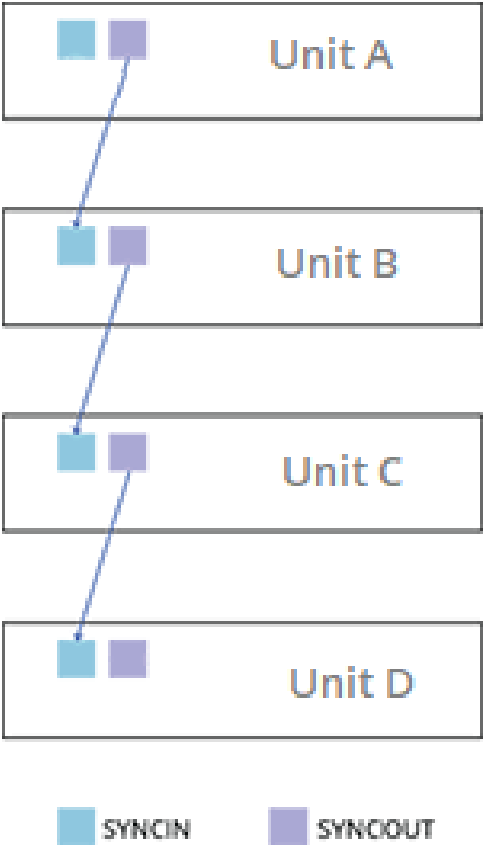
Information

In this example, three Mediatrix G7 are connected to use the clock provided from the PRI ISDN port of Unit A.

Steps

- 1) For Unit A only, go to **ISDN/Primary Rate Interface**.
- 2) From the **Endpoint Type** selection, choose **TE**.
- 3) From the **Clock Mode** selection list, choose **Auto**.
- 4) For all other units, go to **ISDN/Primary Rate Interface**.
- 5) From the **Endpoint Type** selection, choose **NT**.
- 6) From the **Clock Mode** selection list, choose **Auto**.
- 7) For each unit, go to **System/Hardware**.
- 8) For unit A only, in the **Clock Reference Configuration** table, from the **Suggestion** selection list, choose the Interface receiving the external clock source.
- 9) For all other units, in the **Clock Reference Configuration** table, from the **Suggestion** selection list, choose **SYNCIN**.
- 10) Connect the units as follows:
 - a) No cable in **SYNCIN** of unit A.
 - b) **SYNC OUT** of unit A to **SYNCIN** of unit B
 - c) **SYNC OUT** of unit B to **SYNCIN** of unit C
 - d) **SYNC OUT** of unit C to **SYNCIN** of unit D

Result



Troubleshooting

Checking in DGW which Clock Source is Used

Steps

- 1) Go to **System/Hardware**.
- 2) In the **Clock Reference Status** table, the value of the **Status** field indicates the source of the active source clock.

Result

Clock Reference Status	
	Status
Active Clock Reference:	SYNCIN

Checking in the Traces which Clock Source is Used

Steps

- 1) Go to **System/Diagnostic**.
- 2) Click **Dump Now**.
- 3) Go to **Management/File**.
- 4) Check for a file with an *.tgz extension.
- 5) Click the file name and download it locally.
- 6) Extract the ZIP file and open the dmesg.txt file.
- 7) Find the last entry of **clockref**.

Result

The last entry indicates the current clock reference. For example:

```
clockref: Now using port ext as clock reference.
```

Online Help

If you are not familiar with the meaning of the fields and buttons, click **Show Help**, located at the upper right corner of the Web page. When activated, the fields and buttons that offer online help will change to green and if you hover over them, the description will be displayed.

DGW Documentation

Mediatrix devices are supplied with an exhaustive set of documentation.

Mediatrix user documentation is available on the [Media5 Documentation Portal](#).

Several types of documents were created to clearly present the information you are looking for. Our documentation includes:

- **Release notes:** Generated at each GA release, this document includes the known and solved issues of the software. It also outlines the changes and the new features the release includes.
- **Configuration notes:** These documents are created to facilitate the configuration of a specific use case. They address a configuration aspect we consider that most users will need to perform. However, in some cases, a configuration note is created after receiving a question from a customer. They provide standard step-by-step procedures detailing the values of the parameters to use. They provide a means of validation and present some conceptual information. The configuration notes are specifically created to guide the user through an aspect of the configuration.
- **Technical bulletins:** These documents are created to facilitate the configuration of a specific technical action, such as performing a firmware upgrade.
- **Hardware installation guide:** They provide the detailed procedure on how to safely and adequately install the unit. It provides information on card installation, cable connections, and how to access for the first time the Management interface.
- **User guide:** The user guide explains how to customise to your needs the configuration of the unit. Although this document is task oriented, it provides conceptual information to help the user understand the purpose and impact of each task. The User Guide will provide information such as where and how TR-069 can be configured in the Management Interface, how to set firewalls, or how to use the CLI to configure parameters that are not available in the Management Interface.
- **Reference guide:** This exhaustive document has been created for advanced users. It includes a description of all the parameters used by all the services of the Mediatrix units. You will find, for example, scripts to configure a specific parameter, notification messages sent by a service, or an action description used to create Rulesets. This document includes reference information such as a dictionary, and it does not include any step-by-step procedures.

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