Panasonic

PANASONIC FIRE ALARM SOLUTIONS
TECHNICAL DESCRIPTION
5095
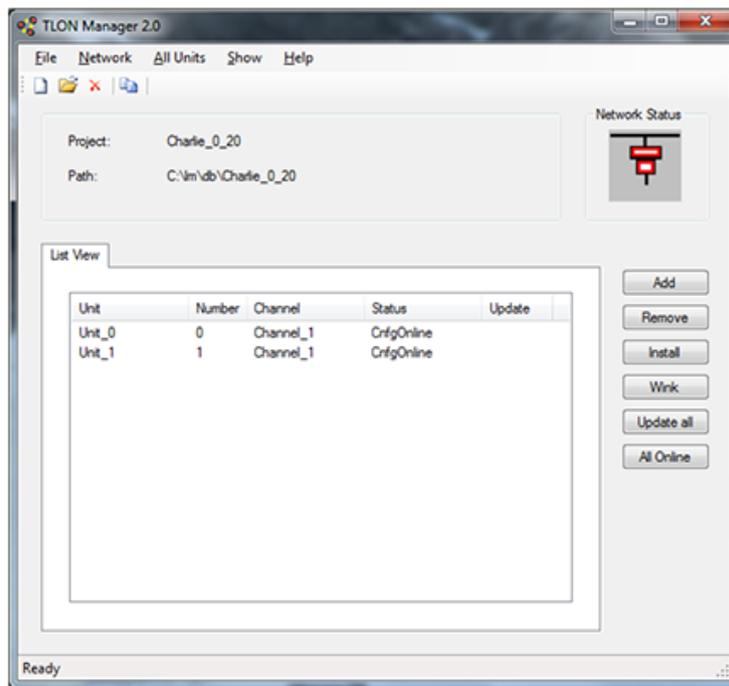
TLON MANAGER KIT

DOCUMENT INFORMATION

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1   INTRODUCTION

This document describes the TLON Manager kit, type number 5095.
The document describes how to install the PC program TLON Manager V2.0.x. It also describes how to create a new TLON project, how to install it, and the maintenance of a TLON Network. It is not a complete description of the TLON Manager. Basic knowledge of windows and windows applications are required as well as knowledge of the fire alarm system.

2   ABBREVIATIONS

c.i.e	Control and indicating equipment	= control unit
Nodes	EBL512 G3 / EBL512 control units	

3   GENERAL DESCRIPTION

TLON Manager 2.0 is the software with which a TLON project is created and installed into the networks units. It is also used for maintenance of the TLON Network.

For connection to the TLON Network a USB Network interface is used.

TLON Networks are used for fire alarm systems EBL512 G3 and EBL512. Each c.i.e. in the network has to have at least one TLON connection board.

	EBL512 G3	EBL512
Main board	5010/5012	1556
TLON connection board	5090	5090/1590

3.1   TLON MANAGER KIT

The TLON Manager kit contains the following:
- U10 USB Network interface type 75010R
- Network connection cable (1.5 meter)
- USB Memory stick
- USB extension cable (0.6 meter)
- License (for 64 credits per computer)

The USB Memory stick contains the Echelon LNS Server 3.27, the TLON Manager V2.0.x software, the OpenLDV driver and documents.

4 ECHELON LNS SERVER

4.1 INSTALLATION OF THE ECHELON LNS SERVER

Before installation, be sure that no other application is running on your computer.
NOTE! It is highly recommended to uninstall any old TLON Manager version and also the drivers
(Echelon OpenLDV x.xx) before the installation of Echelon LNS Server and TLON Manager 2.0.
It is also important that Echelon LNS Server is installed before the installation of TLON Manager 2.0.x.

a) Put the USB Memory stick in one of the computers free USB port.
b) Select the LNS Server 3.27 folder.
c) Double click the **setup.exe** file and follow the installation instructions.

5 INSTALLATION OF TLON MANAGER

Before installation, be sure that no other application is running on your computer.

NOTE! It is important that before the installation of TLON Manager 2.0, the Echelon LNS Server is installed, see chapter 4. ECHELON LNS SERVER.

a) Before installation of version – V2.0.x, uninstall any other version of TLON Manager V2.X.x.
b) Select the TLON Manager 2.0.x folder.
c) Double click the Setup.exe file and follow the installation instructions.
d) Press **Finish** to finish the TLON Manager installation.

The program will normally be installed in the following folder:
C:\Program Files\Panasonic Electric Works Nordic AB\TLON Manager 2.0.x

NOTE! After a program installation it is always recommended to restart the computer.

It is also recommended to check that the path is correct.

5.1 TLON MANAGER 2.0.1 IN WINDOWS 10

Not been installed before
a) Install .Net Framework 3.5 by using going to **Program and Features** and press **Turn Windows features on or off**.
b) Press the **.Net Framework 3.5** (includes 2.0 and 3.0). Windows update will download necessary files and install.
c) Install OpenLDV 5.1 (OpenLDV510.exe) and reboot computer after installation of OpenLDV.
d) Install LNSServer 3.27.
e) Install TLON Manager 2.0.1
f) Reboot the computer after installation.
   NOTE! It is very important to reboot the computer after the installation.
g) The installation is now completed.

Installed before but not working
a) Install OpenLDV 5.1 (OpenLDV510.exe) and reboot computer after installation (OpenLDV may ask to reboot).
b) Uninstall and re-install LNSServer 3.27 and reboot.
c) The installation is now completed.

6 ECHELON OPENLDV DRIVER

The installation of the driver (OpenLDV ≥ 4.00) is necessary to support 64-bit windows version. If a 32-bit windows version is used, this installation is optional.
NOTE! To support 64-bit windows versions TLON Manager V2.0.1 or later is necessary.

6.1 INSTALLATION OF THE ECHELON OPENLDV DRIVER

An older version of the driver (OpenLDV 3.4) is automatically installed during the installation of Echelon LNS Server 3.27. Before installation of the new driver (OpenLDV ≥ 5.00), uninstall the old driver (OpenLDV 4).

   a) Select the OpenLDV x.xx folder.
   b) Double click the **OpenLDVXxx.exe** file and follow the installation instructions.
   c) Connect the USB Network interface U10 to an available USB port. The installation of the USB driver should start automatically. If a Windows Update dialog box tells you to install the driver, choose any of the three Windows update options.
   d) Press **Next** to continue.
   e) Select **Install the software automatically** (Recommended).
   f) Press **Next** to continue. A dialog box appears.
   g) Press **Finish**.

7   PROJECT

Normally, the network planning is carried out in the office, and during the commissioning on site, the TLON Network installation can be performed. As an alternative, the planning and installation can be carried out on site at the same time.

7.1 PLANNING A PROJECT

A TLON Network can consist of two or up to thirty EBL512 G3 units.

In an EBL512 G3 TLON Network are normally, for safety reasons, routers used.

It is possible to have one TLON Network with a mix of EBL512 G3 and EBL512 units, a so called mixed system. In such a case the EBL512 G3 units have to have the software United version 2.7.x. and the EBL512 units have to have the software version 2.7.x.

7.1.1   EBL512 NETWORK

For safety reasons, it is recommended not to have more than six nodes on one channel. To get one more channel, a router has to be added, i.e. one router per six EBL units. A router can also be added in order to obtain a total cable length that is two times the normal cable length for one channel.

In rough outline, there are three types of networks:

1) Up to six nodes on one channel, i.e. no router.

2) Up to twelve nodes and one router, i.e. one router and two channels.

3) Up to thirty nodes and a number of routers, connected to each other via a backbone net.

Make a schematic drawing of the network, i.e. a drawing showing all the nodes, cables, channels and required routers. The fire alarm system's installation drawings can be useful as well as the planning made with Win512, for example system name, c.i.e. numbers, cables, etc.

For safety reasons, it is recommended to place all the routers and the backbone net together in a locked cabinet / room. See also chapter 15. EXAMPLES.

7.1.2   EBL512 G3 NETWORK

Redundant network

For safety reasons the EBL512 G3 units have the possibility to use two TLON connection boards in order to get two parallel TLON Networks, a so called redundant network.

In a redundant network two projects have to be created and installed. The projects have to be identical but with different project names. One has to be installed for network no. 0 and one installed for network no. 1.

Normally, TLON Network no. 0 is used for communication and TLON Network no. 1 will be used for communication only in case of a fault condition (cut-off or short circuit) on TLON Network no. 0.

If a redundant network is used there is no need for routers if not a cable length longer than the normal cable length for one channel, is required (see type B below).

7.1.3   CHANNELS

Two or more nodes are physically connected to each other via a network cable. In the LonWorks vocabulary this is called a channel (compare with a COM loop and connected loop units).

In EBL512 G3 one board per TLON Network. One TLON connection board is required in each EBL512 unit.

In a network type **A** there is only one channel. No channel has been added, channel 1 is default.

In a network type **B** there is one channel on each side of the router.

In a network type **C** there is one channel for each router and one channel for the backbone net between the routers. Required number of channels has to be added.

7.1.4 ROUTERS

After the channels have been added, the routers have to be added to the project if it is a type **B** or **C** network. Use channel_2 for the backbone net.

7.1.5 EBL512 G3/ EBL512 UNITS

After the channels and routers have been added, the units have to be added to the project, see chapter 11. ADD A UNIT.

8   CREATE A NEW PROJECT

This example will show how to connect two EBL512 G3 / EBL512 units (CU00 and CU01) in a TLON network.

Start TLON Manager by double clicking the icon on your computer.

a)   In the **File** menu choose **New…**.

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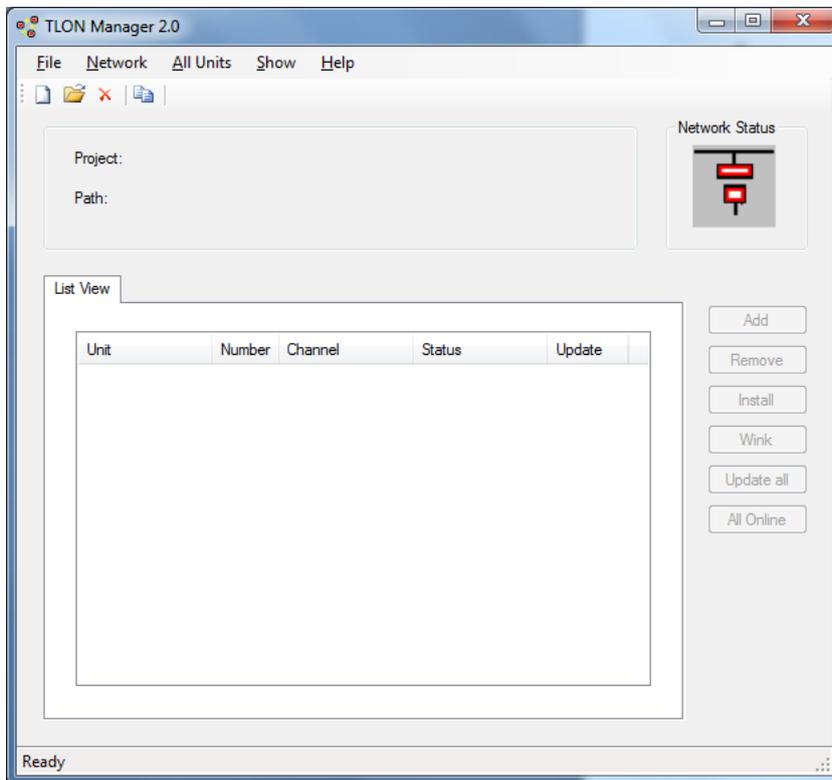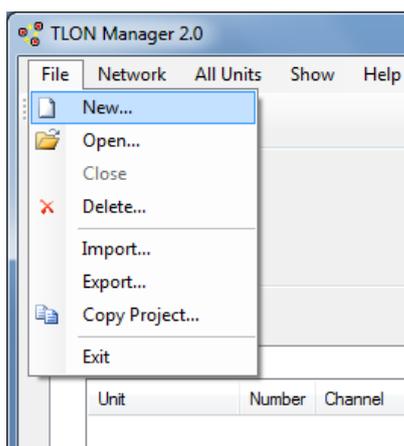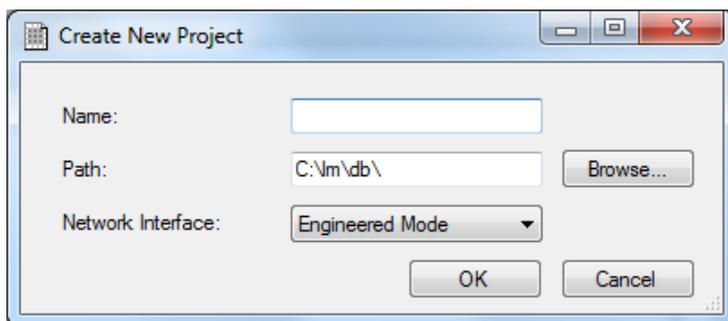
b) Type the name of the project. Normally use the same name as the "System name" in Win512 / WinG3.
The path will be automatically created when you type in the name.
NOTE! Do not change this data base path.

c) Select Network interface:
Engineered Mode: This mode shall be selected when TLON Manager is not connected to any TLON Network, for example when creating a new project in your office.

LON1 This is the TLON USB Network interface for TLON Manager 2.0 installed on your computer. Normally only one interface is installed but if also TLON Manager 1.x is installed, LON1 might be used for that interface.
Select this interface (LON1) when you shall connect TLON Manager to a TLON Network.

PCCLON1 This is the TLON Network interface (PCMCIA card) for TLON Manager 1.x (shown only if installed on your computer). Must not be used for TLON Manager 2.0.

d) Press **OK** to save the settings and close the dialog box. In the TLON Manager 2.0 window is now displayed the Project (system_xyz) and the Path (C:\lm\db\System_xyz):

TECHNICAL DESCRIPTION 5095 • DOCUMENT NUMBER: MEW01983 • REVISION: 2
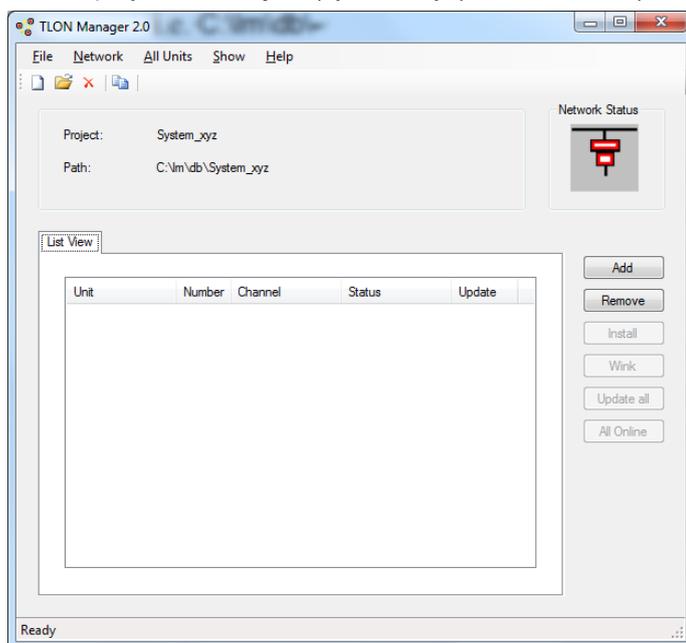
e) Now the EBL512 G3/ EBL512 units have to be added. In the **Network** menu choose **Unit…** or press **Add**. In this example, no channels have to be added. The following dialog box displays:
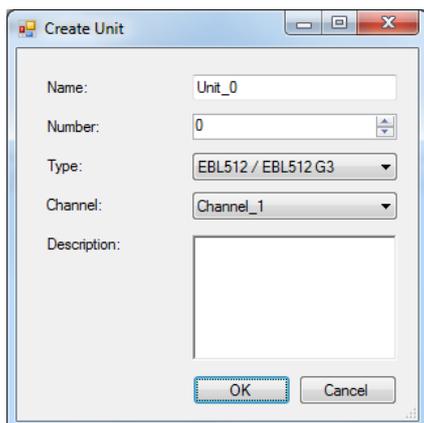
Name
Use the default name or type a new name.

Number
The number can be 00-29, for example CU00-CU29. Normally use the same number as in the name.

Type
Select **EBL512 /EBL512 G3** for an EBL512 G3/ EBL512 unit or select **TLONDDE Server** for a TLONDDE Server (for a security management system).
NOTE! Only valid for "Unit_29" (Number 29).
Select **Securimaster 1.43 connection** only for Securimaster 1.43.
NOTE! Only valid for "Unit_29" (Number 29).

Channel
See chapter 7.1 PLANNING A PROJECT. Select a channel in the list. In this example, select "Channel_1" (default).

Description
A description of the node may be written here. Maximum 64 characters divided on three rows.

f) Press **OK** to save the settings and close the dialog box.
g) Add the wanted number of nodes the same way.
The window shows the Project "System_xyz" with two units (Unit_0 and Unit_1) on channel_1.
Status "No Response" shows that the units are not installed / not responding.
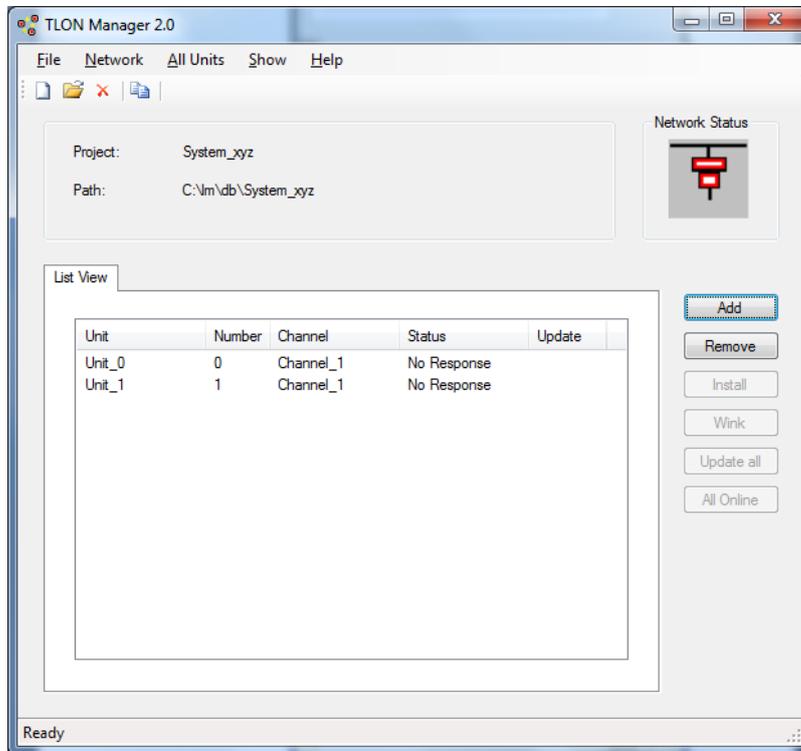
h) In the **File** menu choose **Close** and close the project**.**

The project is now created and can later be installed.

8.1 INSTALLATION OF A PROJECT

The TLON Network cable installation has to be finished and the nodes connected to the TLON Network.
NOTE! In a project with routers, they have to be installed before the nodes, see chapter <u>10.1</u>
<u>INSTALLATION OF ROUTERS</u>.

a) Plug the TLON USB network interface cable into any of the nodes on the channel_1. From now on, it is recommended to use the same channel at all times.
The modular connector (RJ-45) "J2" in EBL512 (is situated below and to the right of the keypad on the EBL512 front) / "J10" – Network no. 0 and "J11" – Network no. 1 in EBL512 G3 (situated down to the right on the main board) are to be used.
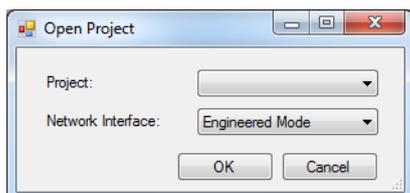
b) Press the drop down button to see the list of projects and select one.
c) Press the drop down button to see the list of network interfaces and select one, normally LON1.
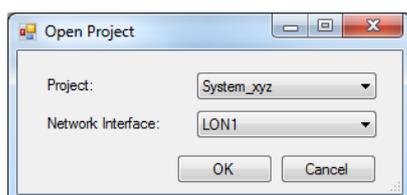
d) Press **OK**.
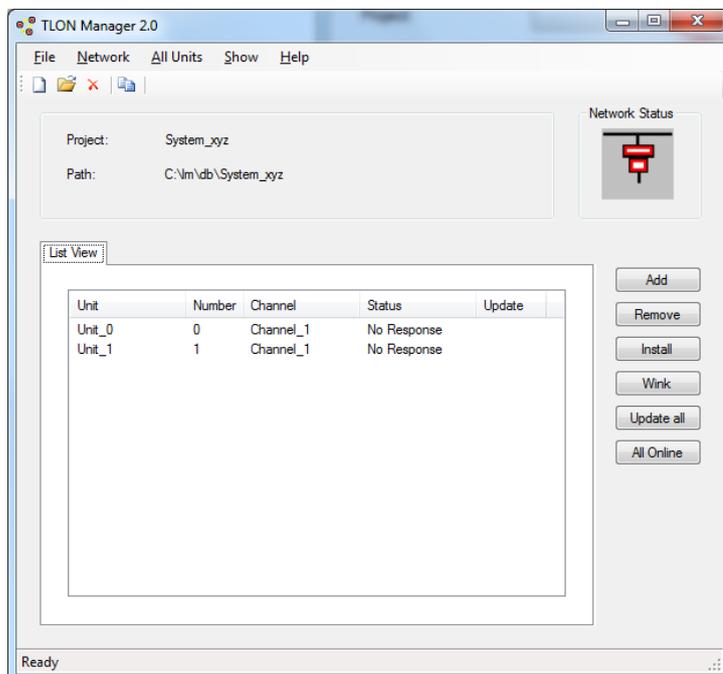
In this example we have no routers and only one channel, Channel_1. (routers have to be installed before the nodes).

    e)   Select a unit, press **Install** and the following window will be displayed:
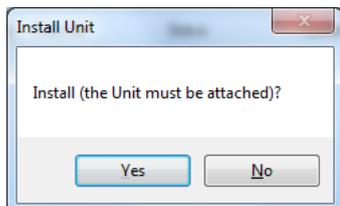
    f)   Press **Yes** and the following dialog box displays:
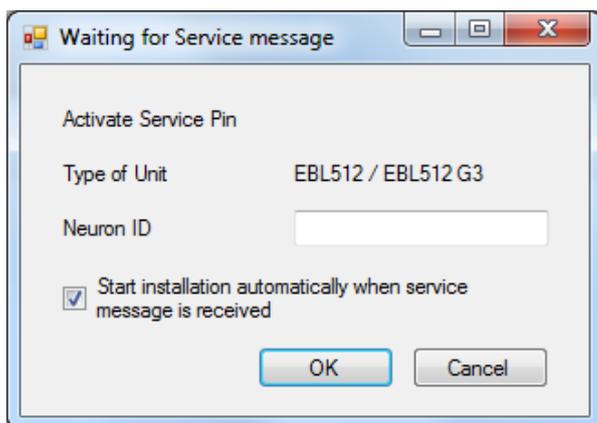
    g)   In the nodes that is intended to be number zero (CU00), shunt momentarily the "Service" pins, in EBL512 "JP 3" on the main board / in EBL512 G3 "JP 1" (for Network no.0) or "JP 2" (for Network no. 1) on the main board. A "Neuron ID (number) will be transmitted and for a second shown in the "Neuron ID" field.
Since the check box **Start installation automatically when service message is received** is checked, TLON Manager will automatically start binding the node in the database.
If the check box is un-checked you will have to press **OK** to continue. The time is depending on the number of nodes.
The EBL512 G3/ EBL512 "Unit_0" is now created and installed in the network. To check this you can select the EBL512 G3/ EBL512 unit and press **Wink**. The buzzer in the EBL512 G3/ EBL512 unit shall sound for approximately one second.
When the binding process is completed, the "Status" will be "CnfgBypass" until all units are "Online"

    h)   Do the same for the EBL512 G3/ EBL512 "Unit_1".

    i)   In this example all the units are now installed. Press **Update all**. TLON Manager will now re-connect and update all the units installed in the network. The network information will now also be saved in each EBL512 G3/ EBL512 unit, one by one. (Some information will be saved in the TLON connection board memory and some in the Main board memory).

    j)   Press **All Online** when all nodes are updated.

    k)   It is highly recommended to restart each EBL512 G3 / EBL512 unit.

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9 ADD A CHANNEL

Regarding channels in a TLON Network, see chapter 7.1 PLANNING A PROJECT.
In the **Network** menu choose **Channel...** and the following dialog box displays.
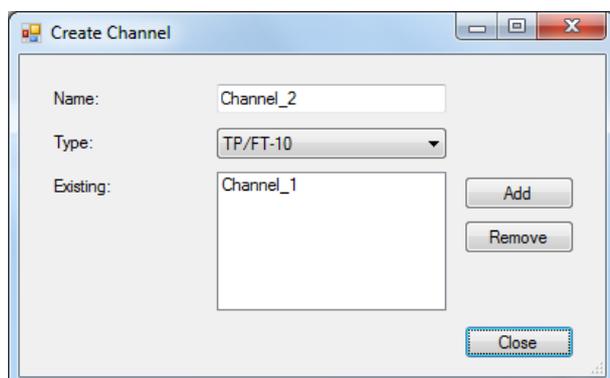
Name
Enter the name of the next channel in order to be added. Normally the default name is used but can be changed.

Type
The type used with EBL512 / EBL512 G3 units is TP/FT-10 (default).
If a fibre optic network is to be used (via Fibre Optic/Twister Pair LonWorks Routers), the type is FO-10.
Other units may use other types of communication.

Existing
A list of the existing channels in the project.

Add
Press **Add** to add the channel shown in the "Name" field.

Remove
The selected channel will be removed from the list.

Close
Save the data and close the dialog box when the required number of channels is added.

10   ADD A ROUTER

Regarding routers in a TLON Network, see chapter <u>7.1 PLANNING A PROJECT.</u>

Two or more routers have to be connected via a "Backbone net". Use channel_2 for the backbone net.

In the **Network** menu choose **Router…** and the following dialog box displays:
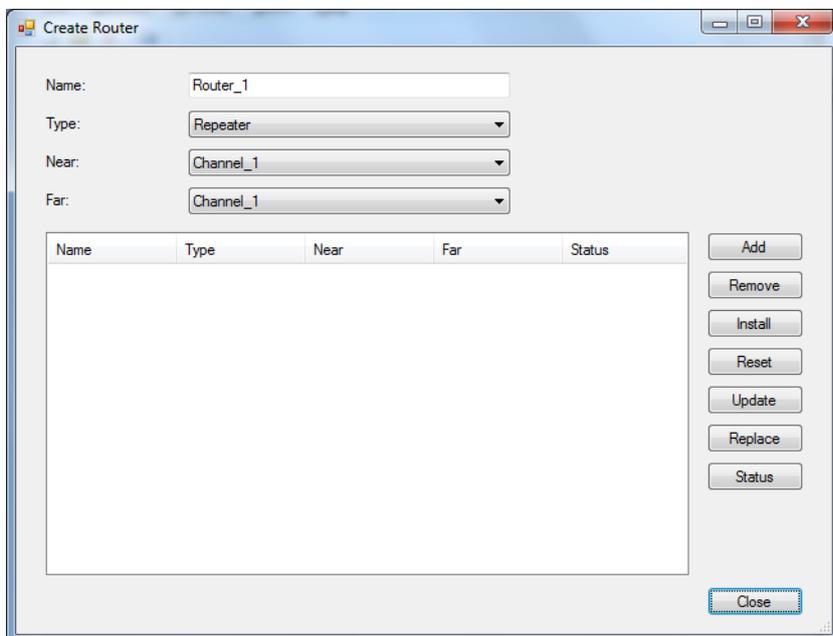
Name

Default is "Router_1". Write another name or add some information for the router (for example Router_1. Building A, Level 1).

Type

> **Repeater** This type should normally be selected. (No learning function. All messages except faulty messages will go through.)
> **Learning Router** This type could be selected. It learns – after some time – the messages that shall go through to the other channel. (Only the required messages and no faulty messages will go through. Learns if a new unit is added to the channel.)
> **Configured Router** This type could be selected. It has no learning function. (The programming is followed to 100% and no faulty messages will go through.)
> **Bridge** Not used in a TLON Network.
> **Permanent Repeater** Not used in a TLON Network.
> **Permanent Bridge** Not used in a TLON Network.

Near, Far

A router must be installed between two channels. If there is only one channel in the list, a new channel must be added before a router can be added, see chapter <u>9. ADD A CHANNEL</u>.
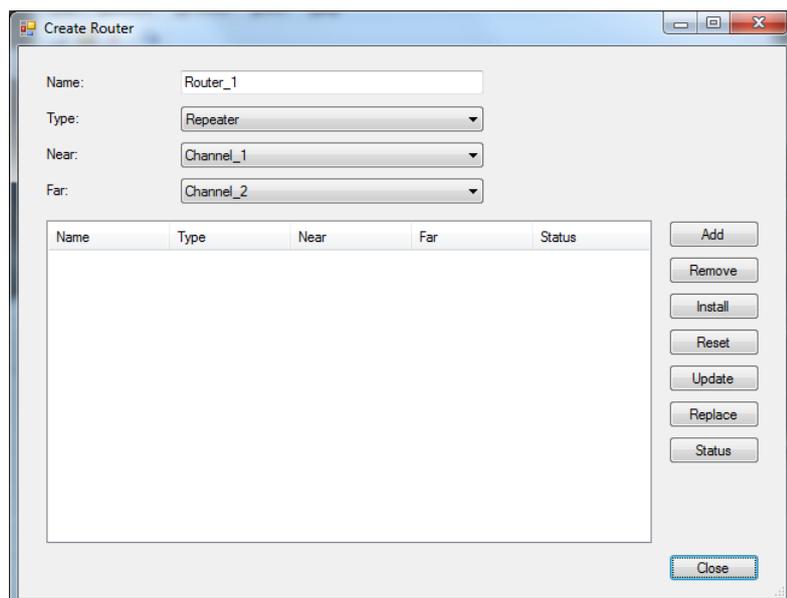
A router has connections for one **Near** channel (for example Lon A) and one **Far** channel (for example Lon B).

Select a channel in the drop-down list respectively.

> **Near:** On Router_1, the channel where the TLON Manager PC is to be connected (often Unit_0 on Channel_1). On any other router, the channel nearest Router_1.
>
> **Far:** On Router_1, the Backbone net channel (Channel_2). On any other router, the channel on the other side of the router respectively.
>
> Press **Add** to have the router shown in the list.

"List field"

A list of the existing routers in the project.

Name   The name of the router.

Type   Type of router.

Near   Near Channel.

Far   Far Channel.

Status   No response / CnfgBypass / Online / Offline

Add

Adds the router, type and channels to the list ("List field").

Remove

Removes (deletes) the selected router (in the "Name" column).

Install

Installs the selected Router (in the "Name" column). A dialog box "Install" displays. See chapter 10.1INSTALLATION OF ROUTERS below.

Reset

Sends a reset message that will clear some statistics and configuration data.

Update

Updates the selected router. See "Update" below.

Replace

When an existing Router has to be <u>replaced</u>, you do not have to remove (delete) the existing Router and then add a new Router. Replace will start the same procedure as for "Install". See chapter <u>10.1INSTALLATION OF ROUTERS</u> below.

Status

The status for the selected router (in the "Name" column) will be shown in the "Status" column.

Close

Will save and close the dialog box.

10.1   INSTALLATION OF ROUTERS

The TLON Network cable installations have to be finished and the routers have to be power supplied and connected to the network.
NOTE! The routers have to be installed before the EBL512 / EBL512 G3 units can be installed otherwise there will be no communication with the units connected on the channels "on the other side" of the router.

Plug the TLON USB network interface cable into any of the EBL512 / EBL512 G3 units on Channel_1. From now on, it is recommended to use the same channel at all times.
The modular connector (RJ-45) "J2" EBL512 / "J10" – Network no. 0 and "J11" – Network no. 1 in EBL512 G3 are to be used.

a)   Start TLON Manager. In the **File** menu choose **Open.**
b)   Select Project and Network Interface (normally LON1) and press **OK**.
c)   In menu **Network** select **Router…**.
d)   In the dialog box select a router and press **Install**.
The following dialog box will be displayed:
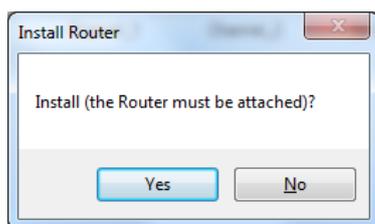
e)   Press **Yes** and a dialog box will display.

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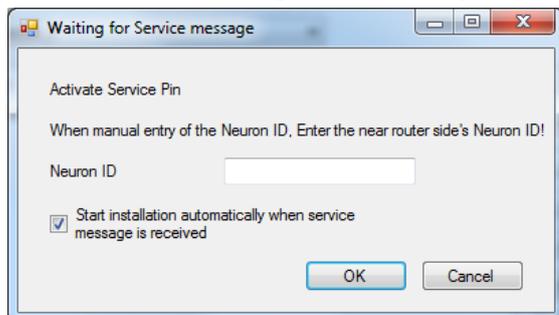
On the specified router, push the "Service" button. A Neuron ID (number) will be transmitted and (for a second) shown in the "Neuron ID" field.

Since the check box "Start installation automatically when service message is received" is marked, TLON Manager will automatically start binding the router in the database.

If the check box is un-marked you will have to press **OK** to continue.

The Router_1 is now created and installed in the network. When the binding process is completed, the "Status" will be "CnfgOnline".

f) When all routers are installed, press **Update all**. TLON Manager will now re-connect and update all the routers installed in the network.

g) When all routers are installed, the EBL512 G3/ EBL512 units can be installed, see chapter 8.1. INSTALLATION OF A PROJECT.

11   ADD A UNIT

Regarding nodes in a TLON Network, see chapter <u>7.1 PLANNING A PROJECT</u>, and section <u>7.1.5 EBL512 G3/</u>
<u>EBL512 UNITS</u>.
In the **Network** menu choose **Unit…** or press **Add**.
The following dialog box displays:
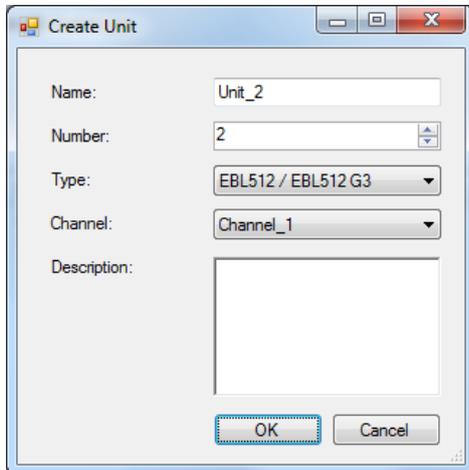
The dialog box and the following actions are described in the example in chapter <u>8. CREATE A NEW</u>
<u>PROJECT</u> and continues in chapter <u>8.1. INSTALLATION OF A PROJECT</u>.

NOTE! When all the nodes have been installed, it is very important that you press **Update all** and **All Online** as described in the example. After that it is recommended to restart each node.

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12 FILE MENU
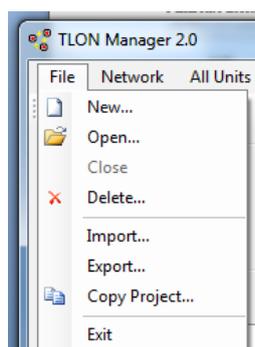
12.1 NEW

Creates a new Project, see chapter 8. CREATE A NEW PROJECT.

12.2 OPEN

Open an existing project in TLON Manager´s common data base. Select a project in the list, select a Network interface, and press **OK**.

12.3 CLOSE

Close and save the project that is open.

12.4 DELETE

Deletes an existing project in TLON Manager´s common data base. In the list, select the project to be deleted and press **OK**.

12.5 IMPORT

To be able to open a project that for example has been copied from another computer or to be able to open an "old project" when a new version of TLON Manager has been installed, the project has to be imported to TLON Manager´s common database.

Select "Import…" and the following dialog box displays:
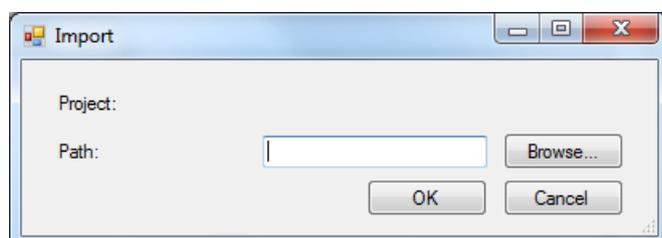
Find and select the folder (Project) to be imported. As default, TLON Manager **2.0** saves all projects in: **C:\lm\db**.
As default, TLON Manager **1.x** saves all projects in: **C:\lns**.
The project name will be the same as the folder name. You may use this name or change it.

12.6 EXPORT

Used when you want to export a project. You will get a copy of the project in another folder. From this folder it is possible to copy the project. Export can also be used if you want to backup of the project or want to use the project in another computer.

NOTE! It is not possible to "upload" data from the TLON Network to TLON Manager.

   a)   Select **Export…** and the following dialog box will display:
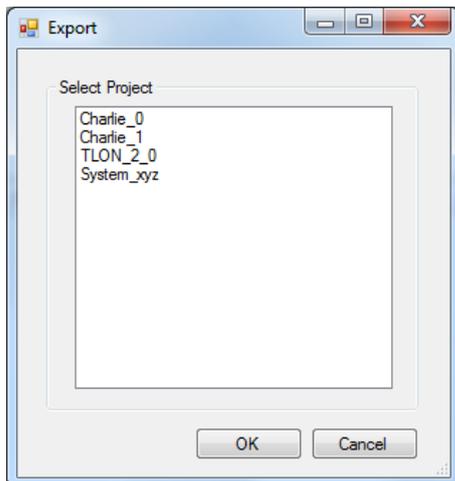
   b)   Select a project to export

   c)   Press **OK**.
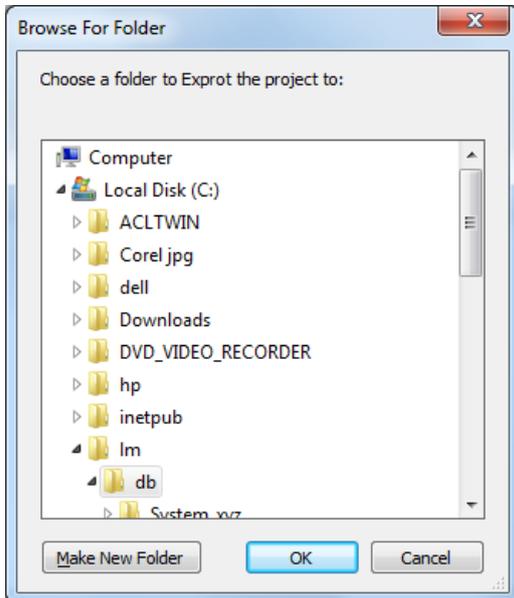
   d)   Find and select the folder to which the project is to be exported (As default, TLON Manager suggests: **C:\lm\db**).
The "File name" (Project name) will be the same as the folder name. You may use the current name or change it.

   e)   Press **OK**. The project will now be copied to the selected folder.

12.7 COPY PROJECT

Used when you want to copy of an existing project, but with a new name. This is useful when a new similar project is to be created.

    a)   Select **Copy project…** and the following dialog box will display:
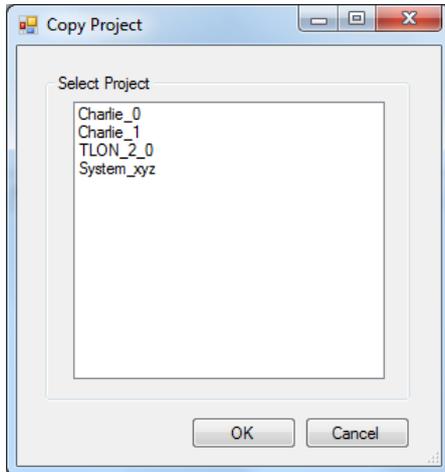
    b)   Select the project to copy.

    c)   Press **OK**. The following dialog box will display:
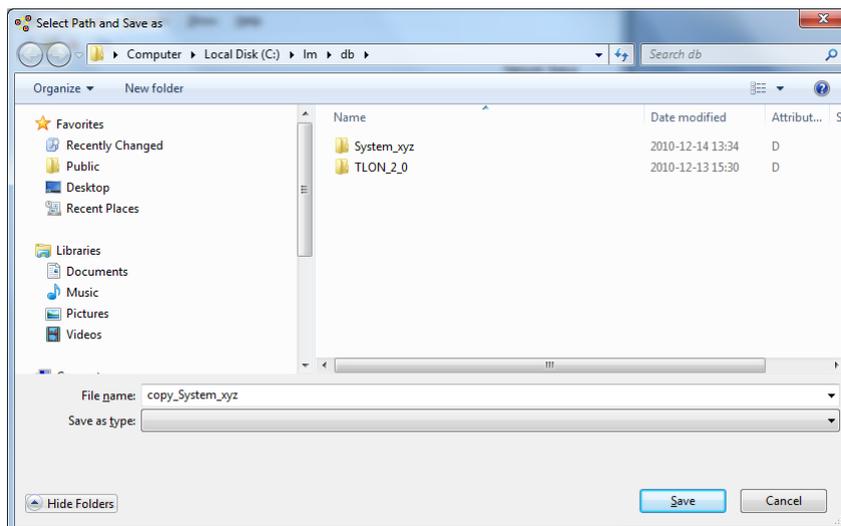
    d)   Press **Save** and the project will be copied.

12.8 EXIT

Select **Exit** to close TLON Manager 2.0.

NOTE! Close any open project before exiting TLON Manager.

13 REMOVE

Everything added to the network, for example EBL512 G3/EBL512 units, channels, and routers may also be removed.

NOTE! After removing something you have to "Update all".

13.1 REMOVE EBL512 G3/ EBL512 UNIT

There are two ways to remove a node:
   a) Select the unit to be removed and press the right mouse button to get a pop-up menu.
   b) Select **Remove**.
   c) Select the unit and press **Remove**.
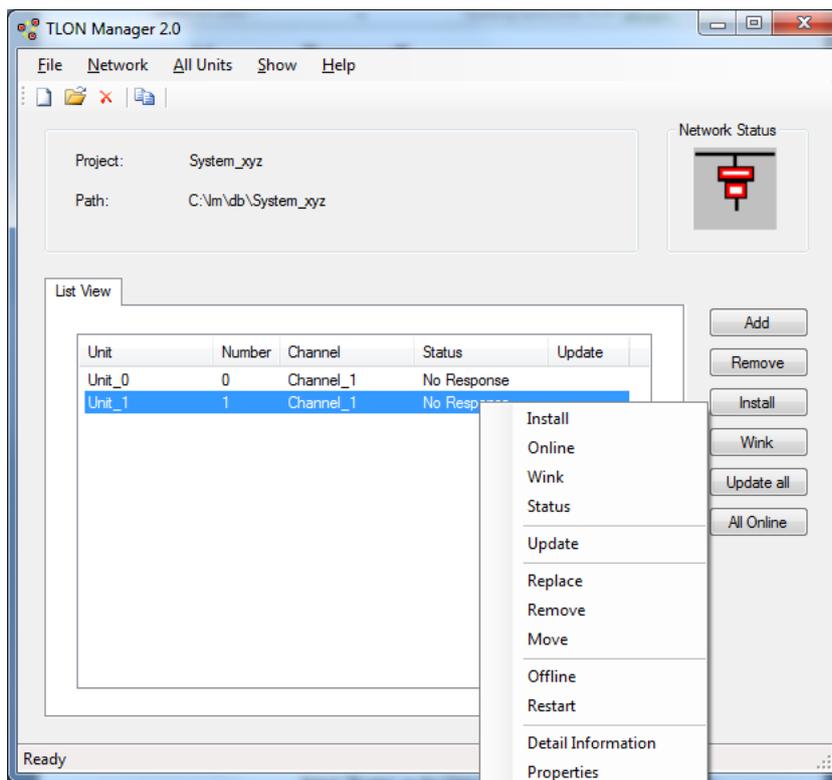
13.2 REMOVE CHANNELS

In the **Network** menu select **Channel…**. The following dialog box will display:
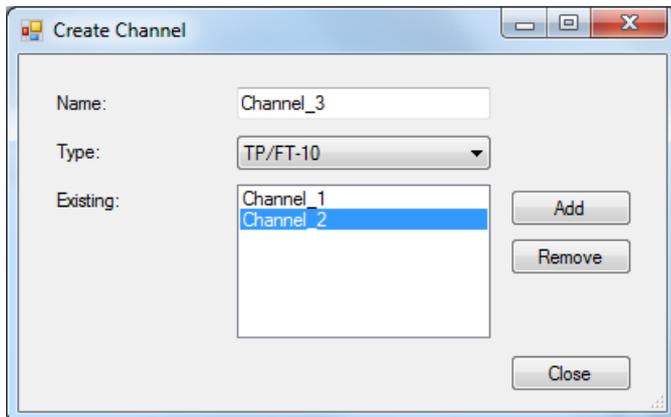
Select the channel to remove and press **Remove**.

13.3 REMOVE ROUTERS

In the **Network** menu select **Routers…**. The following dialog box will display:
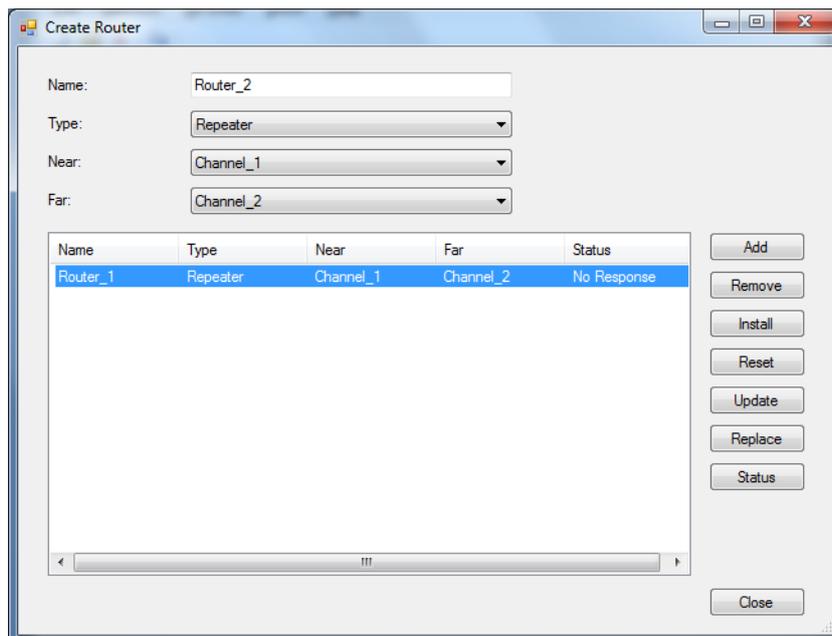
Select the router to remove and press **Remove**.

14 MAINTENANCE AND TROUBLESHOOTING

Some TLON information is saved in the TLON connection board memory and some in the EBL512 G3/ EBL512 Main board memory.
- If only the Main board is replaced: Perform an **Update** for the unit. (Select the unit, right press and select "Update" in the pop-up menu.)
- If the TLON connection board is replaced: Perform a **Replace** for the unit.

There are a number of functions that are useful for network maintenance and troubleshooting. The most common are described below.

14.1 INSTALL

The unit will be installed in the network, see chapter 8.1. INSTALLATION OF A PROJECT and chapter 10.1 INSTALLATION OF ROUTERS.

14.2 ONLINE

The selected unit can be set Online if the status is CnfgBypass (Offline).

14.3 WINK

With "Wink" you can check that the EBL512 G3/ EBL512 unit corresponds to the selected unit in TLON Manager 2.0. A not connected node, not installed, etc. cannot receive a wink message.

There are two ways to send a wink message:
- Select the unit and click the right mouse button to get a pop-up menu. Select "Wink".
- Select the unit and press **Wink**.

TECHNICAL DESCRIPTION 5095 • DOCUMENT NUMBER: MEW01983 • REVISION: 2
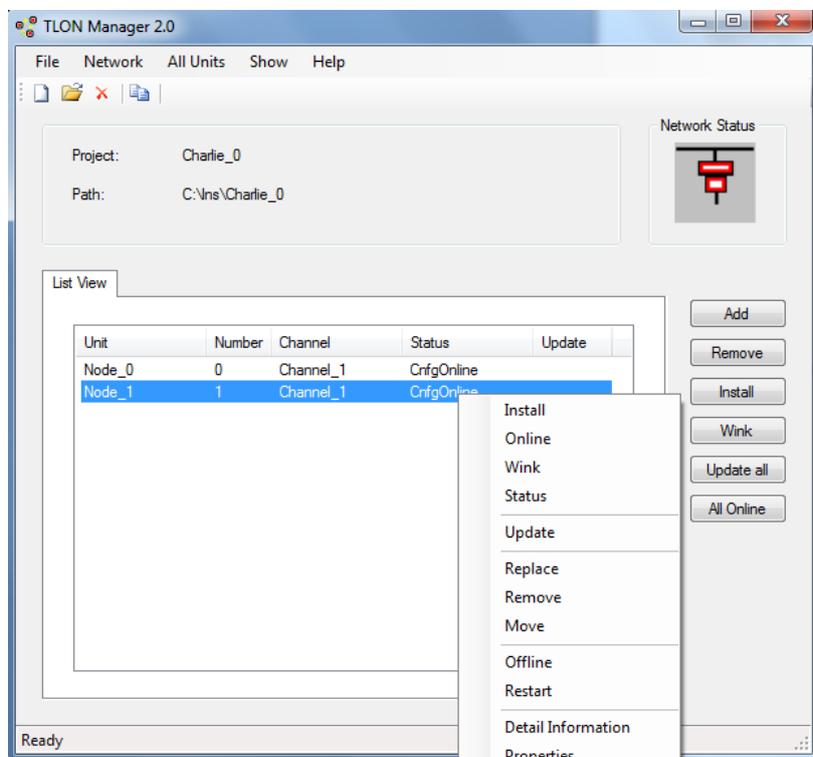
EBL512

In the selected node the wink message turns on the buzzer and all the front LEDs for approximately 1 second.

EBL512 G3, Network no. 0

In the selected node the wink message turns on the buzzer and the front LED "Test mode" for approximately 0.4 second.

EBL512 G3, Network no. 1

In the selected node the wink message turns on the buzzer and the front LED "Test mode" for approximately 2 second.

14.4 STATUS

Status for the selected node will be updated, for example, no changes no change of the status.

14.5 UPDATE

Normally you update a unit (i.e. the network configuration data is downloaded to the physical unit) after it has been installed, see chapter 8.1. INSTALLATION OF A PROJECT.

Update can also be used when you suspect that the configuration data in a unit is incorrect.
When a Main board is replaced in an EBL512 G3/ EBL512 unit, the unit has to be updated.
Select the unit and click the right mouse button to get a pop-up menu. Select "Update".
After "Update" the information is:
OK(0) = Update OK (0 unsuccessful attempts)
OK(1) = Update OK (after 1 unsuccessful attempt)
OK(2) = Update OK (after 2 unsuccessful attempts)
NG = Update not good

14.5.1 UPDATE ALL

All the units in the Network can be updated (see above) with only one command. Press **Update all,** see also chapter 8.1. INSTALLATION OF A PROJECT.

14.6 REPLACE

When a TLON connection board is replaced in an EBL512 G3/ EBL512 unit, select the unit and press **Replace**.

14.7 MOVE

A node can be moved from one channel to another. In the dialog box that opens, specify the "New location" (Channel) and press **OK**.
NOTE! The channels have to be added before.

14.8 OFFLINE

The selected unit can be set Offline (CnfgBypass) if the status is (Online).

14.9 RESTART

You can restart a unit in the network with the restart command. In a TLON Network this command works only with EBL512 G3/ EBL512 units.
Select the unit and click the right mouse button to get a pop-up menu.
Choose **Restart** and the following dialog box displays:
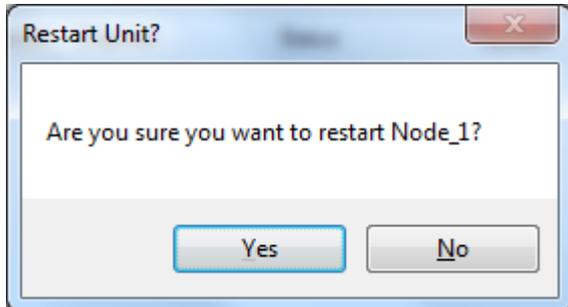
Press **Yes** to restart the unit.

14.9.1 RESTART ALL UNITS

You can restart all the units in a TLON Network.
In the menu **All units** choose **Restart** and the following dialog box displays:
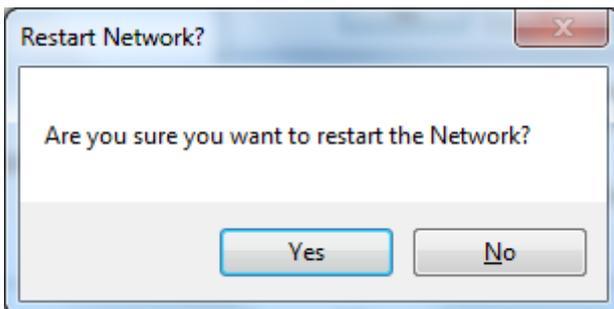
Press **Yes** to restart the units.

14.10 DETAIL INFORMATION

This command asks a unit in the Network a series of questions, which will be presented in a dialog box. Select a unit and click the right mouse button to get a pop-up menu.
Choose **Detail Info** and the following dialog box displays:
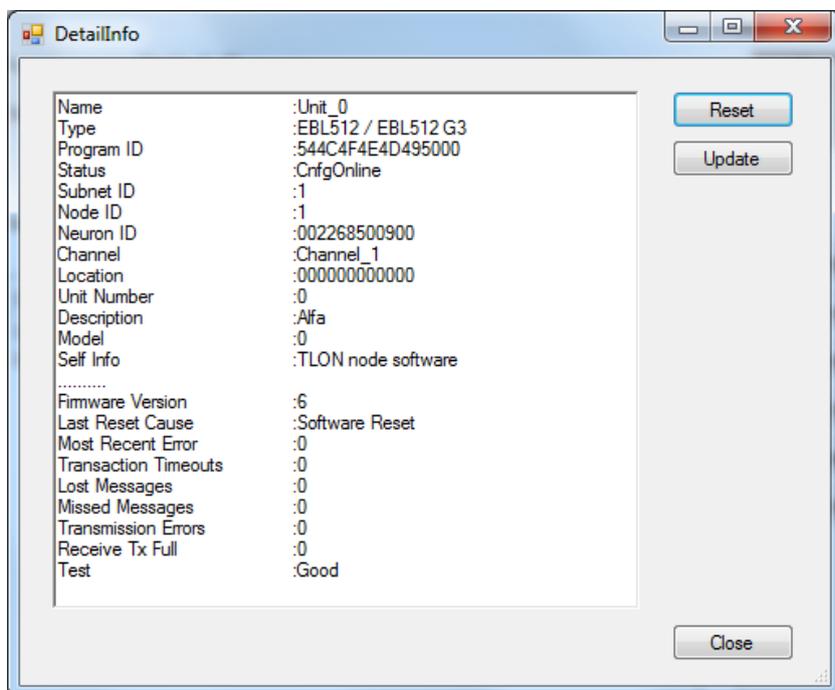
The dialog box contains a lot of information and a deeper knowledge of the TLON Network is required to be able to understand some of it. The information of interest for the average user is explained below.

(In case of no contact, the information is: "No contact with node".)

Name

The name given to the unit when it was created.

Type

The type given to the unit when it was created, see chapter 8. CREATE A NEW PROJECT.
(If an old project is opened in TLON Manager 2.0.x the type shown here might be different than the type given to the unit when it was created.)

Status

Shows the status of the unit. The normal status is "CnfgOnline".

Neuron ID

The TLON connection board Neuron ID number.

Channel

Shows the Channel the unit is installed on, for example Channel_1.

Unit Number

The number given to the unit when it was created.

Description

The Description given in the "Create unit" dialog box (if any).

Last reset cause

Shows the reason for latest restart of the unit.

Transaction Timeouts

Shows the number of messages sent but not acknowledged by all other nodes in the network. The number should be 0 after the unit has been installed. The number may increase if new units are installed. Reset the value (and all the others) by pressing **Reset**.

Transmission Errors

After a reset of values (by pressing **Reset**): Must not increase during a 10-minutes interval.

Test

Shall normally be "Good".

14.11 PROPERTIES

Select a unit and click the right mouse button to get a pop-up menu.
Choose **Properties** and the following dialog box displays:
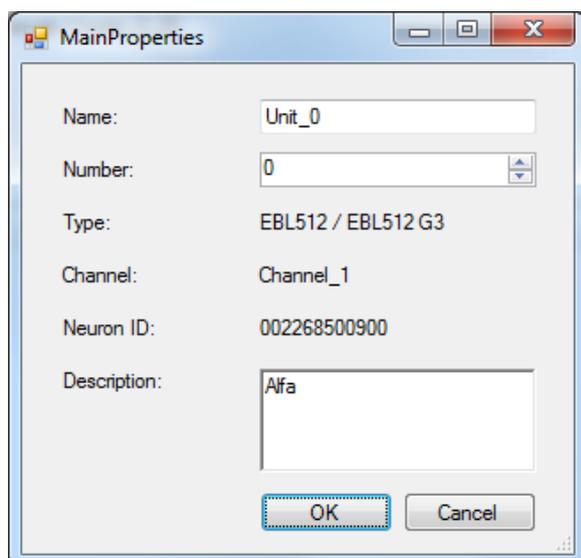
Press **OK** to save and close the dialog box.

15   EXAMPLES

Some examples of TLON Networks:

Two networks with eight EBL units.

System EBL512   **System EBL512 G3**
> 6 units, i.e. one Router   Redundant network
is required.   i.e. two networks.
Channel_1 and Channel_2   Channel_1

```
        512                                512 G3
         |                                  |  |
        512                                512 G3
         |                                  |  |
        512                                512 G3
         |                                  |  |
        512                                512 G3
         |                                  |  |
      Router_1                             512 G3
         |                                  |  |
        512                                512 G3
         |                                  |  |
        512                                512 G3
         |                                  |  |
        512                                512 G3
         |
        512
```

Each **Channel** has to start and end with a termination resistor, **105R**, 1%, 1/8W.

An example of an EBL512 network with **three Routers** connected via a Backbone net. **Four Channels** are required.

```
                    Channel_2  (Backbone net)

    Router_1 ------------------------------ Router_2 ----------------------------- Router_3
        |                                      |                                       |
       512                                    512                                     512
        |                                      |                                       |
       512                                    512                                     512
        |                                      |                                       |
        |                                      |                                       |
    Channel_1                              Channel_3                               Channel_4
```
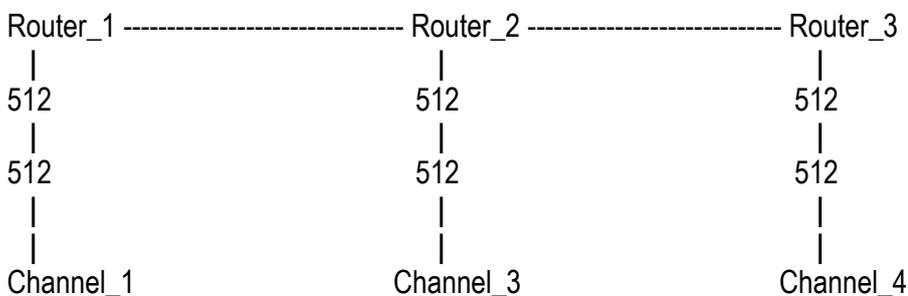
Each **Channel** has to start and end with a termination resistor, **105R**, 1%, 1/8W.

16   LNS DEVICES CREDITS

LNS Device credits only concerns previous TLON connection board (p.c.b. no. 9302-xx). Current TLON connection board as well as routers will not consume any LNS Device credit
With every TLON Manager kit comes a license with 64 LNS Device credits. One LNS Device credits is consumed for each TLON connection board in the network.

16.1   LICENSE STATUS

In the **File** menu choose **Open** to open any project. In the **Help** menu choose **License status** and the following dialog box opens:

License status	
Days remaining	Sufficient credits
Deficit credits	0
Licensed credits	64
License type	Standard Mode
Max deficit credits	500
Used credits	4

OK
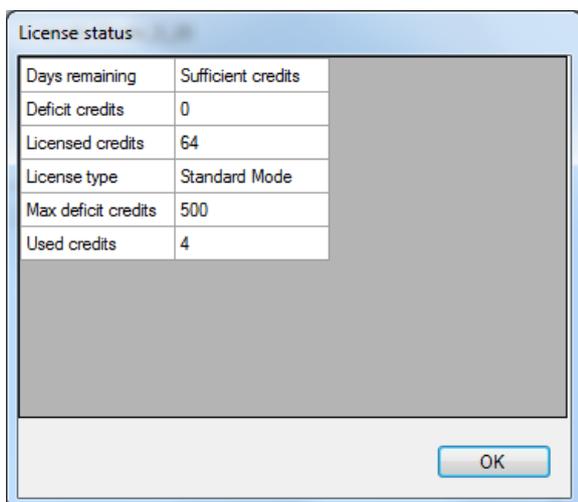
Days remaining: As long as there are LNS Device credits this field will show **Sufficient credits**. When all the LNS Device credits are consumed and TLON Manager has started to use "Deficit credits" this field will show the number of days (0-14) before the license will expire. If the number of days = 0 the LNS Server will cease to operate until new LNS Device credits are added.

Deficit credits: As long as there are LNS Device credits this field will show **0**. When all the LNS Device credits are consumed, TLON Manager will start to use Deficit credits. This field will then show the number of Deficit credits being used (0-500).

Licensed credits: The number of LNS Device credits added.

Licensed type: Always **Standard Mode** in TLON Manager V2.0.

Max deficit credits: The number of "Deficit credits" allowed. If this number is exceeded, the LNS Server will cease to operate until sufficient LNS Device credits are added.

Used credits: The number of the LNS Device credits consumed. This number does not include the number of "Deficit credits" currently being used.

16.2 HOW TO ORDER LNS DEVICES CREDITS

Before the license will expire you should purchase additional LNS Device Credits. Panasonic Electric Works Nordic AB's article number for additional LNS Device Credits is **5096** and corresponds to **50 LNS Device Credits**.

(It is also possible to order LNS Device Credits directly from Echelon.)

In the **Start** menu you will find a program group **Echelon LNS Utilities**.

a) Start the program **LNS Server License Wizard**.
b) In the **Credit Order** frame enter the number of LNS Device Credits you want to add / purchase.
c) Press **Next >**:

d) Press **Copy to Clipboard**.
   Open your email program (or word processor) and paste the clipboard contents (the Request form) into the email message (or document).
e) Send that **Request form** together with your article number 5096 order to:
   Order.pewnf@eu.panasonic.com.

   If you order from Echelon directly, fill in the requested information in the **Request form** before you send it to credits@echelon.com.

APPLICATION KEY
You will receive an "Application Key" via a return email.
   f) Start the **LNS Server License Wizard** and proceed to the second dialog box containing the **Copy to Clipboard** button.
   g) Copy the **Application Key** from the return email into the **Application Key** field.
   h) Press **Finish.**

16.3   REQUEST FORM – EXAMPLE

The Request form shall be send together with the article 5096 order.

NOTE! If you order article number 5096, Panasonic ESN AB will fill in the requested information in the top part of the form. If you order from Echelon directly, fill in the requested information.

Here follows an example of a Request form generated by the "LNS Server License Wizard":

YOU MUST FILL IN ALL THE BLANK FIELDS IN THE TOP PART OF THE FOLLOWING FORM, SELECT ONE OF THE BILLING OPTIONS BY FILLING IN A CHECKBOX IN THE BOTTOM PART OF THE FORM, AND FILL IN THE BLANK FIELDS IN THE SELECTED BILLING OPTION. IF YOU ARE

ORDERING NO CHARGE CREDITS, YOU MUST FILL IN ONE OF THE CHECKBOXES EXPLAINING THE REASON FOR THE ORDER. A BLANK FIELD IS A FIELD WITH A COLON (":") AT THE END OF THE LINE. IF ANY OF THIS INFORMATION IS MISSING, YOUR ORDER WILL BE DELAYED.

TO: Echelon License Administrator

Email: credits@echelon.com

Fax: +1-408-790-3833

FROM: Name:

Company:

Address1:

Address2:

Country:

Phone:

Fax:

Email:

SUBJECT: Order for LNS(r) Device Credits (LNS Turbo Edition)

Please process the following order:

Number of LNS Device Credits ordered: ADD 50

Number of LNS Device Credits to be delivered (if less than the quantity ordered):

Product: LNS Device Credits

Model Number: 34400

Price Each:

Total Amount:

16. LNS DEVICES CREDITS

Following are the list prices. These prices are subject to change. Contact your distributor for current and local pricing.

Your distributor may also provide you with an alternate mailing address for this order.

List price: US$1.50

Price for authorized free uses: No charge (see agreement below)

The following PC key value is filled in automatically by the LNS Server License Wizard when you generate an LNS Device Credit order as described in the product documentation. You should always use the order form generated by the software and send the form by email (or fax if email is not available) to ensure that there are no errors in transcribing the PC key value.

PC Key: DBCB A65E 06FB C480 50 - 71D7 D287 C5C1 C5FE 8E71 DCA5 82E5 CCD4 DE8E 61DD 9A8C CA8B

Select one of the following payment methods and fill in the information for the requested method:

[ ]   Credit Card (minimum order of 50 credits)

    Type of credit card:

        [ ] American Express

        [ ] MasterCard

        [ ] Visa

    Name on the credit card:

    Credit card number:

    Expiration date:

      Authorized by:

      Billing Address:

        Street 1:

        Street 2:

    City:

    Providence/State:

    Postal/Zip Code:

    Country:

16. LNS DEVICES CREDITS

[ ]   Purchase Order (minimum order of 50 credits)

Purchase Order Number:

Authorized by:

Billing Address:

Street 1:

Street 2:

City:

Providence/State:

Postal/Zip Code:

Country:

[ ]   No charge evaluation, development, test, support, production, training, or replacement credits (check all that apply). By submitting an order for free credits, you agree that you will use these free credits only for the authorized purposes that you have checked below, and you agree that you will provide Echelon with information as reasonably requested by Echelon to verify that the use of these LNS Device Credits is limited to the authorized uses. There is no minimum order size; maximum order size is indicated below.

[ ]   Evaluation use. LNS Device Credits used for evaluation purposes.   Limited to 500 free credits per company per year.

[ ]   Internal development and test use. LNS Device Credits used for the development and testing of devices that will solely will be used for development, or that will be shipped in the unconfigured state. Limited to 500 free credits per device type per year.

[ ] Support use. LNS Device Credits used by a support engineer to provide support to a customer. The customer must have paid for the LNS Device Credits used for the customer's devices. Limited to 500 free credits per support engineer per year.

[ ]   Production use. LNS Device Credits used for manufacturing test. Devices must be shipped in the unconfigured state. Limited to 1 free credit per manufactured device shipped in the unconfigured state.

[ ]   Training use. LNS Device Credits used solely for training. Any devices installed during training must not be used in a production or operational system. Limited to 500 free credits per class.

[ ] Replacement use. LNS Device Credits used to replace LNS Device Credits that were lost due to

a PC hardware or software failure. Limited to the number of credits that were lost as a result of the failure.

Your LNS Device Credits will be sent to you by email or fax as an Application Key (a series of numbers and letters). When you receive the Application Key, run the LNS Server License Wizard again, enter the Application Key on the second page of the wizard and then press **Finish**.