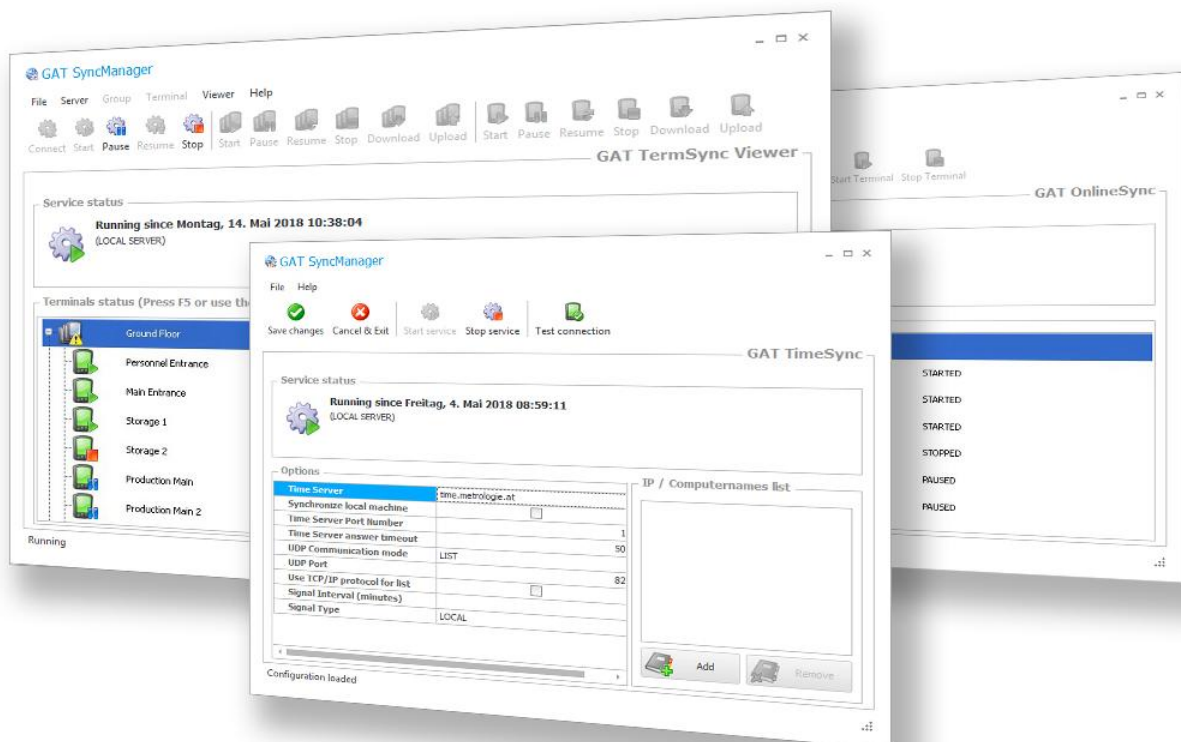


GAT SyncManager

Communication, Configuration, and Time Synchronization of Gantner Terminals



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Contact address of manufacturer

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2. Before installing, commissioning, operating, or maintaining the product, it is essential to read the corresponding chapter of this manual and observe the instructions and information therein.
3. If there are some points that are not entirely clear, please do not take a chance. All queries can be clarified by your Gantner representative or by ringing the Gantner support hotline.
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8. Where not otherwise stated, installation and maintenance work on our products must be carried out when disconnected from the power supply. This applies in particular to appliances that are normally supplied by low-voltage current.
9. It is prohibited to alter the products or remove protective shields and covers.
10. Do not attempt to repair a product after a defect, failure, or damage is detected. In addition, do not put the product back into operation. In such cases, it is essential to contact your Gantner representative or the Gantner support hotline.
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12. Although care is taken and we are continuously aiming for improvement, we cannot completely exclude the possibility of errors appearing in our documentation. Gantner Electronic GmbH therefore accepts no responsibility for the completeness or the accuracy of this manual. The right is reserved to make alterations at any time without prior notice.
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14. We especially look forward to hearing from you if you just want to tell us that everything is functioning perfectly.

We wish you a successful experience with our product and look forward to welcoming you again as a customer soon.

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1 INTRODUCTION

The software package GAT SyncManager provides an easy and convenient interface for the editing and actualization of the device configurations of all Gantner access control terminals in a facility.

Furthermore, the communication with the online terminals GAT eco.time ST270 and GAT eco.time ST570 can be controlled and monitored.

The functionality of the automatic time synchronization ensures that all terminals are always operating with the correct time.

GAT SyncManager consists of the applications **GAT TermSync**, **GAT TimeSync** and **GAT OnlineSync**. These applications can be operated and configured via their user interfaces within GAT SyncManager.

GAT TermSync provides the following functions:

- Periodical communication with Gantner terminals.
- Checking whether bookings exist on the terminals.
- Readouts of available bookings.
- Buffering and retrieval of bookings for evaluation software.
- Checking whether new data is available for the terminals.
- Uploading of new data to the relevant terminals.
- Logging of all communications and procedures.
- Notification in case of error.

GAT OnlineSync provides the following functions:

- Online communication with the Gantner terminals in online mode (e.g., GAT eco.time ST270 and GAT eco.time ST570 or GT7 Terminal with G7 Time & Attendance App).
- Storing all activities at the terminals in a database.
- Recording all communications and all events.
- Messaging in case of error.
- Preparing data for GAT TermSync.
- Maintaining compliance with the booking sequence (across locations and device types).

GAT TimeSync provides the following functions:

- Automatic time synchronization of Gantner terminals.
- Manual time synchronization of certain terminals.
- Time synchronization via time server or by using the time of the system where GAT TimeSync service is running.
- Synchronization via UDP protocol.
- Time can be sent as local or UTC time.

The three applications of the GAT SyncManager are run as Windows® service and are started during installation.

At start-up of GAT SyncManager, the application GAT TermSync loads the terminal definitions from the configuration file and attempts to establish communication with the terminals. These terminal definitions contain, among other things, communication parameters and read-out information (schedules). If communication with one of the terminals cannot be established, this will be logged and continued attempts to reach the terminal will be made.

GAT TimeSync sends a synchronization signal in configurable intervals (broadcast) via the UDP protocol. This signal enables the timely synchronization of Gantner terminals, software products or PCs. This synchronization signal can be sent as local time or UTC. It is possible to use the local time of the PC where GAT SyncManager is running.



This icon is displayed in the notification area of Windows®, if the GAT TermSync service of GAT SyncManager is running. It can display different symbols, depending on the status of the service.

This icon can also be used to start the GAT TermSync Viewer, the graphic user interface of GAT TermSync, which enables the local or remote control of the applications and services of GAT SyncManager. The control is carried out over a TCP/IP connection, i.e., there has to be a physical connection available to the computer on which the GAT SyncManager services are running.

NOTE! It must be noted that firewalls can influence the functionality of the software, in that communication is completely or partially blocked. Usually, the broadcast signals from the UDP protocol are not routed by routers. Therefore, it is important to use the correct UDP signal mode of the GAT TimeSync application (option "UDP Communication mode" - see section "3.1 Configuration of the GAT TermSync service").

2 INSTALLATION

2.1 Hardware requirements

In order to operate GAT SyncManager, the following minimum hardware requirements must be met.

- Processor: IBM-compatible PC, e.g., Intel Core i5, 3 GHz or comparable CPU
- RAM: 4 GB
- Drive: CD-ROM
- Hard disk: Recommended min. 10 GB (for software and data)
- Monitor: Color monitor, resolution min. 1024 x 768
- Interfaces: Network card Ethernet (TCP/IP)

2.2 Software requirements

2.2.1 Supported operating systems

- Microsoft® Windows® 11 (Pro, Enterprise), 64-Bit
- Microsoft® Windows Server® 2019, 2022, 2025 (Essentials, Standard, Datacenter), 64-bit

Editions not listed here, e.g., Home, Starter, Web, RT, etc., are not supported. The Server Core installation option of Windows Server® are also not supported.

NOTE! Please note that Gantner Electronic GmbH can only provide support if GAT Sync Manager is installed on a German or English version of Windows. Furthermore, support can only be guaranteed if the customer provides all the information required to access the system with the respective authorizations (e.g., Windows account, access to the SQL database, etc.).

NOTE! The customer must provide the required licenses, e.g., for the operating system or database.

2.2.2 Data Base Server

A database is required to run the GAT Sync Manager. You can either use SQLite or, from version 3.5 onwards, a database server can be used (recommended). The following database servers are supported by Matrix.

- Microsoft® SQL Server® 2016, 2017, 2019, 2022, 2025

Express versions are also supported.

No database is included with GAT Sync Manager. If desired, you can download the Microsoft® SQL Server® Express database from the Gantner partner page.

NOTE! Please also note the system requirements for the database being used. The updated system requirements for Microsoft® SQL Server® Express can be found, for example, on the following page:

<https://technet.microsoft.com/de-de/library/ms143506.aspx>

NOTE! It is recommended to install Microsoft SQL Server Management Studio Express. This can be downloaded from the Microsoft website.

2.2.3 Microsoft .NET

.NET 10.0 is required for the operation of GAT SyncManager. This is included in the installation package and can be installed if necessary.

2.3 Installation of GAT SyncManager

By installing GAT SyncManager, all three applications (GAT TermSync, GAT TimeSync and GAT OnlineSync) will be installed. Complete the following steps to install GAT SyncManager.

- ▶ Open the folder with the installation package of GAT SyncManager.
- ▶ Double-click on the "setup.exe" file.
 - The installation wizard opens.

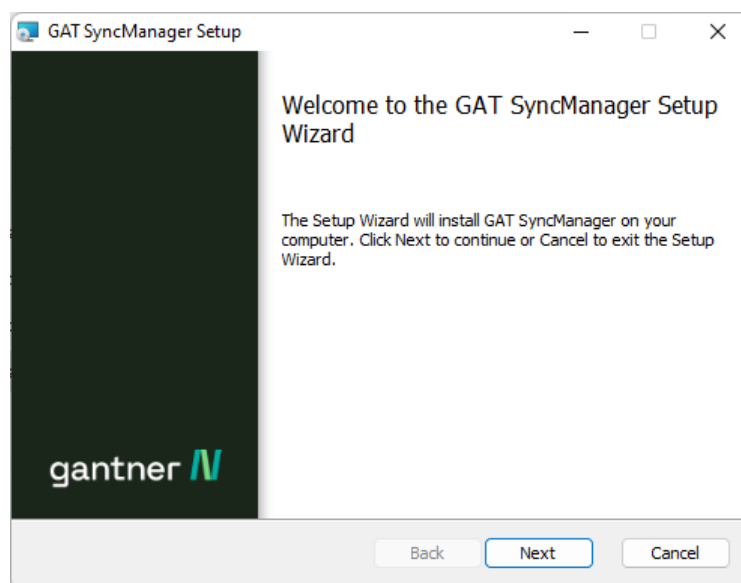
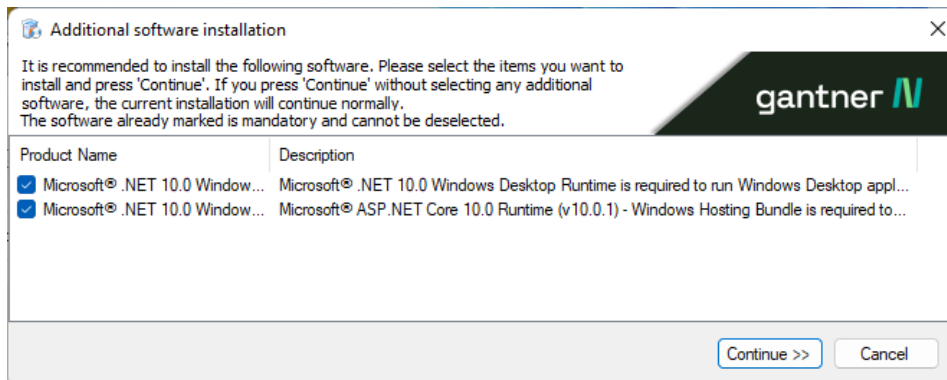


Figure 2.1 - GAT SyncManager installation - step 1

- ▶ A message is displayed if the installed .NET version is lower than V10.0. You can install the supplied .NET 10.0 by clicking on "Continue".



- Click on "Next".

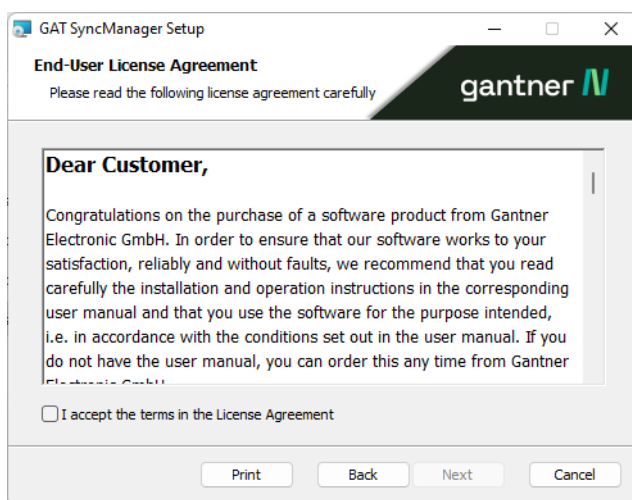


Figure 2.2 - GAT SyncManager installation - step 2

- Read the license agreement information and select the "I accept the terms in the license agreement" option to accept the licensing terms. Click on "Next".

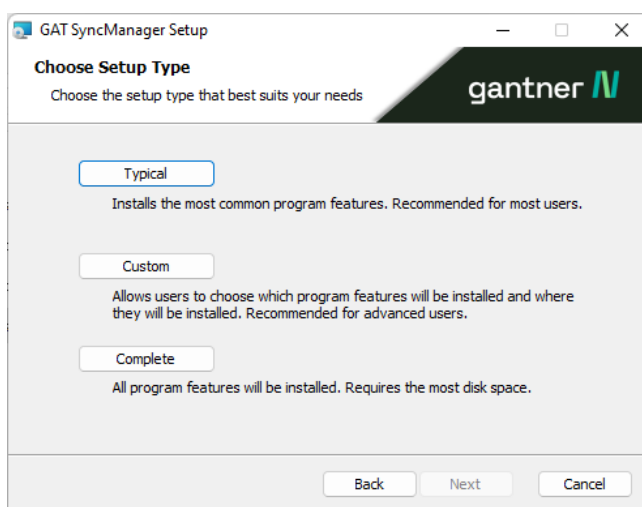


Figure 2.3 - GAT SyncManager installation - step 3

- Select the type of installation (standard = "Typical"):
- Typical: Installs GAT SyncManager and the most common application features. This is the default option for most users.
- Custom: Allows you to select the installation location and the individual components of GAT SyncManager to install. The following window appears when this type of installation is chosen.

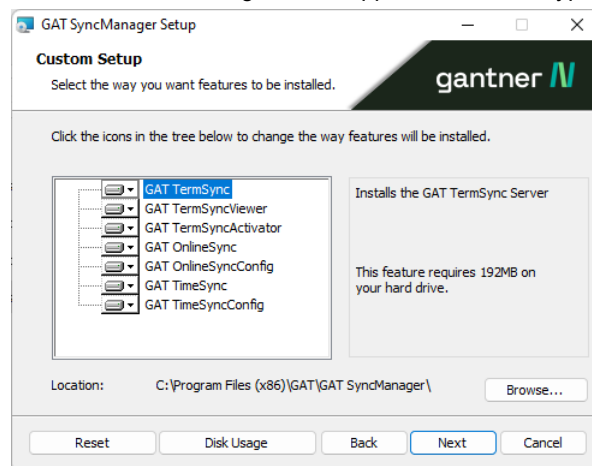


Figure 2.4 - GAT SyncManager installation - custom setup

- Select the components you want to install.
 - A white symbol in front of a component indicates that it is selected for installation.
- To change the installation status of a component, click on the icon in front of the component and select the desired action.

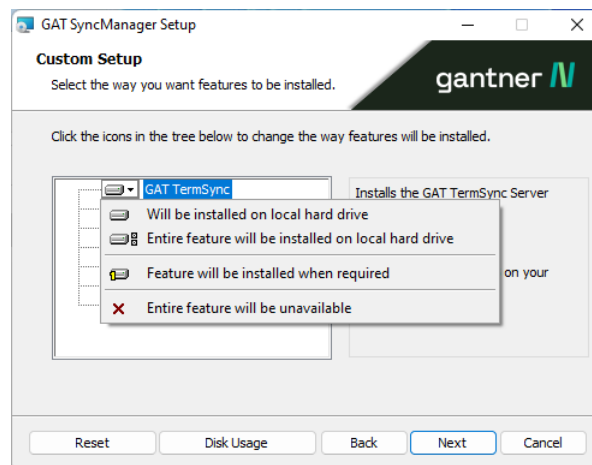


Figure 2.5 – GAT SyncManager installation – step 4

- Now select the directory where you want to install GAT SyncManager. If you do not want to use the default directory, click on "Browse" to select a different directory.
 - Click on "Next" after configuring the custom setup settings.
- Complete: This installation type installs all components of GAT SyncManager and requires the most disk space.

After selecting the type of installation, the following window opens.

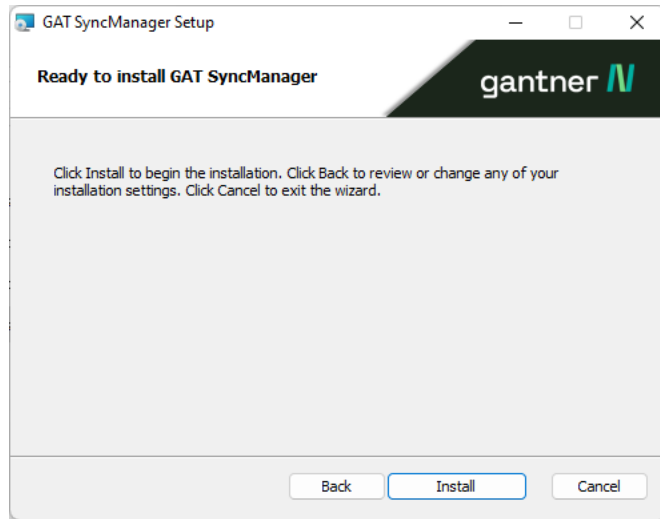


Figure 2.6 - GAT SyncManager installation - step 4

- ▶ Click on "Install" and confirm the following authorization request with "OK".
 - The installation process begins. A green bar indicates the progress of the installation.
- ▶ After installation is complete, click on "Finish" to exit the installation wizard.
 - GAT SyncManager is now installed. A new program group (Gantner Electronic GmbH -> GAT SyncManager) is automatically generated where you find the link to start GAT SyncManager.

2.3.1 Windows user rights

When installing GAT SyncManager certain settings for the standard Windows user "Network Service" will be saved in predefined locations. If you later want to run one or several services of GAT SyncManager with another user, you must move the following folders before the services are started with the new user the first time.

For Microsoft® Windows Vista and later versions:

- GAT TermSync:
from: C:\Windows\ServiceProfiles\NetworkService\AppData\Roaming\GAT\GAT SyncManager\TermSync
to: C:\Users\<UserName>\AppData\Roaming\GAT\GAT SyncManager\TermSync
- GAT TimeSync:
from: C:\Windows\ServiceProfiles\NetworkService\AppData\Roaming\GAT\GAT SyncManager\TimeSync
to: C:\Users\<UserName>\AppData\Roaming\GAT\GAT SyncManager\TimeSync
- GAT OnlineSync:
from: C:\Windows\ServiceProfiles\NetworkService\AppData\Roaming\GAT\GAT SyncManager\OnlineSync
to: C:\Users\<UserName>\AppData\Roaming\GAT\GAT SyncManager\OnlineSync

NOTE!

- Always the entire content of the folder must be moved. If new folders must be created for this, these folders must have the corresponding rights for the desired user.
- For the files, which are used by GAT SyncManager, read and write permission must be set for the user which runs the GAT SyncManager service.

2.4 Licensing

After installation, GAT SyncManager is still in demo mode. Not all functions are available in this mode. Enabling the complete functionality is done via **licensing** and **activation**, where licensing and activation is only necessary for the GAT TermSync application.

The software must be licensed within 14 days after installation, otherwise the software cannot be used anymore. Software licensing is completed via a basic license that can be purchased from your reseller.

After licensing the software, you can use it for a further 14 days before you must activate the software. For activation, please contact your sales partner who will send you an activation code. This activation code is linked, via a hardware ID, to the computer where the software is installed. The hardware ID enables the unique identification of the computer.

NOTE Regarding the Hardware ID

- The hardware ID does not include any information or configuration settings from your computer.
- For GAT SyncManager v3.0.0, the method for calculating the hardware ID has been changed. For more information on updating GAT SyncManager to the new calculation method, see "2.4.1 Upgrading the hardware ID calculation".

To license GAT SyncManager, start the GAT TermSync Activator. To do this, select "Programs -> Gantner Electronic GmbH -> GAT SyncManager -> GAT TermSync Activator" in the Windows start menu. This will open the following window.

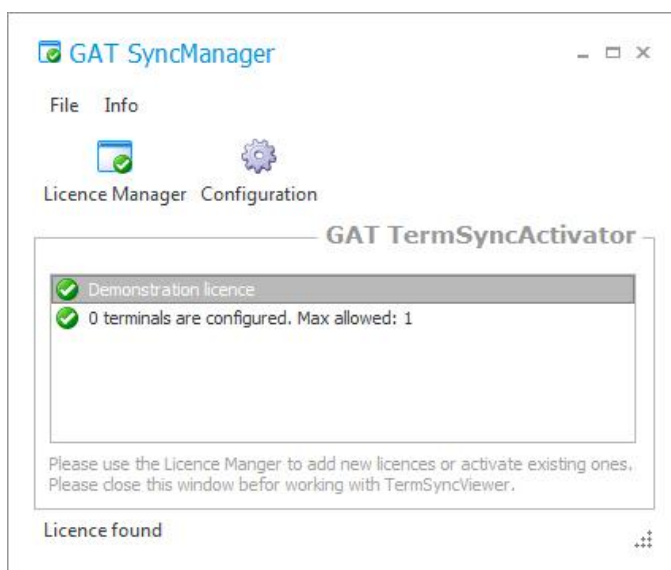
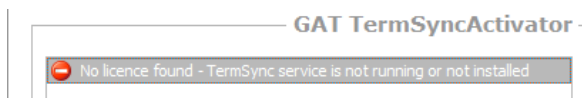


Figure 2.7 - GAT SyncManager Activator

NOTE! If you see the following message here, the GAT TermSync service has not started.



In this case, first start the "GAT TermSync" service in the Windows service manager.

If the GAT TermSync service is running, an overview of the installed licenses is displayed. To add a new license or to display the license details, select "License Manager" in the icon bar of the window. This will open the license manager as shown in Figure 2.8.

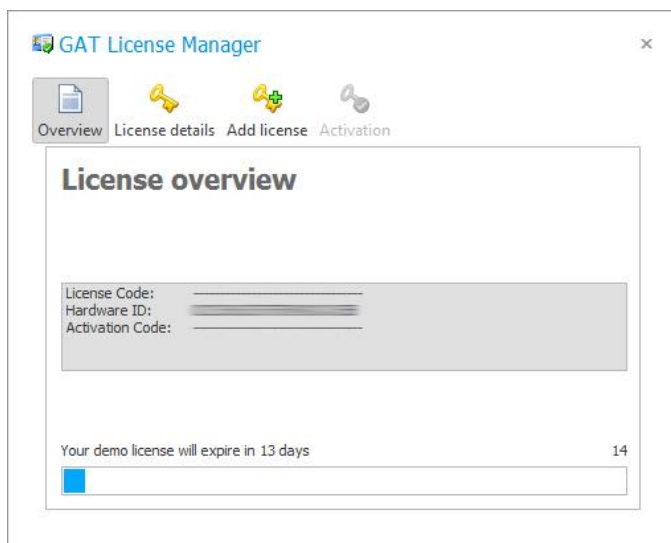


Figure 2.8 - GAT SyncManager Activator - License overview

In the start window of the license manager, the base license, the hardware ID of your computer as well as the activation code is shown. Furthermore, the time remaining until licensing or activation of your software is required is displayed. In Figure 2.8, a license code has been entered but the software has not been activated yet. When you click on "License details", the licenses already acquired are displayed.

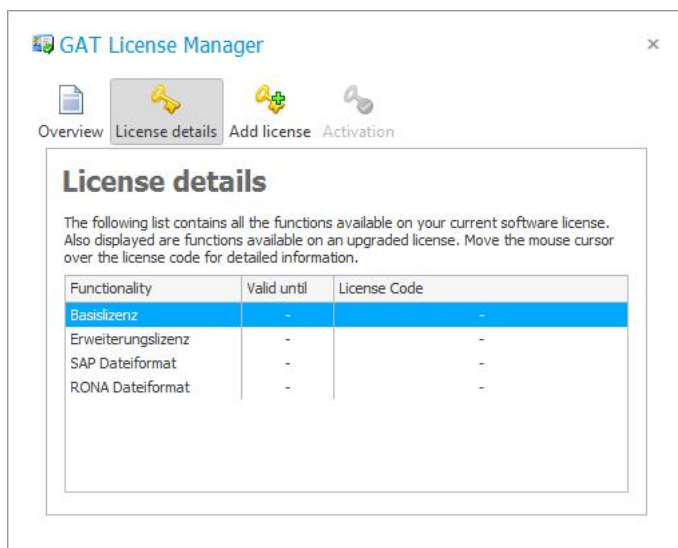


Figure 2.9 - GAT SyncManager Activator - License details

For each function that can be licensed, the corresponding license code will be shown. "Functionality" in this context represents a collection of functions that can be licensed via a single license code. Moving the mouse over the license code displays these simple functions (e.g., number of terminals), which can be activated with the license.

In order to add a license, click on the "Add License" button. The following window is displayed.

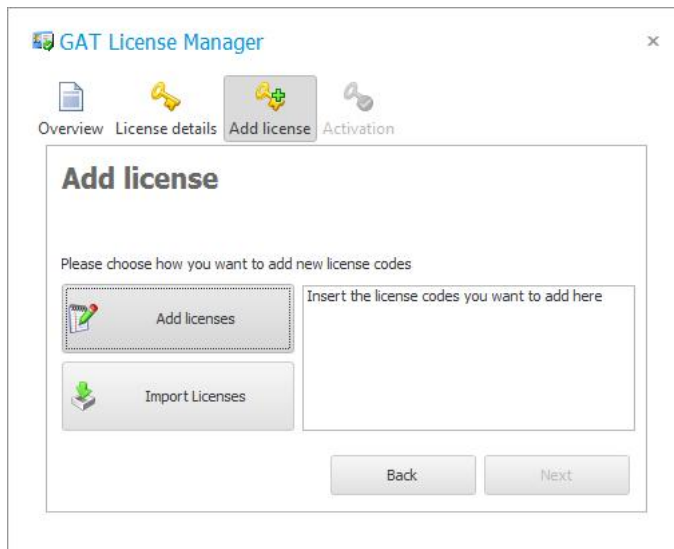


Figure 2.10 - GAT SyncManager Activator - Add license

To add a license, select "Add Licenses" and enter the license code directly into the input field. Alternatively, you can import the license file, which you received from your reseller, via the "Import Licenses" button. After entering the license code, click on "Next" to save it. In order to activate a license, click on "Activation".

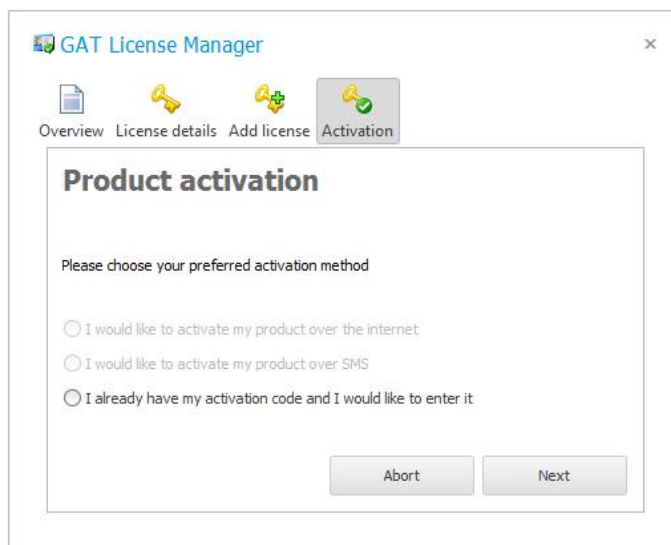


Figure 2.11 - GAT SyncManager Activator - License activation

Currently, activations can only be accomplished by telephone. To activate the software, follow the instructions in the wizard. To receive an activation code, send your base license and the hardware ID (the first two text fields in the "License Overview" window – see Figure 2.8) to your GANTNER sales partner. After receiving the activation code, enter it into the third input field with the designation "Activation Code" and press "Next". If the code was entered correctly, GAT SyncManager will be activated.

NOTE! If GAT SyncManager is not activated, the software can no longer be used after 14 days.

2.4.1 Upgrading the hardware ID calculation

As of GAT SyncManager version 3.0.0, the method for calculating the hardware ID has been changed to ensure that the software remains activated after, e.g., hardware is exchanged in a computer running an activated version of GAT SyncManager. From v3.0.0, the hardware ID is calculated using hardware-independent parameters. For compatibility reasons, the previous and the new calculation methods are both supported and updating to the latest GAT SyncManager software is possible without a new registration.

For new installations, the new hardware ID calculation method is used by default. If you want to upgrade existing GAT SyncManager installations to the new hardware ID calculation method, a "Delete old activations" button (see Figure 2.12) is available in the "License overview" window that deletes the old hardware ID activations. Only after the old activations have been deleted can the new hardware ID be activated.

NOTE!

- If you have already activated a new hardware ID, this activation cannot be deleted. Only old activation keys can be deleted.
- If you have an old activation key, it cannot be reactivated. Only the new activation key with the new hardware ID calculation will be accepted.
- After the old activation key has been deleted, a 14-day trial period will automatically start.

To delete the old activations, click on the "Delete old activations" button as shown in Figure 2.12.

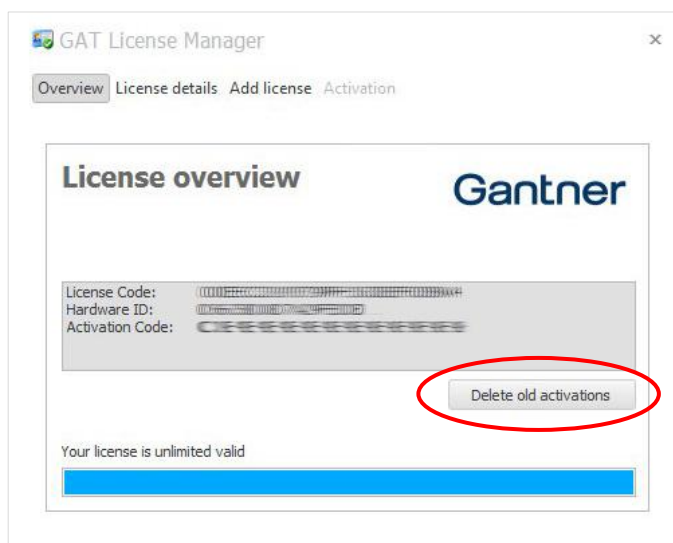


Figure 2.12 – "Delete old activations" button

The following notification is displayed when the deletion process has been successfully completed.

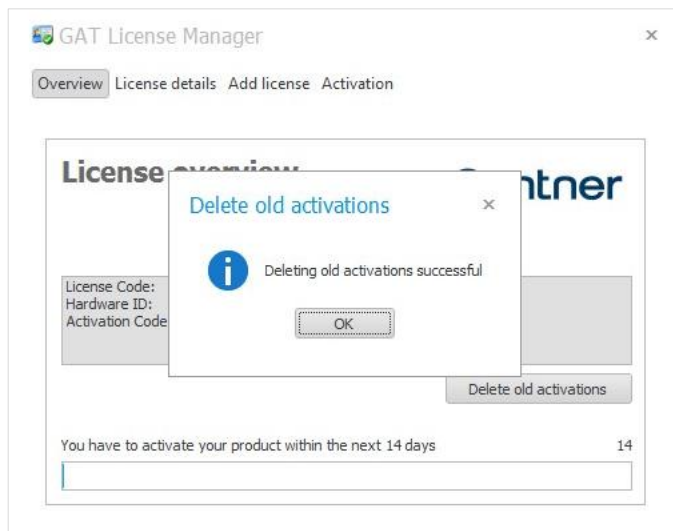


Figure 2.13 – Deletion of old activations successful

3 CONFIGURATION

The configurations of the GAT SyncManager applications are displayed and can be changed in the respective graphical user interface of each application. These user interfaces can be opened via the GAT TermSyncViewer, which is the user interface of the GAT TermSync application.

Start GAT SyncManager via the entry of the same name in the Windows Start menu. The configurations can then be opened via the corresponding options in the "Server" menu of GAT TermSyncViewer.

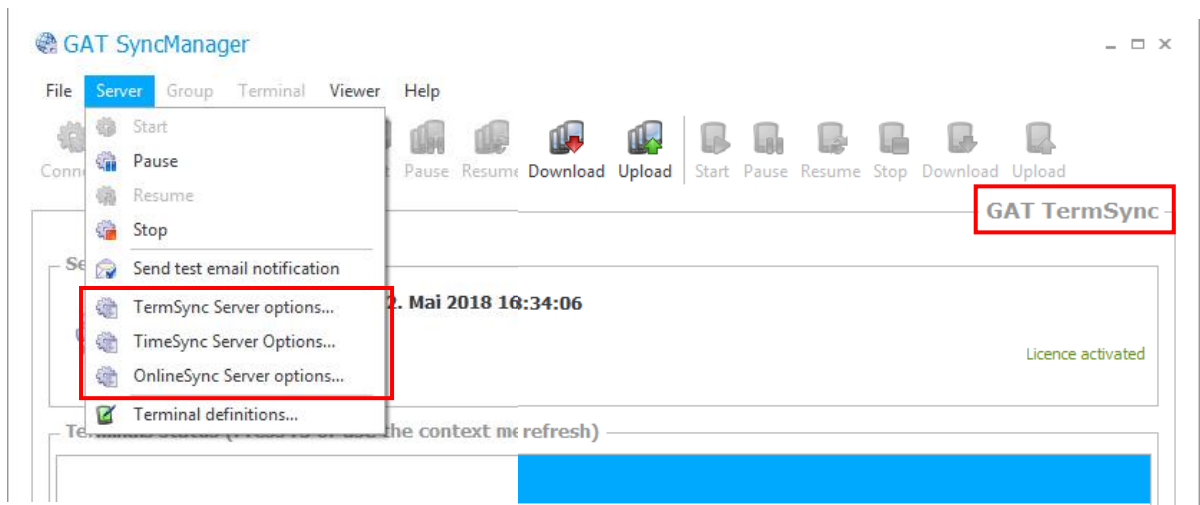


Figure 3.1 – "Server" menu of the GAT TermSync Viewer

The user interfaces of the individual components are identified by the name of the software in the top-right corner of the interface window (as shown in the picture above).

NOTE! There is also the possibility to start the configurations directly from the Windows® start menu:

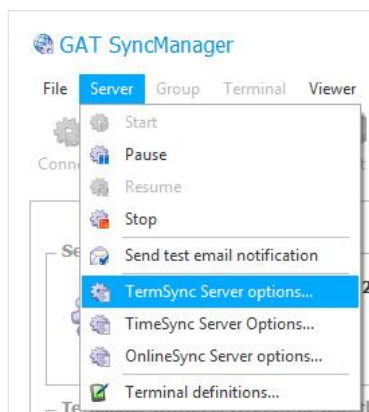
- "Programs" -> "Gantner Electronic GmbH" -> "GAT SyncManager"
- "Programs" -> "Gantner Electronic GmbH" -> "GAT OnlineSyncConfig"
- "Programs" -> "Gantner Electronic GmbH" -> "GAT TimeSyncConfig"

NOTE! For Windows Server 2008, GAT SyncManager must be run with administrator rights.

The operation of the GAT SyncManager application is described in chapter "4. OPERATION".

3.1 Configuration of the GAT TermSync service

Open the GAT TermSyncViewer by double clicking on the GAT TermSync icon in the Windows® notification area.



With the "TermSync Server options..." menu item in the "Server" menu, the following window opens:

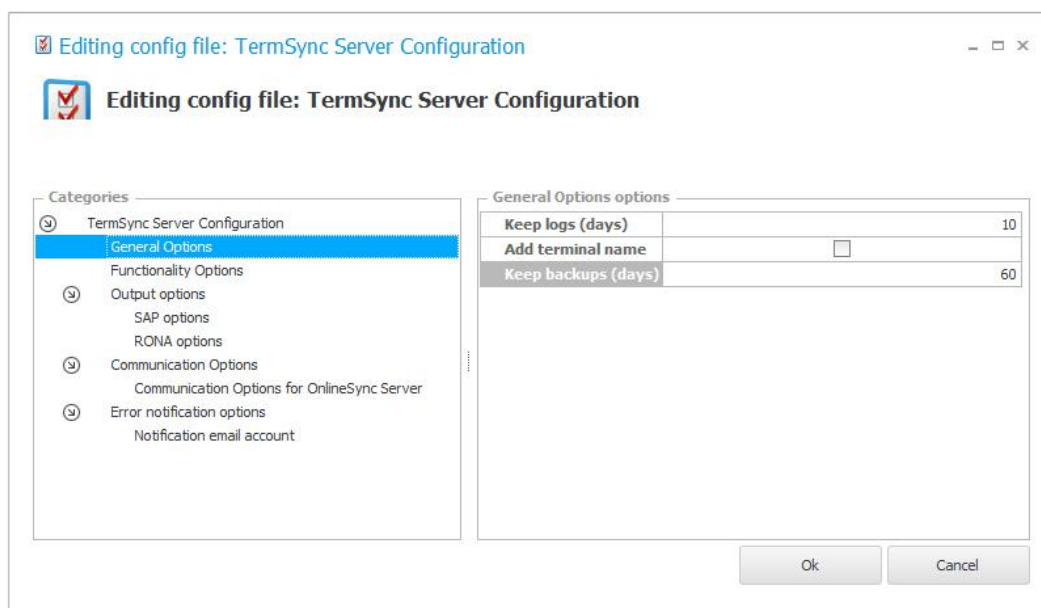


Figure 3.2 - General settings of the GAT TermSync server

On the left side the different categories of the configuration are selectable. The options of the selected categories are then displayed on the right side. The following configuration settings can be made here:

General options

- **Keep logs (days):** This setting defines the number of days the old log file is kept before the software deletes it in order to avoid storage problems.
- **Add terminal name:** This setting defines if a column with the terminal name is added to the bookings of the terminal. This enables bookings to be written from multiple terminals into the same file and to analyze these correctly with the terminal name.
- **Keep backups (days):** This setting defines the number of days the backup files are kept before being deleted.

Functionality options

- **Surveillance mode:** If this setting is activated, the server only uploads the configuration to the terminals and checks the availability of the terminals. The bookings will only be read when the user explicitly requests this.

Output options

- **Encoding format:** This setting defines which encoding format will be used for the output of the downloaded bookings. The standard value is "UTF8".

Note: If SAP is used, GAT SyncManager will always use the ANSI codepage for all the SAP files independent of the encoding format setting.

- **File format:** Here the file format for writing the bookings into a file is determined. Besides the Gantner standard format, it is also possible to define special formats for exchanging data with software solutions, e.g., SAP or RONA. These special formats require an additional license. For the formats SAP and RONA there are further settings.
- **Create empty files:** If this setting is marked and the booking directory is empty (old booking files have been moved or deleted from the booking directory), GAT TermSync will always generate a new empty booking file even if no new bookings are available. If this setting is deactivated, no empty booking file will be saved. Only if bookings are available will a new booking file be made.

SAP options

Attention: Do not use the file name "Perso1.upd" and "conf11.upl" in the terminal definition.

- **Display seconds in bookings:** If this option is marked, seconds will be inserted into the date information of the bookings. Deactivation of this option can improve the compatibility to SAP.
- **Convert card number:** When this option is active the data carrier numbers are converted between the GAT and SAP formats. The conversion is defined in the "Mapping File".
- **Card no. mapping file:** If the conversion of the data carrier numbers between GAT and SAP is activated, the name and location of the file, which contains the conversion information, must be entered here. Use the button "...", in order to select the file. The file must be coded with UTF-8 format. For a description of the format, see "5.4 Formatting of the text files".
- **Delete persons before update:** If this option is active, all personal data in the terminals are deleted before an update is uploaded.
- **Display language:** At terminals with a display the display texts of this language will be used.
- **Group mapping file:** If the GAT terminals shall be mapped to SAP groups, the file, which contains the mapping information, must be selected here. Use the button "...", in order to select the file. The file must be coded with UTF-8 format. For a description of the format, see "5.4 Formatting of the text files".
- **Booking code mapping file:** If the GAT booking codes shall be mapped to SAP booking codes, the file, which contains the mapping information, must be selected here. Use the button "...", in order to select the file. The file must be coded with UTF-8 format. For a description of the format, see "5.4 Formatting of the text files".
- **Reason code mapping file:** If the GAT reason codes shall be mapped to SAP reason codes, the file, which contains the mapping information, must be selected here. Use the button "...", in order to select the file. The file must be coded with UTF-8 format. For a description of the format, see "5.4 Formatting of the text files".

RONA options

- **Pen number:** Enter the "pen number", which shall be added to an output file in the RONA format.

Communication options

- **Service slot port:** This setting defines the TCP/IP port number used by the software to enable a client connection, e.g., the connection of the control software for the service. The standard Service Slot Port is 8212 (see "3.6 Port list").
- **Configuration port:** This setting defines the TCP/IP port number used by GAT TermSync to enable a configuration connection (GAT ConfigManager). The standard Configuration Port is 8213 (see "3.6 Port list").
- **Communication options for OnlineSync Server**
 - **OnlineSync server location:** Enter the computer, on which the GAT OnlineSync server is running. You can enter either the IP number or the computer name of the PC.
 - **OnlineSync service slot port:** This setting defines the TCP/IP port number for a connection to the OnlineSync Service. The standard OnlineSync Service Slot Port is 8228 (see "3.6 Port list").

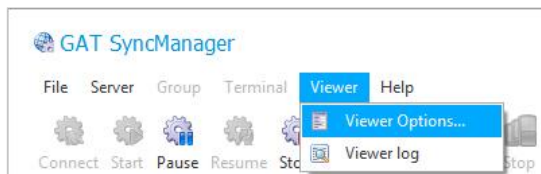
Error notification options

- **Show error if FTP is busy:** If an FTP server is busy, GAT TermSync usually displays an error message. If you want to suppress these error messages, mark this option.
- **First notif. error count:** Number of communication errors that must occur until the first error notification is sent. Value 0 deactivates the notification.
- **Second notif. error count:** Number of communication errors that must occur until the second error notification is sent. Value 0 deactivates the notification. This notification is only sent when the first one is active too. The value for the second error notification must be greater than the first.
- **Notification receivers:** List of recipient's email addresses (separated by semicolon) that the error notifications will be sent to. An empty list deactivates the notifications.
- **Enable SSL/TLS:** This option is used to activate encrypted communication with the email server using SSL/TLS. The certificates must be configured accordingly.

Notification email account:

- **Email server:** Address of the email server to be used to send the error notifications.
- **Email from address:** Address to be used as sender of error notification.
- **Email account:** Username or email account to be used to log onto the email server.
- **Email account password:** Password for the username or email account.

3.2 Configuration of GAT TermSyncViewer



With the menu item "Viewer Options..." in the "Viewer" menu, the general settings of the GAT TermSyncViewer are to be found. The following window opens.

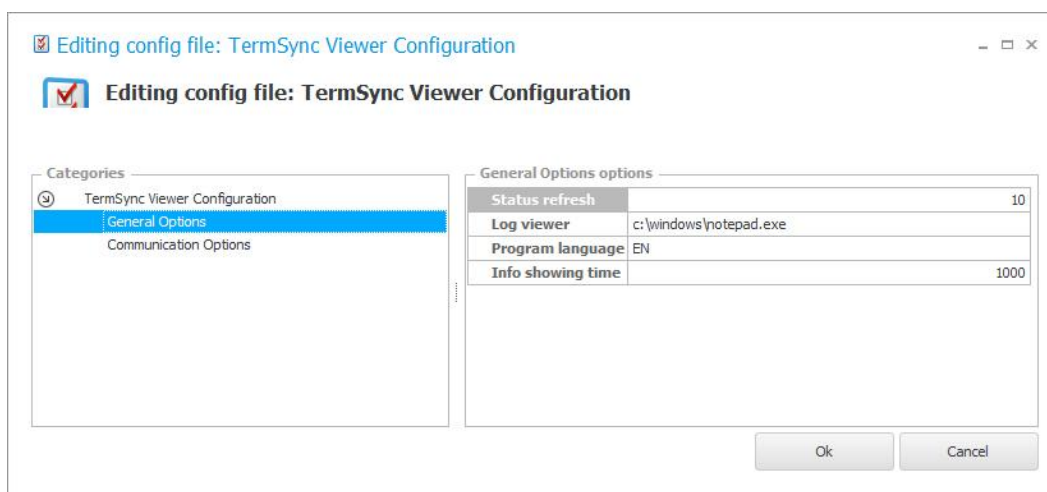


Figure 3.3 - General options of GAT TermSyncViewer

On the left side, the different categories of the configuration are selectable. The options of the selected categories are then displayed on the right side. The following configuration settings are available:

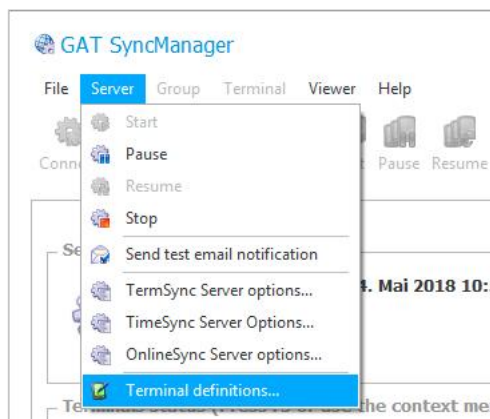
General options

- **Status refresh:** Number of seconds for the automatic status update of the terminal list.
- **Log viewer:** This setting determines which text editor is used to display the service bookings. In order to use the standard text editor of Windows® enter "c:\windows\notepad.exe".
- **Program language:** The language of the GAT TermSyncViewer software can be entered here (EN = English, DE = German). In order to make a language change active you, GAT TermSync must be restarted.
- **Info showing time:** This setting defines how many milliseconds the information is displayed in the notification area.

Communication options

- **Service location:** This setting defines the name of the server on which the GAT TermSync service is running.
- **Service slot port:** This setting defines the TCP/IP port number of the server that is used to create a service connection with GAT TermSync. The standard Service Slot Port is 8212 (see "3.6 Port list").
- **Service configuration port:** This setting defines the TCP/IP port number used by GAT TermSyncViewer to configure the GAT TermSync service. The standard Service Configuration Port is 8213 (see "3.6 Port list").

3.3 Terminal definitions with GAT TermSync



In order to change the settings of a terminal with which the GAT TermSync service communicates or add new terminals or to delete terminals, select "Terminal definitions..." in the menu "Server" of GAT TermSyncViewer. The window "Terminal definitions" is displayed.

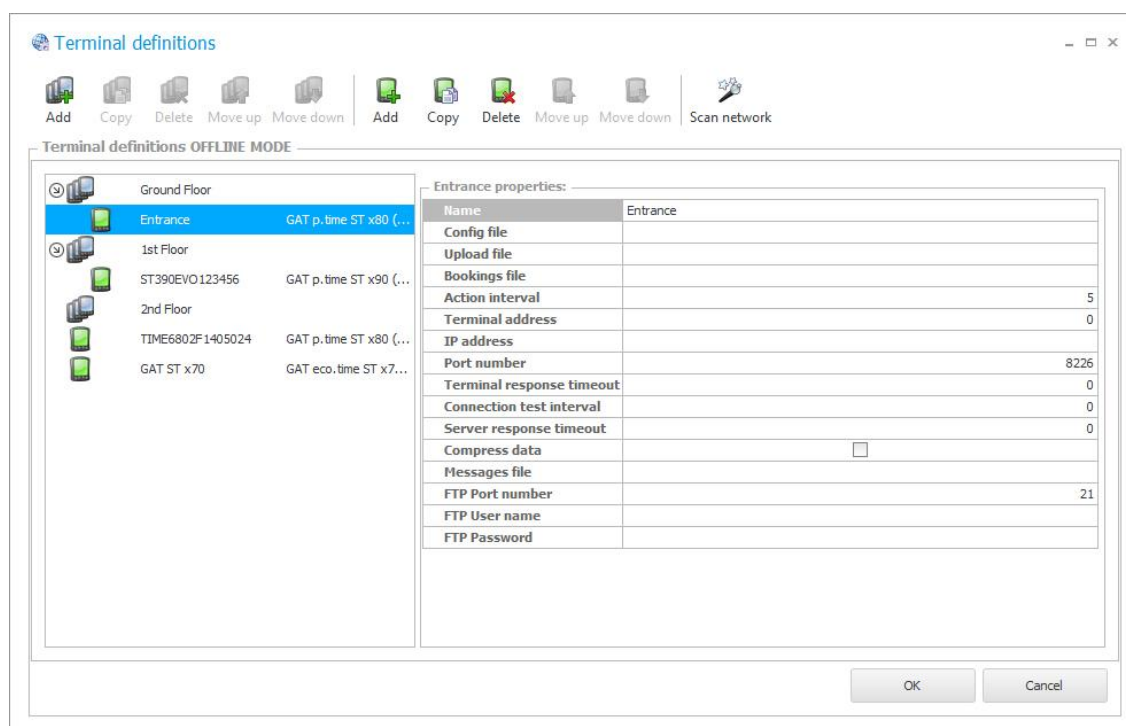


Figure 3.4 - Terminal definitions

All terminals managed by the GAT TermSync service are listed on the left. The terminals can be organized into groups.

The settings of the terminal highlighted in the list are displayed on the right side and can be configured here (see "3.3.4. Definition of terminal settings").

3.3.1 Adding, copying, deleting, and organizing terminals

When a terminal in the terminal list on the left side of the window is clicked with the right mouse button, a menu opens in which the following settings can be defined.

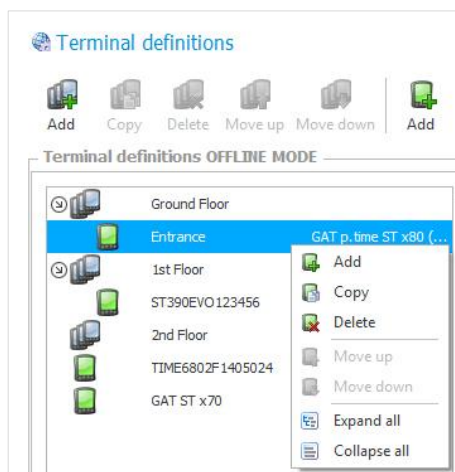


Figure 3.5 - Context menu for terminal list

- **Add:** Adding a new terminal to the list. After selecting "Add", a window opens where you must select the terminal type to add.

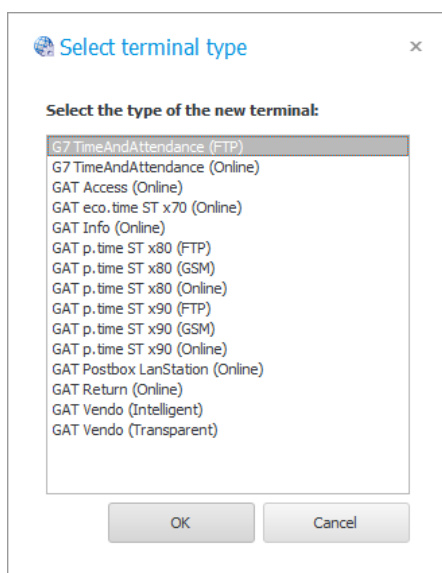


Figure 3.6- Adding a terminal

After selection and confirmation with "OK" the terminal is added to the list, and you can enter the terminal settings (see section "3.3.4. Definition of terminal settings").

Note: You can also add terminals, which are on the network and active, via network scan (see section 3.3.2. Network search").

- **Copy:** Adds a new terminal to the list, using the same settings for the new terminal as the selected terminal. These settings can be changed.

- **Delete:** Deletes the terminal from the list. This terminal will no longer be synchronized.
- **Move up:** Moves the selected terminal one position up the list.
- **Move down:** Moves the selected terminal one position down the list.
- **Expand all:** The complete terminal list with all groups and divisions is shown.
- **Collapse all:** The terminal list is minimized so that only the first level is displayed.

3.3.2 Network search

With the icon "Scan network" the application "GAT Device Finder" is started. With this application it is possible to search on the connected network for active terminals and to add found terminals to the terminal list of GAT TermSync via a mouse click.

After the GAT Device Finder is opened, the window is empty. Press the button "Scan" to start the network scan. The network scan can take some time, depending on the network. After the scan is complete, all found terminals are displayed in the list.

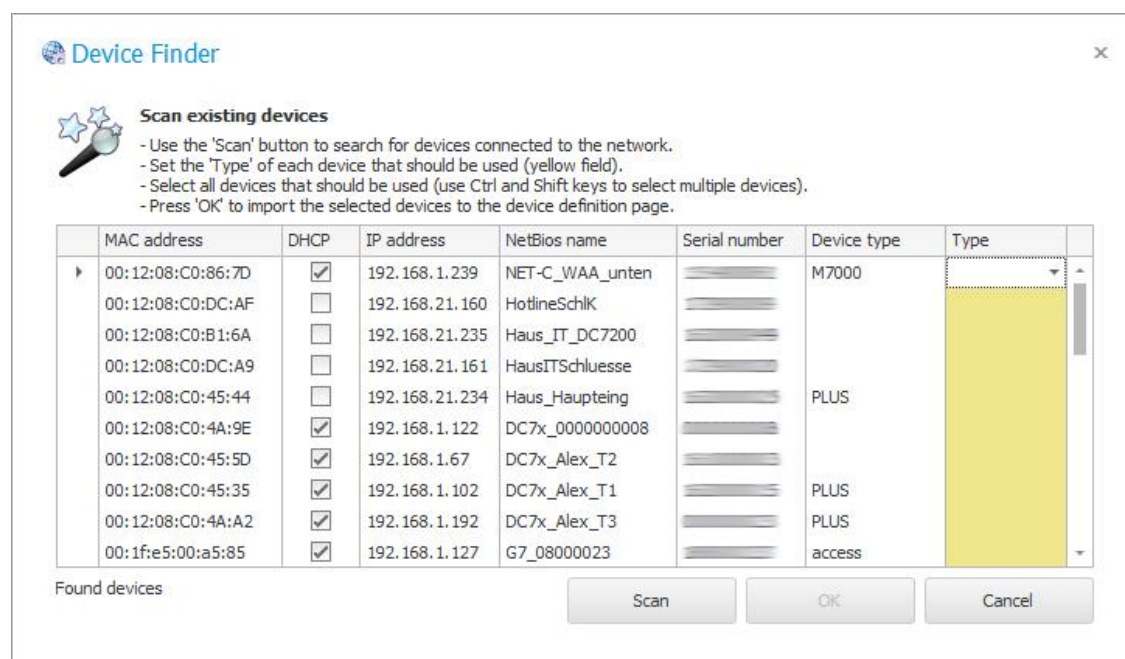


Figure 3.7 - Network search with Device Finder

Here several information like MAC and IP address, if DHCP is used, the NetBIOS name of the terminal, and the serial number and device types are displayed for every terminal in the list.

For every terminal that shall be added to GAT TermSync select the exact device type in the last column. After that mark those terminals, which shall be added to GAT TermSync, by clicking on the corresponding row in the list. In order to select several terminals, keep the SHIFT or CTRL key pressed while clicking.

NOTE! In most cases, the FTP option (offline) should be used to connect the terminals.

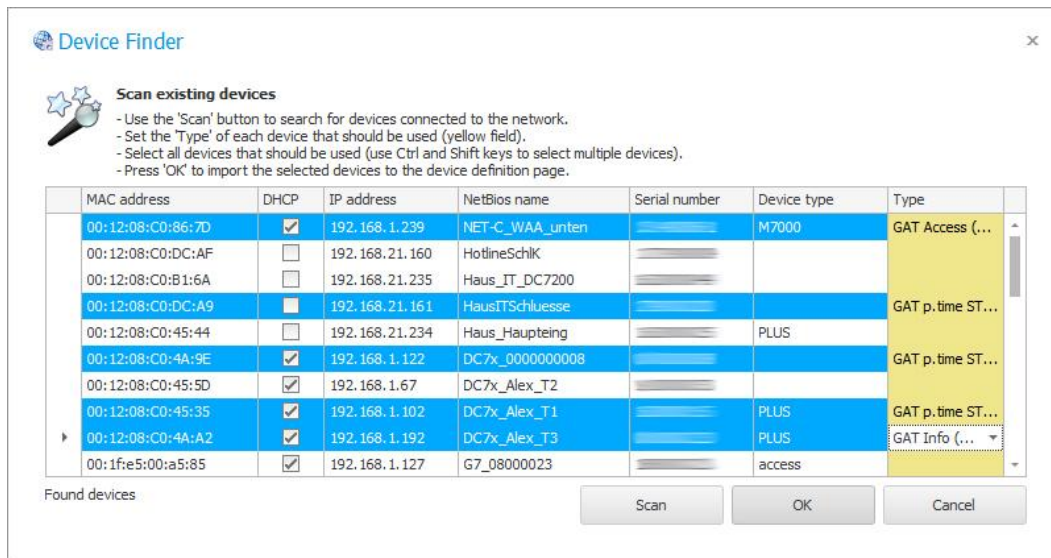


Figure 3.8 - Setting the device types

By clicking on "OK", the devices are added to the terminal list.

3.3.3 Edit groups

The terminals in the terminal list can be combined into groups for a better overview. In order to edit groups, click on the uppermost entry or a group in the list with the right mouse button and it opens the following context menu.

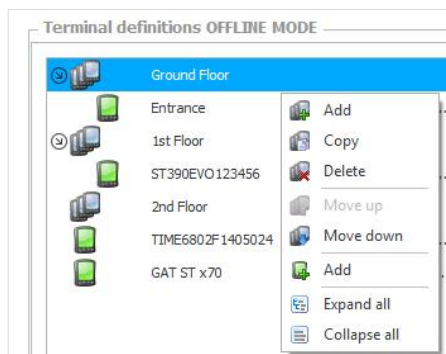


Figure 3.9 - Context menu for terminal groups

- **Add:** Adds a new group to the terminal list.
- **Copy:** Copies the selected group and creates a new group with the copied information.
- **Delete:** Deletes the selected group. **Warning:** Every terminal in this group will be deleted.
- **Move up:** Moves the selected group one position up the list.
- **Move down:** Moves the selected group one position down the list.
- **Add:** Adds a new terminal to the list.
- **Expand all:** The complete terminal list with all groups and divisions is shown.
- **Collapse all:** The terminal list is minimized so that only the first level is displayed.

3.3.4 Definition of terminal settings

Depending on the type of terminal, different settings can be configured:

G7 Time & Attendance (Online or FTP):

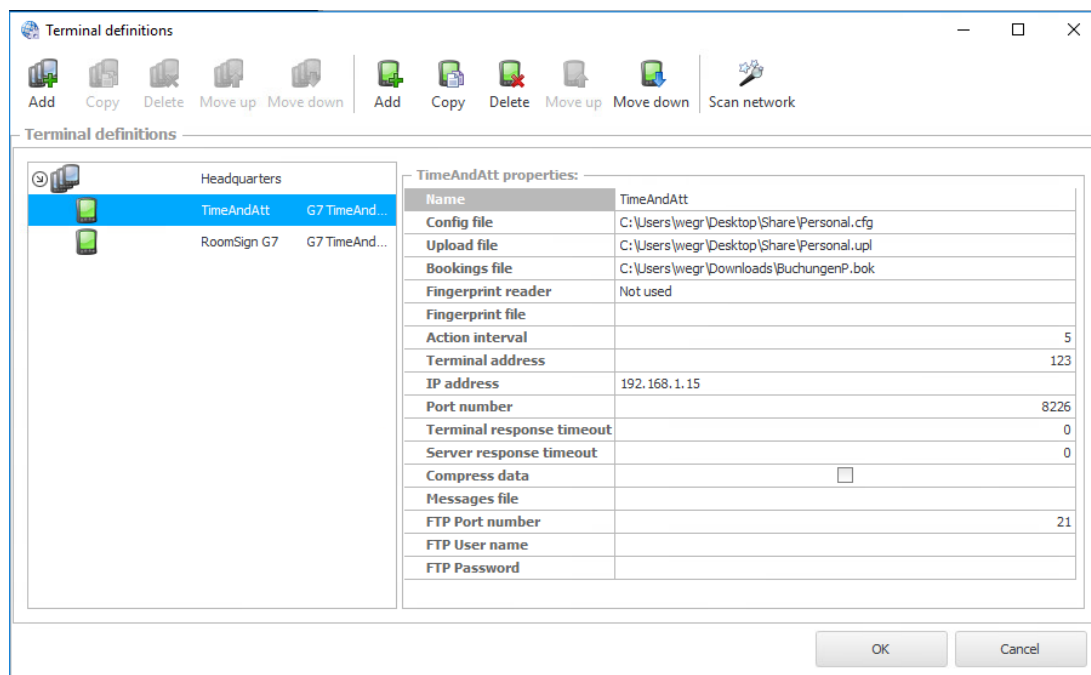
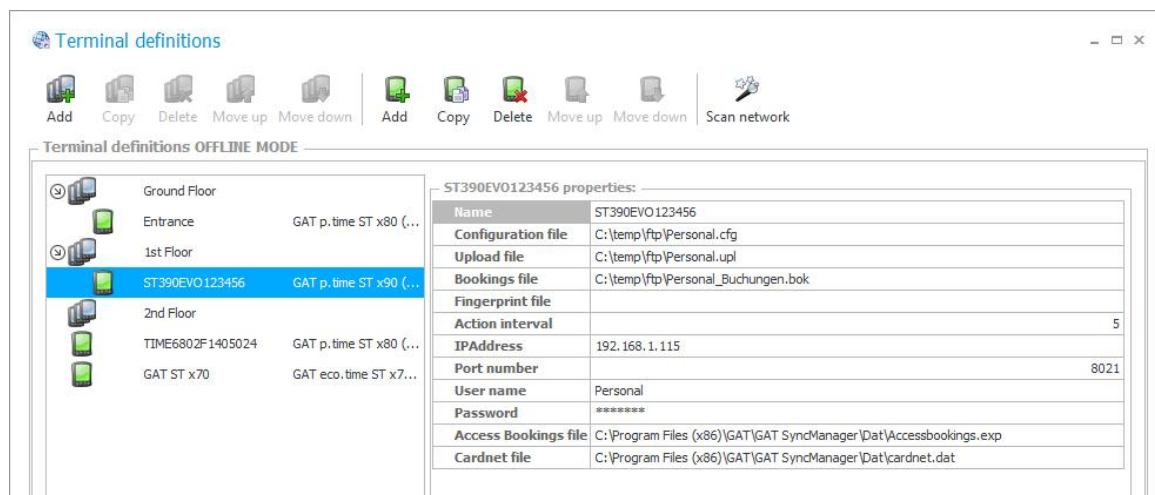


Figure 3.10 - Terminal settings for a GT7 terminal with G7 Time & Attendance App

- **Name:** A name for the terminal can be entered here. The characters : and ; must not be included in the name.
- **Config file:** Enter the path and name of the configuration file for the terminal here.
- **Upload file:** Enter the path and name of the file that will be uploaded to the terminal when the  icon is clicked here. The upload file can be used to create persons or the personnel data, balances, etc., in the device (see chapter "5.4.1. Upload file in GAT TermSync" for information on the format of the file).
ATTENTION: When using the SAP interface, the upload file for each device must have a unique file name.
- **Bookings file:** Path and name of the file to which the terminal bookings are saved during readouts (via the  icon). Different terminals can also write to the same bookings file. To do this, enter the same file name and path for each of these terminals.
ATTENTION: If different paths are used for the terminals, the booking files for each path must have different names!
- **Fingerprint reader:** Only for "online" devices. Select here whether and how the terminal's fingerprint reader should be used.
 - Not used: Fingerprints are not used.
 - Verify from card: Fingerprints are used in addition to identification (e.g., using a data carrier). The user's fingerprints are stored on their respective data carriers.
 - Verify from database: Fingerprints are used in addition to identification (e.g., using a data carrier). The user's fingerprints are stored in a database that is accessible via the network.
 - Identify: The fingerprints are used to identify the user.

- **Fingerprint file:** Only for "online" device. Define here the file path and file name where the fingerprint data that was recorded ("enrolled") on the terminal is stored.
Note: Older versions of the Time & Attendance App do not support this function.
 - **Action interval:** Define here the time interval in minutes after which the GAT TermSync service will attempt to read bookings from the terminal or upload a new file to the terminal. Also note the time for uploading or downloading from or to the terminal, e.g., set action interval = 1 minute + time for upload = 3 minutes equals a total time of 4 minutes for the upload.
 - **Terminal address:** Only for "online" devices. Network address of the terminal in the network. This value must match the value in the GT7 terminal configuration. When configuring via the web interface, this value can be found in the menu "App configuration" -> "General" under the setting "Terminal Id".
 - **IP address:** The IP address that the terminal is using in the TCP/IP network.
 - **Port number:** The port number via which the terminal is accessible.
 - **Terminal response timeout:** Only for "online" devices. The maximum time in seconds that the terminal has to respond to a request. If "0" is entered, the default value of the terminal is used.
 - **Server response timeout:** Only for "online" devices. The maximum time in seconds that GAT OnlineSync Server has to respond to a request. If "0" is entered, the default value of the server is used.
 - **Compress data:** Only for "online" devices. When this option is enabled, the sent data is compressed. This reduces the transfer time; however, extra time is needed to unpack the data at the terminal.
 - **Messages file:** Only for "online" devices. The path and name of the file that contains the texts for the terminal display. For the formatting of the message file, see "5.4.4 Message file in GAT TermSync".
 - **FTP Port number, Username, Password:** Only for "online" devices. FTP port (standard = 21) and FTP username and password for an FTP connection (if desired).
 - **Username and Password:** Only for "FTP" devices. Username and password for the FTP connection to the terminal. The default username is "Service", and the default password is "GAT".
 - **Access Booking file:** Only for "FTP" devices. GAT SyncManager makes booking data available in this folder, which GAT ACE periodically transfers at 1-minute intervals. The bookings file must have the designation "accessbookings.exp". By accepting these bookings, changes to the authorizations on ID cards and battery warnings can be tracked in GAT ACE and Matrix.
Note: Older versions of the Time & Attendance App do not support this function.
Note: Only one GAT ACE can be used to read all booking data.
 - **CardNET file:** GAT ACE provides the authorization data for CardNET in this folder and transfers the data to the time and attendance terminals. For GAT ACE 3000, the CardNET data file must have the name "cardnet.dat". GAT ACE 7000 can manage different locations and only transfers loading information to GAT SyncManager for the location where all CardNET data from the same location is contained.
Note: Older versions of the Time & Attendance App do not support this function.
- NOTE!** When setting up the systems, ensure that GAT ACE and GAT SyncManager both have read and write permission for the selected folder. Note that read/write permission must also be permitted for the user under which the two programs are running, e.g., network service!

GAT p.time ST xxx (Online, FTP, GSM):**Figure 3.11 - Terminal settings for GAT p.time ST xxx terminals**

- **Name:** Any name can be entered here for each terminal here. The characters : and ; must not be included in the name.
- **Configuration file:** Enter the path and name of the terminal configuration file here.
- **Upload file:** Enter the path and name of the file that will be uploaded to the terminal when the  icon is clicked here. The upload file is used to generate personnel data, balances, etc., in a device (see chapter "5.4.1. Upload file in GAT TermSync" for information on the format of the file).
- ATTENTION:** When using the SAP interface, the upload file for each device must have a unique file name.
- **Bookings file:** Path and name of the file to which the terminal bookings are saved during readouts (via the  icon). Different terminals can also write to the same bookings file. To do this, enter the same file name and path for each of these terminals.
- ATTENTION:** If different paths are used for the terminals, the booking files for each path must have different names!
- **Fingerprint reader:** Only for "x90" and "online" devices. Select here whether and how the terminal's fingerprint reader should be used.
 - Not used: Fingerprints are not used.
 - Verify from card: Fingerprints are used in addition to identification (e.g., using a data carrier). The user's fingerprints are stored on their respective data carriers.
 - Verify from database: Fingerprints are used in addition to identification (e.g., using a data carrier). The user's fingerprints are stored in a database that is accessible via the network.
 - Identify: The fingerprints are used to identify the user.
- **Fingerprint file:** Only for "x90" devices. Define here the file path and file name where the fingerprint data that was recorded ("enrolled") on the terminal is stored.
- **Action interval:** Define here the time interval in minutes after which the GAT TermSync service will attempt to read bookings from the terminal or upload a new file to the terminal. Also note the time for uploading or downloading from or to the terminal, e.g., set action interval = 1 minute + time for upload = 3 minutes equals a total time of 4 minutes for the upload.
- **Terminal address:** Only for "online" devices. Network address of the terminal in the network.
- **IP Address:** The IP address that the terminal is using in the TCP/IP network.
- **Port number:** The port number via which the terminal is accessible.
- **Terminal response timeout:** Only for "online" devices. The maximum time in seconds that the terminal has to respond to a request. If "0" is entered, the default value of the terminal is used.

- **Connection test interval:** Only for "online" devices. The interval time in seconds after which the connection to the terminal is tested to ensure the connection is maintained.
- **Server response timeout:** Only for "online" devices. The maximum time in seconds that GAT OnlineSync Server has to respond to a request. If "0" is entered, the default value of the server is used.
- **Compress data:** Only for "online" devices. When this option is enabled, the sent data is compressed. This reduces the transfer time; however, extra time is needed to unpack the data at the terminal.
- **Messages file:** Only for "online" devices. The path and name of the file that contains the texts for the terminal display. For the formatting of the message file, see "5.4.4 Message file in GAT TermSync".
- **FTP Port number, Username, Password:** Only for "online" devices. FTP port (standard = 21) and FTP username and password for an FTP connection (if desired).
- **Username and Password:** Username and password for FTP connection to the terminal. The default username is "Service", and the default password is "GAT".
- **Access Booking file:** GAT SyncManager makes booking data available in this folder, which GAT ACE periodically transfers at 1-minute intervals. The bookings file must have the designation "accessbookings.exp". By accepting these bookings, changes to the authorizations on ID cards and battery warnings can be tracked in GAT ACE and Matrix.
Note: Only one GAT ACE can be used to read all booking data.
- **CardNET file:** GAT ACE provides the authorization data for CardNET in this folder and transfers the data to the time and attendance terminals. For GAT ACE 3000, the CardNET data file must have the name "cardnet.dat". GAT ACE 7000 can manage different locations and only transfers loading information to GAT SyncManager for the location where all CardNET data from the same location is contained.
- **Auto close:** Only for "GSM" devices. Time in minutes after which the connection is interrupted after inactivity.
- **Phone number:** Only for "GSM" devices. Telephone number of the modem on the Internet.
- **Modem port number:** Only for "GSM" devices. Port number of the GSM modem on the PC.

NOTE! When setting up the systems, ensure that GAT ACE and GAT SyncManager both have read and write permission for the selected folder. Note that read/write permission must also be permitted for the user under which the two programs are running, e.g., network service!

GAT eco.time ST x70:

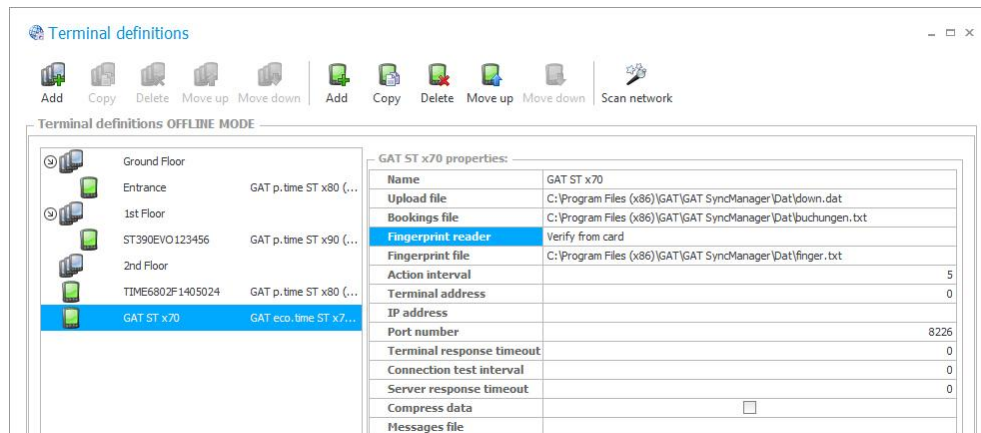
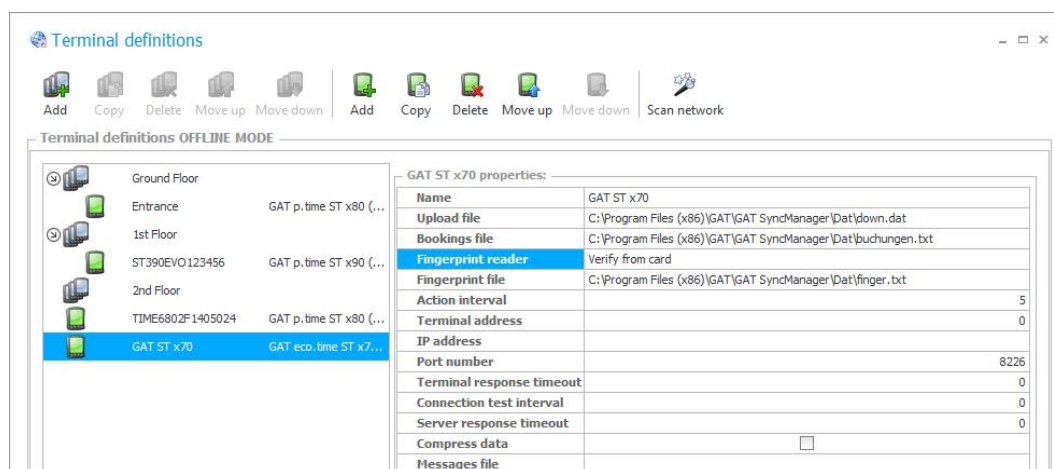


Figure 3.12 - Terminal settings for GAT eco.time ST x70 terminals

- **Name:** A unique name for the terminal. It can be selected freely. This name serves as identification within the database and should only be changed if no bookings for the terminal are present in the database. The characters : and ; must not be included in the name.
- **Upload file:** Path and name of the text file to generate persons (for file structure information see chapter "5.4.1. Upload file in GAT TermSync"). This file is sent to the terminal during the upload.
ATTENTION: When using the SAP interface, the upload file for each device must have a unique file name.
- **Bookings file:** Path and name of the file in which the terminal bookings are saved during readouts (with the  icon). Several terminals can also write to the same booking file. Enter the same file name and path for each of these terminals.
- **Fingerprint reader:** Indicates whether a fingerprint reader is connected at the terminal and shall be used.
 - Not used: Identification with fingerprint is not used. If the fingerprint identification is included in a person's personnel data, this will be ignored with the setting "Not used".
 - Verify from card: A user first identifies with their personal data carrier. After that, a verification with their fingerprint must be made. The fingerprint data is stored on the data carrier.
 - Verify from database: A user first identifies with their personal data carrier. After that, a verification with their fingerprint must be made. The fingerprint data is stored in a database.
 - Identify: A user identifies with their fingerprint. No data carrier is required. Furthermore, it is also possible to identify first with a data carrier and then to verify with fingerprint (same functionality as with "Verify from ...").
- **Fingerprint file:** Define here the file path and file name where the fingerprint data that was recorded ("enrolled") on the terminal is stored.
- **Action interval:** Define here the time interval in minutes after which the GAT TermSync service will attempt to read bookings from the terminal or upload a new file to the terminal. Also note the time for uploading or downloading from or to the terminal, e.g., set action interval = 1 minute + time for upload = 3 minutes equals a total time of 4 minutes for the upload.
- **Terminal address:** The address of the terminal (0 to 255).
- **IP Address:** The IP address that the terminal is using in the TCP/IP network.
- **Port number:** Port number for communication with the terminal (default = 8226, see chapter "3.6 Port list").

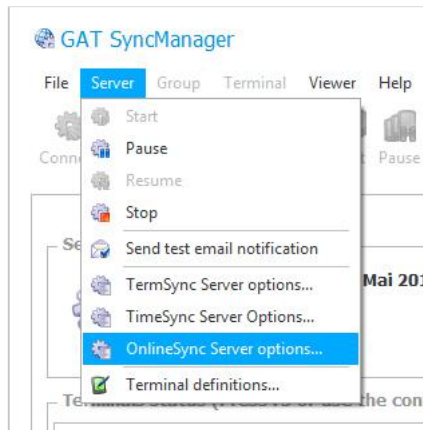
- **Terminal response timeout:** A timeout for the response from a terminal can be entered here. This timeout relates to actions that are carried out directly at the terminal and not for the uploading or downloading of persons / bookings / fingerprints using GAT TermSync. To use the terminal's default value, set this value to 0.
- **Connection test interval:** Here, the interval that is used by GAT OnlineSync to test the connection to the terminal can be entered. If "0" is entered here, the connection is tested every 30 seconds.
- **Server response timeout:** Time in seconds the terminal has to respond to a request before a timeout is triggered. To use the terminal's default value, set this value to 0.
- **Compress data:** When this option is enabled, large data packages are compressed for data transfer. This option improves the performance with larger data volumes.
- **Messages file:** File with the texts to be displayed on the terminal. The file must be a text file. For the formatting of the message file, see "5.4.4 Message file in GAT TermSync".

GAT Access and GAT Info:**Figure 3.13 - Terminal settings for GAT Access and GAT Info Terminals**

- **Name:** A unique name for the terminal that can be freely assigned. This name is used to identify data within the database and should only be changed if there are no bookings for the terminal in the database. The characters : and ; must not be included in the name.
- **Upload file:** Path and name of the text file to generate persons (for file structure information see chapter "5.4.1. Upload file in GAT TermSync"). This file is sent to the terminal during the upload.
ATTENTION: When using the SAP interface, the upload file for each device must have a unique file name
- **Bookings file:** Path and name of the file to which the terminal bookings are saved during readouts (via the  icon). Different terminals can also write to the same bookings file. To do this, enter the same file name and path for each of these terminals.
- **Use fingerprints:** Specifies whether a fingerprint reader is connected to the terminal and should be used.
- **Fingerprint file:** Define here the file path and file name where the fingerprint data that was recorded ("enrolled") on the terminal is stored.
- **Action interval:** Define here the time interval in minutes after which the GAT TermSync service will attempt to read bookings from the terminal or upload a new file to the terminal. Also note the time for uploading or downloading from or to the terminal, e.g., set action interval = 1 minute + time for upload = 3 minutes equals a total time of 4 minutes for the upload.
- **Terminal address:** The address of the terminal (0 to 255).
- **IP Address:** The IP address that the terminal is using in the TCP/IP network.
- **Port number:** Port number for communication with the terminal (default = 8226, see chapter "3.6 Port list").
- **Terminal response timeout:** A timeout for the response from a terminal can be entered here. This timeout relates to actions that are carried out directly at the terminal and not for the uploading or downloading of persons / bookings / fingerprints using GAT TermSync. To use the terminal's default value, set this value to 0.
- **Server response timeout:** Time in seconds the terminal has to respond to a request before a timeout is triggered. To use the terminal's default value, set this value to 0.
- **Messages file:** File with the texts to be displayed on the terminal. The file must be a text file. For the formatting of the message file, see "5.4.4 Message file in GAT TermSync".

3.4 Configuration of GAT OnlineSync

Open the GAT TermSyncViewer by double clicking on the GAT TermSync icon in the Windows® notification area.



To open the user interface of GAT OnlineSync, select the menu item "OnlineSync Server options..." from the "Server" menu.

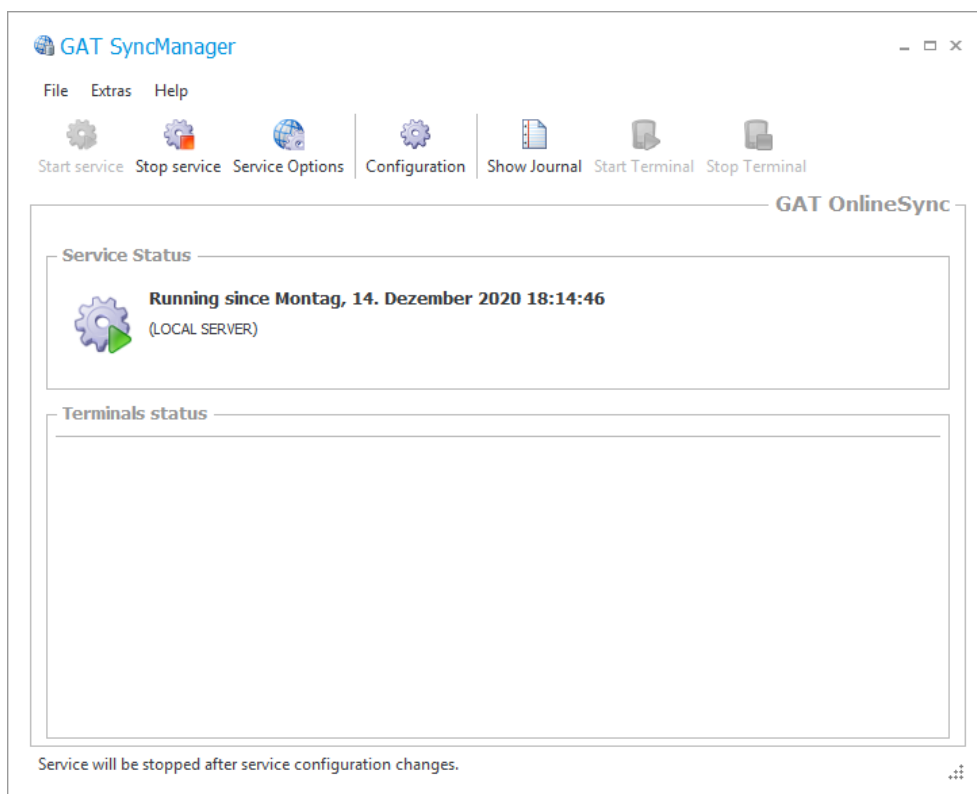
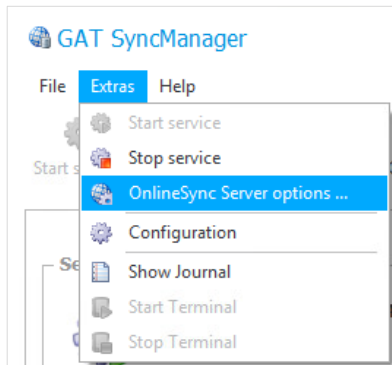


Figure 3.14 – User interface of GAT OnlineSync

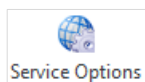
For configuration, it must be distinguished between the GAT OnlineSync service and the GAT OnlineSync user interface.

3.4.1 Configuration of the GAT OnlineSync service

In GAT OnlineSync, select the menu item "OnlineSync Server options ..." from the "Extras" menu.



or click on the "Service Options" icon.



The following window opens.

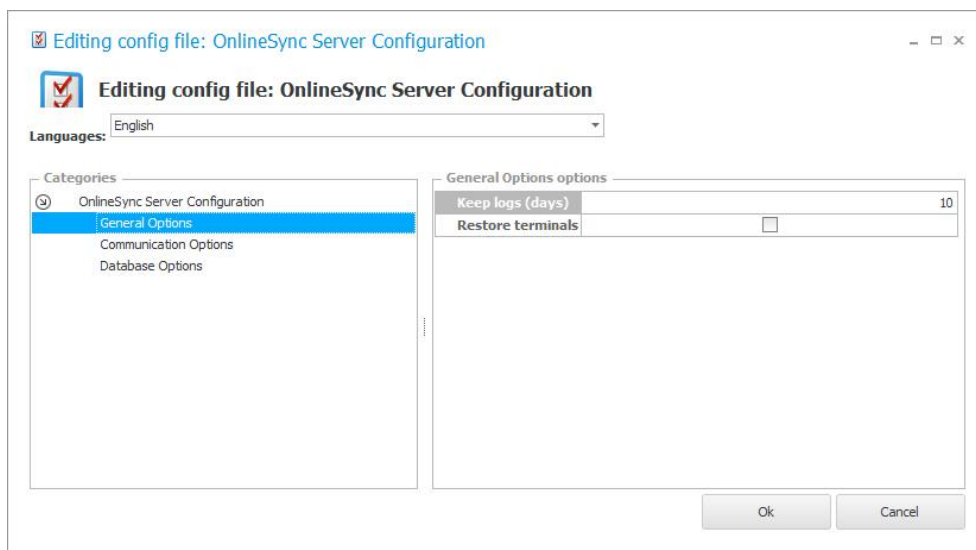


Figure 3.15 - Configuration settings for the GAT OnlineSync service

On the left side, the different configuration categories can be selected. The options of the selected categories are then displayed on the right side. The following configuration options are available here:

General options

- **Keep logs (days):** Defines how many days the log files shall be stored before they are deleted.
- **Restore terminals:** If this option is enabled, the terminals will automatically be restored (loaded and displayed), when the GAT OnlineSync service is started.

Communication options

- **Primary service slot port:** The port for communication with GAT OnlineSync. Standard for this port is 8228 (see "3.6 Port list").
- **Configuration port:** The port which is used for remote access to the GAT OnlineSync configuration from another computer. The standard for this port is 8229 (see "3.6 Port list"). This port must also be set for the user interface of GAT OnlineSync (see "3.4.2. Configuration of the GAT OnlineSync user interface").
- **Secondary service slot port:** The port for communication with GAT OnlineSync. Use this port if a second client shall be used for communication with GAT OnlineSync. The standard for this port is 8230 (see "3.6 Port list").

Database options

- **System:** The database system used to save the online data (e.g., SQLite). "MSSQL" means using an SQL Server, while "SQLite" does not require an SQL Server; a database file can be used (see the "File path" setting below).

From version 3.5 onwards GAT Sync Manager supports SQL Server, and it is recommended to use an SQL Server if possible (select "MSSQL").

NOTE: When using an SQL Server, a database for GAT Sync Manager must be created manually. This can be done, for example, using SQL Server Management Studio. Creating an empty database is sufficient; the tables themselves will then be created automatically by GAT Sync Manager.

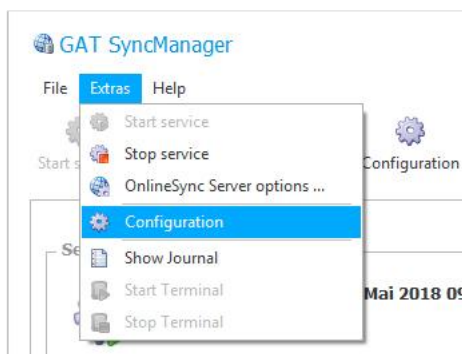
- **File path:** The path to the data base file (is automatically generated if required). This setting is only relevant for the "SQLite" selection. It is irrelevant for "MSSQL".
- **Server location:** Network name for IP address of the SQL Server. Relevant only when selecting "MSSQL".
- **Database name:** Name of the SQL data base for GAT Online Sync. Relevant only when selecting "MSSQL".
- **Authentication:** Mode of authentication at the SQL Server. Relevant only when selecting "MSSQL".
- **Username:** The user name for login at the SQL Server. Relevant only when selecting "MSSQL".
- **Password:** pass word for the selected user for login at the SQL Server. Relevant only when selecting "MSSQL".
- **Connect timeout:** Max. Time to establish a connection to the SQL Server. Relevant only when selecting "MSSQL".
- **Backup directory:** Path to the backup directory. In this directory the backup files of the online communication will be saved.
- **Keep backups (days):** Indicates how many days the backup files of the online communication shall be stored.
- **Keep journal (days):** Number of days to store a journal entry before it is deleted.
- **Conversion table file:** Path and file name of the text file that contains the conversion information for the bookings and reasons.
- **Price list file:** Path and file name of the file that contains the pricing information of all the terminals.
- **Attendance validation file:** Path and name of the file that contains the assignments of the attendance statuses for the booking codes of persons. To use the file, the authorization to read the file must be available. The file can be used to implement a check of the attendance status of persons across several terminals. The formatting and function are explained in "5.4.7 Attendance validation in GAT OnlineSync (Attendance validation file)". If the field is empty, the attendance status is not evaluated.



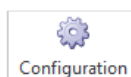
All database settings fields are always displayed. Depending on the system selected ("MSSQL" or "SQLite"), only certain settings are necessary. See the information in the settings description above.

3.4.2 Configuration of the GAT OnlineSync user interface

In GAT OnlineSync, select the menu item "Configuration" from the "Extras" menu.



or click on the "Configuration" icon.



The following window opens.

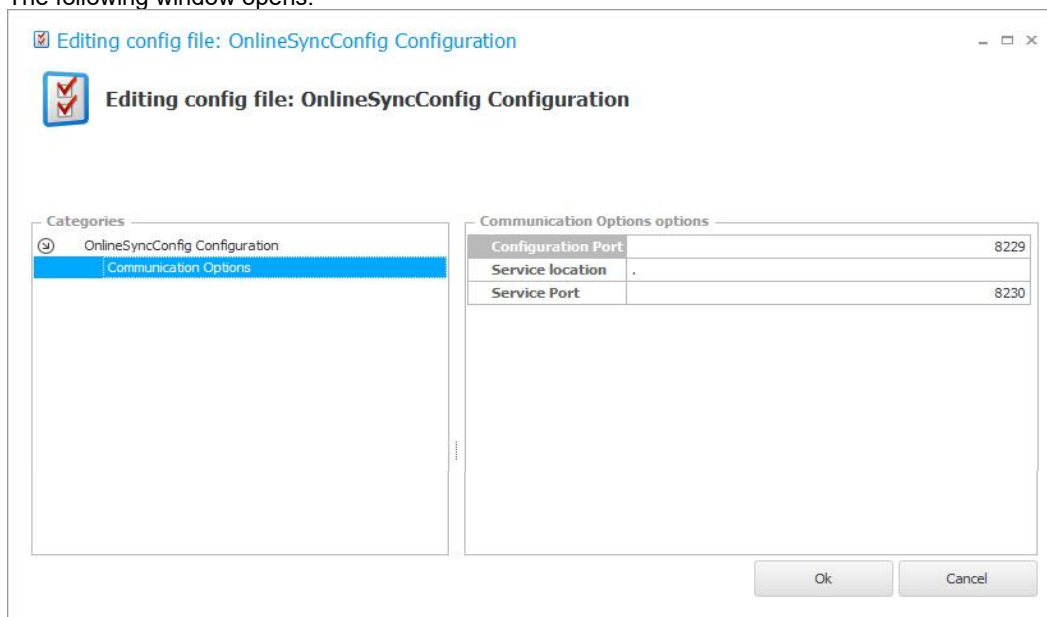


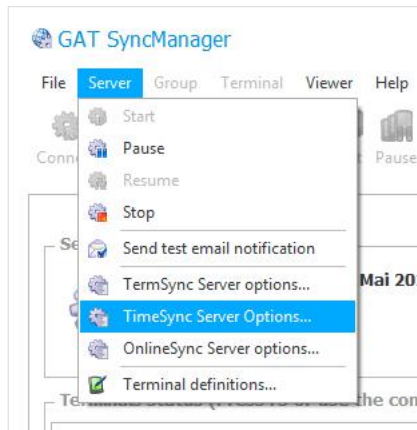
Figure 3.16 - Configuration settings of the GAT OnlineSync user interface

OnlineSyncConfig configuration

- **Configuration port:** The port used by GAT OnlineSync to communicate with the GAT OnlineSync service. The standard port for this is port 8229. This port must also be set for the GAT OnlineSync service (see section "3.4.1. Configuration of the GAT OnlineSync service").
- **Service location:** IP address of the computer on which the GAT OnlineSync service is running.
- **Service port:** The port used for communication with the GAT OnlineSync service (standard = 8230).

3.5 Configuration of the GAT TimeSync service

Open the GAT TermSyncViewer with a double click on the GAT TermSync icon in the Windows® notification area.



With the menu item "TimeSync Server options..." in the menu "Server" the user interface of GAT TimeSync opens.

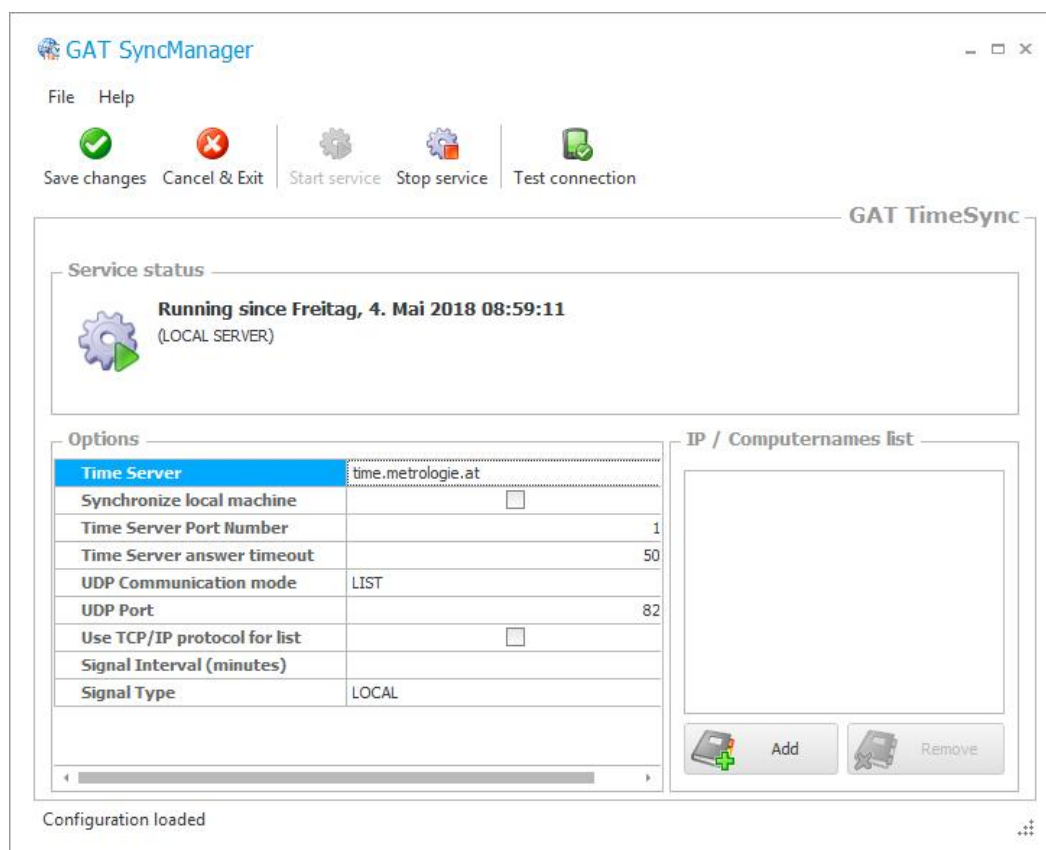


Figure 3.17 - GAT TimeSync user interface

The general GAT TimeSync settings are located in the configuration group "Options".

- **Time Server:** This setting defines from which server (Internet/Intranet) the time is taken to run the synchronization. If this setting is empty, the local time is used, i.e., the time on the computer where the GAT TimeSync service is running.
- **Synchronize local machine:** If this option is marked, the time of the PC, where the GAT TimeSync is running, will also be synchronized when synchronizing with a time server.
- **Time Server Port Number:** This setting defines the port number used by the software to connect to the timeserver. This field is not relevant if the timeserver is not used i.e., the "Time Server" field is empty. The default value for the port number is "123" (see "3.6 Port list").
- **Time Server answer timeout:** This setting defines the number of milliseconds to be waited until an answer is received from the timeserver. Is not relevant if the timeserver is not used i.e., the "Time Server" field is empty. If the field is set to "0", no timeout will be used.
- **UDP Communication mode:** This setting defines how the GAT TimeSync service sends the synchronization signals:
 - BROADCAST: Signals are only sent as UDP broadcast to all PCs/devices, which can be reached within the network.
 - LIST: Signals are only sent to the defined IP addresses or devices respectively, which are marked by a hook in the IP list to the right.
 - HYBRID: Signals are sent as UDP broadcast as well as to the defined IP addresses, marked in the list to the right.
- **UDP Port:** This setting defines the port number, which is used for synchronization by the devices or software applications to be synchronized. The standard value is "8216" (see "3.6 Port list").
- **Use TCP/IP protocol for list:** If this setting is enabled, TCP/IP is used to synchronize time instead of UDP when a list of terminals is defined and the "UDP Communication mode" is set to LIST or HYBRID.
- **Signal Interval:** This setting defines the interval in which the synchronization signals are sent (entry in seconds).
- **Signal Type:** This setting specifies how the synchronization signal is sent.
 - LOCAL: The signal is sent in local time, i.e., the server's time zone is used.
 - UTC: The signal is sent in UTC time, i.e., the time zone of the server is ignored, and a neutral time is used.



In order to save changes to the configuration press the button "Save & Exit" in the symbol bar below the menu. The changes are saved, and the graphical user interface of GAT TimeSync is closed. The "GAT TimeSync" service continues to run as background process.



In order to close the user interface without saving the changes press the button "Cancel & Exit".

3.6 Port list

GAT SyncManager uses different ports for the TCP/IP communication between the different applications or services respectively. The ports are entered in the configuration of the applications in different locations. The following table provides an overview of all used ports.

Software/Application	Port	Option	Description
G7 Connect	80	HTTP connection	TCP connection to G7 Connect
Web Interface			HTTP inbound web interface e.g., for configuration
Relaxx			WS inbound communication with Relaxx software (if used)
Cloud Services			WS outbound communication with cloud service from software partners (if used, deactivated by default)
G7 Connect	443	Encrypted HTTPS connection	TCP connection to G7 Connect
Web Interface			HTTPS inbound web interface e.g., for configuration
Relaxx			WSS inbound communication with Relaxx software (if used)
Cloud Services			WSS outbound communication with cloud services from software partners (if used, deactivated by default)
NTP Server	123	Time server	Time server for time synchronization of the devices
Microsoft SQL Server	1433 1434	Database system "MSSQL"	Standard TCP port (1433) and UDP port (1434) for the communication with a Microsoft SQL database server.
G6 Adapter	8000	TCP connection	For communication with the host software if the G6 adapter is enabled (disabled by default)
GAT TermSync	8212	ServiceSlot Listening Port	Communication with the GAT TermSync service
GAT TermSync	8213	Service Configuration Port	XML configuration interface for presenting the configuration settings and to edit them remotely
GAT TermSyncViewer	8214	ServiceSlot	Connection of GAT TermSyncViewer with the ServiceSlot of the GAT TermSync service (not used with program versions >= 2.0.0)
GAT UDP Broadcast	8216	UDP Port	UDP broadcast port for the terminals and software. Required by GAT Device Finder to locate devices in the network
GAT TimeSync	8217		XML configuration interface for presenting the configuration settings and to edit them remotely
NTG Online	8226	NTG Online Port	Port for online mode in Gantner terminals (Get Person Info online)
GAT OnlineSync	8228	Primary ServiceSlot Port	Primary port for communication with the GAT OnlineSync service
GAT OnlineSync	8229	Configuration Port	XML configuration interface for presenting the configuration settings and to edit them remotely
GAT OnlineSync	8230	Secondary ServiceSlot Port	Primary port for communication with the GAT OnlineSync service
GT7 Terminal with G7 Time & Attendance App	20	FTP interface	The FTP interface can be used on the GT7 with the NTG online protocol or the REST interface in combination to realize online operation with extended checks
	21		

Table 3.1 - List of the used ports in GAT SyncManager

4 OPERATION

The applications and services of GAT SyncManager can be operated and controlled via their graphical user interfaces. These user interfaces can be opened via the GAT TermSync Viewers. The current application is shown at the top right corner of GAT SyncManager.

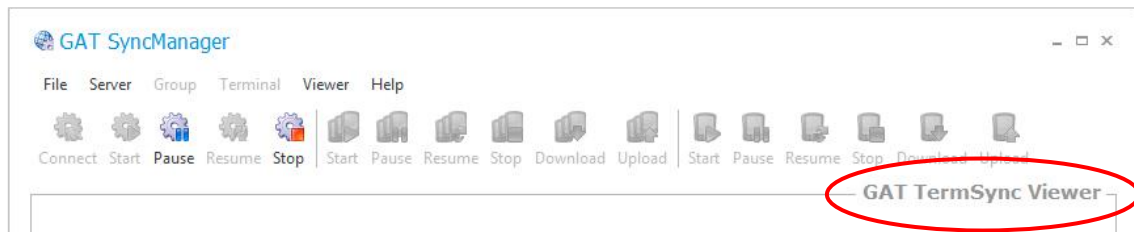


Figure 4.1 - Display of the current active application of the GAT SyncManager

NOTE! The different GAT SyncManager applications can also be opened directly from the Windows® start menu:

- "Programs" -> "Gantner Electronic GmbH" -> "GAT SyncManager"
- "Programs" -> "Gantner Electronic GmbH" -> "GAT OnlineSyncConfig"
- "Programs" -> "Gantner Electronic GmbH" -> "GAT TimeSyncConfig"

In order to start GAT TermSyncViewer, the GAT TermSync service must be started first. In the Windows® start menu, select "Programs" -> "Gantner Electronic GmbH" and then "GAT SyncManager". After that, the program icon of GAT TermSync is shown in the notification area of Windows®. Double-click on this icon to start the GAT TermSyncViewer.

The basic functions of the GAT TermSync service can be directly controlled from the notification area of Windows® by clicking the  software icon with the right mouse button. This displays the GAT TermSync software's function menu (see "4.1 Function menu").

The software icon can appear differently depending on the service status. The following icons are possible:



Connection with the GAT TermSync service is being established.



Connection with the GAT TermSync service could not be established.



GAT TermSync service is running.



GAT TermSync service is paused.



GAT TermSync service is not running.

4.1 Function menu

The function menu is displayed by clicking the right mouse button on the software icon. The functions active in the function menu are also dependent on the program status. If a function in the current program status is not possible or sensible, it will be deactivated. The function menu looks like this.

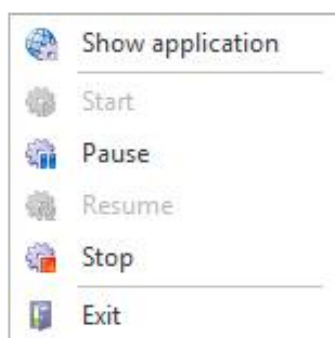


Figure 4.2 - GAT TermSync context menu

Function description:



Show application

This item starts the GAT TermSync Viewer program interface. All other settings can be defined there.

Note: In Windows Server 2008 GAT TermSync Viewer must be started with administrator rights.

Note: The viewer can also be started directly by double clicking on the program icon.



Start

This item starts the GAT TermSync service when it is stopped, otherwise the item is deactivated.



Pause

This item pauses the GAT TermSync service when it is running, otherwise the item is deactivated.



Resume

This item resumes the GAT TermSync service when it is paused, otherwise the item is deactivated.



Stop

This item stops the GAT TermSync service when it is running or paused, otherwise the item is deactivated.



Exit

This item ends the GAT TermSyncViewer software. The service will remain in the current status.

4.2 User interface of GAT TermSyncViewer

The GAT TermSyncViewer user interface is started with the menu item "Show application" in the context menu. The program window looks as follows:

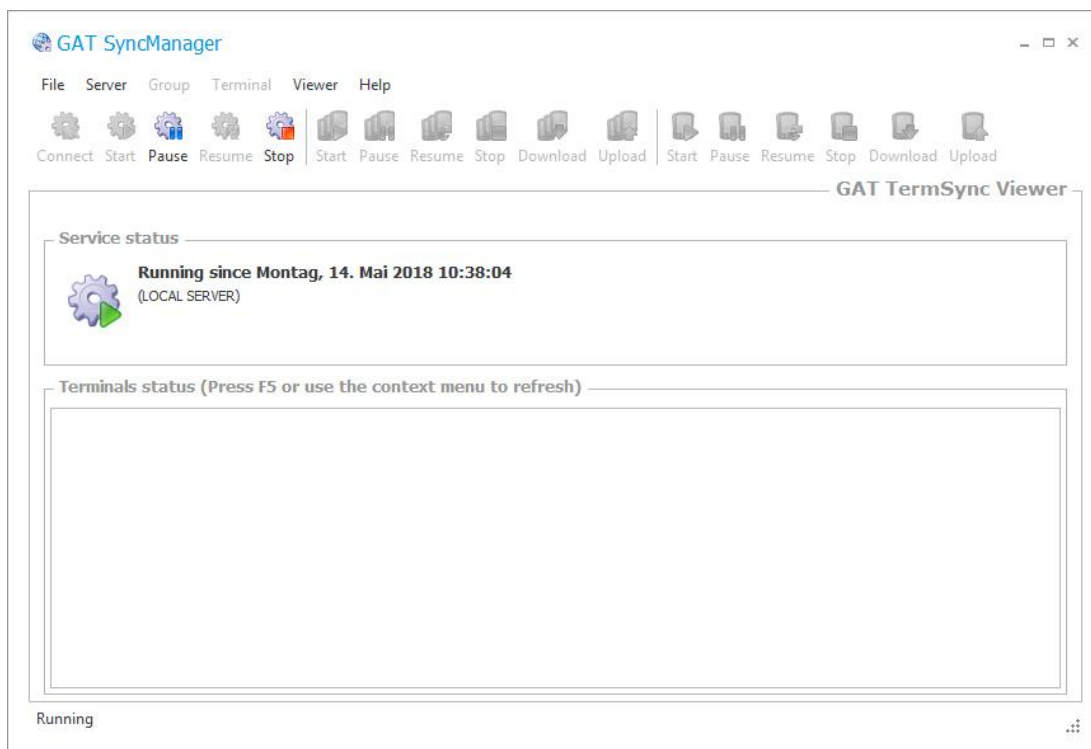


Figure 4.3 - GAT TermSyncViewer main window

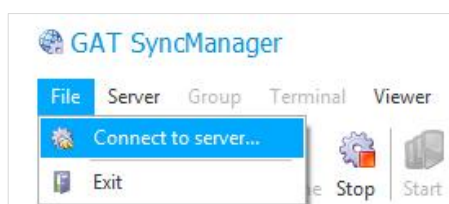
The service status is shown at the top in the field "Service status". Additional information can be displayed with the menu item "Info" in the "Help" menu (e.g., exact software version and also the version of the service in case the service is running).

Furthermore, it is indicated in the "Service status" field whether the software is licensed and activated. In the shown example a license is loaded but the software is not yet activated.

The GAT TermSyncViewer attempts to establish a connection to the service during start-up. By default, with the last used service/server. There is no connection to the service in the example shown.

4.2.1 Establishing or changing the server connection

To establish a connection or change the connection to a different server, select the "Connect to server..." option in the "File" menu.



The following window is displayed.

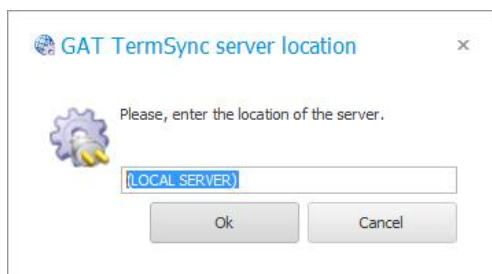


Figure 4.4 - Input server

Enter the server's name on which service is running here. If the service is running on the same PC on which the GAT TermSyncViewer was started, enter "(LOCAL SERVER)" here. If this value is changed and the connection can be established, this value will be saved as the default. The program interface displays all connected terminals and their status after successful connection.

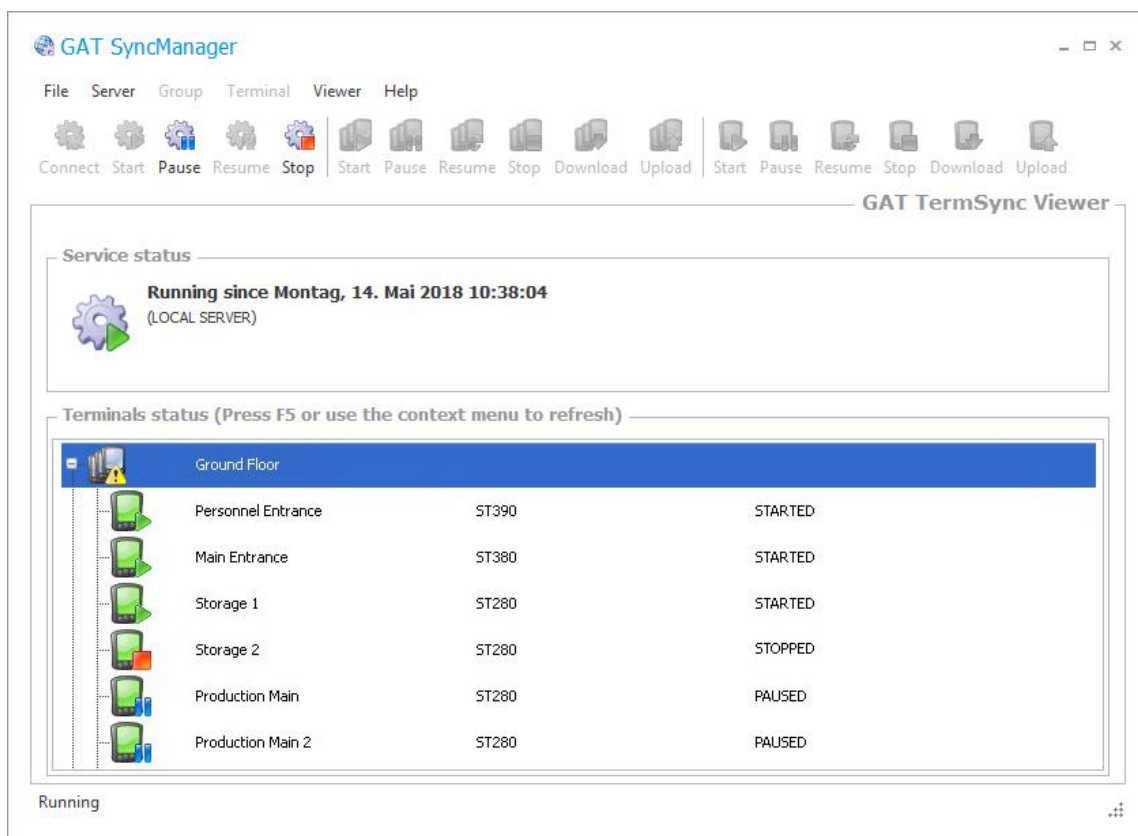
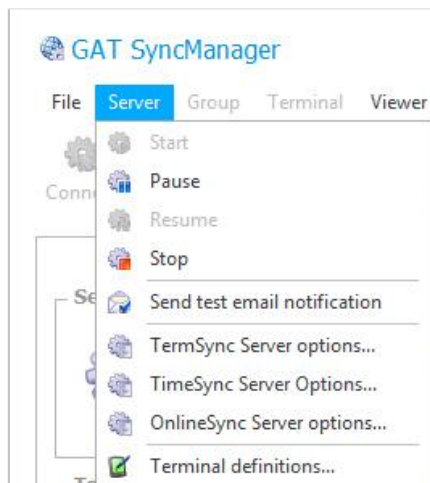


Figure 4.5 - GAT TermSyncViewer main window with terminals

NOTE! The following pages describe the operation of the GAT TermSync service by using the GAT TermSync Viewer. For information about the terminal configuration and how the terminal list is edited, see section "3.1 Configuration of the GAT TermSync service".

4.2.2 Server functions



NOTE! The menu items "TimeSync Server Options..." and "OnlineSync Server options" are not available when the corresponding services are not installed on the local computer.



Start

This item starts the GAT TermSync service. If the service is already running, the item is deactivated.



Pause

This item pauses the running GAT TermSync service. If the service is not running, the item is deactivated.



Resume

This item resumes the GAT TermSync service when it is paused.



Stop

This item stops the running GAT TermSync service. If the service is not running, the item is deactivated.



Send test email notification

This item commands the server to send a test email with the configuration options used for error notification. With that item the configuration options can be tested to see if they are correct.



TermSync Server options ...

This item displays the service's configuration options and allows these to be changed (see "3.1 Configuration of the GAT TermSync service").



TimeSync Server Options ...

This item is available when the GAT TimeSync service is installed in the same computer as the GAT TermSyncViewer software. The item enables the settings for the GAT TimeSync service to be directly set or change (see "3.5 Configuration of the GAT TimeSync service").



OnlineSync Server options ...

This item is available when the GAT OnlineSync service is installed in the same computer as the GAT TermSyncViewer software. The item enables the settings for the GAT OnlineSync service to be directly set or change (see "3.4 Configuration of GAT OnlineSync").



Terminal definitions ...

This item displays the terminal definitions and allows these to be changed.

4.2.3 Run terminal status and functions

Terminal status

The terminal list is sent by the service and shows which terminals are synchronized by the service and what their status is. The following statuses are possible.



Unknown status or warning. The terminal cannot be reached.



Terminal synchronization is running.



Terminal synchronization is paused.



Terminal synchronization is stopped.

The same icons are also displayed for groups. Attention here should be paid if the  icon is displayed, as it shows that at least one terminal in this group has an unknown status.

Terminal functions

The icons below the menu bar can be used to run functions for terminals selected in the list. The same items (icons) are also shown in a context menu when you click on a terminal in the list with the right mouse button. The following items are possible.



This item starts the terminal synchronization when it is stopped, otherwise the item is deactivated.



This item pauses the terminal synchronization when it is running, otherwise the item is deactivated.



This item resumes the terminal synchronization when it is paused, otherwise the item is deactivated.



This item stops the terminal synchronization when it is running or paused, otherwise the item is deactivated.



This item forces the readout of the bookings from the terminal even when the next target date defined by the action interval has not been reached.



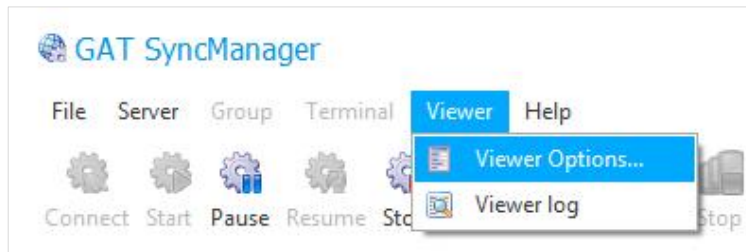
This item forces the uploading of new terminal data to the terminal even when the next target date defined by the action interval has not been reached.

NOTE! If the terminal is offline or no connection is possible, the changed or new terminal data are sent to the server, but they cannot yet be sent to the terminal. The changes remain marked by color in GAT TermSync Viewer until the upload was successful.

The same type of icons can also be selected for an entire group of terminals. Choosing an item will apply it to all the terminals within a group.

4.2.4 Options and protocol

The program options can be set in the “Viewer” menu (see chapter "3 CONFIGURATION") and the GAT TermSyncViewer protocol file can be displayed.



Viewer options

Program settings. See chapter "3 CONFIGURATION".

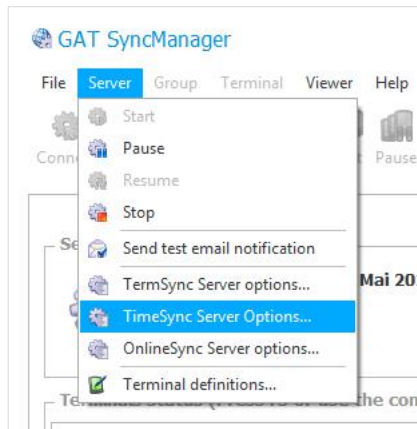


Viewer log

This item loads the current GAT TermSync service protocol file and displays it in the pre-configured text editor. All service results are logged.
This function is only active when the connection to the service can be established.

4.3 GAT TimeSync user interface

GAT TimeSync can be opened by selecting the "TimeSync Server Options" menu item in the "Server" menu of the GAT TermSyncViewer.



The user interface of GAT TimeSync is displayed.

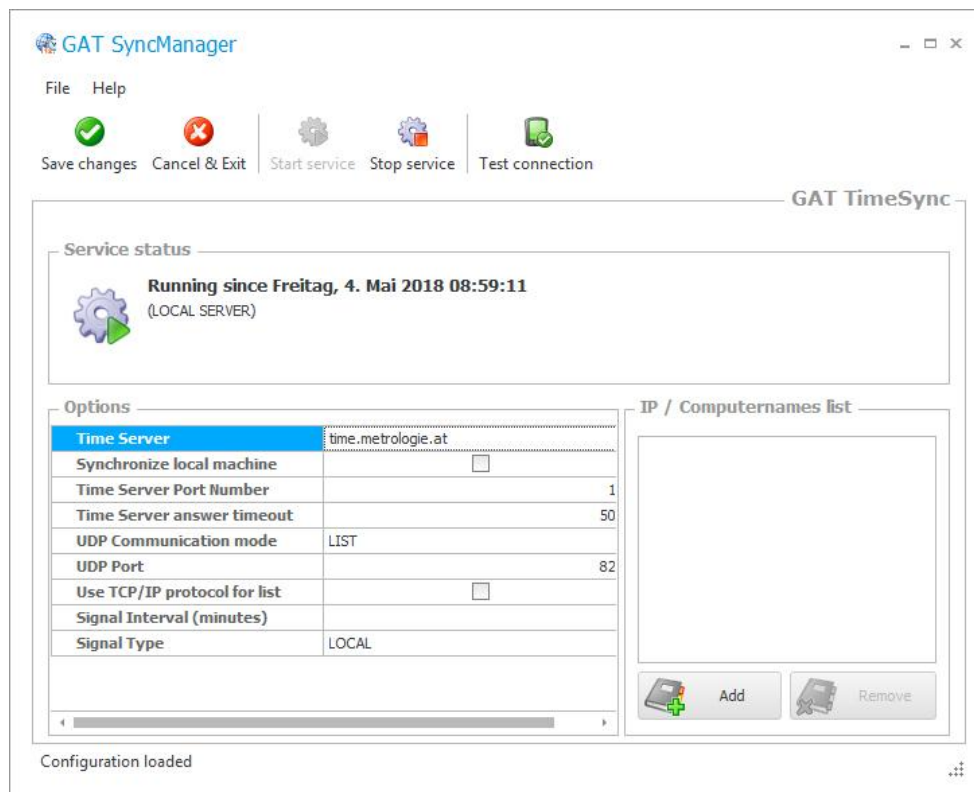


Figure 4.6 - GAT TimeSync user interface

GAT TimeSync is divided into three areas:

- In the area "Service status" the current state of the GAT TimeSync service is shown. The service can only be configured if it is running. If the service is stopped, it can be started with the button "Start service" in the symbol bar below the menu.
- In the area "Options" the configuration options of GAT TimeSync are listed. For information about the configuration see section "3.5 Configuration of the GAT TimeSync service".
- In the area "IP / Computernames list", you can select the devices for which the time shall be synchronized (see section "4.3.2. IP / computer names list").

Further information about GAT TimeSync can be accessed via "About" in the "Help" menu (e.g., exact software version of GAT TimeSync Config).

4.3.1 Starting / stopping the GAT TimeSync service

With the buttons "Start service" and "Stop service" in the symbol bar below the menu you can start and stop the service. If the service is stopped, no time synchronization will be performed.

NOTE! The GAT TimeSync service can also be started and stopped in the service manager of Windows®.

4.3.2 IP / computer names list

In the field "IP / Computer names list", the IP addresses or computer names, which shall be synchronized in the UDP modes "LIST" and "HYBRID", can be defined. This is necessary if the devices or software applications, which shall be synchronized, are behind a router. Routers usually do not forward UDP broadcast signals.

In order to add a device to the list, select "Add". The following window is displayed.

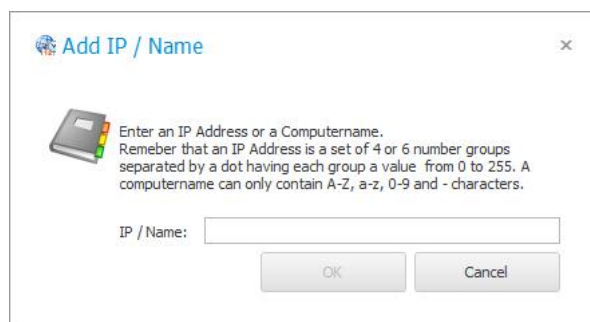


Figure 4.7 - Add device for synchronization

Here you can enter either the IP address of the device/computer (e.g., "192.168.0.1") or the network name of the device or computer respectively (no spaces and special characters are allowed here). After confirmation with "OK" the device or computer is added to the IP list.

In order to delete a device from the IP list mark the device and click the button "Remove".

NOTE! With the UDP communication modes "LIST" or "HYBRID" the synchronization is only done with those devices that are marked with a hook in the IP list.

4.3.3 Testing the connection

With the button "Test connection" you can test the connection to the devices or computers in a network. After pressing this button, the following window appears.

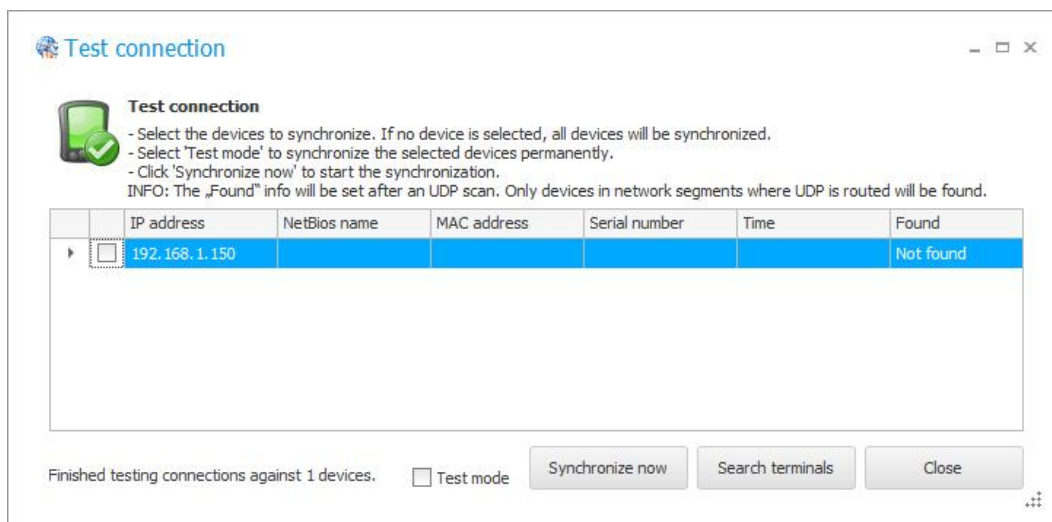


Figure 4.8 - Test connection

The network is searched automatically, and all found devices are listed with their IP and MAC addresses, network names, serial numbers, and current device times. With "Search terminals" the network search can be started anew at any time.

NOTE! Only the devices, which can be reached by an UDP scan over the network, are found and shown in blue (info "Discovered" in the column "Found"). If the UDP protocol is not forwarded or is blocked in the network, the devices on the blocked sections of the network cannot be found.

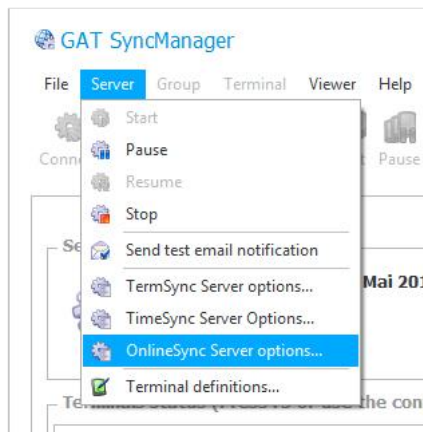
In order to synchronize devices, mark the devices in the first column and press the button "Synchronize now". If no device is marked, all devices in the list get synchronized. When synchronizing a device, the time of the device will be set to the current time of GAT TimeSync (depending on the configuration this will be either the local PC time or the time of a selected time server).

If the field "Test mode" is set and you press "Synchronize now", the synchronization is done repeatedly until the field "Test mode" is deactivated. This can be useful, for example to check the setting of the time on a terminal that is located far away.

With "Close" the synchronization window will be closed.

4.4 GAT OnlineSync user interface

GAT OnlineSync can be opened with the menu "Server" of the GAT TermSyncViewer.



Select the menu item "OnlineSync Server options...". The user interface of GAT OnlineSync is displayed.

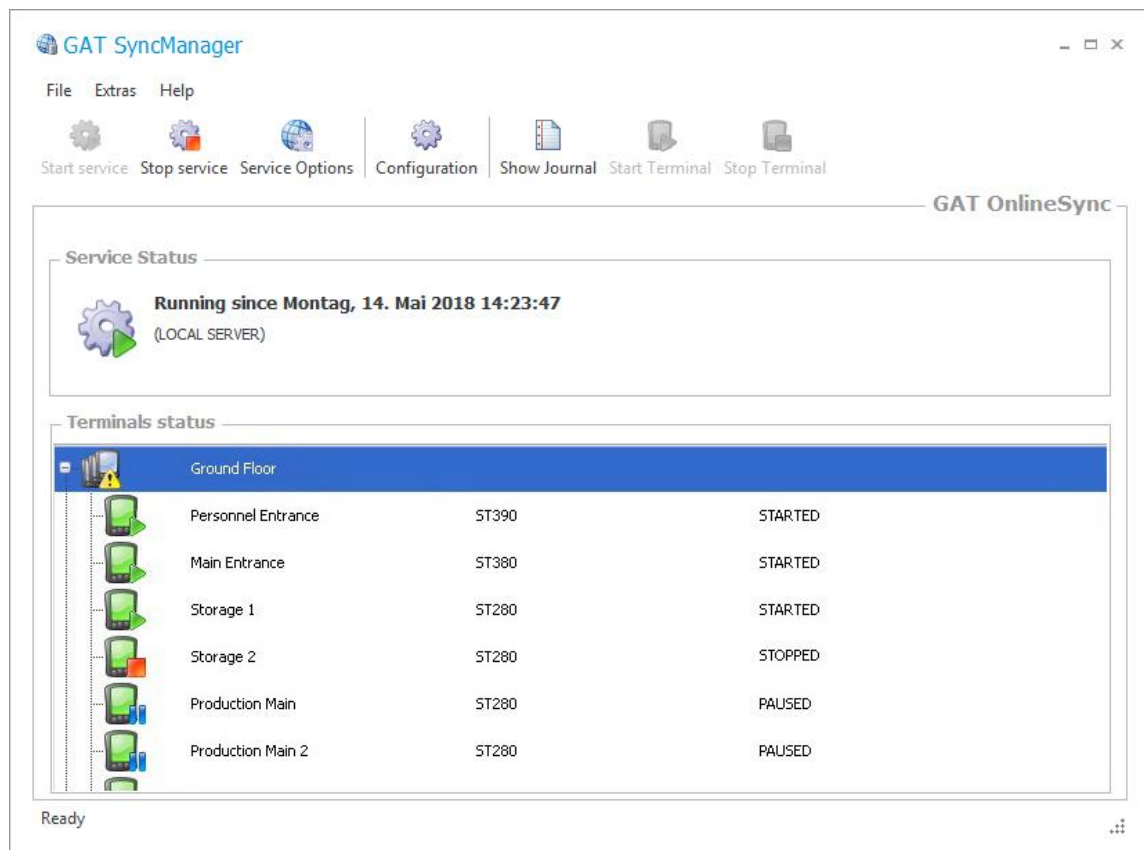


Figure 4.9 - GAT OnlineSync user interface

The GAT OnlineSync user interface is divided into two areas:

- In the "Service status" area, the current state of the GAT OnlineSync service is shown. The service can be started and stopped via the "Start service" and "Stop service" buttons in the symbol bar below the menu.

- In the "Terminal status" area, all online terminals (GAT eco.time ST270 or GAT eco.time ST570) are listed and the indication whether the terminal is operating or stopped (deactivated) is also displayed. Only the terminals selected and configured with GAT TimeSync are shown (see "3.3.1 Adding, copying, deleting, and organizing terminals").

NOTE! If GAT OnlineSync is started, all online terminals displayed the last time GAT OnlineSync was closed, will be displayed. If online terminals have been deleted in GAT TermSync since GAT OnlineSync was closed the last time, it can take some time until the terminal list is correctly updated, i.e., the deleted terminals are also deleted in the list.

4.4.1 Journal

All events that occur at an online terminal are recorded and can be shown in the journal. Click onto the icon "Journal" and the following window is opened.

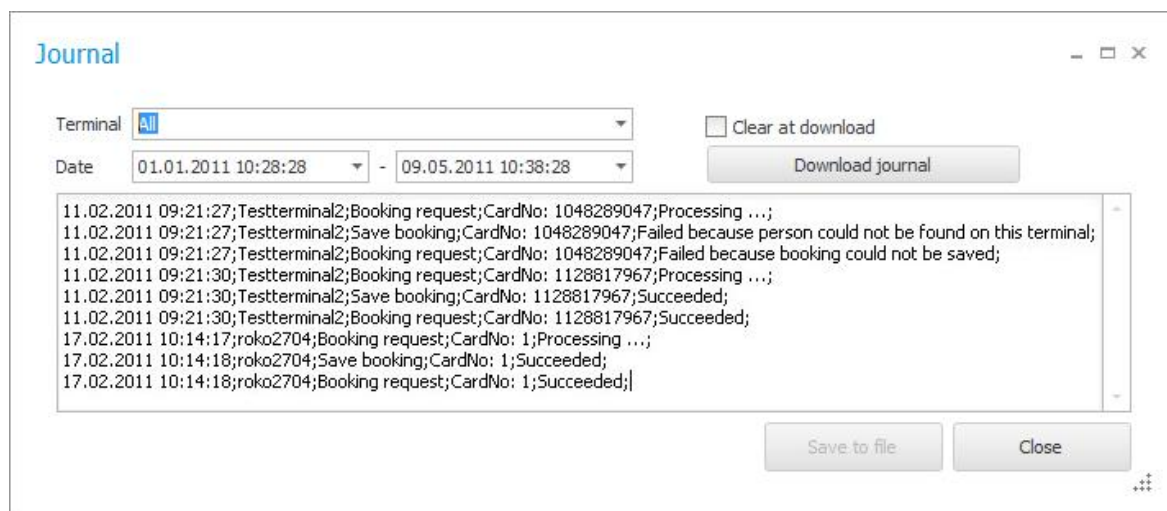


Figure 4.10 - Journal

In order to load the events recorded at the online terminals and to display them in the journal window, press the button "Download journal". GAT OnlineSync will load all events from GAT TermSync and show them in the list.

If the field "Clear at download" is marked, the events will be deleted from the database after they have been loaded into the journal.

In the fields "Terminal" and "Date" the information displayed in the journal can be filtered and if so, only the events of the terminal that was selected in the "Terminal" field and only the events that occurred during the selected time interval in the "Date" fields will be shown.

In order to back up the journal entries or for processing them in another software, you can save the listed journal entries to a file with the button "Save to file".

5 DATA INTERFACE

GAT SyncManager is based on a data interface that allows the software to complete different functions, e.g., read and provide the terminal bookings and to upload the newest terminal data.

If GAT SyncManager wants to access a file that is currently locked by another application or by another process, GAT SyncManager will continuously try to access the file at regular intervals. Therefore, when editing a file (e.g., entering new personnel data into an upload file), it should only be opened for as long as required and immediately closed afterwards. The files should not be opened permanently by another application.

5.1 Bookings

During the first readout of the bookings from the terminal, the destination file is created and if bookings were available, they are read and saved to the destination file. If no bookings are available, the destination file is created but empty. By default, no column with the terminal names of the bookings is added according to the configurations data (General Options -> Add Terminal name). When this configuration option is activated, a new data column that contains the terminal name is added to the terminal bookings in the first position. This enables bookings from several terminals to be saved in the same booking file and to be correctly evaluated.

With every new readout, GAT SyncManager checks whether the destination file still exists and if so, all new bookings are buffered until the client software reads the bookings in the destination file and deletes it. Only then are the buffered bookings written to the destination file and the procedure begins again. When the client software reads the destination file and finds no bookings, it must delete the destination file anyway or else no further bookings will be written. If the destination file is not created, an error has occurred on the terminal.

A "backup file" is created with each successful readout of the bookings from a terminal. These backup files are written in the "Backups" folder and named as follows: "yyyyMMddHHmmss_TerminalName.bak" (yyyy=year, MM=month, dd=day, HH=hour, mm=minute, ss=second of the reading).

Example: "20091231140005_ReceptionTerminal.bak" contains bookings from the Reception Terminal, which was readout on December 31, 2009 at 14:00:05.

NOTE! If access bookings of two or more terminals are read and stored in different directories, the file names of the different booking files must be unique!

5.2 Configuration and data

When a new terminal or configuration file is uploaded, the defined file is searched for. If it is found, it is determined based on the last changed date if it has already been uploaded. If so, it is ignored. If not, this is copied into the sub-directory "Upload" in the service program directory and then sent to the terminal. This makes it possible for several terminals to use the same terminal and configuration data.

5.3 Fingerprints

Depending on the type, terminals can be equipped with a fingerprint reader. To download the captured ("enrolled") fingerprint templates from such a terminal, a valid local file path must be entered in the "Fingerprint file" setting of the terminal. Usually this setting is empty, which means that no fingerprints are downloaded. If the "Fingerprint file" setting of a terminal is correctly set, it will be searched for new fingerprint templates (file "Fingerprints.exp") every time the terminal is read and if they are present, they will be downloaded.

NOTE!

- If the "Fingerprint file" setting is set for a terminal with no fingerprint reader, an error message will be shown every time the bookings are read, because the file "Fingerprints.exp" cannot be found and downloaded. However, the bookings will be downloaded but the error will always be shown.
- The fingerprints will only be downloaded, i.e., the GAT TermSync service will not upload a present "Fingerprints.exp" file into a terminal. In order to make that happen the fingerprint data must be written into the personnel data (see documentation of the GAT p.time ST xxx terminals).

5.4 Formatting of the text files

Listed below is the required formatting of all the text files processed by GAT SyncManager.

NOTE! All text files must be UTF-8 coded.

5.4.1 Upload file in GAT TermSync

Configuration:

In the terminal definitions -> "Upload file" (see section "3.3.4. Definition of terminal settings").

Function:

For offline devices, the format of the upload file must comply with the described format in the document HB_GAT-PTIMESTXXX_Konfiguration--EN_xx.doc.

For online devices, the following functions (commands) are supported:

1012: Delete all persons

1010: Load person

1020: Load card of person

1040: Load finger template of person

For GAT OnlineSync the command 1090 is additionally available. With this command, special rights can be configured for persons.

NOTE! When using the GAT SyncManager and operating the devices in online mode, the entire personnel record must be deleted (command 1012) and the authorized personnel data must be loaded again. This is necessary so that the online database holds the correct personnel record.

Function "Delete all persons" - 1012:

Data	Description
1012	Command: Delete all persons

Example:

1012;

Function "Load person" - 1010:

Data	Description
1010	Command: Load person
Personal-ID	Personal ID number for identification of the person in the terminal. Depending on the used time & attendance software this can be the card number or personnel number. For using the FLEX protocol, the Personal ID has to be the card number. Further data of a person (e.g., fingerprints, cards etc.) will be referenced to this Personal ID. Length: max. 8 characters
PersonalNo	Personal number This value can be alphanumeric. Registering a person via entering the personal number is only possible with numeric values. Length: max. 30 characters
DisplayName	Name of the person like it will be shown on the display. In the attendance overview the display is sorted by this name. Length: max. 255 characters

Language	Language used to display information for the persons at the terminal. Language codes according to ISO must be used (de, en, ...). This function is not supported yet.
FiuUse	Use the fingerprint reader for verification. This option has no function for terminals without a fingerprint reader. 0 ... Fingerprint reader not used (default) 1 ... Verify fingerprint from database 2 ... Verify fingerprint from card
AttendanceStatus	Attendance status of the person 0 ... Unknown (default) 1 ... Present 2 ... Absent 3 ... Paused (only for GT7 terminals)
Balance0	Balance 0, personal text information Length: max. 30 characters
Balance1	Balance 1, personal text information Length: max. 30 characters
Balance2	Balance 2 personal text information Length: max. 30 characters
Balance3	Balance 3, personal text information Length: max. 30 characters
Balance4	Balance 4, personal text information Length: max. 30 characters
Balance5	Balance 5, personal text information Length: max. 30 characters
Balance6	Balance 6, personal text information Length: max. 30 characters
Balance7	Balance 7, personal text information Length: max. 30 characters
Balance8	Balance 8, personal text information Length: max. 30 characters
Balance9	Balance 9, personal text information Length: max. 30 characters

Examples:

```
1010;101;A101;Franz Maier;de;0;0;16:25;;;8:34;7:00;-2:12;;;9:07;10:15
1010;102;2;Markus Musermann;de;0;0;2 Tage;10:47;2:23
1010;103;F103;Sabine Mustermann;de;0;0;;;;;;;;;;
1010;104;F104;Claudia Müller;de;0;0;
```

Function "Load card of person" - 1020:

Data	Description
1020	Command: Load card of person
Personal-ID	Personal ID number for identification of the person in the terminal. Length: max. 8 characters
CardNo	Card number that is used from the data carrier. Depends on the card reader settings.
CardType	With this parameter it is possible to use different card coding (e.g., different site numbers) without any problems when having the same card numbers.

Example:

```
1020;101;4711;01;
```

Function "Load finger template of person" - 1040:

Data	Description
1040	Command: Load finger template of person
Personal-ID	Personal ID number for identification of the person in the terminal Length: max. 8 characters
TemplateNo	Template or finger number respectively 1-10 for verification, for identification only two fingers are possible
TemplateData	Template data, e.g., as provided by the fingerprint sensor Length: max. 1024 bytes (typical approx. 128 bytes)

Examples:

1040;101;1;0258000FC128764.....8978;
1040;101;2;029864309924535.....845555334;

Function "Load special rights of person" - 1090:

Data	Description
1090	Command: Load special rights of persons
Personal-ID	Personal ID number for identification of the person in the terminal Length: max. 8 characters
Access	Special right – depending on the terminal type

Examples:

1090;101;1;
1090;102;0;

File "Conf11.upl" for SAP Interface:

If the SAP interface is used, the SAP format of the file "Conf11.upl" is used. This is an ANSI coded text file. The assignment between SAP and Gantner data is as follows:

Bytes	Length	SAP Data	Gantner Data
1 - 3	3	Event type	Booking code (direct or via mapping file)
4 - 7	4	Terminal address	Terminal address
8 - 15	8	Booking date (YYYYMMDD)	Booking date
16 - 21	6	Booking time (HHMMSS)	Booking time
22 - 29	8	Booking date (YYYYMMDD)	Booking date
30 - 35	6	Booking time (HHMMSS)	Booking time
36 - 43	8	Card number	Card number (direct or via mapping file)
44 - 47	4	Booking reason	Reason code (direct or via mapping file)
48 - 51	4	Reserved (spaces)	-
52 - 59	8	Reserved (fix value "00000.00")	-
60 - 72	13	Reserved (spaces)	-

Example:

P15000120101018094020101018094000005009ARZT____00000.00_____

The spaces in this example are indicated with a "_" (underscore). In the actual file these are "real" spaces (HEX 30).

5.4.2 Booking file

Configuration:

In the terminal definitions -> "Bookings file" (see section "3.3.4. Definition of terminal settings").

Function:

The format of the upload file must comply with the described format in the document HB_GAT-PTIMESTXXX_Konfiguration-DE_20.doc.

Data Fields:

Data	Description
Identity	Address of the terminal, which is also used in the FLEX protocol (adjustable in Config – Application)
ID	Unique ID for this booking
DateTime	Date and time of the booking in the format YYYY.MM.DD.HH.MM.SS The time is always recorded and saved at the end of all inputs.
BookingType	Booking type 1 ... time booking
PersonalId	Unique personal ID of the person, who has made the booking. This ID is present at bookings with data carriers, fingers as well as personal number inputs.
CardType	Card type, which was used for the booking (can be empty!)
CardNo	Data carrier number, which was used to generate the booking (can be empty!). If the number is present, the CardType must be used to get a unique number.
PersonalNo	Personal number, which was used to generate the booking (can be empty!)
BookingCode	Booking code of the booking. It is only unique in combination with the ReasonCode and the Prebooking Code.
ReasonCode	Absent reason or reason of the PDA booking (e.g., project start)
FiulInfo	Information about the fingerprint reader (if the terminal has one) 0 ... NO_VERIFICATION (no identification with fingerprint) 1 ... HIT (fingerprint was correctly identified) 2 ... NO_HIT (fingerprint was not identified) 3 ... TIMEOUT (no finger identified in the given time period) 4 ... NO_TEMPLATE 4 (no templates for the persons available) 9 ... COM_ERROR (communication error with fingerprint reader)
FiuMatchingScore	Quality of the identification in case of a hit (FiulInfo = 1) 0 ... very good 1 ... good 2 ... acceptable 3 ... poor 4 ... very poor
Prebooking	Prebooking code Code that was defined for the prebookings with command 1200
BDEValue1	Input value in the PDA field 1
BDEValue2	Input value in the PDA field 2
BDEValue3	Input value in the PDA field 3
BDEValue4	Input value in the PDA field 4
BDEValue5	Input value in the PDA field 5
BDEValue6	Input value in the PDA field 6
BDEValue7	Input value in the PDA field 7
BDEValue8	Input value in the PDA field 8

BDEValue9	Input value in the PDA field 9
BDEValue10	Input value in the PDA field 10
BDEValue11	Input value in the PDA field 11
BDEValue12	Input value in the PDA field 12
BDEValue13	Input value in the PDA field 13
BDEValue14	Input value in the PDA field 14
BDEValue15	Input value in the PDA field 15
BDEValue16	Input value in the PDA field 16
BDEValue17	Input value in the PDA field 17
BDEValue18	Input value in the PDA field 18
BDEValue19	Input value in the PDA field 19
BDEValue20	Input value in the PDA field 20

Examples:

```
255;23;2010.01.19.16.25.11;1;0;3;3199;0;255;0;0;V100;
255;27;2010.01.19.16.26.23;1;101;0;123456;A101;75;1;0;1;;23;;;;;;;;;;;
```

File "Perso1.upd" for SAP Interface:

If the SAP interface is used, the SAP format of the file "Perso1.upd" is used. This is an ANSI coded text file. All personnel data coming from the SAP R/3 time management system is written into this file. All lines have to be separated with <CR><LF> (Carriage Return and Line Feed). Each line must be 210 bytes long (without <CR> and <LF>). The assignment between SAP and Gantner data is as follows:

Bytes	Length	SAP Data	Gantner Data
1 - 8	8	Card number	Personal ID and card number (direct or via mapping file)
9 - 25	17	Date from - to	-
26 - 33	8	Personal number	Personal number
34 - 63	30	Name of person	Display name
114 - 121	8	SAP info 1	Balance 0
122 - 129	8	SAP info 2	Balance 1
130 - 137	8	SAP info 3	Balance 2
138 - 145	8	SAP info 4	Balance 3
146 - 153	8	SAP info 5	Balance 4
154 - 161	8	SAP info 6	Balance 5
162 - 169	8	SAP info 7	Balance 6
170 - 177	8	SAP info 8	Balance 7
178 - 185	8	SAP info 9	Balance 8
186 - 193	8	SAP info A	Balance 9
199 - 201	3	Group number	-

Example:

```
000050092011061320110621000000032Thomas_Mustermann_____
123
```

The spaces in this example are indicated with a "_" (underscore). In the actual file these are "real" spaces (HEX 30).

5.4.3 Fingerprints

Configuration:

In the terminal definitions -> "Fingerprint file" (see section "3.3.4. Definition of terminal settings").

Function:

The format of the upload file must comply with the described format in the document HB_GAT-PTIMESTXXX_Konfiguration-DE_20.doc.

Data Fields:

Data	Description
PersonalId	Unique personal ID of the person whose fingerprints will be captured.
TemplateNo	Template or finger number 1-10 whereas at the <dlg_FiuEnroll> only 2 or 4 fingerprints will be captured for one person.
TemplateData	Template data like they are presented by the fingerprint sensor. Length: max. 1024 bytes (typical approx. 128 bytes)

Example:

```
101;1;026A007.....4943FF;  
101;2;0263008.....FFEFD2;
```

5.4.4 Message file in GAT TermSync

Configuration:

In the terminal definitions -> "Messages file" (see section "3.3.4. Definition of terminal settings").

Function:

With this file, different texts can be output at the online terminals. If this file is not used, the standard texts of each terminal type are used.

After changing this file, the service must be restarted so that the changes can be activated.

Syntax:

The single values are each separated by a line break. Up to 6 translations can follow after the texts. Because the attendance status and the FIU status (fingerprint) are only processed in numeric values, plain texts can be defined for these numeric values with these 6 values.

```
<Type><Text>
<Type><Placeholder><Text>
:
[*AttendanceStatus0*]<Text>
[*AttendanceStatus1*]<Text>
[*AttendanceStatus2*]<Text>
[*AttendanceStatus3*]<Text> 1
[*FiuUse0*]<Text>
[*FiuUse1*]<Text>
[*FiuUse2*]<Text>
[*AttendanceValidationError*]<Text>
[*SuccessAttendanceValidationDisabled*]<Text>
```

NOTE

¹ Attendance Status 3 is only applicable for GT7 terminals. All other Gantner terminals do not support this status.

Parameter:

<Type>:	The usage for this message text. These types are currently available: [*Success*]: Is returned after a successful action. [*Failure*]: Is returned after a failed action.
<Text>:	Fixed text.
<Placeholder>:	One of the predefined placeholders (see below).
[*AttendanceStatus0*]	Texts for the attendance status no. 0 to 3. The meaning of the attendance statuses are described in the Attendance Validation File (see "5.4.7 Attendance validation in GAT OnlineSync (Attendance validation file)").
[*FiuUse0*]	Fingerprint reader usage.
[*AttendanceValidationError*]	Incorrect booking sequence, e.g., two successive coming bookings recorded.
[*SuccessAttendanceValidationDisabled*]	Used for a booking if not all devices are online. In this case, the booking is allowed as normal, however, a warning is displayed because it cannot be guaranteed that the sequence is correct (a booking may have already been made at an offline device that SyncManager has not yet received).

Placeholder:

[@PersonalId@]	Personal ID
[@PersonalNo@]	Personal number

[@DisplayName@]	Display name of the person
[@Language@]	Language for the person
[@AttendanceStatus@]	The attendance status – if not translated, 0 or 1 will be issued
[@FiuUse@]	The FIU status – if not translated, 0, 1 or 2 will be output
[@Balance0@]	Balance 0 of the person
[@Balance1@]	Balance 1 of the person
[@Balance2@]	Balance 2 of the person
[@Balance3@]	Balance 3 of the person
[@Balance4@]	Balance 4 of the person
[@Balance5@]	Balance 5 of the person
[@Balance6@]	Balance 6 of the person
[@Balance7@]	Balance 7 of the person
[@Balance8@]	Balance 8 of the person
[@Balance9@]	Balance 9 of the person
[@CardNo@]	The first card number of the person
@Pn	Personal number
@Ps	The attendance status – if not translated, 0, 1, 2 or 3 ¹ will be issued
@S	Current time in the format "HH:mm"
@T	Current time in the format "mmm"
@F	Line break
@s	Current time in the format "HH:mm:ss"
@t	Current time in the format "mm:ss"
@d	Current date in the format "dd.MM.jj"
@z	Current time in the format "ss:mm"

Example:

```
[*Success*]Hello [@DisplayName@] - [@AttendanceStatus@]
[*Failure*]Error - [@CardNo@]
[*AttendanceStatus0*]Unknown
[*AttendanceStatus1*]Present
[*AttendanceStatus2*]Absent
[*AttendanceStatus3*]Paused 1
[*FiuUse0*]Not used
[*FiuUse1*]From card
[*FiuUse2*]From database
[*AttendanceValidationError*] Incorrect booking sequence!
[*SuccessValidationErrorDisabled*] Attendance status cannot be checked!
```

The example generates the following output:

Successful action:	Hello John Smith - Absent
Failed action:	Error - 123456789
Two coming bookings without an outgoing booking:	Incorrect booking sequence!

NOTE

¹ Attendance Status 3 is only applicable for GT7 terminals. All other Gantner terminals do not support this status.

5.4.5 Conversion table in GAT OnlineSync

Configuration:

In the settings of the GAT OnlineSync server: "Database Options" -> "Conversion table file" (see section "3.4.1. Configuration of the GAT OnlineSync service").

Function:

At a booking, an online terminal normally does not return a plain text for booking code and reason. With the conversion table the booking code and reason, which is returned by an online terminal, can be translated into plain text. The translation can be defined for each terminal individually.

After changing this file, the service must be restarted so that the changes can be activated.

NOTE! During installation of GAT Sync Manager, a conversion file ("Basic Conversion Table.txt") will be generated. This includes the standard conversions for Gantner devices, and the file may only be used for Gantner devices. For other devices or applications, a new file has to be generated.

Syntax:

The single values are each separated by a line break:

```
Terminal=<TerminalName>
<BookingcodeTerminal>|<ReasonTerminal>=<BookingcodeOutput>|<ReasonOutput>
:
Terminal=<TerminalName>
:
```

Parameter:

<TerminalName>:	Name of the terminal. If "All" is entered here, the entry is valid for all terminals.
<BookingcodeTerminal>:	The booking code as returned from the terminal.
<ReasonTerminal>:	The reason code as returned from the terminal. If this parameter is not entered, the standard reason code is used.
<BookingcodeOutput>:	The booking code as it should be returned by GAT OnlineSync.
<ReasonOutput>:	The reason as it should be returned by GAT OnlineSync.

Example (Default File):

```
Terminal=All
75|=255|
75|1=1|1
75|2=1|2
75|3=1|3
75|4=1|4
75|5=1|5
71|=254|
71|1=100|1
71|2=100|2
71|3=100|3
71|4=100|4
71|5=100|5
```

NOTE! If an entry "Terminal=All" and also an entry for a certain terminal is present, the entry for the certain terminal has higher priority as the entry for all terminals.

5.4.6 Price list in GAT OnlineSync

Configuration:

In the settings of the GAT OnlineSync server: "Database Options" -> "Price list file" (see section "3.4.1. Configuration of the GAT OnlineSync service").

Function:

With this file, a price list can be defined that is valid for all GAT Vending terminals. The prices can be given for all terminals at once or for each terminal separately.

After changing this file, the service must be restarted so that the changes can be activated.

Syntax:

The single values are each separated by a line break:

```
Terminal=<TerminalName>
<Group>|<Selection>=<Price>
:
Terminal=<TerminalName>
:
```

Parameter:

<TerminalName>:	Name of the terminal. If "All" is entered here, the entry is valid for all terminals.
<Group>:	The price group (the free value is 255).
<Selection>:	The number of the article (the free value is 65535).
<Price>:	The price of the article in single units (€ 100,00 = 10000 units).

Example:

```
Terminal=All
0|65535=100
1|0=150
1|1=170
2|0=190
255|0=250

Terminal=Term2
0|65535=100
1|0=150
1|1=170
1|2=175
2|0=190
255|0=240
```

NOTE! If an entry "Terminal=All" and also an entry for a certain terminal (here "Term2") is present, the entry for the certain terminal (here "Term2") has higher priority as the entry for all terminals.

5.4.7 Attendance validation in GAT OnlineSync (Attendance validation file)

Configuration:

In the settings of the GAT OnlineSync server: "Database Options" -> "Attendance validation file" (see section "3.4.1. Configuration of the GAT OnlineSync service").

Function:

If several devices are used for time recording, this file enables a system-wide check and processing of the attendance status of persons in GAT OnlineSync. A person can create a coming booking at one device and a going booking at another device, as the person's status is known. However, if two successive present bookings or two successive absent bookings are made, an error message is displayed on the device. This also applies to different types of bookings (e.g., a "going" and "going with reason" booking in succession). If the status of a person is "undefined", either a present or an absent booking can be made. In this case, the status is set to the respective status of the booking. The status of the person can be affected via the devices or via a download from the time recording software.

Syntax:

The file contains the assignments of booking codes to the relevant attendance statuses. A reason code can also be used. The individual assignments are each separated by a line break:

```
<BookingCodeTerminal>=<AttendanceStatus>  
<BookingCodeTerminal>|<ReasonTerminal>=<AttendanceStatus>
```

Lines beginning with " * " are comments and are ignored.

If there are two definitions, e.g., 75=1 and 75=2, the first definition is used and the rest is ignored.

Parameter:

<code><BookingCodeTerminal>:</code>	The booking code as returned by the terminal.
<code><ReasonTerminal>:</code>	The reason as returned by the terminal. If this parameter is not defined, the default reason is used.
<code><AttendanceStatus>:</code>	The following attendance statuses are available: 0: Undefined 1: Present 2: Away 3: Paused ¹ If no attendance status is defined, status 0 is used. ¹ Attendance Status 3 (paused) is only applicable for GT7 terminals. All other Gantner terminals do not support this status.

Example:

```
* Coming:  
75=1  
* Going:  
71=2  
* Pause:  
80=3  
* Going with reason:  
72=2  
72|2=2  
72|3=2  
72|10=2
```

NOTE:

- A file may only remain open for as long as it is needed and immediately closed afterwards. The files must not be opened permanently by another application.
- If no file is defined, the attendance status is not checked.
- If a file is defined, the attendance status is checked and updated in the database if the time of the change is more recent than the last change.
- The text file must be in UTF-8 format.
- The attendance status is also updated for bookings that were created while a device was offline. If a more recent booking has already been entered for the person, no update is made.
- After changing this file, the service must be restarted so that the changes can be implemented.
- The message file is extended by the entry "[*AttendanceValidationError*]" to indicate that a check of an attendance status has failed.

5.4.8 SAP card number in GAT TermSync (SAP card no. mapping)

Configuration:

In the settings of GAT TermSync servers: "Output options" -> "SAP options" -> "Card no. mapping file" (see section "3.1 Configuration of the GAT TermSync service").

Function:

For the SAP interface, it may be required to convert card numbers because SAP only supports 8-digit card numbers.

Syntax:

The single values are each separated by a line break. If no conversion is given for a card number, the first 8 digits of the card number are written into the SAP file.

```
<GATCardNo>=<SAPCardNo>
<GATCardNo>=<SAPCardNo>
:
```

Parameter:

<GATCardNo>:	The card number as used by the terminal.
<SAPCardNo>:	The card number as used by SAP.

Example:

```
1048289047=99999999
1486124182=10000001
```

NOTE! A file may only be opened for as long as it is needed and immediately closed afterwards. The files should not be opened permanently by another application. If, for example, a card number for a new employee is inserted into the SAP Card No. Mapping file, the file should be closed as fast as possible so that the new card (person) can be inserted into GAT SyncManager. If GAT SyncManager wants to use a file that is currently open or being used by another application or process, the file cannot be opened and GAT SyncManager will periodically attempt to open the file.

5.4.9 SAP groups in GAT TermSync (SAP group mapping)

Configuration:

In the settings of the GAT TermSync server: "Output options" -> "SAP options" -> "Group mapping file" see section "3.1 Configuration of the GAT TermSync service").

Function:

In GAT SyncManager, personnel data is generated for each terminal separately. In SAP however, personnel data is organized in groups with each SAP person belonging to exactly one group. With the SAP Group Mapping file, it is possible to define which SAP group shall be loaded to a certain terminal.

Syntax:

The single values are each separated by a line break. If several SAP groups are assigned to one terminal, these groups are separate by a |.

```
<TerminalName>=<SAPGroup>|<SAPGroup>|...  
<TerminalName>=<SAPGroup>|<SAPGroup>|...  
:
```

Parameter:

<TerminalName>:	Name of the terminal.
<SAPGroup>:	The SAP group name, which shall be assigned to the terminal. The SAP group can be up to 3 digits long and must only include numerical values. Alphanumerical characters, which would be supported on the SAP side, are not allowed because they cannot be handled by GAT SyncManager.

Example:

```
ST270_Eingang=99|10|11  
ST270_Ausgang=333|111  
Roko290=99
```

NOTE! A file must only be opened for as long as it is needed and immediately closed afterwards. The files should not be opened permanently by another application. If for example a card number for a new group is inserted into the SAP Group Mapping file, the file should be closed as fast as possible so that the new card (person) can be inserted into GAT SyncManager. If GAT SyncManager wants to use a file that is currently open or being used by another application or process, the file cannot be opened, and GAT SyncManager will periodically attempt to open the file.

5.4.10 SAP booking codes in GAT TermSync (SAP booking code mapping)

Configuration:

In the settings of the GAT TermSync server: "Output options" -> "SAP options" -> "Booking code mapping file" (see settings "3.1 Configuration of the GAT TermSync service").

Function:

The booking codes returned by the terminal must not correspond to the booking codes as used in SAP. With the SAP Booking Code Mapping file, the terminal booking codes can be converted into the SAP booking codes.

Syntax:

The single values are each separated by a line break. If no conversion is given for a certain booking code, the original booking code is used.

```
<GATBookingCode>=<SAPBookingCode>
<GATBookingCode>=<SAPBookingCode>
:
```

Parameter:

<GATBookingCode>:	The booking code as returned by the terminal.
<SAPBookingCode>:	The booking code as used in SAP.

Example:

```
255=P15
K=P15
G=P14
```

NOTE! A file must only be opened for as long as it is needed and immediately closed afterwards. The files should not be opened permanently by another application. If, for example, a card number for a new booking code is inserted into the SAP Booking Code Mapping file, the file should be closed as fast as possible so that the new card (person) can be inserted into GAT SyncManager. If GAT SyncManager wants to use a file that is currently open or being used by another application or process, the file cannot be opened, and GAT SyncManager will periodically attempt to open the file.

5.4.11 SAP reason codes in GAT TermSync (SAP reason code mapping)

Configuration:

In the settings of the GAT TermSync servers: "Output options" -> "SAP options" -> "Reason code mapping file" (see section "3.1 Configuration of the GAT TermSync service").

Function:

The reason codes returned by the terminal may not correspond to the reason codes, like they must be used in SAP. With the SAP Reason Code Mapping file, the reason codes of the terminals can be converted into the SAP reason codes.

Syntax:

The single values are each separated by a line break. If no conversion is given for a certain reason code, the original reason code is used.

```
<GATReason>=<SAPReason>
<GATReason>=<SAPReason>#<SAPBookingcode>
:
```

Parameter:

<GATReason>: <SAPReason>: <SAPBookingcode>:	The reason code as returned by the terminal. The reason code as used in SAP. Optional. Is used, for example, if a reason for "coming" and "leaving" is positioned on the same hardware key of a GAT p.time terminal. In this case the booking code is always the same, but SAP needs different booking codes. The booking code entered here will overwrite the SAPBookingcode (first 3 characters) in the file "conf11.upl". The booking code entered here has higher priority as the booking code in "Booking Code Mapping File" (see "5.4.8 SAP card number in GAT TermSync (SAP card no. mapping)").
--	---

Example:

```
81=Doctor
82=Business Trip
101=10#P10
```

NOTE! A file must only be opened for as long as it is needed and immediately closed afterwards. The files should not be opened permanently by another application. If, for example, a card number for a new reason code is inserted into the SAP Reason Code Mapping file, the file should be closed as fast as possible so that the new card (person) can be inserted into GAT SyncManager. If GAT SyncManager wants to use a file that is currently open or being used by another application or process, the file cannot be opened, and GAT SyncManager will periodically attempt to open the file.

6 ERROR NOTIFICATION

The error notification function enables the automatic notification by email to one or more email recipients should a terminal not be reached after a set number of attempts. It is possible to send two error notifications, which can be configured with different error numbers.

An email notification is also sent when the connection is re-established with the terminal after an error notification.

The notification text is defined in the following files (which can be found in the sub-directory "GATTermSync\EmailNotifications" in the GAT SyncManager software installation folder) and can be changed.

- First error notification: FirstErrorNotification.txt
- Second error notification: SecondErrorNotification.txt
- Connection re-established: ConnectionRecovery.txt

NOTE! For this function to work, all configuration options "Error notification options" must be correctly set in the software configuration and the computer on which the software is installed must have a connection to the email server (through the network or internet).

6.1 Notification macros

Macros can be used in the notification text. These macros are placeholders, which are replaced by the software with the representative information before sending the notification. These macros provide useful information of the server, software, and the reason for the notification.

The following list describes available macros and how they can be applied:

@@SERVERNAME	Computer name of the server that generated the notification.
@@SERVERIP	Computer IP address of the server that generated the notification.
@@TERMINALNAME	Name of the terminal that caused the notification.
@@DATETIME	Date and time when the terminal reached the defined number of communication errors.
@@DATETIMEUTC	UTC date and time when the terminal reached the defined number of communication errors.
@@FIRSTCOUNT	Defined number of communication errors on the server for the first notification.
@@SECONDCOUNT	Defined number of communication errors on the server for the second notification.

7 DATA PROTECTION

7.1 General Data Protection Regulation (GDPR)

As of May 2018, the EU's General Data Protection Regulation (GDPR) has been in force. The regulations affect all companies that process personal data. The GDPR regulates the handling of personal data and specifies the conditions under which companies may process this data (e.g., employee data). The GDPR affects single-person companies as well as large companies.

The content of the GDPR is based upon seven principles that can be used to orientate data protection efforts. These are:

- Principle of Storage Limitation
- Principle of Data Minimization
- Principle of Purpose Limitation
- Principle of Accuracy
- Principle of Integrity and Confidentiality
- Principle of Accountability
- Principle of Lawfulness, Fairness, and Transparency

Definitions of personal data and data processing

Personal data includes all data that directly or indirectly allows you to draw conclusions about a specific person, e.g., email, name, photo, etc. Sensitive personal data is personal data that is particularly worthy of protection, e.g., biometric or genetic data. However, information on ethnic origin, political opinion, trade union membership, religious or philosophical beliefs, health, and sexuality are also considered sensitive.

Data processing means the viewing and saving of data as well as any automated or manual form of processing. A data application exists when personal data is fully or partially automated.

It is therefore clear from these definitions that the GDPR is relevant for GANTNER's time recording software. The following sections outline what has to be done with regard to time recording and what options GAT SyncManager offers. The instructions are summarized in the following sections.

7.1.1 Perform an inventory analysis

Check which data in your time recording system is recorded and saved. Inquire about the purpose for which the data is needed, how long it is stored, and who has access to it. Also, check whether the data is being shared externally with anyone (e.g., tax office, health insurance fund, etc.).

7.1.2 Create a processing directory

After completing the inventory analysis, a processing directory must be created. The processing directory is one of the key innovations of the GDPR and replaces the current data processing messages. Among other things, it must include the names and contact details of the persons responsible, the purpose of the data processing (time recording), the categories of persons concerned and personal data, the categories of recipients, and the description of the data security measures.

The category of persons concerned are normally employees. In exceptional cases, suppliers or customers can also be managed by the access control system.

In time recording, Gantner has paid attention to the **Principle of Data Minimization** and the **Principle of Purpose Limitation**. Only data that is necessary for the operation of the systems is stored. Essentially, an ID number, which is used as an identification feature, and the name of the person are stored. Other data, e.g., a personnel number or balance, is optional and serves to increase security or to provide convenience. By default, no sensitive data is stored in the systems. However, the exception, is when fingerprints are used in the system. This data is biometric data.

The time recording data is passed on to the time recording software for processing after being acquired.

The **Principle of Accuracy** of the data must be in the interest of the system operator, since in the end, the security of the company or the accounting for personnel expenditure depend on it. The **Principle of Integrity and Confidentiality** of the data is ensured by allowing only authorized persons to access the software and by limiting the software users to access only the data needed to perform their tasks.

7.1.3 Data protection impact assessment

A data protection impact assessment is normally not required because there is no high risk to the rights and freedoms of natural persons. Known technologies are used and there are no systematic evaluations and assessments of personal aspects. If using fingerprints, an individual consideration for each situation is recommended.

7.1.4 Comply with information requirements and declarations of consent

Persons affected by data processing must be able to be informed about this (what, who, for what purpose, how long, where?). Likewise, data subject rights (e.g., information, deletion) must be met promptly, i.e., within one month at the latest.

The consent of persons for the use of the personal data for the purposes of access control and time recording should be defined in a service contract or works agreement. This will ensure the **Principle of Lawfulness, Fairness and Transparency** is upheld.

The data storage period depends on the requirements for access traceability as well as the present/absent bookings that you need in your company. By deleting data, the **Principle of Storage Limitation** can be met.

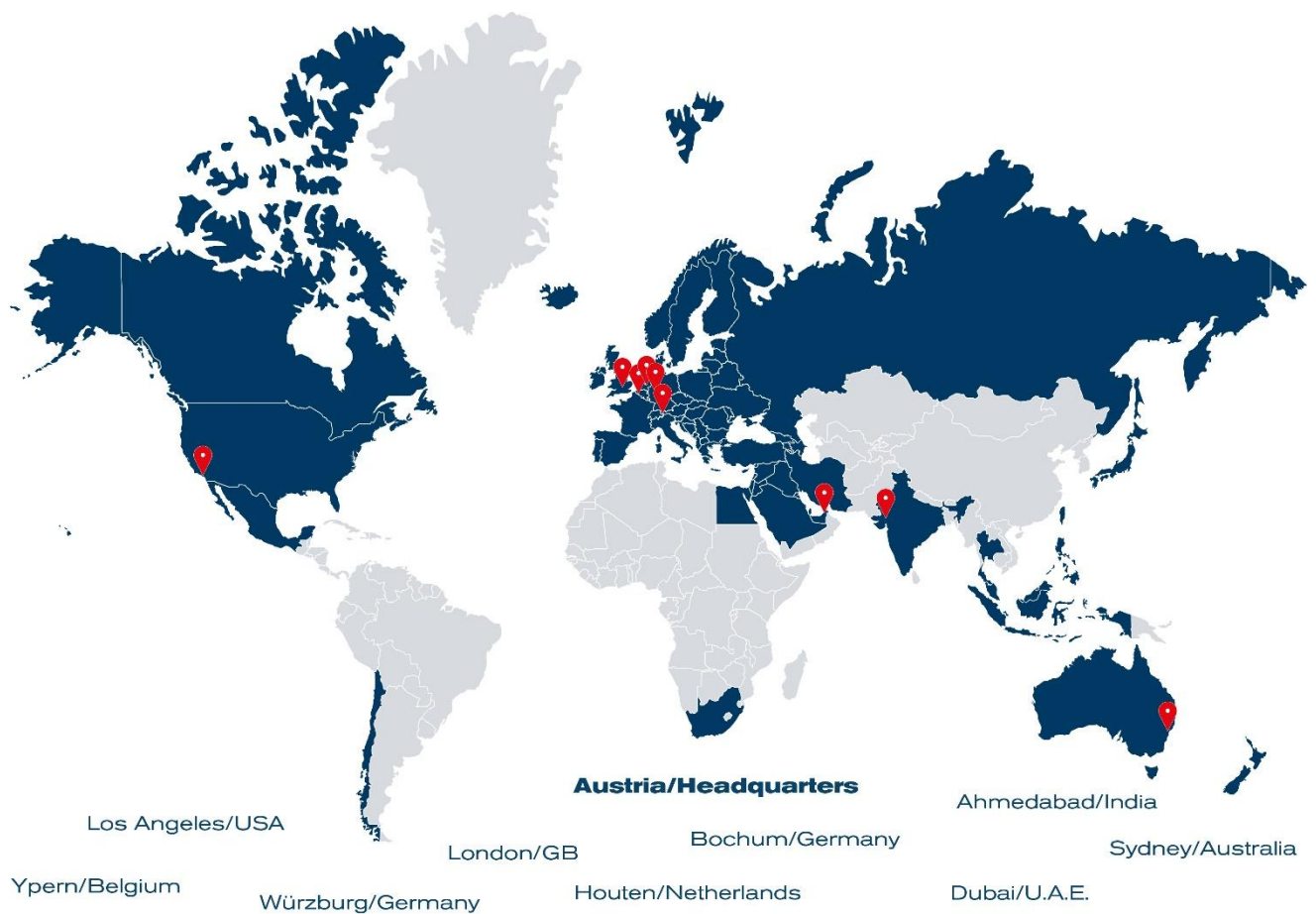
In GAT SyncManager, data is only stored temporarily. It is still available after being transferred to the time recording software so that it can be sent again in case of an error during the data transferal. An error during data transferal is usually quickly detected in the calculation of the daily statements and a renewed data transfer can be subsequently performed. Thus, it usually suffices to keep the data in GAT SyncManager for only a few days. The time limit for deletion can be flexibly set in the configuration.

If you have designated a data protection policy leader in your company, fulfilled the legal framework, taken technical and organizational measures, and created the documentation, you can also comply with the **Principle of Accountability** and are well prepared for meeting the GDPR.

In summary, we would like to point out that with GAT SyncManager version 2.5.4 or later you can easily comply with the GDPR. Please do not hesitate to contact your sales representative if you have any questions or concerns.

Note:

This manual is valid as of March 17th, 2026.
Changes to this manual are possible at any time without notice.
The manual applies to version 3.5 of the GAT SyncManager software.



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