Installation and Operation Manual
XGate

2009-06-18/ Ver. F

Contents

1 Introduction

The XGate is a Unite module based on the ELISE hardware. It receives input from other Unite modules or from external equipment. The main functionality of the XGate is to handle different types of protocol. It will convert events to actions in our systems, and also to provide an assignment interface to offer the ability for users to dynamically assign recipients to events. The XGate will be used to integrate into Nurse Call Systems, Patient Monitoring Systems, Laboratory Information Systems, Hospital Information Systems, Radiology Information System, Building Management Systems, and Security Management Systems.

A serial interface is included to enable input from external equipment using standard serial protocols. The serial interface supports the ESPA 4.4.4 protocol, the Ascom Line protocol and the TAP protocol. The Ascom Line protocol is designed to be simple enough to be controlled manually, using a terminal program connected to the serial port.

This document describes the installation and configuration of the XGate that is done before actions and events etc. are implemented in the XGate User Interface. Information about administration of the User Interface and an overview picture of the XGate Runtime is found in the, *User Manual, Administration, XGate, TD 92364GB*.

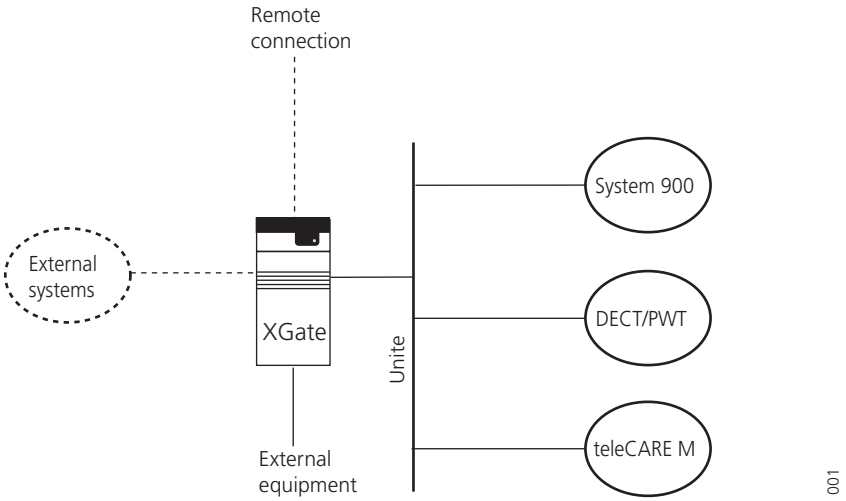

Figure 1. XGate connected to Unite system, external systems and external equipment.

1.1 Requirements

1.1.1 PC Requirements

Microsoft Internet Explorer 6.0 or later

JVM 4.2.1 or later

1.1.2 Unite Modules Requirements

When the XGate function Duty Assignment is planned to be used, the following version of the Unite module must be used:

Enhanced System Services (ESS)

Software version 2.00 or later

2 Installation

For mounting and connection of cables, see the *Installation Guide, ELISE2*, *TD 92232GB*.

2.1 Description of LED indicators

There are a number of LEDs on the ELISE hardware that indicate the status of the software, see figure 2 on page 2. These status indications are software dependent and are described in this chapter. For information regarding indications by other LEDs, see the *Installation Guide, ELISE2, TD 92232GB.*

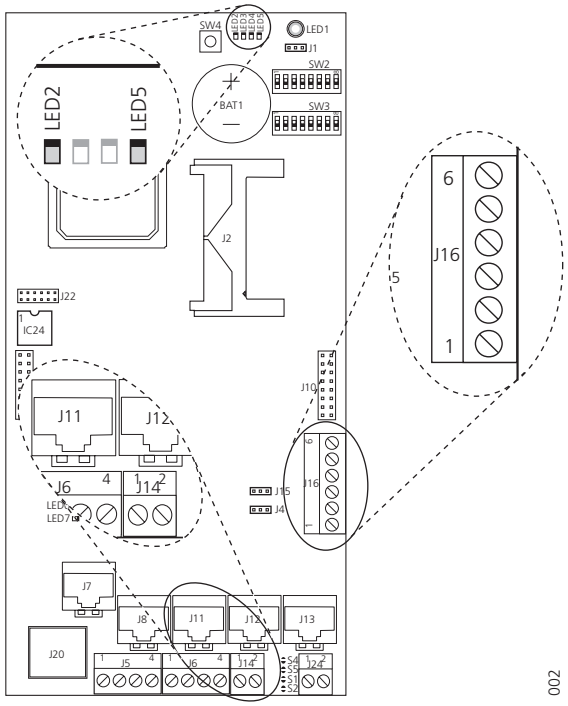

Figure 2. Location of the LEDs indicating the status of the XGate

LED #	LED Status	Indication
LED2	ON	Paging waiting in queue to A-bus.
	OFF	No pagings in queue.
LED5	ON	XGate applications are up and running.
	OFF	Problems when starting the applications. Check the log files on the XGate Administration web page for more information.

2.2 Internal Inputs and Outputs

The XGate has two open-collector outputs (J16, see figure 2 above) that can be used by the Fault Handler in the ESS, see the *Installation and Operation Manual, Enhanced System Services, TD 92253GB*. The inputs are used for system supervision. For connections and a more detailed description of the outputs and the inputs, see the *Installation Guide, ELISE2*, *TD 92232GB*.

2.3 Error Relay

The error relay output (J14 in figure 2 on page 2) can be used to indicate if the XGate is operating. When the XGate starts, the error relay operates. When the XGate is shutting down or rebooting, the error relay releases.

Whether the error relay output opens or closes on actual relay status, depends on how the jumper J15 is set. For connections of the error relay and error relay output configuration, see the *Installation Guide, ELISE2, TD 92232GB.*

2.4 Licences

The XGate is delivered with the licences already programmed. For available licences, see *Data Sheet XGate*, TD 92339GB.

2.4.1 Unlicensed Mode

When needed, the XGate can be started in unlicensed mode. The XGate will have full functionality for 2 hours in unlicensed mode. When the time for unlicensed mode runs out, XGate needs to be restarted either physically, or from the XGate Administration web page.

How to set the XGate in unlicensed mode is described in the *Installation Guide, ELISE2*, *TD 92232GB*.

2.5 Software Upgrade

To upgrade the XGate with a new software version by installing a software image, do as follow:

Note: To be able to keep all the settings that has been done, including the Event Handler, you will have to make two backups of the database, one system backup and one XGate backup.

1 Make a system backup and an XGate backup of the database, see chapter 5.3 *Backup/Restore* on page 8.

2 Install the software image, for information see *Installation Guide, ELISE2, TD 92232GB*.

3 Restore the system backup and then the XGate backup, see 5.3 *Backup/Restore* on page 8.

To upgrade the XGate with a new application software, see *Installation Guide, ELISE2, TD 92232GB*. This way of installing a new software should not effect the settings that has been done, but a backup is always recommended if something should happen during installation.

3 Planning

Before implementation of actions and events in the XGate User Interface, it is necessary to plan and identify actions and events etc. that is going to be set up in the Graphical User Interface. If Duty Assignment is going to be used you also have to consider about user teams, location layout, and access rights.

For best result, follow the step-by-step guide:

1 Identify external Events that shall result in an action.

2 Which actions are needed.

3 Which information are needed in the actions.

4 Define escalation chain, and success/failure conditions.

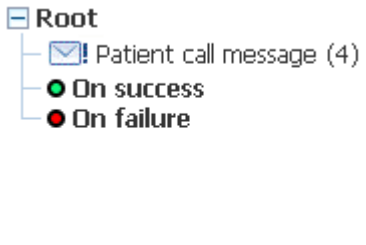

Figure 3. Example of an escalation chain with success/failure conditions.

5 If Duty Assignment is going to be used, create location layout and related information.

6 Define required conversion tables.

7 If Duty Assignment is going to be used, Users and User Teams have to be defined. This is done in the ESS, see *Installation and Operation Manual, Enhanced System Services TD 92253 GB*.

8 If Duty Assignment is going to be used, define Access Rights for the User Teams.

When this is done the administration of the XGate User Interface can be started. See *User Manual, XGate Administration, TD 92364GB* on how to configure and administrate the XGate User Interface.

4 XGate User Interface

To open the XGate User Interface, enter the XGate's IP address in the web browser address field, http://xxx.xxx.xxx.xxx/.

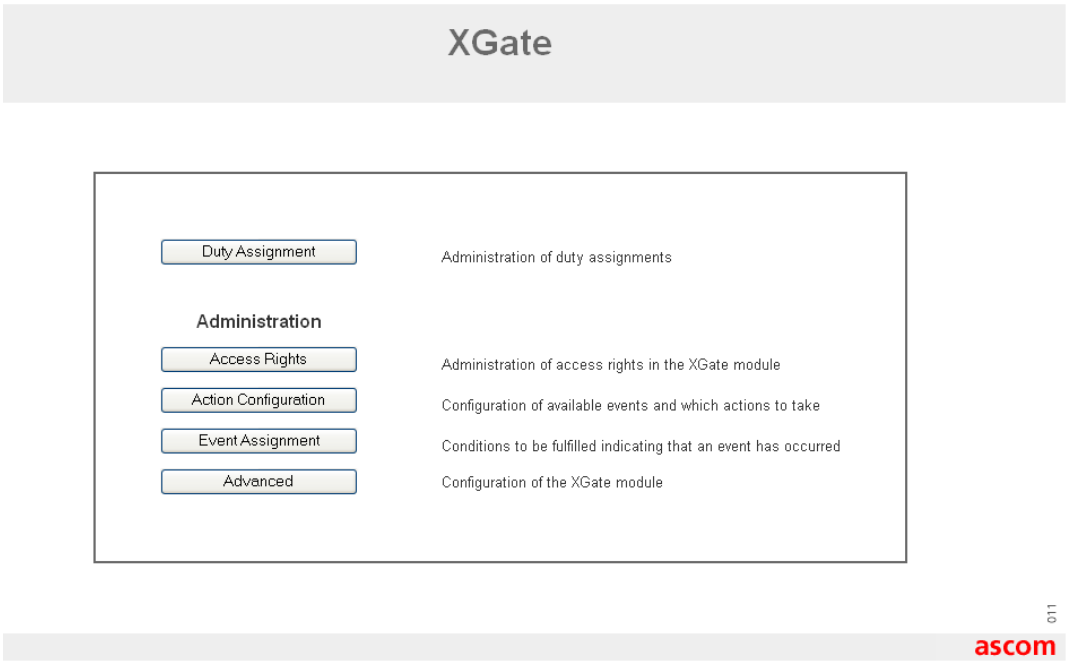

Figure 4. The default start page of an XGate.

The XGate's home page is an HTML page, which makes it possible for the customers to change the appearance to be more customized - pictures and text can be added and changed. The appearance of the home page will look like in the figure above, if the default home page is used.

4.1 Download HTML files

The FTP session must be in the active mode to be able to log in to FTP areas. In for example Internet Explorer, got to > "Tools" > "Internet Options" > "Advanced" > - ensure that the check box "Use Passive FTP" is not marked.

1 Log on to XGate with an FTP client, for example, Internet Explorer. Fill in the XGate host name in the address field "ftp://xxx.xxx.xxx.xxx". Log on with "ftpuser". The default password is "changemetoo".

2 Download/copy all files (including GIFs and CSS) to a folder on your hard disc.

4.2 Upload HTML files

Upload/paste all updated HTML files (including GIFs and CSS) to the XGate FTP area.

1 Log on to XGate as in point one when you downloaded HTML files.

2 Upload/paste the files into the FTP area.

4.3 Links in the home page

To enter the pages, User ID and Password is required. The users are, admin, sysadmin or a defined user. The defined user log in with its own User ID and password that is set up by the administrator.

- The "Duty Assignment", is a direct link to the Duty Assignment where the layout for destinations is set up, and addresses are set up for actions. See *User Manual, XGate, TD 92364GB*.

Administration:

- The "Access Rights", is a direct link to the Access Right Administration page, where access rights to the GUIs are set up. See *User Manual, XGate, TD 92364GB*.
- The "Action Configuration", is a direct link to the Action Configuration page, where actions for the events are configured. See *User Manual, XGate, TD 92364GB*.
- The "Event Assignment", is a direct link to the Event Assignment page, where Event Elements are defined and assigned Events are administrated.
- The "Advanced", is a direct link to the XGate configuration and administration page, it is only possible to log in as admin or sysadmin. All links can also be reached from this page. See also, 5 *Configuration* on page 7.

5 Configuration

The XGate User Interface is divided into two parts, a Basic Setup and an Advanced Setup. The Basic Setup is for configuration and assignments. The Advanced Setup is for database administration and configuration, with help of the Event Handler.

For the *Input Data Conversions* and the *Event Handler* in the *Advanced Setup,* the *Programming Guide, Event Handler, TD 92329GB,* is needed as a complement to this Installation and Operation Manual.

5.1 Basic

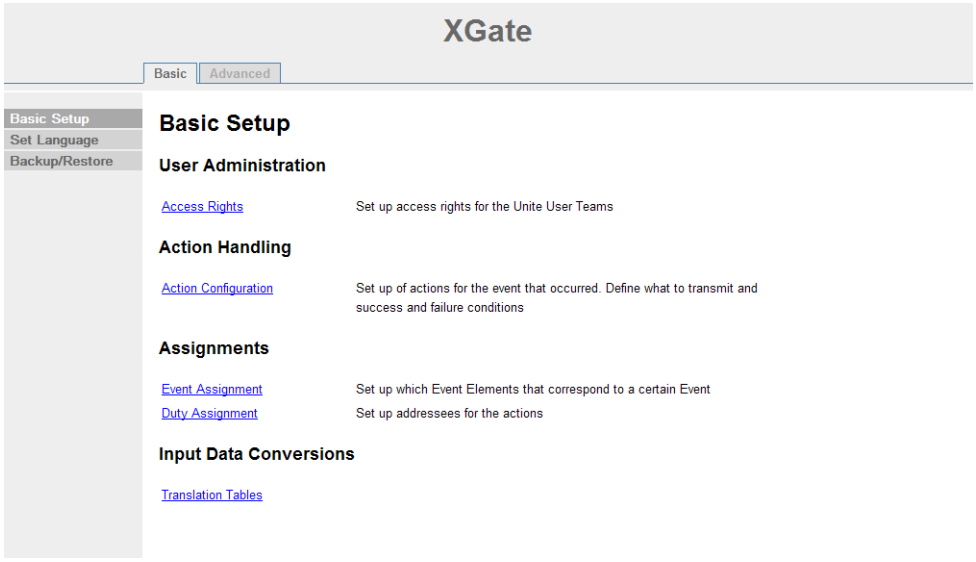

Figure 5. An overview of the Basic Setup page.

This document describes how to change the language and how to backup and restore the database. The administration of the User Interfaces that is found under *Basic Setup*, see figure 5, is described in the *User Manual, Administration, XGate, TD 92364GB*.

There are two types of users for the Basic Setup:

- Technicians, first time set up commissioning (sysadmin)
  Full access right.
- Administrators (admin)
  Full access right.

There is another type of user that the administrator set up:

- Normal users
  These users can have access right to all Graphical User Interfaces, except the advanced configurations.

5.2 Change Language

The default language in the XGate GUI is English. The text that appear in the GUI are stored in a database. Several languages can be stored in the database, but it is not possible to edit or remove the default language. Additional languages can be imported, as described in 5.5.1 *Translation of the GUI* on page 9.

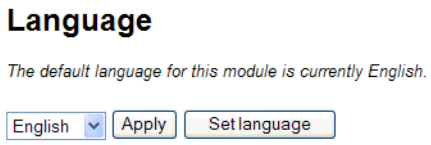

Figure 6. The default language is English.

1 Select language from the drop-down list. If your language is not in the drop-down list, import the language, see 5.5.1 *Translation of the GUI* on page 9.

2 Click "Apply" or "Set language".

3 Restart applet(s) if opened for the new language to take effect.

5.3 Backup/Restore

In the XGate *Home* page, it is possible to backup and restore the database. It can for example be used when information is to be copied from one XGate to another XGate, or to restore the database in the XGate. The format of the backup/restore file is xxx.tar.gz.

There is also a backup/restore in the System Setup web page "xxx.xxx.xxx.xxx/admin". That is to be used when an XGate module should be replaced with another XGate module in case of hardware failure, and to update the database. The difference is that it is also possible to backup/restore configuration in the ELISE, though this will not backup the information of the Event Handler.

To backup or restore the database, go to "Backup/Restore" in the left menu of the *Home* page.

Figure 7. Backup/restore of the settings in the XGate GUI.

Backup

1 Click "Backup".

2 In the dialogue window click "Save" and enter the file name and file path.

Restore

1 Click "Browse..." to locate the tar.gz file.

2 Click "Restore".

5.4 Advanced

This part is only used by technicians during configuration and database administration.

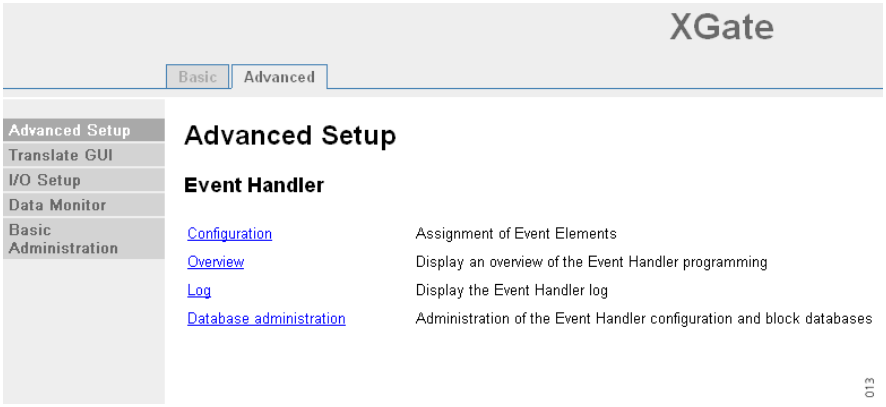

Figure 8. An overview of the Advanced Setup page.

In the Advanced User Interface it is possible to; configure and administrate the XGate by using the Event Handler, add translations, set up inputs and outputs, and go to the ELISE Setup for the XGate.

5.5 Translation

5.5.1 Translation of the GUI

To translate the GUI, go to the *Translate GUI* page found in the left menu on the XGate Home page.

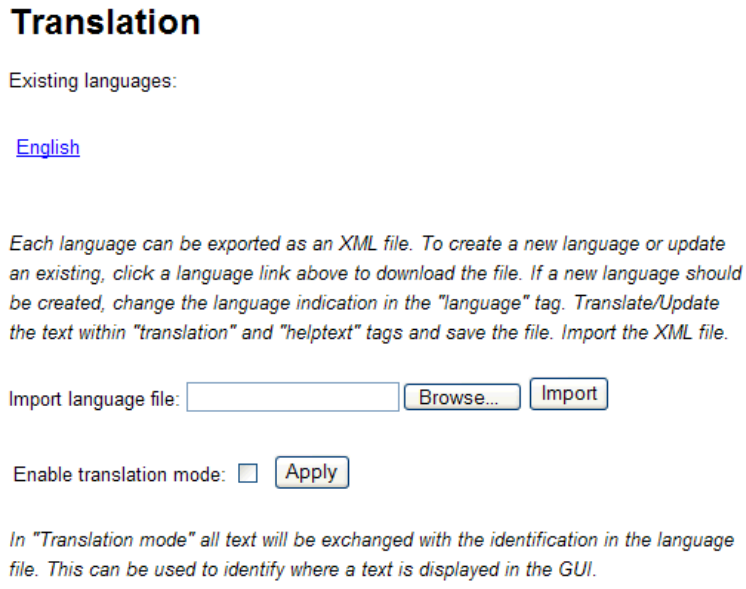

Figure 9. The Language page.

The file that needs to be translated is an XML file generated from the XGate. To save the file for translation or editing purposes, click the language link in the window and save the file.

In the language file, there are numerous tags but only two tags and one attribute that needs to be translated:

- <language id="English">
  the "id" attribute is the text that appears in the drop-down list
- <translation>
  name of menus, buttons, tabs etc.
- <helptext>
  on-line help text

Below is an example of a language file (just showing two buttons with helptext, for simplicity).

```
<?xml version="1.0" encoding="ISO-8859-1"?>
- <translations>
  - <language id="English" type="complete">
    - <app id="XGATE">
      - <text id="BUTTON_APPLY_LANGUAGE_TO_SESSION">
          <translation>Apply</translation>
          <helptext>Click this button to apply the selected language to this session</helptext>
        </text>
      - <text id="MENU_XGATE_BASIC_SETUP">
          <translation>Basic Setup</translation>
          <helptext>Links to administration tools for basic XGate settings</helptext>
        </text>
      </app>
    </language>
  </translations>
```

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Figure 10. An example of a translation file.

When the file is translated, it must be imported to the database. Click "Browse" to locate the translated file and click the "Import" button.

The name of the translated language (the language "id" attribute) will appear as a link in the *Existing Language* list and can be down loaded for editing purposes.

The XGate GUI only supports the Latin-1 character set.

5.5.2 Delete a Language

A language file can be deleted from the XGate by clicking the "Delete" symbol. It is not possible to remove the default language.

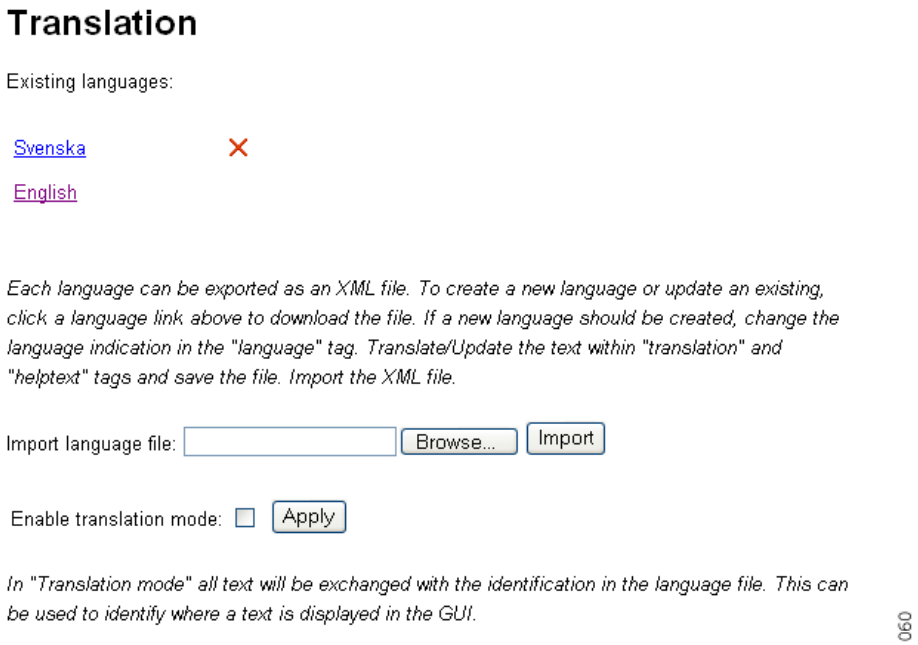

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Figure 11. A language file to be deleted.

5.5.3 GUI Updates

When a new version of the XGate is released, there might be changes in the GUI that need to be translated.

1 Import your old translated file to the new XGate software version. New text and buttons in the GUI will be shown in English, since this is the default language. It will now include the additions.

2 Click the language file link and save it.

3 Open the file and all tags that are not translated are marked with the comment: <!-- The text identifier below couldn't be translated -->

4 Translate the new text and import the translated file again.

5.5.4 Translation Mode

All texts, buttons, menus etc. are identified with labels (for example MENU_XGate). With the translation mode function, it is possible to view the label for each button, menu etc. This can be helpful when translating the language file.

Check the "Enable translation mode" box in the *Translate* page. Click "Apply" and all the labels on the pages are shown, see example below.

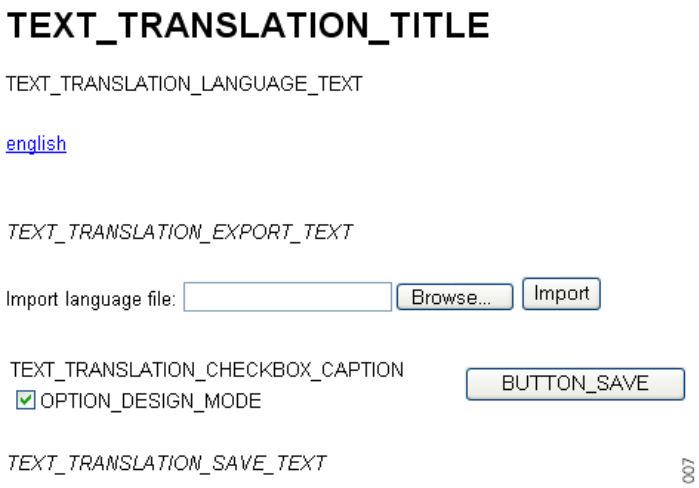


Figure 12. Design mode of the Translation page

Clear the "Enable translation mode" box and press "BUTTON_SAVE" to return to standard view.

5.6 I/O Setup

Inputs and outputs are defined in the I/O Setup page found in the left menu under "Other Settings". The activation of an input can be set to "on opening" or "on closing" and the initial state for the output can be set to "low" or "high".

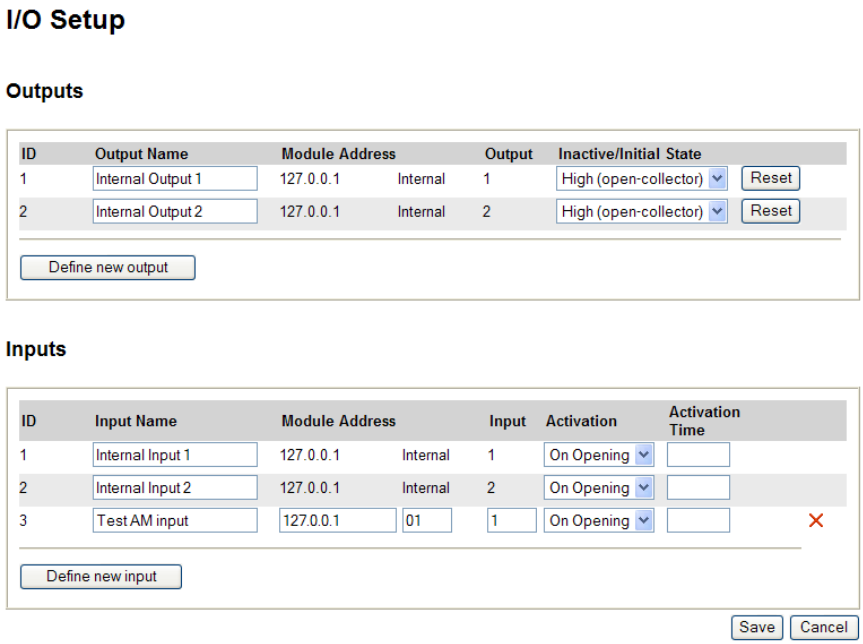


Figure 13. I/O Setup page.

For the outputs, the state is set to the opposite of the initial state when activated. For example, if output 2 is set to low in initial state, the output will automatically be set to high when activated.

Every time a new output or input is defined an automatic ID is created. The ID is a running number which can manually be changed into another number or a text if wanted. When an output or input has been deleted, the XGate will not remember that the previous ID number is free to be used again. The numbering will just continue on the number after the last created one.

5.6.1 Outputs and Inputs

Before an input or output can be used in the configuration, it has to be defined with a name and Module Address. The module address consists of IP address and, if Alarm Module and/or Output Module are used, the module address on the A-bus.

XGate outputs

The XGate hardware has two outputs of open-collector type that can be used in the Alarm Handling. These outputs are predefined at delivery. The initial state can be set to high or low.

XGate inputs

The XGate hardware has two inputs that can be used. These inputs are predefined at delivery. The states that can be detected are open and close.

Output Module outputs

The number of outputs that can be used in XGate can be extended by using an Output Module (OM) connected to the A-bus. The output on the OM is defined by a name, the IP address of the module connected to the A-bus, the OM's module address[1] on the A-bus, and the output number. The initial state can be set to high or low.

Alarm Module inputs

The number of inputs that can be used can be extended by using an Alarm Module (AM) connected to the A-bus. The input on the AM is defined by a name, the IP address of the module connected to the A-bus, the AM's module address[1] on the A-bus and the input number. The states that can be detected are open and close.

For more information refer to the hardware *Installation Guide, ELISE2*, *TD 92232GB*.

5.6.2 Define Outputs

1 Click "Define new output".

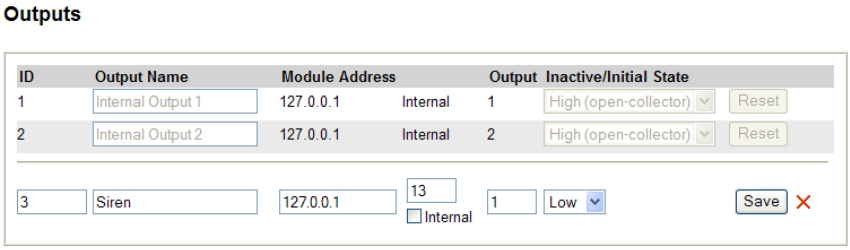


Figure 14. Define new outputs.

2 Enter a unique Output Name.

3 Enter "IP address" of the module connected to the A-bus.

Normally loopback to localhost, but if the A-bus is connected to another Unite module its IP address is set here.

4 Enter module's (whose output should be activated) "module address" on the A-bus or select "Internal" depending on if the output is connected via A-bus module or directly to the XGate hardware.

5 Enter Output number.

Note: If you have selected the internal checkbox in the previous step, enter the number of the internal output (1 or 2).

6 Select Initial State and click "Save".

1.Every module that is connected to the A-bus has a two digit hexadecimal address that is set with a DIP switch.

5.6.3 Define Inputs.

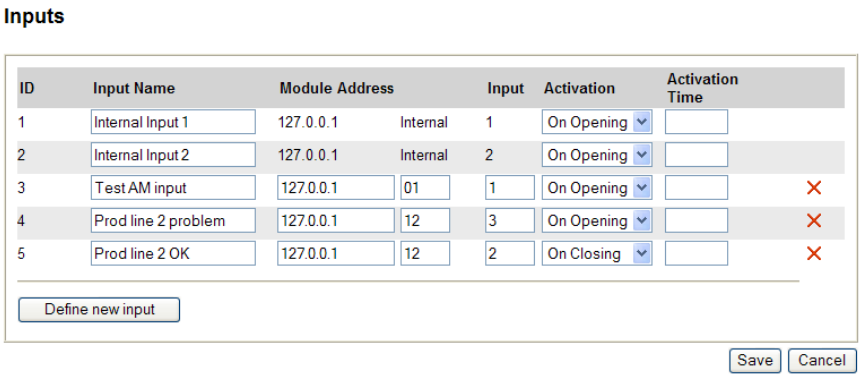
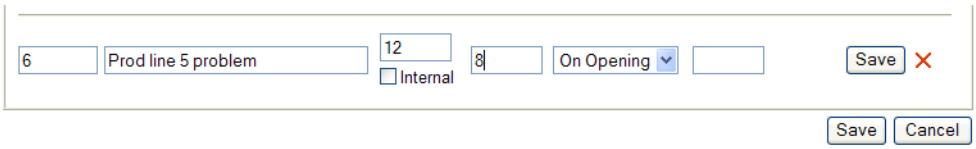


Figure 15. Define new inputs.

1 Click "Define new input".



2 Enter a unique Input Name.

3 Enter "IP address" of the module connected to the A-bus.

Normally localhost, but if the A-bus is connected to another Unite module its IP address is set here.

4 Enter module's "module address" on the A-bus or select "Internal" depending on if the input is connected via A-bus module or directly to the XGate hardware.

If you want to trigger on both opening and closing or using different "Activation time" you can define multiple inputs for the same physical input. This can for example be used if you at a door (by using a microswitch) want an activation on both opening and closing the door.

5 Enter Input number.

Note: If you have selected the internal checkbox in the previous step, enter the number of the internal input (1 or 2).

6 Select Activation condition.

7 Enter Activation Time in seconds (1–999). By default a notification will be sent immediately, but if you enter an activation time the input has to be active for the set time before a notification is sent.

8 Click "Save".

5.7 Data Monitor

This is used to monitor data received by the ASCII input, see 5.10 *Ascii Interface* on page 18.

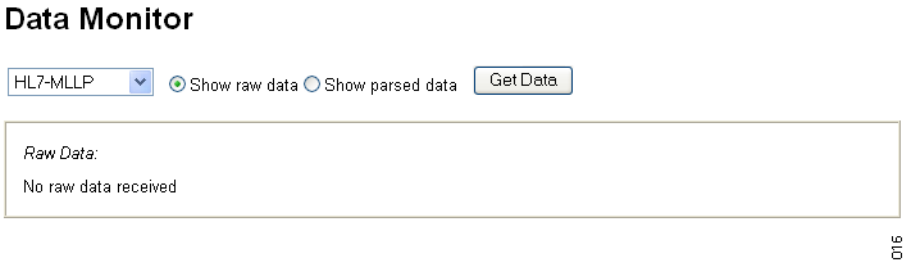


Figure 16. HL/-MLLP was selected with no result on 'raw data'.

1 Select Input.

2 Select *Show raw data* or *Show parsed* data.

3 Click "Get Data". Information of received data will be shown in the field below .

It is possible make a TCP connection to the port 10129 on an XGate. In real-time you can get the same data that has been presented on this page by sending some commands on the TCP connection.

Commands to use:

- **type** [raw I message I all]
  type - what type of data to get.
  raw - will look on what is coming in to the module.
  message - will look at the content of the message.
  all - will look in both raw and message.
- **source** [realtime I cache]
  realtime - is in the beginning empty but will be filled up as data is received.
  cache - stored data.
- **channel** [name] - what input to look at.
- **start** - gets data and shows what next to do if some steps are missing.
- **stop** - stop get data.
- **list** - lists the available channels.
- **help** - shows a list of available commands.

The way to write is to enter the command, all lines ends with carrige return. Space is used to separate the command from the data.

5.8 ELISE Setup

The *Basic Administration* is a direct link to the System Setup page where parameters are set up for the system. If Ascii Input and SMTP Output Interfaces are used, they must be configured here. When more than one XGate is used and the same Event Assignment Handler is used for assignment of all XGates, parameters are set up to define which Assignment Handler that shall handle event assignments and duty assignments. When using defined users in the ESS, the IP address is set to the module that is used as a User Server.

It is also possible to view logs for troubleshooting, find out current software versions, and get related documents in pdf versions.

- Go to "Basic Administration" in the left menu to enter the page.

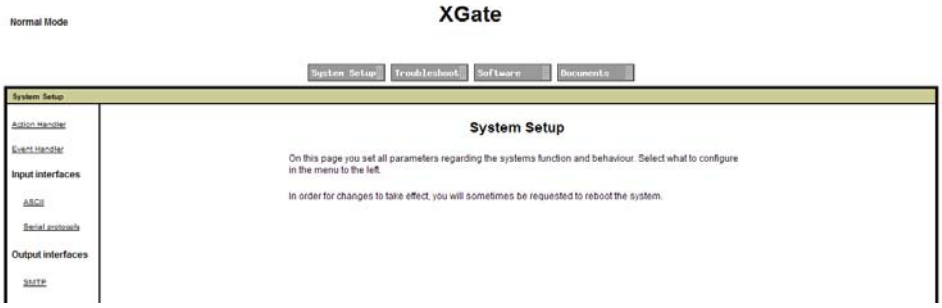


Figure 17. System Setup page for XGate.

For information of the parameters, click "question mark" button.

5.9 Action Handler Parameter Settings

The parameter settings for the Action Handler are set up when more than one XGate is used and to define which module that shall handle event assignments, this is done in the *General* parameter setting. Parameters can also be defined on how messages should be indicated by its priority, this is done in the parameter settings for *Priority <-> Indication mapping*. To save the parameter settings click "Activate".

1 Click *Action Handler* in the left menu for parameter settings.

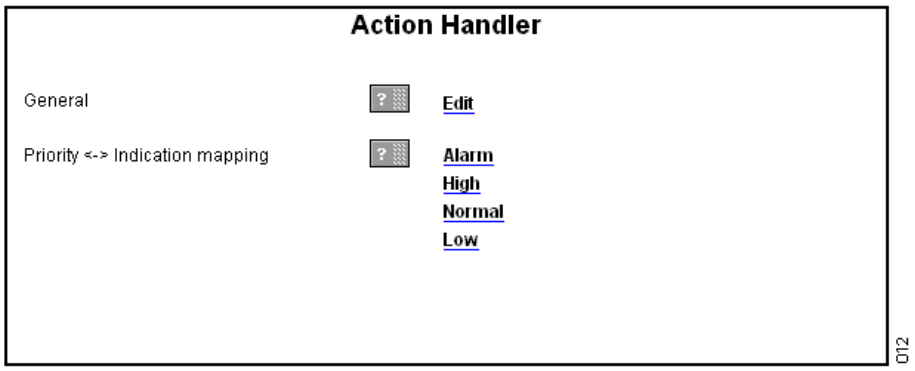


Figure 18. Parameters are set when more than one XGate is used and for priority indication.

5.9.1 General parameters

Click *Edit* to configure the following general parameters:

- Assignment Handler IP address
  Enter the IP address of the Action Handler that shall handle event assignments.
- Identity
  A unique name for the Action Handler should be entered when more than one XGate is used.
- Individual group number response
  Set to "Yes" if an action sent to an address that is diverted to two or more members, shall wait for responses from all members before deciding the action to be a failure.
- Report status
  Set to "Yes" if status for all actions sent from the Action Handler shall be reported back to the Event Handler.

5.9.2 Priority Indication mapping

In each of the priorities you can set up how the indication should be repeated. The parameters are:

- Interval time
- Number of indications
- Reminder, session
- Reminder, attention

5.10 Ascii Interface

The Ascii interface makes it possible to:

- interpret alarm and messages from different systems
- receive messages via serial ports
- enable access to external servers over HTTP

5.10.1 Syntax for Ascii code Translation

To enter control characters, the Start/Stop string in the TCP Server parameter can be used. The Serial Communication parameter is entered with Ascii code - syntax.

A decimal number is written between a backslash and a semicolon, which will then be translated into its character. For example syntax: **\4;** (= EOT), **\6;** (=ACK), **\28;** (= FS), etc.

An ASCII-table for numbers and characters is found in the, Appendix C: *ASCII-table* on page 36.

1 Click *ASCII* in the left menu to configure the connection to external systems.

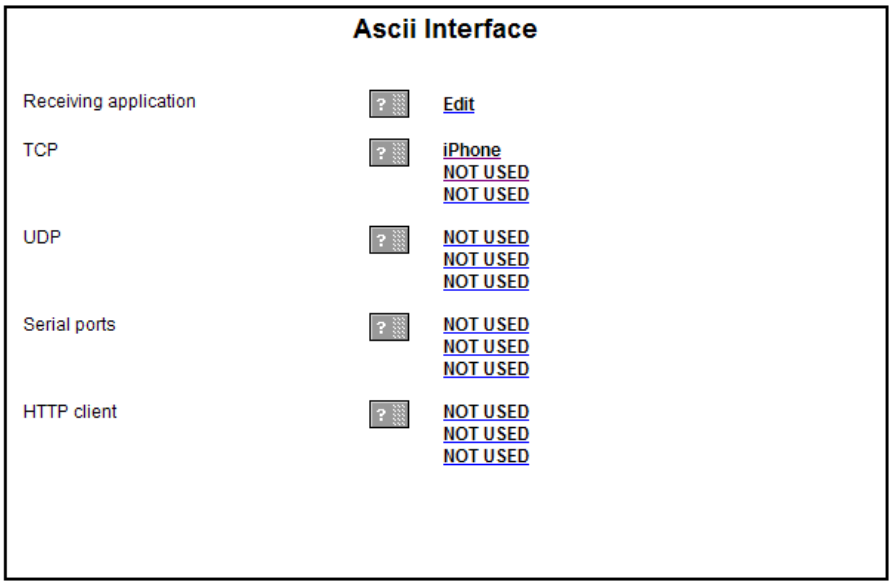


Figure 19. The Ascii Input Module for parameter settings.

Configuration is only necessary in those input channels/connections that are going to be used.

2 Click "Activate" in each of the parameter setting to save changes.

These are the parameters that can be configured:

5.10.2 Receiving application

Click *Edit* to change following setting:

- *Destination Address* (default Unite address) where received data should be sent to.

5.10.3 TCP Server Parameters

Click one of the three available. These following parameters that can be set up:

- Name

- TCP port
- Input Start/Stop character string
  Is entered with a syntax code, see5.10.1 *Syntax for Ascii code Translation* on page 18.
- Output Start/Stop character string
  Is entered with a syntax code, see5.10.1 *Syntax for Ascii code Translation* on page 18.
- End of Session as delimiter - disabled as default.
- Restart data capture on receiving Start Word
  Decides if the data capture shall restart when a start character/word is encountered.
- Maximum Clients
  Amount of clients that can be connected at the same time.
- Close connections initiated by this module
  Decides if the connection shall be closed or stay open until the server shuts down, after data has been sent. Set to "No" if a reply is expected.
- Responses to unknown connection
  Decides what to do when replying to no longer existing connections. "Create new" will use the supplied IP address and port. "Use existing" will use an existing connection to that IP address and port. If no such connection exists a new connection will be created.
- Character encoding of external data
  Defines how external data shall be interpreted.
- Internal data format
  Defines how data is formatted when sent to Unite.
- Message to Unite when new connection is established
  The message defined here is sent before any data is recieved on the new connection.
- Message to Unite when connection is disconnected
  The message defined here is sent after all other data has been sent.
- Message from Unite to disconnect connection
  When the message defined here is received it will close the connection.

5.10.4 UDP Parameters

Click one of the three available, to set UDP connections. The following parameters can be set up:

- Name
- UDP port
- Character encoding of external data
  Defines how external data shall be interpreted.
- Internal data format
  Defines how data is formatted when sent to Unite.

5.10.5 Serial Communication Parameters (RS232/Ascii)

Click one of the three available, to set Serial communications. The following parameters can be set up:

- Name
- Serial port
- Input Start/Stop character string
  Is entered with a syntax code, see5.10.1 *Syntax for Ascii code Translation* on page 18.
- Output Start/Stop character string
  Is entered with a syntax code, see5.10.1 *Syntax for Ascii code Translation* on page 18.

- Baud rate
- Data Bits
- Stop Bits
- Parity
- RTS
- Restart data capture on receiving Start Word.
  Defines if the data capture shall restart when a start character/word is encountered.
- Character encoding of external data
  Defines how external data shall be interpreted.
- Internal data format
  Defines how data is formatted when sent to Unite.

5.10.6 HTTP Client Parameters

Click on an HTTP client connection to set the parameters, always use the first in the list. The following parameters can be set up:

- Name
  Descriptive name for the HTTP server. Only used in the XGate GUI.
- User name
  Defines the name for authentication. Should correspond to the user name for the HTTP server.
- User password
  Defines the password for authentication. Should correspond to the password for the HTTP server.
- Request timeout (seconds)
  The time set here must correspond to the time set in other Unite modules and the HTTP timeout in Event Handler.
- Additional http header
  Header that will be added when connecting to the HTTP server.

5.11 SMTP Output Interface

To be able to send E-mail, it is necessary to set up the address for the mail server. There is no receiver functionality, it is only possible to send E-mails from the XGate.

1 Click *SMTP* in the left menu.

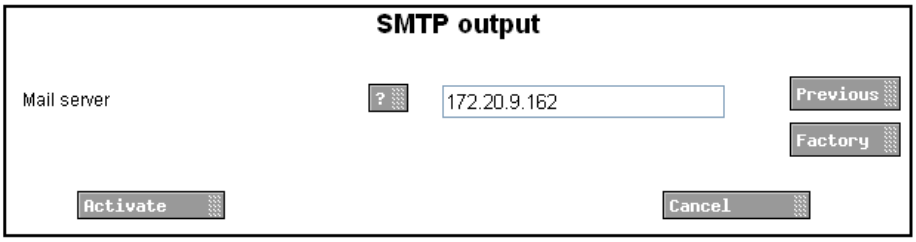


Figure 20. The SMTP output parameter setting.

2 Enter the IP address/relay of the mail server and click "Activate", to save the settings.

3 Reboot the module. See *Installation Guide, ELISE2, TD 92232GB*.

Note: The company mail server must be set up to allow relaying to be able to send messages from the Ascom Messaging System to E-mails. (Contact your local IT department).

5.12 Unite User Server Parameter Settings

When using the defined users in an ESS, the IP address is set to define which ESS that is set up as a User Server.

1 Click *User Server* in the left menu for parameter settings.

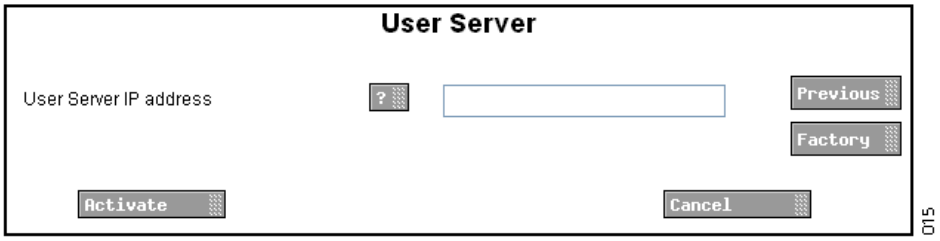


Figure 21. The IP address is set for the module that is used as a User Server.

2 Enter the IP address of the User Server and click "Activate", to save the settings.

5.13 Event Handler

In the *Event Handler* there are four different links, where events and triggers are set up for Event Elements, an overview of the programming, to view Event Handler logs, and where to administrate the databases of the Event Handler.

More information about the configuration of the Event Handler is found in the document, *Programming Guide, Event Handler, TD 92329GB*.

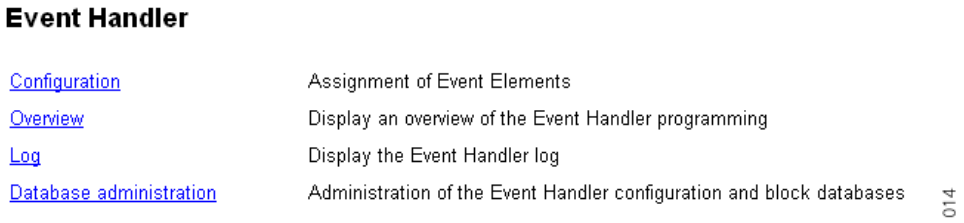


Figure 22. The links to the Event Handler.

5.13.1 Overview of Programming

This shows an overview of the Event Handler programming, which can be a help during programming.

5.13.2 View Logs

All changes in the configuration of the Event Handler are written to the log. It is also possible to write information to the log, for example when a trigger is activated. For more information about the log file and its content, see the chapter *Event Log File* in the *Programming Guide Event Handler, TD 92329GB*.

5.13.3 Database Administration

The database administration is used to synchronize the Event Elements that have been created in the *Event Assignment* User Interface.

1 Click *Database administration,* and go to *Load factory Block database*, located in the bottom of the page.

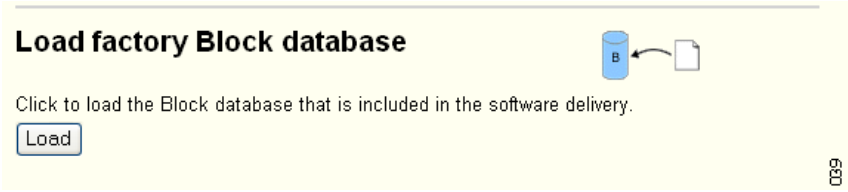


Figure 23. To load Block database for synchronization of Events.

2 Click "Load", a dialogue window opens. Click "Yes" to synchronize.

3 Go back to the Advanced Setup and Event Handler, see *5.13.4 Configuration of Events*.

5.13.4 Configuration of Events

This is used to make assignment of Event Elements.

1 Click *Configuration*.

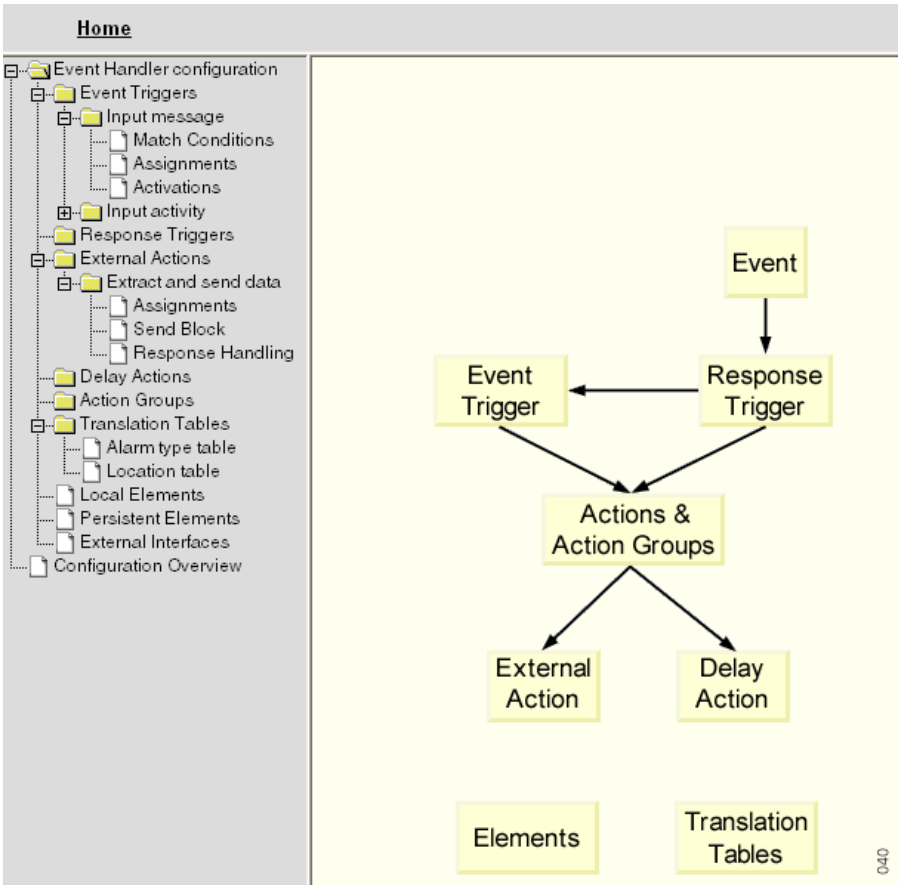


Figure 24. The Event Handler Configuration.

For simple configuration setup, it is only necessary to make configurations in *External Actions > Extract and send data > Assignments,* and *Translation Tables > Location table*.

It is possible to get explanation and instruction of the Event Handler parts by clicking on each of the boxes in the figure that shows the event flow.

Configuration Example

In the *External Actions* > *Extract and send data* there is an example of a complete configuration that can be used as a template. There are four event elements of alarm type and location that have been created - more steps where the data is sent is found in the example in the Extract an send data.

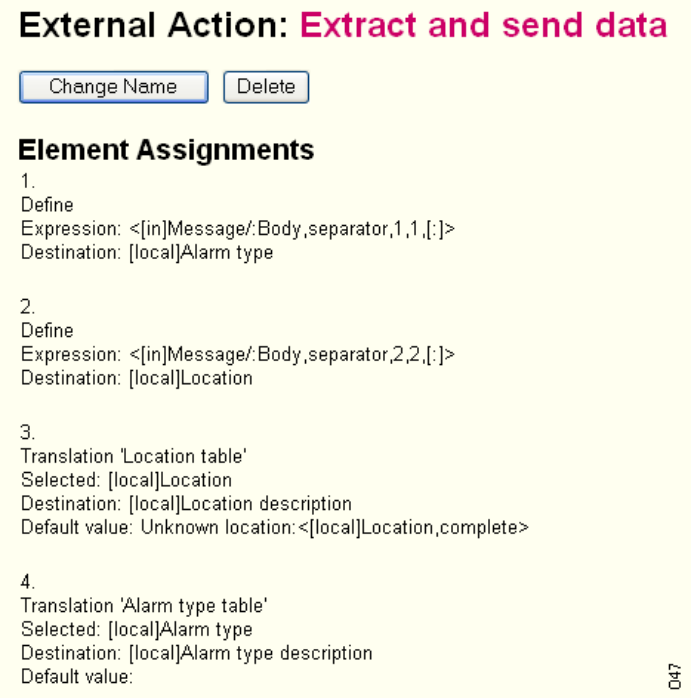


Figure 25. An example configuration in Extract and send data showing the four first steps in an external action.

1 The expression, <[in]Message/:Body,separator,1,1,[:]>, where the "Body" before the [:] is the part of the incoming message.
The destination, [local]Alarm Type, which means that it will look for Alarm Type in the message.

2 The expression, <[in]Message/:Body,separator,2,2,[:]>, where the "Body" after the [:] is the part of the incoming message.
The destination, [local]Location, which means that it will look for 'Location' in the message.

3 This is where the translation 'Location table' has been setup to translate the "Location".

4 This is where the translation 'Alarm Type table' has been setup to translate the "Alarm Type".

The example in the *Extract and send data*, also got four event elements defined to the "Alarm Type" and the "Location" followed by a *Sent Block* where this is by default sent to the Event Assignment, and a *Response handling* where triggers can be setup.

A configuration example of an incoming input message containing alarm type could look like: location (03:12345) - where the alarm type is "03", and the location is "12345". A translation table has been set up to convert "03" to be sent out as a "fire alarm", and the location "12345" to be sent out as "Main building, floor 1".

Event Triggers

This is where conditions are defined on incoming events, and where to activate predefined actions. There are different way of doing this, condition can be set up in *Match Condition* or in *Activation. Several* conditions can be set up for the Event that occur.

- Open the folders, *Event Triggers* > *Input messages*.
  If no configuration is done it will trigger on all incoming messages.
- *Match Conditions*: if there exists more than one trigger and they should differ from each other the state and condition of the trigger can be changed. It will activate the *Extract and send data* by default if nothing is done.
- *Activations*: conditions can be set on activation. It will activate *Extract and send data* by default if nothing is done.

External Actions

This is where to create event element assignments.

- Open the folders, *External Action* > *Extract and send data*.
- Click *Assignments,* to create event element assignments.
- Define alarm type and location. There are four predefined examples:
  - Alarm Type
  - Alarm Type description
  - Location
  - Location description

Conversion tables

This is where to create and edit translation tables.

6 Serial Interface

The serial interface included in XGate makes it possible to receive input from external equipment.

The serial interface supports the ESPA 4.4.4 protocol and two ESPA dialects; the Ascom dialect (teleCOURIER) and Ericsson dialect with some limitations. The serial interface also supports the TAP 1.8 protocol and a simplified protocol called the Ascom Line protocol.

A detailed description of the two ESPA dialects and the Ascom Line protocol can be found in the document; *Protocol, Serial Data Interface S942SI*, *TD 92088GB*.

TAP (Telocator Alphanumeric Protocol) is a paging protocol used to transmit up to a thousand 7-bit characters to an alphanumeric pager. Developed in the early 1980s by the Telocator Paging Association, which later became the Personal Communications Industry Association (PCIA), TAP was also known as IXO and PET. TAP is widely used in the U.S. and throughout Europe.

For limitations in the three protocols, refer to *Appendix F*.

6.1 Cables for the ESPA-, the Ascom Line-, and the TAP protocol

Figure 26. Connection to external equipment

A cable with RJ45 and D-SUB connectors is required to be able to receive pagings from external equipment. Default the cable should be connected to the RS232:3 port on the XGate.

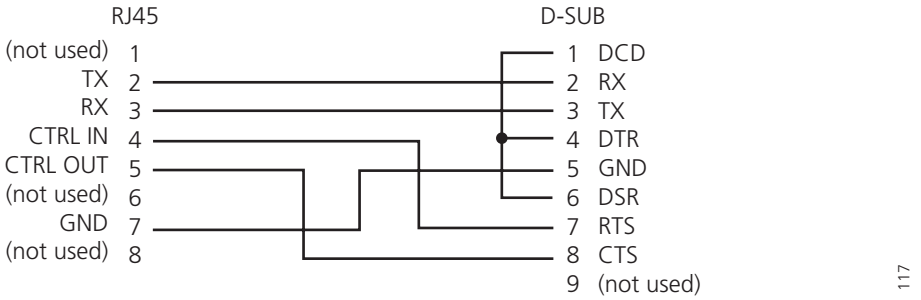


Figure 27. Cable wiring for the Ascom Line protocol and the ESPA protocol

6.2 Serial Protocol Settings

1 In the *XGate Basic Administration* page, select "Serial protocols" in the left menu. The *Serial Interface* configuration page opens.

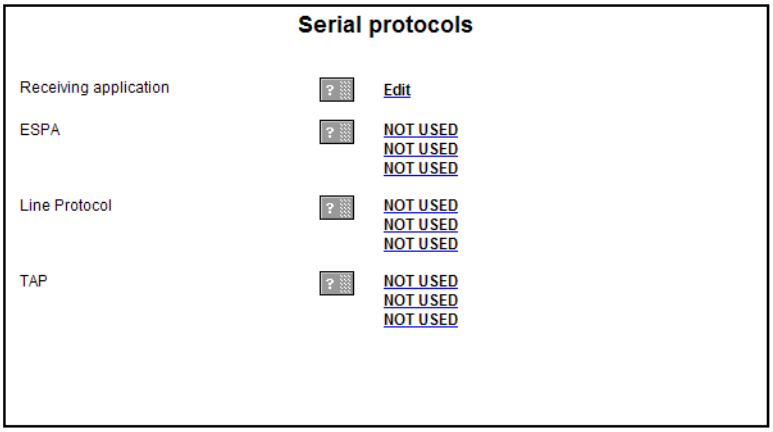


Figure 28. Serial protocol settings

1 Click *Edit* to change *Receiving application* setting.

- *Destination Address* (default Unite address) to where received data should be sent.

2 Click on a link for the protocol you want to use (ESPA, Line protocol, or TAP).

3 Continue in *6.2.1 ESPA Protocol*, *6.2.2 Ascom Line Protocol* or *6.2.3 TAP Protocol*.

6.2.1 ESPA Protocol

1 The following settings can be selected/changed:

Settings	Description
Enabled:	Yes/No selection. Default: No
Name:	Description of the channel
Serial port:	Port selection (1,2,3). Default: None
Bit rate:	Select bit rate. Default: 9600 bits/s.
Mode:	Select mode. Default: 8 Data bits, Even parity
Flow control:	Used for handshaking control. Default: None
ESPA dialect:	Select dialect, with or without an extra Carriage Return (CR). Default: TeleCourier extensions (i.e. Ascom dialect)
Control station selection:	Determines which module shall act as control station. Default: External equipment.
Address of external equipment:	Enter address (0 - 9). Default: 1
Address of this module:	Enter address (0 - 9). Default: 2
Default Call ID:	Number to call if not specified in the external equipment. Default: 000
Default display message:	Message to display if not specified in the external equipment. Default: BLANK
Default message priority:	Priority if not specified in the external equipment. Default: 7 (Normal)

Default beep code:	Beep code if not specified in the external equipment. Default: 2 beeps.
Default method for ack.:	Select how the paging shall be acknowledged if not specified by the external equipment. Default: No Ack.
Default urgency:	Urgency if not specified in the external equipment. Default: Normal.
Transmission delay (x10 ms):	How long to wait before transmission to external equipment. Default: 30 milliseconds
Identical pagings treatment:	How to handle identical pagings. Default: Not accepted.
Running no. to external equipment:	If running number shall be sent or not. Default: No
Timeout mode:	Determines when to start timeout mode i.e. remove paging from queue. Default: after "Call Terminated" call status.
Timeout mode TTL (seconds):	Determines the time for timeout mode i.e. during this time the paging remains in the queue after the "Timeout mode" has started. Default: 5 seconds.
Manual Ack type:	Dependent on if the external equipment supports negative acknowledge. Default: Positive and Negative manual acknowledge.
Manual Ack TTL (minutes):	How long a paging with manual acknowledge remains in the queue after transmission of *Call Terminated call status.* Default: 5 minutes.
Message Ref. ID TTL (minutes):	How long a Message Reference ID remains in queue. Only valid for Ascom dialect. Default: 5 minutes
Interactive Message Option Text for Callback number:	Defines text that will be added to call digits sent from external equipment. The text and the number to call, is received as an option in the receiving portable device. The call digits are dialled when the user selects the option. Max 40 characters. **Note:** Overrides *Message Ref. ID TTL*. Leave empty if data identifier 9 is used for message reference.
Return Status Information:	Defines if status information for ongoing pagings shall be sent back to external equipment. Set to "No" if external equipment have problems in handling status information. Default: Yes
Supervision time for communication (seconds):	Defines the time before lost communication with external equipment will be considered as a fault and sent as a Status log. If set to "0" no supervision is done. Max 3600 seconds Default: 0

ASCII conversion table:	Makes it possible to convert display message characters.

2 Click "Activate".

6.2.2 Ascom Line Protocol

1 The following settings can be selected/changed:

Settings	**Description**
Enabled:	Yes/No selection. Default: No
Name:	Description of the channel
Serial port:	Port selection (1,2,3) Default: None *All three ports can be configured here. Note that only one at the time can be used.*
Bit rate:	Select bit rate. Default: 9600 bits/s
Mode:	Select mode. Default: 8 Data bits, Even parity
Flow control:	Used for handshaking control. Default: None
Default Call ID:	Number to call if not specified in the external equipment. Default: 000
Default display message:	Message to display if not specified in the external equipment. Default: BLANK
Default message priority:	Priority if not specified in the external equipment. Default: 7 (Normal)
Default beep code:	Beep code if not specified in the external equipment. Default: 2 beeps
Transmission delay (x10 ms):	How long to wait before transmission to external equipment. Default: 30 milliseconds
Status to ext equipment:	If status characters ACK/NAK shall be sent on protocol level to external equipment. Default: Yes
Start character :	Start character for the message. Default: < (3C Hex)
End character:	End character for the message. Default: > (3E Hex)
Record separator character:	Record separator character for the message. Default: / (2F Hex)
ACK character:	Character for positive acknowledge of the message on protocol level. Default: A (41 Hex)
NAK character:	Character for negative acknowledge of the message on protocol level. Default: N (4E Hex)
ASCII conversion table:	Makes it possible to convert display message characters.

2 Click "Activate".

6.2.3 TAP Protocol

1 The following settings can be selected/changed:

Settings	Description
Enabled:	Yes/No selection. Default: No
Name:	Description of the channel
Serial port:	Port selection (1,2,3) Default: None *All three ports can be configured here. Note that only one at the time can be used.*
Bit rate:	Select bit rate. Default: 9600 bits/s
Mode:	Select mode. Default: 8 Data bits, Even parity
Flow control:	Used for handshaking control. Default: None
Default Call ID:	Number to call if not specified in the external equipment. Default: 000
Default display message:	Message to display if not specified in the external equipment. Default: BLANK
Default message priority:	Priority if not specified in the external equipment. Default: 7 (Normal)
Default beep code:	Beep code if not specified in the external equipment. Default: 2 beeps
Default urgency:	If set to High "Stand-by" mode in receiver is broken through. Default: Normal.
Transmission delay (x10 ms): *(Advanced)*	How long to wait before transmission to receiver. Default: 30 milliseconds
Enable checksum validation: *(Advanced)*	Set to "No" if, for example, external equipment. uses an algorithm that differ from the 7-bit value used in TAP. Default: Yes
Delay time before logontimeout occurs: *(Advanced)*	How long to wait before disconnecting the external equipment. Valid values: 0-127 where 0 means 'Not enabled'. Default 8 seconds
Delay time before blocktimeout occurs: *(Advanced)*	How long this module shall wait before hanging up. Valid values: 0-127 where 0 means 'Not enabled'. Default 4 seconds.
Numbers of allowed times to logon: *(Advanced)*	How many logon attempt from external equipment shall be permitted. Valid values: 1-127. Default 3 tries.
Numbers of allowed checksumfailures: *(Advanced)*	How many checksum failures from external equipment shall be permitted. Valid values: 1-127. Default 3 tries.

Numbers of allowed timeouts:	How many timeouts shall be permitted. Valid values: 1-127. Default 3 timeouts.
ASCII conversion table:	Makes it possible to convert display message characters.

2 Click “Activate”.

7 Related Documents

Data Sheet, XGate	TD 92339GB
Data Sheet, Enhanced System Services, ESS	TD 92250GB
Installation and Operation Manual, Enhanced System Services, ESS	TD 92253GB
Installation Guide, ELISE2	TD 92232GB
Programming Guide, Event Handler	TD 92329GB
System Description, Unite	TD 92243GB
System Planning, Unite	TD 92258GB
User Manual, XGate Administration	TD 92364GB
User Manual, Duty Assignment	TD 92374GB
Protocol, Serial Data Interface S942SI	TD 92088GB

8 Document History

For details in the latest version, see change bars in the document.

Version	Date	Description
E	2008-04-04	New parameters added to 5.9.1 *General parameters* on page 17, and to 5.10.3 *TCP Server Parameters* on page 18.
F	2009-06-18	• Updates in 5.6 *I/O Setup* on page 12 Added following chapters: • 6 *Serial Interface* on page 25 • 5.10.6 *HTTP Client Parameters* on page 20 • B.5 *Advanced Troubleshooting* on page 35 • Appendix F: *Protocol Limitations* on page 46 Added new parameters to chapters 5.10.3 *TCP Server Parameters* on page 18, 5.10.4 *UDP Parameters* on page 19 and 5.10.5 *Serial Communication Parameters (RS232/Ascii)* on page 19.

Appendix A: XGate and IT Security

The following ports on the XGate are open:

Port	Application or unit	Transport protocol
20	File Transfer Protocol (FTP)	TCP
21	File Transfer Protocol (FTP)	TCP
22	Secure Shell (SSH)	TCP
25	Simple Mail Transfer Protocol (SMTP)	TCP
53	Domain Name Server (DNS)	UDP
80	Web traffic	TCP
113	Authentication	TCP
123	Network Time Protocol (NTP)	UDP
3217	Unite traffic	UDP
10101	Remote connection - TCP and RS232 conversion	TCP
10132	Applet communication (Event Assignment)	TCP
10133	Applet communication (Duty Assignment)	TCP
10134	Applet communication (Access Rights)	TCP
10135	Applet communication (Action Handler)	TCP

The IP-ports that opens for the Ascii Input Module are chosen and set up in the System Setup > Input Interfaces > Ascii. Any port number can be chosen as long as it is not used by another application or unit.

Appendix B: Troubleshooting

B.1 Applet problems

If it is not possible to open Java applet windows, ensure that JVM 4.2.1 or later is installed on your computer. The Java program is found at www.Java.com.

B.2 How to remove Java status bar

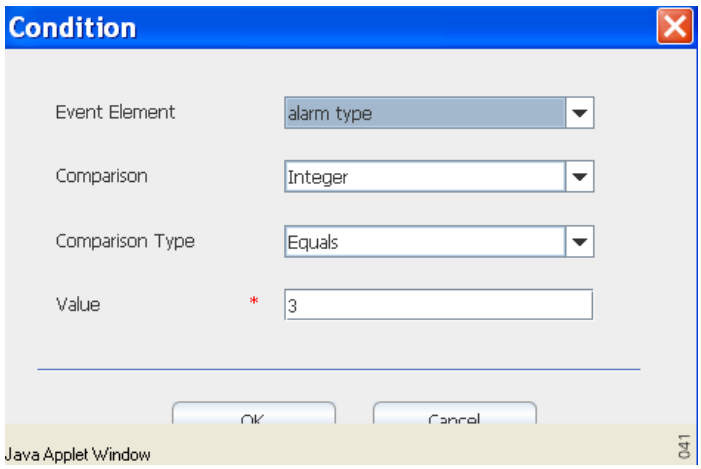


Figure 29. Example when the buttons are covered by the Java applet window.

In the Java applet Windows, buttons can be covered by a status bar. This is dependent of the client side browser setup. To remove the status bar, statements have to be added in the **java.policy** file which is found in the **Java** directory that was created when the Java program was installed on your computer:

1 Find the **Java** directory, for example C:\Program Files\Java\jre1.5.0_06\lib\security.

2 Open the latest Java version that is used. In the folder security > you will find the **java.policy** file. Open the file with for example Notepad.

- Add following text last in the file:

```
grant {
// Hide "Java Applet Window" banner
permission java.awt.AWTPermission "showWindowWithoutWarningBanner";
};
```

B.3 FTP failures

If you get an error message when trying to log in to the XGate module, after entering the IP address into the address bar in Internet Explorer, ensure that the FTP session is in active mode. See 4.1 *Download HTML files* on page 5.

B.4 Synchronization problems

- If there is no Event Element received in the *Event Assignment* page after clicking "Add", check that the Event Elements have been synchronized in the *Action Configuration* page.

- If there are no Event Elements to make assignment of in the Event Handler, check that synchronization is done in the *Database administration > Load factory Block database*.

See, *User Manual, Administration, XGate, TD 92364GB* for information about how to synchronize the defined Event Elements.

B.5 Advanced Troubleshooting

The *XGate Basic Administration* page (requires administrator or system administrator rights) includes advanced troubleshooting. Snapshots of selected logs or a complete log can be viewed.

1 In the *XGate Basic Administration* page, click the "Troubleshoot" button. The *Troubleshoot* page opens.

2 In the left menu on the Troubleshoot page you can view logs and find detailed information about the system, see below.

- View Info Log
- View Error Log
- View Complete Log
- System Information
  Standard debug is set by default but this can be extended and show more details.
- Send Test Message
- IP Statistics
- Disk Status
- Module Fault List

Appendix C: ASCII-table

ASCII stands for *American Standard Code for Information Interchange*. The ASCII-table is like a dictionary for translating numbers into characters.

The table below shows the translation of decimal numbers into characters.

Dec.	Char.	Dec.	Char.	Dec.	Char.	Dec.	Char.
0	NUL (null)	32	Space	64	@	96	`
1	SOH (start of heading)	33	!	65	A	97	a
2	STX (start of text)	34	"	66	B	98	b
3	ETX (end of text)	35	#	67	C	99	c
4	EOT (end of transmission)	36	$	68	D	100	d
5	ENQ (enquire)	37	%	69	E	101	e
6	ACK (acknowledge)	38	&	70	F	102	f
7	BEL (bell)	39	'	71	G	103	g
8	BS (backspace)	40	(	72	H	104	h
9	TAB (horizontal tab)	41	)	73	I	105	i
10	LF (NL line feed, new line))	42	*	74	J	106	j
11	VT (vertical tab)	43	+	75	K	107	k
12	FF (NP form feed, new page)	44	’	76	L	108	l
13	CR (carriage return)	45	-	77	M	109	m
14	SO (shift out)	46	.	78	N	110	n
15	SI (shift in)	47	/	79	O	111	o
16	DLE (data link escape)	48	0	80	P	112	p
17	DC1 (device control 1)	49	1	81	Q	113	q
18	DC2 (device control 2)	50	2	82	R	114	r
19	DC3 (device control 3)	51	3	83	S	115	s
20	DC4 (device control 4)	52	4	84	T	116	t
21	NAK (negative acknowledge)	53	5	85	U	117	u
22	SYN (synchronous idle)	54	6	86	V	118	v
23	ETB (end of trans. block)	55	7	87	W	119	w
24	CAN (cancel)	56	8	88	X	120	x
25	EM (end of medium)	57	9	89	Y	121	y
26	SUB (substitute)	58	:	90	Z	122	z
27	ESC (escape)	59	;	91	[	123	{
28	FS (file separator)	60	<	92	\	124	l
29	GS (group separator)	61	=	93	]	125	}
30	RS (record separator)	62	>	94	^	126	~
31	US (unit separator)	63	?	95	_	127	DEL

Appendix D: Extracting Information from HL7 v2 Messages

The appendix describes how to configure the XGate\Event Handler for extracting information from HL7 version 2 messages into event elements for XGate event assignment.

The HL7 version 3 is an XML based protocol. See *Appendix E: XML Message* for more information.

D.1 HL7 Classic Style Message Definition

The HL7 protocol transfers simple messages, in which all data is transferred as ASCII data. A message is terminated with the characters as defined in the Minimum Lower Level Protocol (MLLP).

Each segment begins with a three-character literal value that identifies it within a message. A segment is always terminated with an ASCII Carriage Return character. Segments may be defined as required or optional and may be permitted to repeat.

The first segment is a message header (MSH). It contains the delimiter characters to be used in the message (|^~\&) and other information. Each segment consists of several Data fields. Data fields are separated with a vertical bar character '|'. Individual data fields are found in the message by their position within their associated segments. A data field can consist of more than one component. A component may have sub components. Fields may be repeated.

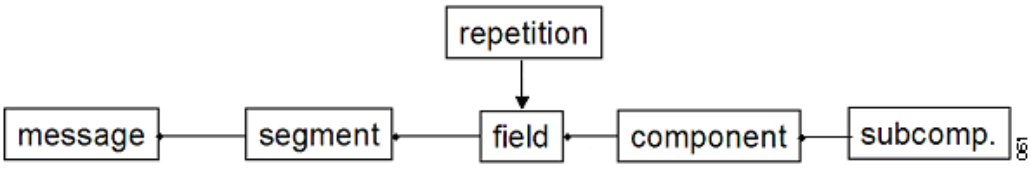


Figure 30. A HL7 message

Delimiters ASCII

- VT = 11 (0x0B)
- FS = 28 (0x1C)
- CR = 13 (0x0D)

HL7	Define by	Suggested value	Comment
Message	MLLP	start: <VT> stop: <FS><CR>	Defined in *TCP connection parameters* for the HL7-MLLP TCP connection in the *ASCII Input Module*
Segment	HL7	stop: <CR>	Defined static in Event Handler configuration
Field	1st char after "MSH" segment ID	'I' bar	Defined by HL7 message received by Event Handler.
Repetition	3rd char after "MSH" segment ID	'~' tilde	Defined by HL7 message received by Event Handler.
Component	2nd char after "MSH" segment ID	'^' circumflex	Defined by HL7 message received by Event Handler.

Sub-component	5th char after "MSH" segment ID	'&' ampersand	Defined by HL7 message received by Event Handler.
Escape	4th char after the "MSH" segment ID	'\' backslash	To escape the above defined message element delimiters when used in fields represented by string/ text data types. Defined by HL7 message received by Event Handler.

D.2 Example HL7 v2.x

Through this document the following HL7 v2 example message with the MSH, EVN, PID, PV1, IN1 and IN2 segments encapsulated in a MLLP session will be used:

- MSH – Message Header
- EVN – Event type
- PID – Patient Identification
- PV1 – Patient visit
- IN1 – Insurance
- IN2 – Insurance additional information

```
<VT>MSH|^~\&|HIS|ADT_MODULE|ASCOM|XGATE|20060109024819||ADT^A08
|20060109024311170|P|2.2|||AL|SU||
EVN|A08|200601090243|<CR>
PID|||2490298||Långstrump&&Långstrump&Mr.&Nilsson^Pippi^Viktual
ia Rullgardina Krusmynta
Efraemsdotter^^Ms.^""~Langkous&&Langkous&Dhr.&Nilsson^Pippi^Vic
tualia Rolgordijna Kruizemunta
EfraÏmsdochter^^Juffrouw^""||19630122|M|||Villa Villekulla
Bråkmakargatan^7^Vimmerby^^SE-
9999||0046123456789|||""|""|||||||N||""<CR>
PV1||O|First aid^Room 5^Bed
2|||^^|""^""^""^""^^""^""||||||||||||""||||||||||||||||||""|""||
|||||""|<CR>
IN1|1||7022|CZ Zorgverzekering|Postbus^99999^Tilburg^^9999
AB||076-5243xxx||||||||P|||||||||||||||||||900080820<CR>
IN2|||||||||||||||||||||||||||3|H<CR>
<FS><CR>
```

D.3 XGate\Event Handler Configuration

This section describes how an HL7 v2 message is transmitted from the Hospital Information System (HIS) to the XGate system.

HIS - ASCII

The Hospital Information System (HIS) connects to XGate\ASCII through a TCP/IP socket. The IP address to connect to is the IP address of the XGate box. An HL7 application message is sent over this connection. The message is encapsulated between the input start and input stop characters, see figure 35 on page 41.

The ADT is a software module in HIS.

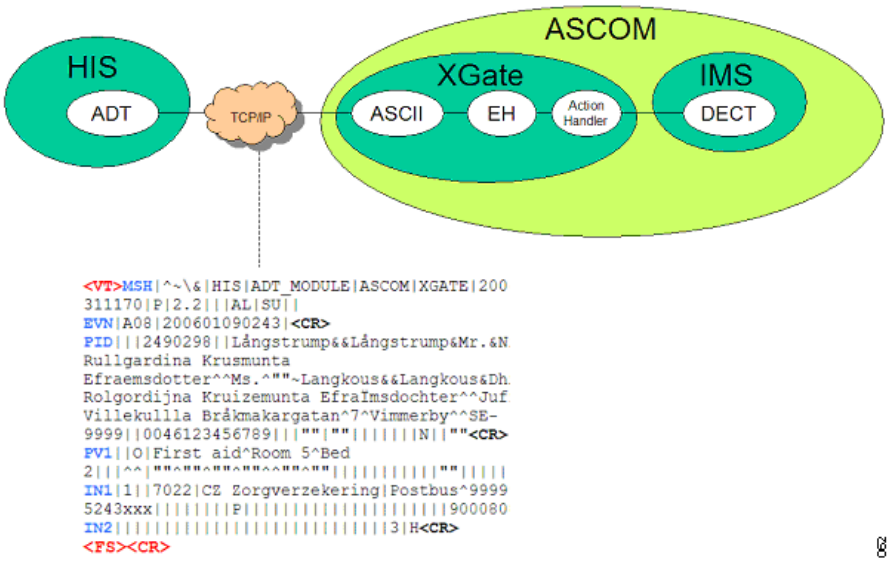


Figure 31. The connection between ADT - ASCII

ASCII - Event Handler

The ASCII application will send a UNITE paging message to the Event Handler. The body of the paging message includes the encapsulated message.

Note: The paging body text can only contain up to 5000 characters.

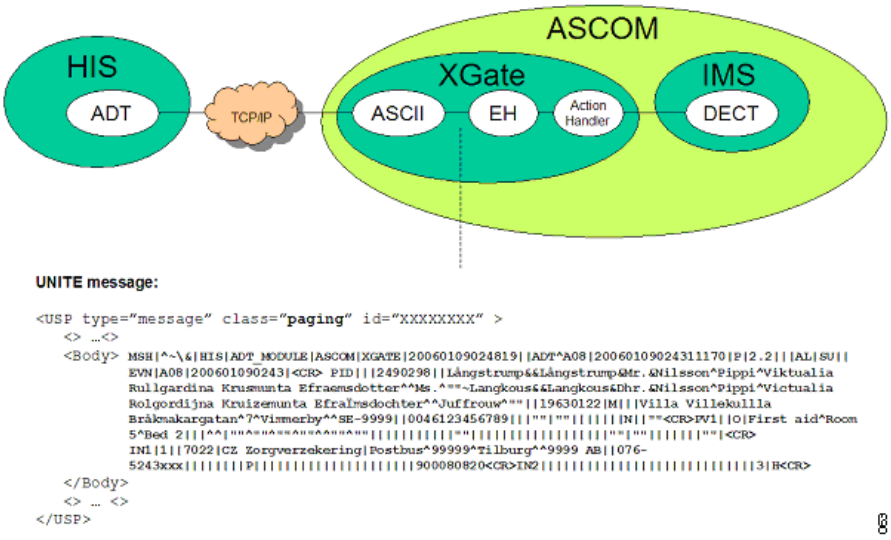


Figure 32. Paging message to the Event Handler

Event Handler - Action Handler

Based on a translation table that is defined by the customer, the Event Handler will extract the needed information from the paging body text and send that as event elements to the Action Handler.

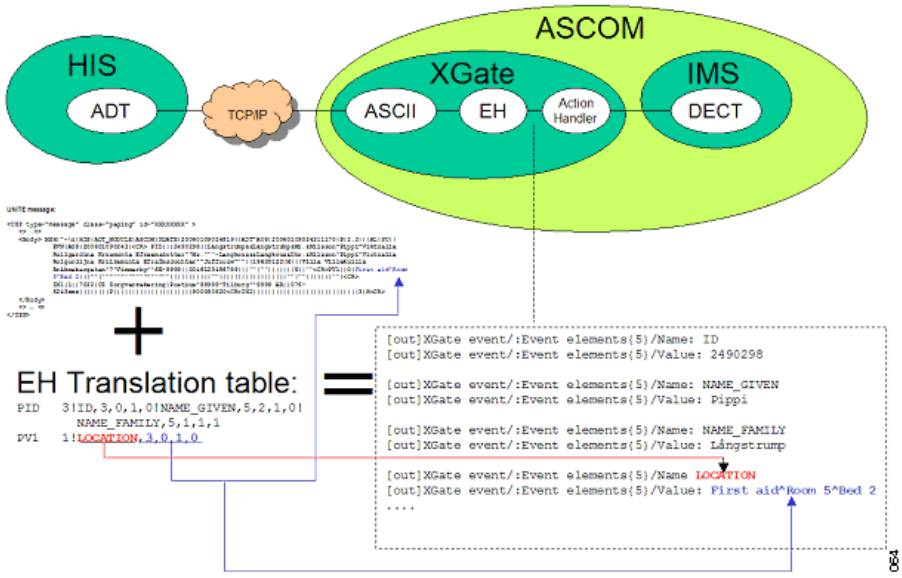


Figure 33. Event Handler translation table

Acknowledgements

In HL7 two types of acknowledgements exist. Accept and Application acknowledgement. The MSH segment of the received HL7 message defines which type of acknowledgment the sending party expects. This EH configuration is build to only send 'accept' on both types of acknowledgements. This EH configuration will not send 'error' or 'reject' for those two types of acknowledgements. A customer who would like this functionality needs to extend the configuration himself.

Depending on the values of Fields 15 and 16 of the MSH segment an acknowledgement type is expected.

The EH configuration will always send:

- Accept acknowledgement with value CA “commit accept” when MSH field 15 has a value of AL (always) or SU (success completion)
- Application acknowledgement with value AA “application accept” when MSH field 16 has a value of AL (always) or SU (success completion)
- When MSH fields 15 and 16 both are omitted, only an application acknowledgement with value 'AA' will be send.

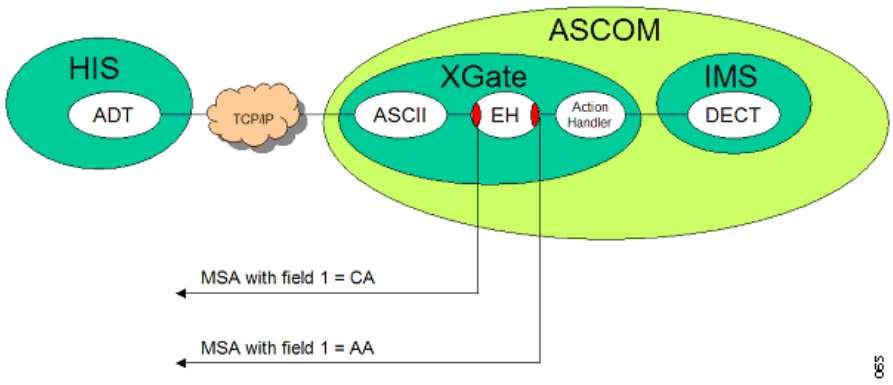


Figure 34. Two different acknowledgments

The Commit Accept acknowledgement will be send as soon as the Event Handler starts to process the HL7 message. The application acknowledgement will be send as soon as the event elements are sent to the Action Handler.

D.4 Configure XGate

ASCII Input Interface

The ASCII input interface is configured for Minimum Lower Level Protocol (MLLP) session control over a TCP connection on port 2575 (HL7 port, registered at www.iana.org).

1 In the *XGate Basic Administration* page, select "ASCII" to edit the configuration.

2 If a HL7 port already is configured in *TCP Server Parameters*, click "HL7-MLLP" or similar to verify your settings. Otherwise, click "NOT USED".

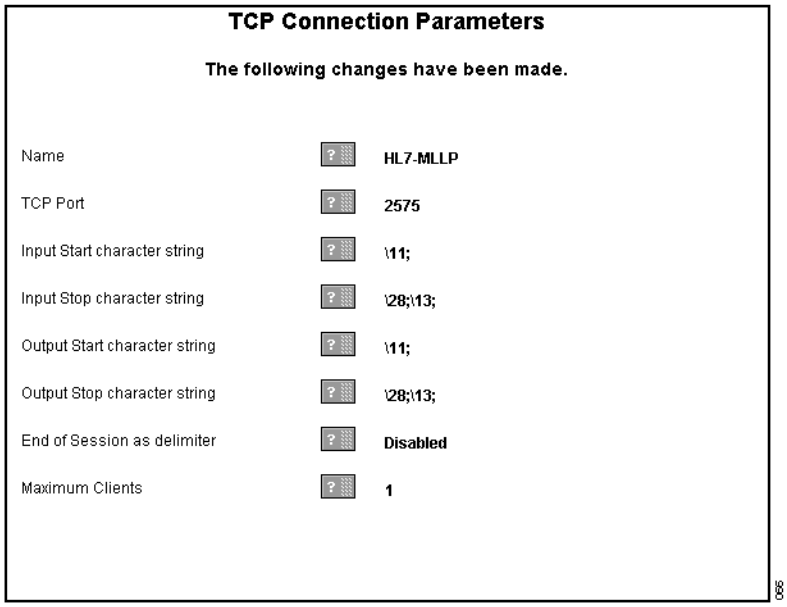


Figure 35. TCP Connection Parameters

3 Enter the parameters according to figure 35.

D.5 Load the HL7 v2 Translation Table

The translation table is the link between a HL7 style message and the XGate Event Handler. A default translation table is included in the XGate. The translation table is defined/modified by the customer.

This instruction describes how to load the HL7 default translation table.

1 Click "Advanced" and log in to the XGate configuration page.

2 In the *Advanced setup* view, Click "Database administration".

3 Click "Load HL7 version 2" to load the sample database.

4 Click "Translation Tables" to open the *Event Handler Configuration* page.

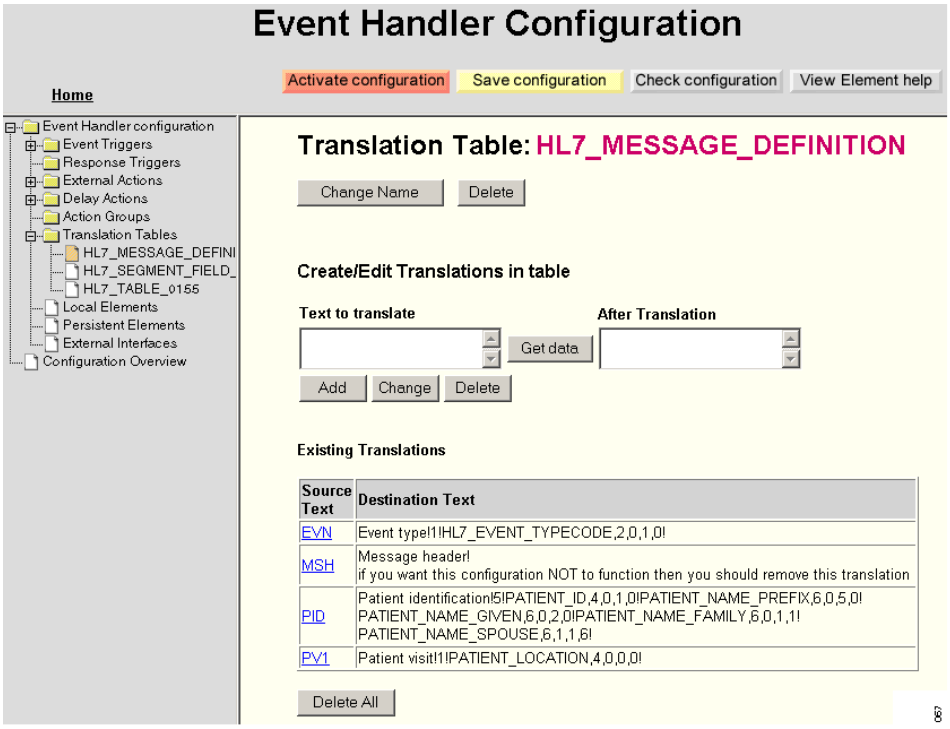


Figure 36. HL7 Translation Table v2.

For more information on how to create/edit a translation table, see *Programming Guide, Event Handler, TD 92329GB*.

For information on Source text from HL7, see an applicable HL7 document.

Define HL7 v2 Segment Data

The source text is used to indicate from which HL7 segment data needs to be extracted. The destination text defines what data is extracted from the segment and how the event element will be named. They are defined as:

- Source text = HL7 segment ID as defined by the standard (for example PID)
- Destination text = <description>!<number of values>!<ELEMENT_TO_EXTRACT>

Where:

- number of values = number of ELEMENT_TO_EXTRACT occurrences that follows in this definition.

- ELEMENT_TO_EXTRACT = [<ELEMENT NAME>,<FIELD>,<REPETITION>, <COMPONENT>,<SUBCOMPONENT>]

Where:

- ELEMENT_NAME = Name of the Event element that is sent to the Action handler
- FIELD = Field number that includes the data (start count from segment ID)
- REPETITION = Repetition number of the field that includes the data (EH will take first occurrence if no repetition exists)
- COMPONENT = Component number of the field that includes the data
- SUBCOMPONENT= Subcomponent number of the component that includes the data (EH will take COMPONENT if no subcomponent exists)

Example:

Note: A zero (0) is used if only one (1) value exist in the segment.

PID Patient Identification!3!ID,4,0,0,0!NAME_GIVEN,6,1,2,0!NAME_FAMILY,6,1,1,1

Would extract the following 3 elements from the PID segment from example message:

- Element name = ID, with value = 2490298
- Element name = NAME_GIVEN with value = Pippi
- Element name = NAME_FAMILY with value = Långstrump

Note: Do NOT remove or change the MSH entry in the translation table. It is mandatory for the Event Handler configuration to work properly.

Appendix E: XML Message

The appendix describes how to define segment from XML messages. XGate includes a protocol template that can be used as an example for XML messages received from external systems.

XML messages are written as:

```
<tag>
   value
</tag>
```

E.1 Example XML message

The following example XML message is used to explain the XML protocol template delivered with XGate:

```
<Message>
  <Type>PSPA</Type>
  <PSPA>
    <Patient>
      <Id>1234567890</Id>
      <Name>
        <Prefix>Miss</Prefix>
        <Given>Pippi</Given>
        <Family>Langkous</Family>
      </Name>
      <Location>
        <Ward>
          <Name>First-aid</Name>
        </Ward>
        <Room>
          <Name>-R1</Name>
        </Room>
        <Bed>
          <Name>-S4</Name>
        </Bed>
      </Location>
    </Patient>
  </PSPA>
</Message>
```

E.1.1 Define XML Segment Data

The translation table is defined as: The source text must be an incrementing number indicating an index to each element that needs to be extracted from the XML message. The destination text defines which tag values are extracted from the XML document.

- Source text = incrementing number starting at 1
- Destination text = <ELEMENT_NAME>!<Xpath expression>

Where:

- ELEMENT_NAME= Name of the Event element that is sent to the Action handler
- != a mandatory delimiter that is needed by the event handler configuration

- Xpath expression= an expression that defines which tag values to include in the element value

The example translation table:

1 PATIENT_NAME!/Message/PSPA/Patient/Name

2 PATIENT_LOCATION!/Message/PSPA/Patient/Location

3 XML_EVENT_TYPECODE!/Message/Type

Would result in the following event elements:

- [out]XGate event/:Event elements{1}/Name: PATIENT_NAME
- [out]XGate event/:Event elements{1}/Value: Miss Pippi Langkous

- [out]XGate event/:Event elements{2}/Name: PATIENT_LOCATION
- [out]XGate event/:Event elements{2}/Value: First-aid-R1-S4

- [out]XGate event/:Event elements{3}/Name: XML_EVENT_TYPECODE
- [out]XGate event/:Event elements{3}/Value: PSPA

Note: The left row of the translation table must be incrementing starting at 1. It is mandatory for the Event Handler configuration to work properly.

The XML syntax in received data must be correct for the template to work. If the received data includes non-XML data it must first be removed.

E.1.2 Consideration

- **XGate supports the XML Path Language (XPath) 1.0** from Nov. 16 1999 (see www.w3.org/TR/xpath for a specification).

Appendix F: Protocol Limitations

This appendix describes a number of protocol specific limitations and deviations. The serial interface included in XGate is a successor to the system 900 module S942SI Serial Interface and the supported ESPA and Ascom Line protocols are described in the document *Protocol, Serial Data Interface S942SI*, *TD 92088GB*. To be able to fully understand the limitations it is recommended to have this document available.

F.1 ESPA 4.4.4

F.1.1 Functionality

The protocol consists of **blocks** which consist of **records** which consist of **data**.

F.1.2 Limitations

Protocol Blocks

The original ESPA 4.4.4 specification has 4 different blocks and an additional 5'th block for equipment manufacturer specified functionality. The 5'th block is not used by Ascom and Ericsson dialect, instead two additional blocks 7 and 9 are specified for the dialects.

Request for license (Block 7, Ascom and Ericsson dialect):	This block is not supported since license handling differs from how it was done in 942SI. The block is NAK:ed if received.
Request for module key number (Block 9, Ascom and Ericsson dialect):	This block is not supported since license handling differs from how it was done in 942SI. The block is NAK:ed if received.

Protocol Records

Call type: Speech call (Record 4.2):	Speech paging is not supported. This record is handled as a standard paging (Record 4.3)
Call type: Remote ack of old paging in mobile unit (Record 4.5, Ascom dialect):	This record is NAK:ed since it is not supported by UNITE.
Call type: Erase of old paging (Record 4.6, Ascom dialect):	If neither "ID" (Record 9) or "Running Number" (Record D) is included in the message, the message is NAK:ed. In 942SI it was ACK:ed but didn't function.
Call type: Cordless phone, undefined type (Record 4.7, Ascom dialect):	Sent as standard paging (Record 4.3).
Call type: Cordless phone, internal type (Record 4.8, Ascom dialect):	Sent as standard paging (Record 4.3).
Call type: Cordless phone, external type (Record 4.9, Ascom dialect):	Sent as standard paging (Record 4.3).

Number of transmissions
(Record 5, standard ESPA): This record is accepted but ignored since it is not supported by UNITE.
The parameter can be set in the advanced GUI under "system 900"->"Default number of transmissions" and is then valid for all messages independent of the record value. Here it is also possible to determine number of transmissions based on the paging priority (advanced).

Mailbox number
(Record A, Ericsson dialect): This record is accepted but ignored since it is not supported by UNITE.

Infopage
(Record C, Ascom dialect): This record is accepted but ignored since it is not supported by UNITE.

Advanced parameters

Bleep each transmission: This parameter was available in 942SI. The parameter is not available in XGate, instead the parameter can be set in advanced GUI under "system 900"->"Beep at each Tx".

Flow control XON/XOFF: Not supported since there are some issues with the control characters. If the block check character becomes any of the two control characters XON or XOFF, the flow control fails, therefore flow control is no longer supported.

F.2 Ascom Line Protocol

F.2.1 Functionality

A line protocol message consists of the following records and separators:

<Addr/Message/Beepcode/PagFunc/NoOfTransm/Prio/Infopage>

All characters are writeable by hand using an ordinary terminal program such as hyper terminal etc. Not all records needs to be given, for instance <> is a valid message that delivers default message to default paging address.

F.2.2 Limitations

The following limitations apply:

PagFunc: The Line protocol only supports call type 3 (plain paging) and 4 (alarm). All others are handled as plain paging.

NoOfTransm: The Line protocol does not propagate no of transmissions but it must be valid if submitted.
The parameter can be set in the advanced GUI under "system 900"->"Default number of transmissions" and is then valid for all messages independent of the record value. Here it is also possible to determine number of transmissions based on the paging priority (advanced).

InfoPage: The Line protocol does not propagate Infopage but it must be valid if submitted.

F.3 TAP Protocol

F.3.1 Functionality

- *<ESC>PG1<CR>* Default logon string
- First field of the data block is assumed to contain the paging address. The address is treated as a decimal address, valid digits is 0-9. Any leading spaces will be ignored.
- Field(s) after the first field is assumed to contain the paging text. If the datablock is containing more than 2 fields, fields 3,4,5.. will be concatenated to the paging text to be sent. (the separating *<CR>*:s will be treated as a part of the paging text. The paging text is set as 'Body' in the Unite paging. The 'Subject' will be empty.
- There is no restriction on how many blocks that can be sent during one logon session.

F.3.2 Limitations

The following limitations apply:

Using <US> or <ETB> as blockterminators:	Not supported.
Sending <SUB> as controlcharacter:	Not supported.
Maximum session timeout:	Not implemented, however an inactivity timeout will occur after 8 seconds when waiting for logonstring and 4 seconds when waiting for blockdata after a <STX> has been received. After 3 successive timeouts, an automatic disconnect sequence will be initiated. These values can be changed through parameters.
Timeout between blocks:	There will be no timeout between blocks. After a logon has been received and after each pagingblock, the Serial Interface is put into sleep mode. Three actions can wake it up: A logoff request, a new logon request or a new pagingblock.
Messages longer than 128 characters:	Will be accepted but truncated.
Message sequences:	Not used by the Serial Interface.
Software flow control of the serialport:	Not supported.
Characters in the paging text below 0x20 (except for carriage return):	Will be converted to something above 0x7F (by adding the 8'th bit).