FUJITSU Software BS2000

MT9750 V8.0C

Emulation of the DSS9750 family for connection to BS2000 systems

User Guide

Edition August 2018

Comments… Suggestions… Corrections…

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Feel free to send us your comments by e-mail to: bs2000services@ts.fujitsu.com.

Certified documentation according to DIN EN ISO 9001:2015

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Table of Contents

MT9750

1 Introduction

MT9750 is an emulation software package from Fujitsu Technology Solutions GmbH (FTS) for connecting PCs to BS2000 systems.

MT9750 is a 32 bit MS Windows® application, which runs on a PC and emulates the data display terminals from the DSS9750 family (up to 9763). Apart from a few system-related exceptions, all the properties of the terminals are replicated on the PC. In addition, functionalities that go beyond pure terminal functions are provided, for example FTP-based file transfer. The appearance can be customized regardless of the emulated functions.

Data display terminals are connected to mainframe computers running the BS2000 operating system (BS2000 hosts). The MT9750 emulation program enables you to enter commands on your PC, which are interpreted by the BS2000 host. Your PC thus replaces a data display terminal and also provides the numerous options available in the PC world.

MT9750 can be used on Windows workstations and terminal servers from Citrix or Microsoft. For details of the versions for which MT9750 V8.0C is approved, see the current release notes.

MT9750 includes Unicode support for European characters in the Unicode character set from U+0000 to U+2FFF. This enables characters from different character sets to be displayed together.

MT9750 supports handling of the BS2000 Kerberos authentication protocol, which means that user login to $DIALOG is possible without entering a password as part of a Single Sign On (SSO). A corresponding BS2000 version is a prerequisite for these functions.

> **i** Unless otherwise specified, in this manual the name MT9750 refers to version V8.0C of the MT9750 program.

1.1 Manual target group and concept

The manual is aimed at PC users who want to communicate with applications on a BS2000 host. Experience in using a PC and knowledge of how a PC network functions, operation of the relevant BS2000 applications and the basic BS2000 commands are essential.

The BS2000 environment (PDN, printer) must be configured by BS2000 system administrators on the host or the communication computer.

Overview

The functions and connection options for MT9750 are set out in chapter "Terminal emulation concept and functions" . The chapter is intended for users with little prior knowledge and can be read selectively.

The chapter "Installation" describes the prerequisites for installation and the installation itself.

The chapter "Configuration" contains the required information for standard and custom configurations, communication methods and printer configuration.

The chapter "Working in emulation sessions" describes how to use emulation in individual sessions. It also provides information on diagnosing problems.

The chapter "Utilities for operation" describes how you can effectively use additional emulation utilities.

The chapter "Diagnostic file" contains information about the structure and configuration of MT9750 log files.

The Appendix includes various overview tables for international character sets, the meaning of certain BS2000 buttons, and examples of how to generate a UTM application.

Finally, there are directories of technical terms and abbreviations, a bibliography, and an index.

Additional information

Online Help

MT9750 provides a context-sensitive online help, which can be called up using the **Help** button in dialog boxes.

> **i** Note that you cannot call up the Help using the function key **[F1]**. This key is reserved for other functions.

README file

For information on any functional changes or extensions to this manual, see the product specific Readme file.

In addition to the product manuals, Readme files for each product are available to you online at http://manuals.ts.fujitsu.com. You will also find the Readme files on the Softbook DVD.

Information in BS2000

Where a Readme file exists for a product version, you will find the following file on the BS2000 system:

`SYSRME.<product>.<version>.<lang>`

This file contains brief information on the Readme file in English or German (`<lang>=E/D`). You can view this information on screen using the `SHOW-FILE` command or using an editor.
The `/SHOW-INSTALLATION-PATH INSTALLATION-UNIT=<product>` command shows the user account under which the product's files are stored.

Release notes - Additional product information

Current information, version and hardware dependencies and instructions for installing and using a product version are contained in the associated release notes. These release notes are available online at http://manuals.ts.fujitsu.com.

1.2 Changes since the last edition of the manual

The manual was last produced for MT9750 V5.0. Only additional Readme files were released for versions V6.0, V7.0, and V8.0A. This manual describes the functionality of MT9750 V8.0C, and therefore all changes since version V5.0. The manual structure has been fundamentally revised.

> **!** One important change relates to installation.
>
> From V8.0B, MT9750 has a changed installation program, which differs in terms of its interface and functioning from V8.0A and all earlier versions. As a result, older versions (up to and including V8.0A) must be explicitly uninstalled before installation of V8.0C.

- Fast and secure connection to host

    - Support for Single Sign On with Kerberos
    - Host access via TCP/IP
    - The validity of a host address specified when setting up the session is checked immediately. If the address is invalid, an error message is displayed.
    - Multi-user operation

- Integrated IPv6 support

    - As soon as the name resolution for the host name specified in an MT9750 session provides an IPv6 address, the connection is automatically established via the IPv6 network. Alternatively, the IPv6 address of the partner computer can be directly specified when establishing the connection.

- Improved user interface

    - Multiple instances (windows, sessions) of the MT9750 application can be started.
    - Each application window can contain up to 64 terminal sessions and operate using customized toolbars.
    - With multiple sessions, an active session is selected using tabs or the key combination `[Ctrl]+[Tab]` rather than using numbered buttons.
    - Integrated macro recorder for automation of operating sequences
    - KBDMAP keyboard mapping program
    - Deleting configured sessions possible
    - Pre-assignment of terminal names
    - Session parameters for the active session are displayed in a separate window

- Enhanced compatibility

    - Integration of ISO standard 8859-15 character set for 8-bit DSS mode
    - Unicode support
    - Support for all screen formats used by the DSS9763 (80 x 24, 80 x 32, 80 x 43, and 132 x 27) as part of the host application control

- Optimized data exchange and printing

  - Support for file transfer using openFT and VFT
  - Support for different printers
  - Bypass timer
  - Adjustment of font sizes for hard copy

Software and hardware no longer supported

- MTKonv for generating sessions from previous versions
- Tri-modal keyboards
- Outdated card reader functionality on some keyboards
- Function key windows and hot spots - The functionality is implemented using toolbars.
- Switching sessions using keyboard shortcuts - Switching is now carried out using tabs or the key combination `[Ctrl]+[Tab]`.
- Outdated DDE-based programming interfaces:

  - DDE (Dynamic Data Exchange)
  - EHLLAPI (Emulator High Level Language Application Programming Interface)
  - Entire Connection
  - OLE Automation interface

This also means that the "MT9750 programming manual" containing a description of the programming interfaces is no longer valid and will not be updated.

1.3 Notational conventions

The following notational conventions are used in this manual:

Text   Path information, particularly in menus, file names and file extensions are written in italics - Example:
Configuration > Peripherals > Print Output menu

[Enter]   Represents a key

Input   Input in examples is written in semi-bold typewriter font

`Output`   Outputs in examples, e.g. from the diagnostic file, are written in typewriter font

`ERR`   Displays in the status bar are written in typewriter font

`<Name>`   Text in pointed brackets is a placeholder for a variable

i   This symbol indicates important information.

!   This symbol indicates a warning notice relating to the possibility of data loss or other serious damage to data.

[ ]   The titles of related publications in the text are abbreviated. The complete title of each publication, which is referred to by a number, is listed in the Related Publications chapter after the associated number.

2 Terminal emulation concept and functions

This chapter describes the underlying terminal emulation concept of the MT9570 program and the interaction with important functions. The following specific topics are addressed:

- Terminal emulation
- MT9750 session
- Key assignment / keyboard mapping
- Connection types
- Functions supported by MT9750
- MT9750 print functions

2.1 Terminal emulation

Host applications are normally operated using what are known as terminals. The type of terminal depends on the host, e. g. the terminal for a BS2000 host is known as a data display terminal.

Terminal emulation is a program that replicates the properties of a terminal on another system. This enables data to be sent to and received from the host, and provides access to applications installed on a host.

MT9750 is a terminal emulation software package. MT9750 provides a connection to BS2000 hosts for PCs in networks based on TCP/IP. This enables PC users to access the full range of data from centrally running host applications in MT9750.

2.1 Terminal emulation

2.2 MT9750 session

A session is the logical connection between two programs for data exchange; in this case a connection between the MT9750 emulation and a BS2000 application. The MT9750 session runs in a window in the Windows application. This window is the display area for the host.

When setting up your sessions, the parameters are set to meet your requirements. If you regularly communicate with different BS2000 hosts, you can configure and save separate sessions for each of them. You can use different character formats in different host applications (for example, small format characters are better suited than large format for spreadsheets) or have a different assignment of the programmable keys. Each session is assigned parameters that specify the session properties, the assignment of the programmable keys, display properties, e. g. the size of the characters displayed in the work area, and the connection setup. The parameters are individually set for every session and are only valid for that session.

These session parameters are saved locally on the PC in a session file with the file extension.*MTS*. Each session is also assigned the assignment of the programmable keys, which is saved in a separate file with the file extension *MTK*.

An **active session** with saved parameters is the standard. There are also three special forms of sessions:

- Temporary session
- Passive session
- Multiple session

Temporary session

A temporary session is a one-off session whose parameters are not saved.

A temporary session is opened without a session file. The information for opening a temporary session are the same as for opening a new (standard) session. They have the same properties as saved sessions (e. g. the host ID and the host application).

When exiting a temporary session, you will be asked whether you want to save the session parameters. If you answer yes, the temporary session becomes a saved session.

Under some circumstances, temporary sessions are also a suitable way of guaranteeing limited access protection as a user has to be informed of the required connection parameters.

Passive session

Passive sessions are used to allow the connection to be established from the host side, e. g. for a bypass printing function. For bypass printing, the connection is established from the host. The remote terminal - i.e. the PC - must recognize this connection request and respond accordingly. Other than for printing, passive sessions can also be set up for other applications that establish the connection from the host.

A passive session is initially set up in the same way as an active session. Only the *Mode* option under *Session > New > Advanced Configuration* has to be changed to **passive**.

Multiple session

With MT9750, communication connections to multiple applications can be established simultaneously. These connections can also be to different hosts. In this case, we refer to multiple sessions.

Up to 16 instances of the MT9750 application can be started. Each application window can contain up to 64 terminal sessions and operate using customized toolbars. Under some circumstances, there may be restrictions due to the storage capacity of the PC and the memory required by other programs resident in the memory that are active in MT9750 at the same time.

Each communication connection is assigned a window that behaves like a separate 9750 data display terminal. The windows are arranged based on Windows conventions. Keyboard entries can only be made in the session whose window is currently in the foreground, while automated data exchange is also possible in the background as a batch process.

2.3 Key assignment / keyboard mapping

A standard PC keyboard does not have a direct equivalent of all 9750 keys. Therefore, some 9750 keys have to be mapped to PC keys.

Examples

- The MT9750 maps the `[DUE1]` key on the 9750 data display terminal keyboard to the `[Enter]` key on the PC keyboard.

- The MT9750 maps the `[P5]` key on the 9750 data display terminal keyboard to the `[F5]` function key on the PC keyboard.

The mapping of 9750 function keys to the keys on the PC keyboard can be displayed in a separate window by selecting *Settings > Keyboard Mappings > Keyboard Mappings* in the menu.

Programmable keys (P keys)

In MT9750 frequently used or long keyboard entries can be assigned to function keys and retrieved as often as required. These keys are then referred to as "programmable keys" (P keys). If a programmable key is pressed, this has the same effect as entering the corresponding characters and keys directly using the keyboard.

Up to 20 programmable keys (**P1** to **P20**) can be assigned. The P keys are assigned to the function keys on the PC keyboard, e.g. the `[P1]` key is mapped to the `[F1]` key on the standard PC keyboard.

P keys can also be pressed using a dedicated toolbar - *Function Keys P1-P20 toolbar*. To show, hide and customize the toolbar, select *Settings > Toolbars > Function Keys P1-P20 toolbar* or *Settings > Toolbars > Customize* in the menu.

P keys can be disabled by certain host applications, e. g. the PLUS program.

P keys are defined for a specific session, i.e. they are valid during the session in which they were defined (and saved). P keys are assigned by recording during input or by editing previously saved P keys.

See section "Programmable keys (Px and Px')" for a description.

Custom P keys

In addition to the P keys known to the host, MT9750 contains a memory area for recording up to 20 further P key mappings. This memory area cannot be overwritten by host applications and thus makes it possible to use host applications that change the mapping of the P keys while simultaneously having access to a custom key mapping.

The custom P keys are assigned, displayed, and used in the same way as the normal P keys, but they are known as **Px' keys**. The apostrophe indicates that the key is a custom P key.

For details of assigning P keys, see section "Programmable keys (Px and Px')".

Macro keys

Macro keys can be used to selectively call up Windows applications outside the emulation.

For details of assigning macro keys, see section "Macro keys (MAx)".

KBDMAP keyboard mapping program

Important functions and characters for mapping the keyboard are preset in what are known as keyboard tables. Keyboard tables are files with the extension *.KMP*.

The KBDMAP keyboard mapping program also enables custom properties to be assigned to the keyboard.

For example, you can map the different characters and special functions for different emulations to your keyboard, and thus use a custom keyboard mapping when working on a particular emulation.

For a description of the keyboard mapping program, see section "KBDMAP keyboard mapping program".

2.4 Connection types

MT9750 can be used on both Windows PCs and on terminal servers from Citrix or Microsoft.

The PC is connected to the BS2000 system via the TCP/IP protocol.
The IPv4 and IPv6 network protocols are supported.

2.5 Functions supported by MT9750

Emulated functions of 9750 data display terminal

The following functions of the 9750 data display terminal are emulated by MT9750:

- Format free and format controlled operation
- Color representation and configuration
- Programmable keys
- Support for 9750 function keys
- Character generation
- Support for 8-bit character sets
- Configuration option for decimal symbol, cursor, and deleted screen area
- Printing of host files on local printers (bypass)
- Output of screen captures on local printers (hard copy)
- Support for the following structured instructions:
- status message, status request, read P areas, define screen, reset screen, and error messages.
- Support for advanced attribute definitions

Additional functions

In addition to replicating the functions of the data display terminal, MT9750 provides further functions:

- Optional automatic adjustment of characters to the window size or manual configuration
- Session recording for error diagnosis
- Multiple sessions
- Copying and pasting screen data using the Windows clipboard
- Communication via LAN (Local Area Network)
- Programming custom P keys and macro keys
- Window for displaying key assignments with the option of executing the functions with the mouse
- Window with a custom selection of frequently used functions, including custom P keys and macro keys
- Support for PC keyboards and MF2-compatible keyboards
- In Cyrillic Windows, switching to the alternative character set is supported
- Option of adapting the keyboard mapping to individual needs
- Integrated macro recorder for automation of operating sequences
- File transfer between PC and BS2000 hose: Either with the VFT product supplied or with openFT
- Printing entire screen content, regardless of the cursor position

2.6 MT9750 print functions

MT9750 emulates the "Bypass" and "Hard copy" print functions on the 9750. You can also use the Windows *Copy* function to copy the selected content of the session window to the local printer.

Bypass printing

Bypass printing is the output of host data on printers connected to data display terminals. This is normally done using the BS2000 spool system Remote Spool Output (RSO). The data is output on the printer connected to the data display terminal without being displayed on the screen. Bypass printing via the emulation gives you the option of saving the print data in one or more files.

Hard copy

Hard copy refers to printing of parts of of the entire current session window.

The hard copy size (number of rows and columns) is not based on the size of the visible screen section in the current session but on the actual number of rows and columns in the session and the position of the cursor.

The print output is local on the printer connected to the PC, with the option of printing to file.

Hard copies can be produced in two ways:

- Manually by pressing a hard copy key or by executing a corresponding function in the context menu (right-click).

  Printing is initiated using an LAx key.

- Programmed by sending a corresponding control sequence

  The programmed hard copy is initiated by the BS2000 computer. The message transmitted is displayed on the data display terminal and, when completely transmitted, the printout is generated or routed to a file.

In both cases, the keyboard is blocked until printing is complete, i.e. no keyboard input is possible.

Full page hard copy

MT9750 can print out the entire screen content regardless of the cursor position, or save it to a file.

This form of hard copy is not initiated using an LAx key but by selecting *Session: Print Screen* in the menu or clicking on the printer icon in the toolbar.

Copying to the printer

Copying screen data to a printer is an extension of the print options compared to a 9750 data display terminal.

Data within the session window is referred to as screen data. Selecting *Edit > Mark* or *Edit > Select All* in the menu allows you to select either some or all of the screen data and then copy it to the local printer. The data that is visible and printable is copied. Invisible or nonprintable characters are displayed as spaces. Copying to a file or to the clipboard is also possible.

3 Installation

This chapter covers the following topics:

- Hardware and software requirements
- Installing MT9750
- Adding components
- Updating components
- Uninstalling MT9750

3.1 Hardware and software requirements

> ℹ️ Binding information on compatibility, memory requirements, and restrictions can be found in the latest release notes.

Resource requirements on PC

- MT9750 can be run on Windows PCs and laptops with an Intel/Pentium-80586 processor (or compatible) with min. 32 MB RAM, and 9 MB free hard drive space.
- An additional 3 MB of main memory is used for each session.
- A CD-ROM drive is required for installation of the full product or the admin program (no client installation). The online documentation supplied is also on a CD and is read from the CD when required.
- Later versions of Microsoft Windows and Windows Server are recommended for operation of MT9750 V8.0C. For details of the versions for which MT9750 V8.0C is approved, see the current release notes. Installation on 16-bit operating systems is not possible.
- VGA® monitor is required for MT9750. A minimum resolution of 800x600 pixel and configuration with 32k colors is recommended.

BS2000 software

A currently approved BS2000 version including openNet Server must be installed on the BS2000 host.

Bypass print output via LAN is also carried out using BS2000 openNet Server.

The XHCS subsystem for 8-bit/Unicode support in BS2000 is loaded by default.

3.2 Installing MT9750

ℹ️   Installing and uninstalling software requires administration privileges on your PC.

The MT9750 V8.0C installation routine supports:

- Installation of the product and its utilities KBDMAP and VFT
- Adding components
- Updating a MT9750 version from V8.0**B**

If the "Autorun" option is selected, the installation routine starts automatically after inserting the CD-ROM.

If the "Autorun" option is not selected, the SETUP.MSI program has to be selected and started by clicking on "Start > Run" in the menu and selecting the CD-ROM drive.

The installation routine asks you to select the language to use for the installation. The only other action the installation routine allows is to select programs.

❗   From V8.0**B**, MT9750 has a changed installation routine, which differs in terms of its interface and functioning from V8.0A and all earlier versions. This means: **All older versions (up to and including V8. 0A) must be explicitly uninstalled before installation of V8.0C.**

The unit delivered is a licensed product. After successful installation, the usage right purchased must be activated before use. Instructions for preparing to use the emulation can be found in the file *Doc/Lizenzierungshilfe.PDF* on the installation medium.

The actual installation is carried out either as a multi-user network installation or as a single user installation with different installation options.

3.2.1 Preparation

When installing the MT9750 emulation software, various components (BS2000 host, data transfer features, interface cards, emulation software) are logically linked to one another. To ensure error-free operation of MT9750, stick to the sequence described below when installing the emulation software.

- Make sure your PC is set up for connection via LAN connection on the BS2000 computer. If necessary, ask your mainframe system administrator.

- Make sure that you have a TCP/IP connection to the host, e. g. using `ping <host-ip>`.

Installation and user dialog box language selection

After starting the setup program, select German or English as the language for the distribution program and the language in which the manuals are displayed.

The language selection in the installation routine sets the language for the user interface of the installed software and the Start menu entries.

Preparing a server for network installation (administration program)

The administration program helps the system administrator to prepare distribution of the program to the target systems. You can prepare a server for distributed installation and also create volumes (or images) for local installation of the program.

As part of server preparation, all the files for MT9750 are saved to a resource on the server, including an executable SETUP program. This is subsequently called up from the clients and carries out the installation as required by the user on the PC. The user can specify that only the configuration files will be copied to the client and the program files will be called up on the server (known as distributed installation). In turn, the system administrator can save pre-produced configuration files on the server.

3.2.2 Installation options

If you have not previously installed version MT9750 V8.0B or C, the following installation options are available:

- Minimal installation
- Standard installation
- Full installation
- Custom installation
- Distributed installation
  Only available if you are installing from a prepared server.

Minimal installation

This option installs only the essential components of MT9750. Other programs, e. g. VFT (Virtual File Transfer), are not installed. They can be added later.

Standard installation

This option installs the standard components included in MT9750 V8.0C, i.e. the emulation itself, the KBDMAP keyboard mapping program, and a conversion program for old configuration files.

Full installation

This option installs all components included in MT9750 V8.0C, i.e. emulation, KBDMAP, and VFT.

Custom installation

You should only carry out a custom installation if you are already familiar with the program (e. g. from the previous version). You can select the components to be installed from a list. All files necessary for a component are always copied.

Distributed installation

If you are installing the MT9750 V8.0 software from a prepared server, you can perform the installation in such a way that the program files remain on the server and your Windows Start menu contains links to them after installation. In this case, only the necessary configuration files are copied to your local PC.

With a distributed installation, if required you can still select the components from the list of available components.

3.2.3 Installing printers

This manual does not describe installation of printers connected directly to the host. Refer to the corresponding printer or host documentation for more information.

Local printer

You can use a Windows printer connected to your PC from MT9750 to print out host files.

A Windows printer can only be connected to a port supported by Windows (LPT1, LPT2, LPT3, COM1, COM2, COM3, COM4). Further information can be found in the Microsoft Windows user manual.

For information on setting up local printers in MT9750, see section "Local printer".

3.3 Adding components

1. To add further components to an existing MT9750 installation, call up *SETUP.EXE* from the installation medium. The program detects the existing installation and allows you to install additional components or update MT9750.

2. Select **Add Component** and go to the component selection.

3. Select the corresponding components.

4. Continue in the same way as for the initial installation.

During subsequent installation, the software is automatically updated. The installed program components thus remain consistent.

> **i** For subsequent installations, the language selected for the initial installation is retained, regardless of the language selected in the installation dialog box.

3.4 Updating components

- Call up *SETUP.EXE* from the installation medium.
- Select Repair. The installed program components are detected and replaced with the latest versions if required. Existing configuration files are not overwritten.
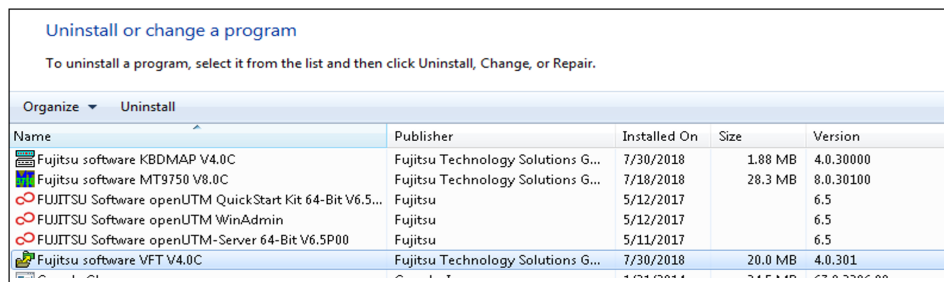
The latest version is not updated; instead you will see a message to inform you that you already have the latest version installed.

i When updating the software, the language selected for the initial installation is retained, regardless of the language selected in the installation dialog box.

3.5 Uninstalling MT9750

> **i** Installing and uninstalling software requires administration privileges on your PC. The following actions delete MT9750 from your system and remove the entries from the Windows registry:

1. Open the administration for your installed software on the PC under *Control Panel*.

   Depending on the operating system used, find the installed software, e. g. under *Uninstall or change a program*.

2. Find the entries for MT9750 and uninstall them.

4 Configuration

This chapter describes custom configuration of components and conversion of existing session data into a new session.

- Setting up and saving a new session
- Configuring the data display terminal
- Converting a LAN-INET session to an RC1006 session
- Settings for the MT9750 application window
- Configuring the printer
- Troubleshooting for setup problems

> **i** Once you have adapted the emulation to your individual requirements (sessions, settings, configuration, resources), you can protect the set configuration by disabling specific menu options to prevent changes. This restricts the permitted actions by users. The menu options that can be selected are controlled by the file *MTMENU.INI*.

4.1 Setting up and saving a new session

When you open MT9750 for the first time, you must set up a session.

4.1.1 Setting up an active session in RFC1006 format

By default, active sessions are set up in RFC1006 format.

1. Open *Session > New* in the menu. The **Basic Configuration** window is displayed.
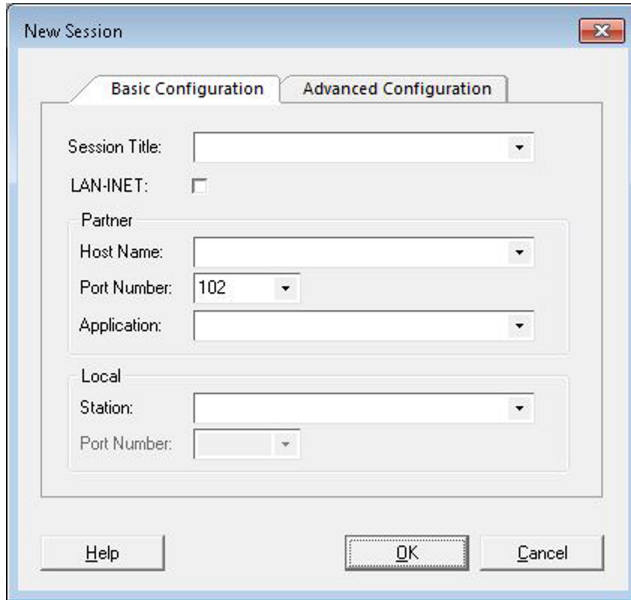
2. Enter an (optional) title for your session, with a maximum of 40 characters, in the Session *Title* text field.

   i If you require a LAN-INET connection, click on the LAN-INET check box. Note that when using LAN-INET in Windows, only an outdated version of the transfer protocol can be used. For further information see section "Setting up a session in LAN-INET format" .

3. In the *Partner* section, enter the *Host Name* and (optional) the host *Application* you want to use, e. g. $DIALOG. By default, the port number 102 is entered, which is the default port for RFC1006 connections. This value cannot be changed.

   MT9750 immediately checks the validity of the specified host. If the address is invalid, an error message is displayed. A session is set up with only one valid host address.

4. If your host application expects a particular terminal to establish the connection, you can specify this under *Station* in the *Local* section, otherwise leave this field blank and the terminal is assigned dynamically.

5. These entries are normally sufficient to define a session. Confirm your entries with **OK** and the connection to the BS2000 host is opened.

Advanced options for a session

For some application situations (e. g. passive sessions) advanced options are required. You have the option of specifying the terminal type for your session, entering a short name, and changing the mode (active or passive session).

1. Open the **Advanced Configuration** tab.
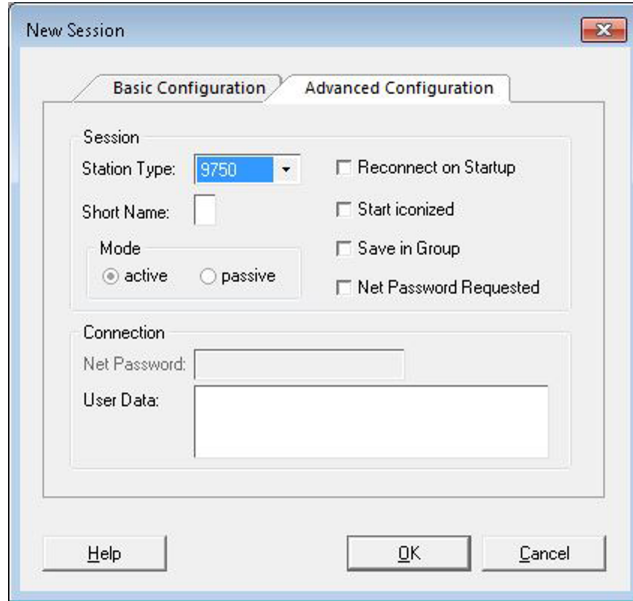
2. Enter all the required information.
   - Some host applications need the *Station Type* to verify the properties of the connected terminal. The parameter only relates to the connection and has no effect on the properties of the emulation session.
   - The *Short Name* (one character) is used by PC applications to allow data to be exchanged with the corresponding session.
   - In the *Mode* section, select the *passive* option to configure a passive session.
   - Select *Reconnect on Startup* to open the session automatically when starting the emulation.
   - Select *Start iconized* to start the session as an icon (e. g. in passive sessions for bypass printing).
   - Select *Save in Group* if you want the session to have a separate entry in the Start menu, which you can use to start the session (and the emulation).
   - Select *Net Password Requested* to show a dialog box to enter the password in networks where access is secured by a network password.
   - Alternatively, you can specify the *Net Password* in the *Connection* section when setting up the session, as well as entering *User Data*. In this case, the session uses the specified password.

   > **i** Note that you can only enter the password when you first set up a session. You cannot display or change it later.

3. Confirm with **OK**.
   - For an active session the session window with the BS2000 login prompt or the BS2000 application is now displayed on the screen.
   - A passive session is started as an icon and waits for the host to establish the connection.

4.1.2 Setting up a session in LAN-INET format

> **i** Note that when using LAN-INET in Windows, only an outdated version of the transfer protocol can be used. Converting existing LAN-INET sessions to RFC1006 sessions is recommended (see section "Converting a LAN-INET session to an RC1006 session").

If you activate the *LAN-INET* option, the appearance of the **Basic Configuration** tab changes slightly. The fields in the *Partner* and *Local* sections have different input options.

As in RFC1006 format, for active sessions you must specify the host name of the host with which you want to communicate. Instead of the host application, under LAN-INET specify the port number generated in the host application. Contact the host system administrator if necessary.

A port number is also entered instead of the terminal in the local configuration of the emulation session under LAN-INET. However, this is not essential for many applications and can be left blank. In this case, the emulation automatically assigns a free port to the session. By contrast, if your host application expects a particular port (e. g. UTM applications or File Transfer) specify this under Local: Port Number.

The input options on the **Advanced Configuration** tab are the same for LAN-INET as in RFC1006 format (see section "Setting up an active session in RFC1006 format").

4.1.3 Setting up a passive session

Passive sessions play a special role (see also section "MT9750 session"). In most cases, passive sessions are required to implement bypass printing connections. In contrast to active sessions* when setting up a passive session specifying a host name is not required; the name of the local terminal (or the local port number under LAN-INET) that remains reserved for the passive session is entered.

1. In the *Session > New* dialog box, select the **Advanced Configuration** tab.

2. Click on the *passive* option in the *Mode* section and confirm with **OK**. This takes you back to the **Basic Configuration** tab.

   Depending on whether you require LAN-INET format, different entries are necessary in the *Local* section.

3. If you are using the default RFC1006 format, specify the name of the local terminal. Otherwise (*LAN-INET* option selected), specify the number of the local port that is provided for the passive session.

   In LAN-INET format, the port number to be used is generated in the host application that initiates the connection.

4. Confirm the entries with **OK**.

   The passive session is immediately started as an icon.

Special parameters of the data display terminal

For LAN connections, passive sessions are required to allow bypass printing. This is done by opening a session with a passive connection name. This is initialized as an icon and waits for the connection request from the host.

Passive sessions can also be provided for dialog applications in which the connection is established by the host.

If the host application uses information about the properties of the data display terminal (*Partner Characteristics*) to process the (print) data flow, in addition to the configuration of the printer (see section "Configuring the printer"), the *Partner Characteristic* parameter also has to be changed.

1. Open *Configuration > Special Parameters* from the menu.
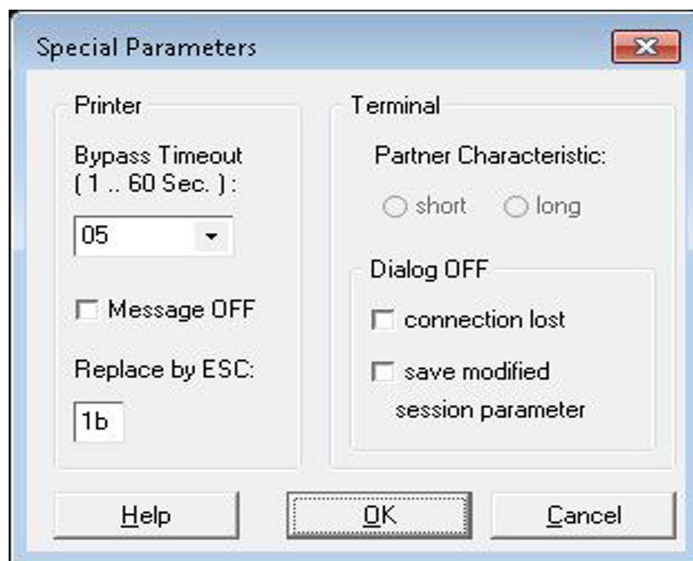
2. In the *Partner Characteristic* section, click on the *long* setting.

3. Confirm with **OK**.

4.1.4 Saving a new session

Once you have set up a new session, if the connection parameters are specified correctly the relevant host application is started. Save the session so that the session parameters will also be available later.

> Open *Session > Save* or *Session > Save As* from the menu and enter a name.

- The name must correspond to the operating system naming conventions.
- It must be given the file extension *MTS*.

The section "Configuring the data display terminal" describes how you can adapt the session to your individual needs.

4.2 Configuring the data display terminal

The terminal parameters are session-specific, i.e. they can only be configured after setting up and opening a session.

1. Open *Configuration > Terminal Settings (DSS)* from the menu.
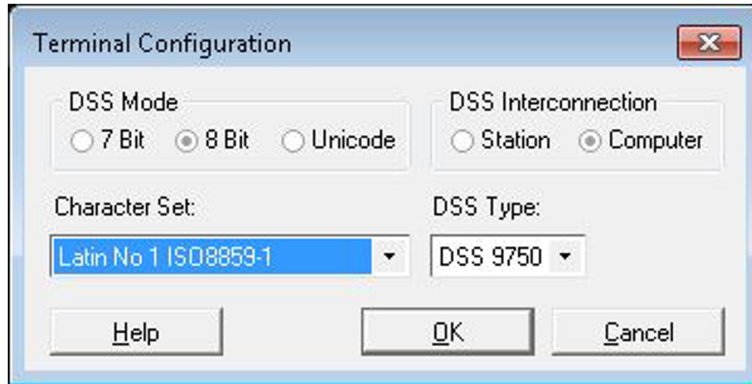
2. Specify the *DSS Mode*, *DSS Interconnection*, *DSS Type*, and *Character Set* parameters.

- *DSS Mode* and *Character Set*

  The DSS mode sets a local operating mode that affects the character set to be used.

  The DSS mode should always be synchronized with the relevant host application. The *Character Set* field is used to select which national character set is to be displayed on the screen for the selected DSS mode.

7 Bit

If the *7 Bit* DSS mode is set, a 7-bit character set corresponding to the national variation currently selected in the *Character Set* section is activated. Currently supported national variations:

- International
- Danish
- German
- English
- French
- Italian
- Sweden
- Spanish

8 Bit or Unicode

If *8 Bit* or *Unicode* is set as the DSS mode, a total of 191 characters and special characters are available. In these modes, the character set variations in the ISO standards 8859-1, -2, -5, -7, -9, and -15 are supported (Latin alphabet, mixed with a choice of Cyrillic, Greek, Turkish), see section "7-bit / 8-bit / Unicode character sets".

To use 8-bit character sets or Unicode, the EHCS or XHCS program must also be installed on the BS2000 host.

- *DSS Interconnection*

   If your computer is specified as *Computer connected* in the BS2000 generation, problems should be anticipated in the character display. This parameter should then be changed to *Station connected*.

- *DSS Type*

   Some host applications check the type of the connected terminal. By default, MT9750 sessions login as a 9750 terminal. If the host application expects a different type, it can be changed here. This means that the host application does not have to be adapted.

   The types available for selection are DSS 9750, 9755, 9756, 9758, 9762, and 9763.

Special parameters of the terminal

Some events while using MT9750 are displayed or requested using messages. The associated user actions may, under some circumstances, interrupt work in the emulation.
In the *Configuration > Special Parameters* menu, it is possible to suppress the following dialog boxes:

- Dialog box for terminated connection (TCP/IP connections)
- Dialog box for changed session parameters
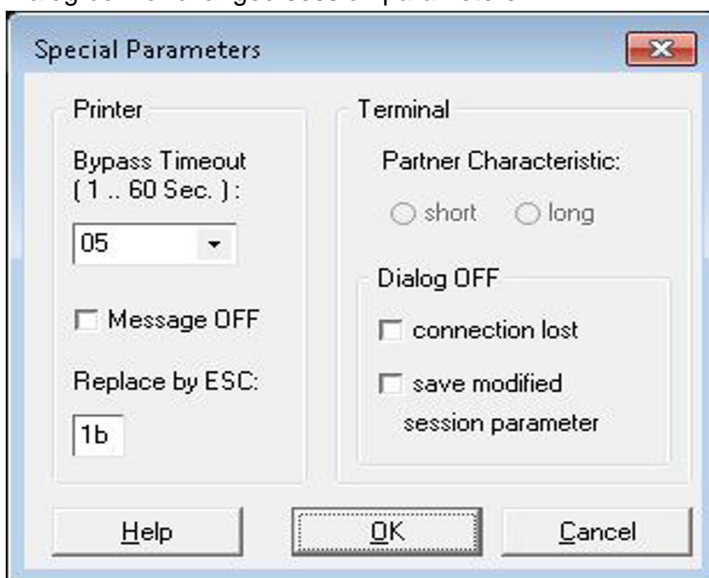
In the case of changed session parameters, the changes are automatically saved.

The *Partner Characteristic* parameter only relates to passive sessions, see section "Setting up a passive session" .

4.3 Converting a LAN-INET session to an RC1006 session

Sessions for which the *LAN-INET* parameter is checked use an outdated version of the transfer protocol in Windows. Therefore, these sessions should be converted to RFC1006 sessions.

1. Open *Session > Edit* in the menu. The **Basic Configuration** dialog box is displayed.
2. Clear the *LAN-INET* check box.
3. Specify an application name (e. g. $DIALOG) in the partner definition. Port number 102 is then used by default.
4. Confirm with **Save**.

4.4 Settings for the MT9750 application window

Settings can be made that are applicable across sessions each time the application is opened until they are changed.

- Selecting and deselecting individual toolbars
- Layout of the application (classic or default)
- Which *.KMP* keyboard mapping file is loaded
- Display of the keyboard mapping for inserting a function into a session

These settings can be made in the *Settings* menu without a specific session having to be open.

Displaying and customizing toolbars

For details of showing, hiding and customizing the toolbars, see the menu:
Settings > Toolbars > ... or Settings > Toolbars > Customize

As long as the customization window is active, buttons can be configured by right-clicking and selecting `[CTRL]` Move or Copy.

4.5 Configuring the printer

This section describes how to set up MT9750 for printing of both screen content and host files. For information on creating printouts, see section "Printing".

When configuring the printer, a distinction is made between adapting the print data flow coming from the host (host printer) and the print data flow going to the connected printer (local printer).

4.5.1 Local printer

The local printer is a printer connected to your PC. MT9750 allows connection of printers supported by Windows. The configuration of the local printer is global, i.e. it is not just valid for the current MT9750 session but for all MT9750 sessions.

Screen printouts (complete or extracts) and bypass printing are produced on the local printer.

> **i** Printing host files (bypass printing)
>
> If you are using a Windows printer that differs from the printer specified in the host generation, MT9750 converts the data from the host. To do this, MT9750 must know the format of the print data sent by the host. You configure this conversion by specifying the host printer, see section "Host printer".

Setting up a local printer

If you are printing on a default Windows printer that is already installed, no additional configuration is necessary. If you want to use another of the installed Windows printers:

1. Select *Local Printer* in the *Configuration* > *Peripherals* menu.

2. Select the printer you want to use in the list of Windows printers displayed and it will then be set as default printer.

3. You can also change the print layout (line length, page length, character size, etc.); to do this select *Define Printer* > *Print Layout*. In this dialog box you can call up further information using the Help button.

You can also configure your Windows printer using the Windows mechanisms. Information on configuration can be found in the Windows user manual or in the printer description.

4.5.2 Host printer

The printer that is generated as connected to the data display terminal in the BS2000 generation is referred to as the host printer. The data sent by the host is in a format that can be understood by the host printer.

The host printer is set up by selecting *Configuration > Peripherals > Host Printer* in the menu.
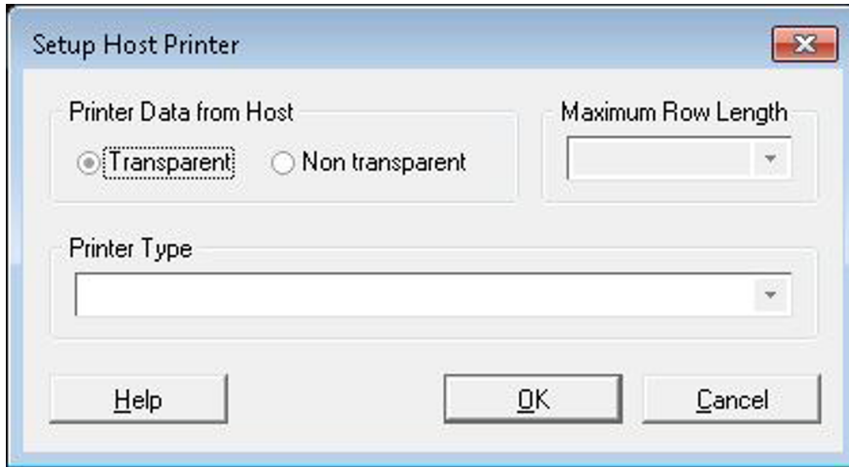
Transparent printing

If the host printer and local (Windows) printer have matching formats, you do not need to set up adaptation to the host printer type in the emulation. In this case, retain the default setting *Transparent* in the *Print Data from Host* section.

This handling of print data is known as transparent printing (see also section "Special features of transparent printing").

Converting the print data

If the host printer and local (Windows) printer formats do not match, you can initiate conversion of the print data into GDI format.

1. Open *Configuration > Peripherals > Host Printer* from the menu.
2. Select the *Non transparent* option in the *Print Data from Host* section.
3. Select the printer type generated in the host from the *Printer Type* list.

After conversion, the print data is forwarded to the configured Windows printer and output.

Printer type in passive session

For bypass printing, a separate session is required that is defined as a passive session and waits for the connection to be established by the host. When establishing the connection some host applications check the properties of the printer. In order to operate the existing host applications with no changes, MT9750 provides the option of configuring the passive session in such a way that the expected properties of the session (particularly the printer type) are reported when establishing the connection.

1. Open *Configuration > Peripherals > Host Printer* from the menu.
2. Specify the printer generated in the host under *Printer Type*.
3. Under *Maximum Row Length* enter the row length to be used in the printout. This value can be used by the host application to print out the data.

Print output overview

> **i** In contrast to transparent printing (*Print Data from Host*. *Transparent* option) with the *Print Data from Host > Non transparent* option only printer types for which conversion into GDI format is supported can be specified (see section "Host printer").

The following table explains the effects of the printer type setting in the different print modes with regard to active /passive sessions and print output on Windows printers:

	Non transparent	**Transparent**
Active session	Conversion to corresponding GDI format	No effect
Passive session	Conversion to corresponding GDI format and identification via host	Identification via host

For passive sessions, the special features of transparent printing specified below are also applicable.

4.5.3 Special features of transparent printing

The default setting for bypass printing with MT9750 is transparent printing (*Print Data from Host: Transparent* option)
.

Where possible, this mode should be used as the print jobs are processed much more quickly. In addition, this mode enables you to intervene in the data flow using two mechanisms:

- Replacement character for ESC

  Some host applications do not use the default control character ESC (Escape) for printer control. To enable you to continue using these applications with adapting them, you have the following option: Specify a character that will be converted into ESC by the emulation before the data flow is forwarded to the printer.

  The replacement character is defined in the *Configuration > Special Parameters* menu. Specify the character in its hexadecimal format (e. g. 1b for ESC):
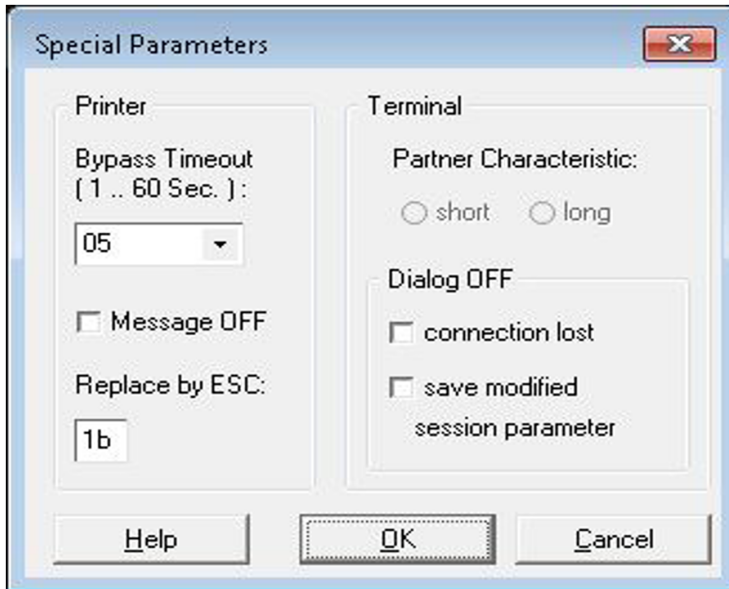
- Printer filter

  If you want to connect Windows printers whose range of functions differs from that of the host printer, you have the option of incorporating separate printer filters to convert the print data flow, and you can customize these.

  To activate this kind of printer filter, specify the file containing the filter functions under *Configuration > Printer Filter > Load* in the menu. This file must be a Dynamic Link Library (DLL) created according to certain conventions. A source code example for a filter is supplied with the file FILTER.C. You can adapt this filter to your individual needs.

4.6 Troubleshooting for setup problems

An emulation program is a software product whose functionality depends on correct configuration of the PC, communication software, and host.

In case of problems, the following items should be checked:

MT9750 configuration

Make sure that the correct character set is set in the *DSS Mode* dialog box in the *Configuration* menu.
If necessary, also check the *DSS Type* setting.

Connection

Make sure that the host name you have entered matches either the name on the name server or the host name in the *lmhosts* file.

BS2000 host

Communication errors can be caused by the host generation. Check communication with the host.

Command line in the Windows command prompt

```
ping [hostname] or ping <IP address>
```

5 Working in emulation sessions

This chapter describes the functions you can use to work with MT9750. The following specific topics are addressed:

- Managing sessions
- Modifying session properties
- Exchanging data
- Composing characters
- Displays in the status bar
- Printing

> **i** The description below assumes that you are operating MT9750 using a mouse. Any exceptions from this assumption are indicated separately. MT9750 can also be operated without a mouse. In this case, use the key combinations in the menus.

Mouse pointer and cursor

The mouse pointer takes the form of an arrow, while the BS2000 cursor within the session window is displayed as a block or an underscore (depending on the configuration). In this manual:

- the term "pointer" refers to the mouse pointer,
- the term "BS2000 cursor" refers to the cursor in the BS2000 session window.

There is also a position indicator, which is associated with copy/paste of data (see section "Copying and pasting screen data"). This is displayed as an upright block and is referred to as the marking cursor.

5.1 Managing sessions

You can open and edit existing sessions, save changes, or set up new sessions.

5.1.1 Opening sessions

There are several ways to open sessions:

- Automatic opening when starting the emulation

  With this option, the sessions to be opened have been saved using the Reconnect on Startup option (see also section "Editing sessions").

- Opening one of the last four sessions

  After selecting Session you will see the last four sessions to be opened. You can open these by clicking on them.

- Opening a saved session

  Select Session: Open, find the relevant session using the directories displayed, and open it.

- Opening a temporary session

  When you select Session: Temporary Session you will see a dialog box, in which you can specify the connection parameters in the same way as setting up a new session, see also section "Setting up and saving a new session" .

- Opening a new session

  See section "Setting up and saving a new session".

- Opening a session using its icon

  If you specified when saving a session that it is to be started using an icon, you can open the corresponding session by double-clicking on the icon in the Emulations group.

5.1.2 Editing sessions

The *Session > Edit* menu is available for editing sessions.

Here, you can view and modify the connection parameters for the selected session, including the advanced parameters (with the exception of the network password). For a description of the individual parameters, see section "Setting up and saving a new session".

5.1.3 Saving a session

> **i** Saving a session does not mean saving the session data that is displayed in the window. It involves saving the session parameters, such as the character format, the session title, the display mode, the P key assignment, etc.

If you do not specify a directory in which your session is to be saved, the MT9750 sessions are saved in the configuration directory.

The following sections describe the different options for saving sessions.

Saving an active session

> Select *Save* in the *Session* menu.

  If you are saving a new session, you will then be prompted to enter a file name. If the session has already been saved previously, the original file name is used.

The session window remains the active session window after saving it.

Saving a session under a new name

1. Open *Session > Save As* from the menu and enter a name. You can also change the directory.
   - The name must correspond to the operating system naming conventions.
   - The name must be given the file extension *.MTS*.

   All properties of the session, e. g. display attributes, identification for the host, session name and short name, are entered in file with the file extension *.MTS*.

2. To save the current assignment of the programmable keys, select the *Save Programmable Keys* option. The key assignment is saved in a second file with the file extension *.MTK*.

   If a new session has been set up and not previously saved, this dialog box also appears the first time you save or close a session.

3. Confirm the entries with **OK**.

The session window remains the active session window after saving it.

You are always prompted to enter a name, regardless of whether or not the file has previously been saved.

Saving all open sessions

> Select *Save All* in the *Session* menu.

  This option enables you to save changes to all open sessions. If they include a new session that has not yet been saved, the *Session > Save* menu is opened for that session.

The session windows remain open after they have been saved.

5.1.4 Closing a session

If you want to close individual sessions, you can either do this by selecting *Session > Close* in the menu or using the System menu for the session. If you exit the emulation program, all remaining active sessions are automatically closed.

If you have made changes to your session parameters since last saving, you are asked whether you want to save the changes. The prerequisite for this is that message suppression is not activated in the *Configuration > Special Parameters* menu.

5.1.5 Using multiple sessions

MT9750 can run applications in different session windows in parallel. To do this, you must open additional sessions in the *Session* menu.

In the *Window* menu you can specify how the different session windows are displayed: Tile or Cascade.

When using multiple windows (sessions) you can also use this menu to set which window will be the active one. If multiple sessions have been started and a message window is displayed, e. g. containing information about termination of a session, there are no screen outputs in other session windows until the message has been acknowledged. The same applies if a menu is selected. The sessions themselves remain active in the background.

All open sessions are closed when exiting the emulation program - the sessions do not have to be exited individually. The *Window* menu also contains the *Close All* option for exiting the sessions.

An active session is selected using tabs rather than using numbered buttons as was previously the case. Another option is to switch between the sessions using the key combination **[CTRL]+[Tab]**.

5.1.6 Deleting a session

1. To delete a session, select *Session > Delete*.

   In the dialog box that is displayed, you can switch to the directory in which the session to be deleted is saved. The configuration directory is displayed by default.

2. Select the session to be deleted. The session properties are shown for review.

3. Confirm the selection and the subsequent confirmation prompt with **OK**. The session is deleted.

5.2 Modifying session properties

Every session has settings that relate to the display attributes, terminal and color settings, font size, and attribute mappings.

These session properties can be found in the *Settings* menu. The choice of display attributes is linked to an open session.

Other selection options without a direct relationship to a session relate to the general layout of the emulation and the keyboard mapping.

5.2.1 Terminal settings

To reach the options for the terminal settings select *Settings > Terminal* in the menu.
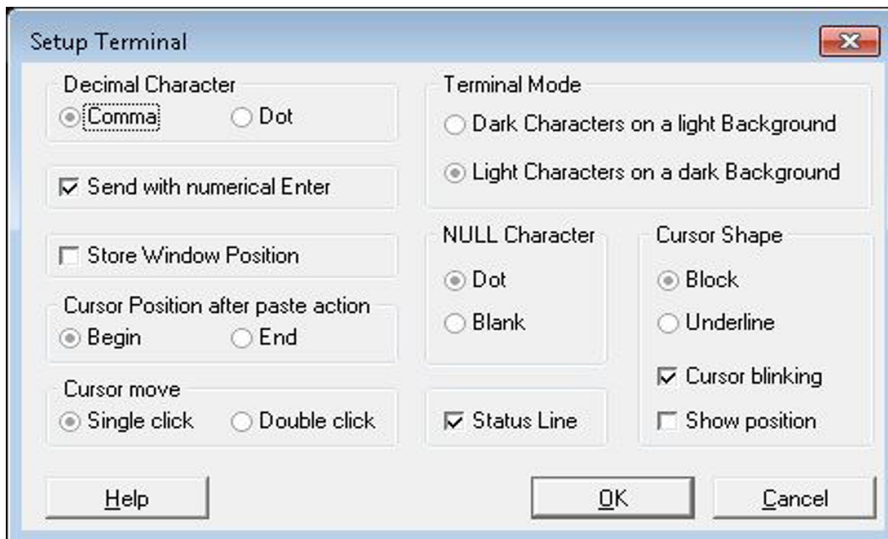
You can:

- Set the properties for decimal and NULL characters, and adjust the display mode
- choose between a display with or without a status bar
- set the **[Enter]** key in the numerical keypad as a second data transfer key
- set the properties of the cursor
- save the window position

Cursor properties to support automated operations

If you are automating data communication, it is useful to know the position of the cursor as this is used by the MT9750 programming language functions.

Activate the *Show position* option in the *Cursor* section. This gives you an additional display in the status bar (e. g. `2 /40`), which tells you the position (row/column) of the cursor. In this context, the position of the cursor after paste operations is also important.

Saving the session window position

Activate the *Store Window Position* check box to permanently assign the window size and position to a session.

The current window size and position when closing the session is saved for the next time the session is called up.

5.2.2 Color mapping

Host applications use colors to emphasize information. You can map these colors to alternative colors of your choice

Selecting *Settings > Colours* in the menu enables you to select an alternative color from the color palette for every color used by the host. The color palette is based on the graphics driver installed in Windows.
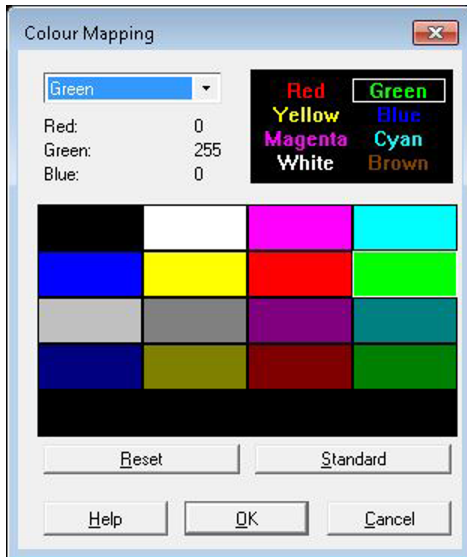
5.2.3 Adjusting the font size

Selecting *Settings > Fonts* in the menu defines the font size to be used for the terminal output.
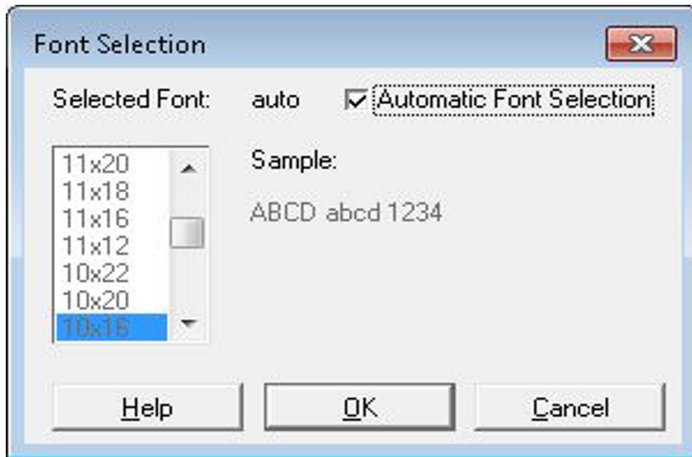
You can choose between automatic adjustment of the font size to the window size for the session or a fixed font size setting.

The choice of fonts runs from 6 x 10 pixels to 12 x 28 pixels. Fixed fonts can only be selected if the *Automatic Font Selection* option is inactive.

5.2.4 Mapping attributes

Fields in BS2000 screens have field attributes (field types) and display attributes.

With MT9750 you can change the following:

* the mapping of field types (e. g. Protected or Numeric) to display attributes (e. g. *Blinking*, *Underline*, or Half *intensity*) to improve the visual differentiation between the individual field types

* the mapping of display attributes (e. g. *Blinking*) to colors (e. g. *Red*) to improve the identifiability of the individual display properties

Mapping is carried out by selecting *Settings > Attributes* in the menu.

This option is only available if a session window has first been opened.
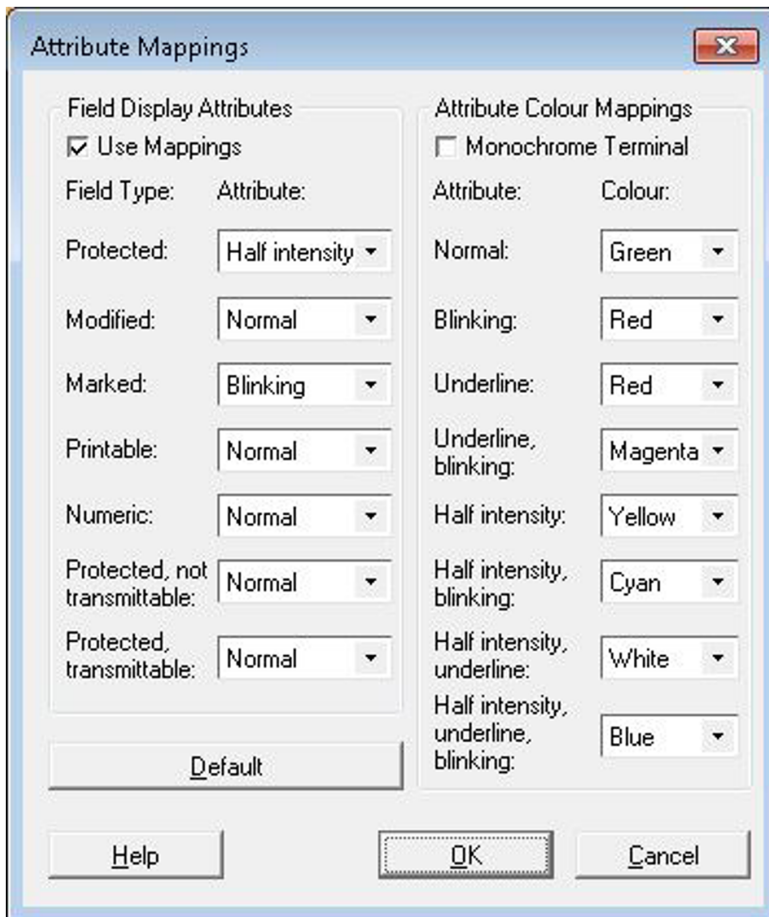
Mapping field types to attributes

1. Open *Settings > Attributes* in the menu.

2. Select a new *Display Attribute* for a *Field Type*.

3. Repeat this step if required,

4. Check *Use Mappings* to activate your custom mappings. Otherwise, the use of display attributes depends on the host application.

5. Confirm the mapping with **OK**.

Mapping attributes to colors

The *Attribute Color Mappings* section is only relevant for color screens.

If you are using a monochrome monitor, check *Monochrome Terminal* in the upper section of the field to deactivate all the settings displayed here. In this case, the session window displays a monochrome screen.

If you are using a color screen, you can assign a color to a display attribute.

1. Open *Settings > Attributes* in the menu.
2. Select a new *Colour* for a display attribute.
3. Repeat this step if required,
4. Make sure that *Monochrome Terminal* is not selected.
5. Confirm the mapping with **OK**.

5.3 Exchanging data

The use of modern terminal emulations on PCs enables data to be exchanged between host applications and PC applications, and thus allows data to be processed with userfriendly Windows applications. Data is exchanged using the clipboard (Copy and Paste).

5.3.1 Copying and pasting screen data

Copying and pasting data relates to the data in the session window. The data in the session window is referred to as screen data in the following description. The functions provided by the *Edit* option allow you to select either all or a part of the screen data and then to copy and paste it.

Copying screen data

Screen data can be completely or partially copied to one of the following destinations:

- Clipboard
- File
- Printer

Copying screen data is only possible if you have first selected an area of the screen in the active session window.

> **i** Invisible and non-printable text (e. g. a password) is still invisible after copying, thus guaranteeing data security. Note also that only the characters themselves are copied, not their attributes (e. g. underline /bold), and not all BS2000 characters can be displayed.

You can either copy all screen data or just parts of it.

Copying part of a session

1. Open a session.
2. Using the mouse, select the rectangle within the session window you want to copy. If you are not using a mouse:

    > Use **[Shift]** + cursor key or the *Mark* option in the *Edit* menu to switch to marking mode.

    > Use the cursor keys to specify the beginning of the area to be copied.

    > Hold down the **[Shift]** key and use the cursor keys to mark the area to be copied.

3. Select *Copy* in the *Edit* menu.
4. Select the destination for the data to be copied in the overlapping *Copy* menu.

Copying the complete active session window

1. Open a session.
2. Select *Select All* in the *Edit* menu.
3. Select *Copy* in the *Edit* menu.
4. Select the destination for the data to be copied in the overlapping *Copy* menu.

> **i**
> - *Select All* allows you to select all the data that is displayed in the currently active MT9750 window (except for the BS2000 status bar).
> - When copying to a file, note that:
>   The name of the target file should be a permitted DOS file name with the file extension *.DMP*.

Pasting screen data

Data can be pasted from the clipboard or from a file:

1. Open a session.
2. Position the cursor at the point on the screen from which you want to paste the data.
3. Select *Paste* in the *Edit* menu.
4. Select the source of the data to be pasted in the overlapping *Paste* menu.

i   Data cannot be pasted into protected fields. If you try to do this, **ERR** appears in the 9750 status bar.

5.4 Composing characters

The compose\ function enables characters to be composed if there are no keys for them on the keyboard. On PC keyboards, this function is represented by the **[Alt Gr]** key.

> ℹ The compose function is only available if:
>
> - DSS and host application are running in 8-bit mode, and
> - the DSS interconnection setting is *Computer*.
>
> Information on changing the DSS mode and DSS interconnection can be found in section "Configuring the data display terminal".

Composing characters

1. Press the **[Alt Gr]** key and release it.

2. Enter a sequence of characters that is contained in the compose character table in section "Compose characters". The composed character is now displayed on the screen.

If the sequence of characters you entered is invalid, an acoustic signal sounds and no character is displayed on the screen; you then have to start the whole operation from the beginning by pressing the **[Alt Gr]** key again. If you press the **[Alt Gr]** key accidentally, you can cancel the operation using the **[<--]** (backspace) key.

5.5 Displays in the status bar

The status bar, also known as the device indicator bar is displayed at the lower edge of the session window and is described in detail in the operating manuals for type 9750 terminals.

Meaning of the buttons referenced in the text:

[RS]   Reset to old value / delete an entry / delete display

[INS]   Activate insert mode

[RECV]   Start data transmission

[SHFT]   Activate the Caps Lock key

MCR

> If the host has requested an authorization card, the MCR display lights up; once the information from the authorization card has been transferred to the computer the display goes out again.

MCR ERROR

> The display appears in the event of errors associated with connected ID readers.

BEL

> The BEL display is triggered or deleted by the application program using control characters. You can reset the display by pressing the **[RS]** button.

DIA

> DIA lights up after switching to dialog mode and goes out when you exit this mode. Dialog mode begins when you press the data transmission button **[RECV]** and ends when the message is received from the BS2000 host.

RECV

> RECV lights up if data transmission has started and goes out when the data has been transmitted or you press the **[RS]** button after transmission errors. The RECV display flashes if data transmission has been aborted due to a transmission error.

INS

> INS lights up if you press the **[INS]** button and goes out if you press the **[RS]** button or a data transmission is initiated.

F0, F1, F2, F4, F8

> These displays indicate errors connected with hard copies on the local printer.

ERR

> ERR lights up if you have made an error during input; the display goes out again once you have corrected the input or pressed the **[RS]** button.

SHFT

> SHFT lights up if you press the **[SHIFT]** button.

H

The display H indicates that the host has changed the mapping of the P keys.

PR1, PR2 ... PR7, PDEV1, PDEV3

If the user or the host program starts a print job, this status indicator remains lit until the print operation is complete or you press the **[RS]** button. In case of problems with the connection to the printer or with the printer itself, the display flashes; in case of a fault in the print output, a flashing error code (F0, F1...) is also displayed.

LINE

LINE lights up when the connection to the computer is established.

NUM

NUM lights up if the cursor is moved into a numeric field; as soon as the cursor leaves the field, the display goes out again.

POLL

POLL flashes if no signals are being received from the host but the line is available.

XREQ

XREQ stands for send request and always lights up if a key that initiates a data transmission has been pressed. It goes out when the data transmission has begun, or if you press the **[RS]** button. XREQ flashes after the data transfer has been canceled.

KEYB

This display lights up if the keyboard is connected and functioning. If the keyboard is not connected or is faulty, the KEYB display flashes.

<numbers, e. g.> 2/40

The two numbers specify the position of the cursor (row/column). If you prefer a linear specification (position in data flow calculated from start of screen), you can configure this setting (see Help for "Terminal settings - Show cursor position").

The following indicators only appear when using a **card reader**:

CARD INVALID

The display indicates that the card has not been read correctly. Try to slide the card through the reader again. If the card is faulty or invalid, use a new card.

CARD BLANK

The incorrect side of the card or a blank card has been used. Insert the card in the correct position in the card reader or use a new card.

5.6 Printing

MT9750 supports different print output formats.

- Bypass printing

  Bypass printing is printing of host data on a connected printer, where the print data is not actually displayed on the screen but bypasses it. MT9750 requires passive sessions for bypass printing.

- Hard copy

  Hard copy printing is the output of screen data from a data display terminal on a printer. It makes no difference whether the printout is initiated by the operator of the terminal (or 9750 session) or by an instruction from the host ("Host-initiated hard copy").

Apart from these BS2000-specific print functions, two general print functions are available in MT9750:

- Copying screen data to a printer
- Printing the screen content without previously positioning the cursor

5.6.1 Output via a printer

The print data is sent to a Windows printer. Setting up and adjusting the printer are described in section "Configuring the printer".

To allow print output, you must define a local printer.

> Specify a printer under *Configuration > Peripherals > Local Printer* in the menu.

- If you are printing on Windows printers, use the Windows Print Manager functions. Each print job (hard copy, bypass, copying to printer) generates a separate print list.

- If you want to print out host files on a local printer (bypass), it may be necessary to specify the host printer type, which is generated in BS2000. If generated printers and connected printers do not match, MT9750 has to convert the print data.

  The host printer is specified by selecting *Configuration > Peripherals > Host Printer* in the menu. Here, you can also find the option for transparent printing (if no conversion of print data is necessary or desired).

---

i If you are printing from multiple sessions in parallel, the first print job is processed first. The others are rejected with an error message until the first print job is completed. The second print job is then released, and so on.

5.6.2 Printing host files (bypass printing)

If you want to output host files on your local printer, you can use what is known as bypass printing. In this mode, the data is sent directly to the printer, bypassing your screen (i.e. it is not displayed on the screen).

As bypass printing can only be started from the host, to create printouts you must use the BS2000 program RSO (Remote SPOOL Output) and have opened a passive session. To activate a printer in RSO, enter the following:

```
/SD DEV= <printer name>
```

Printing is then started with the following command:

```
/PRINT <host file>, DEV=<printer name>
```

Printing host files on the PC printer

Make sure that the host is set up to output print data to your PC and that the host printer and the local printer for your session are configured.

For bypass printing, you require a passive session, in which the host printer and the local printer have also been configured.

1. If necessary, check the settings for redirecting the print output by selecting *Configuration > Peripherals > Redirect Printing* in the menu.
2. Start printing from your BS2000 application using the `PRINT` command.

> **i** As there is no end criterion for bypass printing, the end of a bypass print output is subject to time monitoring.
>
> If pauses occur during transfer of a bypass data flow from the host, it is possible that the bypass printing will be split into several smaller bypass jobs, each of which is dealt with as a separate print job.
>
> The monitoring timer can be set by selecting *Configuration > Special Parameters / Terminal / Printer* in the menu.
> If values other than the default are entered for the *Bypass Timeout* parameter, these values are applied when you click on **OK** but are not displayed.

The control characters taken into account when interpreting the data flow for bypass printing are listed in section "Supported printer control characters".

5.6.3 Printing the screen content

If you want to output a screen capture of the current session window on the local printer, you can either select hard copy mode or call up the Windows *Copy* function in the *Edit* menu.

To output a screen capture of the current session window

These print functions recognize the printer control characters carriage return (CR), line forward (LF), horizontal tab (HT), backward step (BS) and form feed (FF). Any other control characters are not executed; they are output as spaces.

Note that the print output is in the character set that has been set for the emulation (corresponding to the setting for the DSS Mode and Character Set parameters under *Configuration > Terminal Settings* in the menu).

Message suppression

> **i** If the specified country option is not supported by the printer, it switches to the ANSI character set and a message appears to inform you that the printout may contain errors. This message can be suppressed, e. g. if you are satisfied with the result achieved. To do this, activate the "Message OFF" option under *Configuration > Terminal / Printer Settings > Special Parameters for DSS/Printer* in the menu.

When using a Windows printer, the print output depends on the Windows version used:

- In standard Windows (Western) the ANSI character set is used, which corresponds almost completely to the ISO 8859-1 character set.
- In the Eastern European Windows, the character set 8859-2 is mapped to the Eastern European ANSI character set.
- In Cyrillic Windows, the character set 8859-5 is mapped to the Cyrillic ANSI character set.

When using character sets other than the specified 8-bit sets, the print output may contain errors.

5.6.3.1 Hard copy

The Hard copy option allows you to create a **screen capture of the current session** on your local printer. The screen capture starts from the position of the BS2000 cursor and includes all characters up to an end marker or up to the lower right-hand corner of the screen.

Output of hard copies can be started by you or by the host application. When starting with an LAx key, we see a "manual hard copy". One of the LAx keys is the default key for printing hard copies. You can use the list of keyboard mappings to identify the keys on your PC keyboard that are assigned to this function.

Creating a hard copy of the current session window

1. Place the cursor at the point on the screen from which you want to print the data.

2. If necessary, check the settings for redirecting the print output (*Configuration > Peripherals > Redirect Printing* in the menu).

3. For example, press the `[LA1]` macro key.

The display `PDEV1` appears in the status bar for the duration of printing.

5.6.3.2 Printing the entire screen

MT9750 includes a function that can make a hard copy of the entire screen content, regardless of the cursor position. You can find the function in the menu *Session > Print Screen.*

When you select this option, the screen content is copied to the local printer and printed in the same way as for a manual hard copy. The settings made under *Configuration > Peripherals > Redirect Printing* are also effective here.

The function can also be executed using the mouse. This is done by clicking on the printer icon in the toolbar. You can assign the BSD function to a key using the keyboard mapping program.

5.6.3.3 Copying to the printer

This function enables a **selected area of the session window** to be copied to the PC printer.

ℹ️ If the marked area contains invisible or non-printable characters, these are output as spaces on the printer. Printer control characters are not recognized.

The copy operation consists of two steps. First, the text must be marked either with the mouse or using the *Mark* or *Select All* function in the *Edit* menu.

1. Marking screen data

    a. Marking screen data with the mouse:

       Drag the mouse pointer over the area of text you want to copy.

    b. Marking screen data with the keyboard

       Select the *Mark* option in the *Edit* menu.

       Use the cursor keys to move the cursor to the first character in the area to be marked.

       Mark the characters using **[Shift]+** direction keys (arrow keys).

    c. Marking all screen dataSelect *Select All* in the *Edit* menu.

    ℹ️ Under some circumstances, the *Select All* option may also select data from the session window that is outside the current window section displayed.

2. Select *Copy* in the *Edit* menu.
3. Select *To Printer* in the overlapping *Copy* menu.

You can also copy data to the clipboard or to a file in the same way. When copying to a file, you can save the data in separate files or add it to an existing file.

5.6.4 Redirecting the print output to files

You can redirect the print output for hard copy or bypass printing to one or more files. This is done by selecting *Configuration > Peripherals > Redirect Printing* in the menu. This option also redirects the output from the *Copy to Printer* function. This setting is session-specific.

If you redirect the bypass output to a single file, MT9750 creates the file *bypass*. Its content is overwritten by each new bypass output.

If you redirect the bypass output to several files, MT9750 creates the files *bypass.000* to *bypass.999*.

If you redirect the hard copy output to a file, MT9750 creates a file *Hardcopy.nnn* for each hard copy (000 <= nnn <= 999).

The emulation program looks for the redirect file with the highest number and then uses the next higher number, e. g. if it finds *bypass.005* it uses *bypass.006* for the next output. After the file *bypass.999* the file with the lowest existing number is used. It is then overwritten continuously for further printouts.

For print redirection, before being saved in the file the data is prepared for a specific printer, i.e. it is saved in a suitable form for the target device. The prerequisite is that the local printer and, if necessary, the host printer are configured accordingly.

5.6.5 Printing with 8-bit character sets

The BS2000 character set is converted to ANSI (the character set for Windows PC printers) when using a Windows printer. Only the 8-bit character set ISO 8859-1 corresponds almost exactly to the ANSI character set. When using a different 8-bit character set, the printout may contain errors.

5.7 Problems?

A number of selected problems that could arise when using MT9750 are listed below:

- Password entry in conjunction with MT9750 and AVAS

  In the AVAS product, entry of a password is required in the "NETPASSWORD" field in the "AVM$N001" screen.

- Character set size not optimum for print output

  If a line on the screen is output in two print lines in a hard copy, the pre-assigned character set size has been changed. If the default size is changed, taking into account the layout an automatic line feed is created if the right-hand margin is exceeded.

  To undo this, you must set suitable values for the character set, font height, and font width under *Configuration > Peripherals > Local Printer > Print Layout* in the menu.

- Entry using numerical keypad does not work

  Make sure the numerical keypad is activated. Most keyboards indicate that numerical keypad entry is activated by a small, illuminated **[1]** character. If necessary press the **[Num]** key on the numerical keypad to activate entry.

6 Utilities for operation

The following utilities are available for using MT9750:

- File transfer
- KBDMAP keyboard mapping program
- Programmable keys (Px and Px')
- Macro keys (MAx)
- Macros (macro recorder)
- Session recording
- Displaying the connection parameters

6.1 File transfer

MT9750 supports parallel operation of two file transfer products from Fujitsu Technology Solutions GmbH (FTS):

- openFT, which can be called up from the emulation
- Virtual File Transfer (VFT), which is supplied

If VFT is not yet installed, you can install it later by calling up the SETUP program again, see section "Adding components".

1. Open *Utilities > Filetransfer* from the menu.

   If this option is not available in the menu, no file transfer product is installed.

   In the subsequent menu, the choice of installed file transfer products is displayed. If you have only installed one product, the other is inactive (grayed out).

2. Select the file transfer product. The corresponding program window opens
3. Make the settings for the file transfer.

You can also access the file transfer programs under Programs in the Start menu.

6.2 KBDMAP keyboard mapping program

> **i** To differentiate between the MT9750 and KBDMAP menus, in this section the menus are explicitly designated as "MT9750" or "KBDMAP". Example: *Utilities* MT9750 menu

Because there is not a direct equivalent for all 9750 keys on a standard PC keyboard, some 9750 keys have to be mapped to PC keys.

Example

MT9750 maps the `[DUE1]` key on the 9750 terminal keyboard to the `[Enter]` key on the PC keyboard.

The keyboard mappings are set by MT9750 and depend on the type of keyboard connected to the PC. The mapping of 9750 function keys to the keys on the PC keyboard can be displayed in a separate window by selecting *Settings > Keyboard Mappings > Keyboard Mappings* in the menu.

The KBDMAP keyboard mapping program is a component of MT9750. It enables the available PC keyboard to be customized.

Important functions and characters for mapping the keyboard are preset in what are known as keyboard tables. Keyboard tables are files with the extension *.KMP*.

The KBDMAP keyboard mapping program also enables custom properties to be assigned to the keyboard.

For example, you can map the different characters and special functions for different emulations to your keyboard, and thus use a custom keyboard mapping when working on a particular emulation.

In the keyboard mapping program, keys can be marked in color: select *Options > Function Colors* in the KBDMAP menu.

The levels *Normal, Shift, Ctrl, Shift Ctrl, Alt, Shift Alt, Ctrl Alt (Alt Gr)* and *Shift Ctrl Alt* are available for mapping in the keyboard mapping program. Only a few keys from the different levels of the PC keyboard cannot be freely mapped using the keyboard mapping program. These are shown in a dark color in the keyboard mapping program.

The MT9750 keyboard mapping program supports MF2 keyboards and the bimodal library keyboard. Operation of the keyboard mapping program depends on the connected keyboard and the resulting keyboard layout.

The keyboard mapping program can be started in two ways:

- By selecting the icon in the program group
- By selecting *Utilities > Start Keyboard Mapping Program* in the MT9750 menu

After calling up the program, a keyboard mapping based on the layout of the selected keyboard appears.

> **i** The keyboard mapping program can only be operated using a mouse.

The keyboard mapping program can be configured with a toolbar for fast access to certain functions (*Show > Toolbar* in KBDMAP menu).

If certain characters (e. g. national characters, ê) are to be mapped to the keyboard, they have to be copied to the keyboard from the *Character Set* menu. The procedure for doing this is described in the following sections.

Creating a custom keyboard mapping

When you call up the keyboard mapping program from the *Utilities* MT9750 menu, the last keyboard mapping loaded is displayed. When starting using the icon, the mapping to be modified first has to be found and opened.

The *File* menu in KBDMAP can be used to load a different keyboard mapping or to save the modified mapping under a new or old file name.

To modify a keyboard mapping (everything in KBDMAP menus):

1. Open the file containing the keyboard mapping to be modified (this is not necessary when called up from the emulation).
2. Click on the item containing the relevant mapping. This item can be a different key, a 9750 function from *Show > Functions* or a special character from *Show > Characters*. The item is marked.
3. Then click on the key whose mapping you want to modify. This may require you to change the keyboard level using the *Level* menu.
4. Repeat this operation for each key to be mapped.
5. Save the new mapping with *File > Save*. The extension for the keyboard mapping file is *.KMP*.
6. If you want to load a previously created keyboard mapping in a session, you can do this by selecting *Settings > Keyboard Mappings > Load Keyboard Mapping* in the MT9750 menu.

> **i** If you modify the keyboard mapping from the emulation, the change takes effect immediately, i.e. it does not have to be saved first.

Finding a particular mapping

If you do not know which key on your keyboard is linked to a particular function or character, you can search for this key.

To do this, click on the character to search for (or the function) in the corresponding display and select either *Options > Find Mapping* or *Options > Find Function/Control Sequence* in the KBDMAP menu. (You can also press the **[F3]** key.) The relevant key on your keyboard is indicated.

Changing the keyboard level

The *Level* menu in KBDMAP enables the different keyboard levels on the connected PC keyboard to be displayed and mapped. You can also change the level by clicking on the `[Shift]`, `[Ctrl]`, `[Alt]`, or `[Alt Gr]` keys. Use the `[F5]` or `[F6]` key to go to the next/previous level.
Changing level changes the keyboard window or the mapping of the keys accordingly.

Mapping the keyboard with 9750 functions

In the *Show > Functions* menu in KBDMAP all available 9750 functions, as well as the additional functions like custom P keys (Px or Px') or macro keys (MAx), are displayed in a table.

1. Left-click on a function from the "Functions" table. The selected function is highlighted.

2. On the keyboard displayed, left-click on the key to which you want to map the previously selected function.

Mapping the keyboard with alphanumeric characters

Mapping the keyboard with alphanumeric characters is carried out in the same way as mapping of 9750 functions.

Mapping the keyboard with special characters

After selecting *Show > Characters* in the KBDMAP menu, all alphanumeric characters supported by MT9750 that can be assigned to the keyboard are listed in a table. It is important to consider that not all available characters will always be supported by the host applications and the connected printers.

The table corresponds to the complete character set for the Country Extended Code Page (CECP) including all national special characters. This eliminates the dead keys (diacritical marks) that are otherwise required on terminals to represent corresponding national characters.

Example

   The special character é can be mapped directly to a key using the keyboard mapping program.

Mapping the keyboard with alphanumeric characters is carried out in the same way as mapping of 9750 functions.

Saving changes

The current menu settings and window layouts can be saved at any time or when exiting the keyboard mapping program: select *Options > Save Settings now* or *Options > Save Settings on Exit* in the KBDMAP menu.

6.3 Programmable keys (Px and Px')

On the MT9750 terminal, frequently used or long keyboard entries can be assigned to function keys and retrieved as often as required. If a programmable key is pressed, this has the same effect as entering the corresponding characters and keys directly using the keyboard. MT9750 supports this host function.

Up to 20 keys (**P1** to **P20**) can be assigned. These Px keys are assigned to the function keys on the PC keyboard, e. g. the `[P1]` key is mapped to the `[F1]` function key on the standard PC keyboard.

The assignment of Px and Px' keys can be displayed in a separate window by selecting *Settings > Keyboard Mappings > Keyboard Mappings* in the menu.

The Px keys can be pressed using the *Function Keys P1-P20 toolbar*. For details of showing, hiding and customizing the toolbars, see the *Settings > Toolbars > ...* or *Settings > Toolbars > Customize* menu.

P keys are always defined for a specific session, i.e. they are valid during the session in which they were defined (and saved).

> **i** Mapping of the P keys is initially only temporary, for the duration of the active session.
>
> - Save the session to permanently link the current P key mappings to this session. The current mapping is saved in a file with the file extension *.MTK*.
>
> - If you exit the session without saving the P key mapping, all settings for the P keys made during this session will be lost.

> **i** Host applications (e. g. the BS2000 program PLUS) can overwrite the mapping of the programmable keys. In this case, the indicator **H** in the status bar tells you that the mapping of the (default) P keys has changed. Custom P keys (Px') are not affected.

Custom P keys (Px')

In addition to the P keys known to the host, MT9750 contains a memory area for recording up to 20 further P key assignments, known as custom P keys (**P1'** to **P20'**). This memory area **cannot** be **overwritten by host applications** and thus makes it possible to use host applications that change the mapping of the P keys while simultaneously having access to a custom key mapping.

The custom P keys are assigned, displayed, and used in the same way as the normal P keys, but they are known as **Px'** keys. The apostrophe indicates that the key is a custom P key.

Mapping of P keys

P keys are mapped by recording during input or by editing previously saved P keys (regardless of the data input in the session window). Two methods are available:

- The P key editor: *Utilities > Programmable Keys Edit* in the menu
- Recording P keys: *Utilities > Record Programmable Key > Start/Stop* in the menu

6.3.1 Recording programmable keys

This function records the entries you make in a session and maps them to a P key.

1. Select *Utilities > Record Programmable Key > Start* and select the key to be assigned.

2. Enter the sequence of commands to be recorded, including all required parameters. Functions such as the Enter key `[RECV]` are also recorded.

3. To exit the recording, select *Utilities > Record Programmable Key > Stop*.

   The Confirm Key Recording window is displayed. The assignment is displayed for you to check. You can cancel the assignment or confirm.

4. Click on OK to confirm the recorded sequence of commands.

   This P key is then assigned for the duration of the session. To permanently link the assignment to the current session, session with P key assignment must be saved.

5. Either select *Session > Save or Session > Save As* in the menu while the session is open, or confirm the save query after logging off the session with **Yes**.

The assignment of P keys for a session is saved in a separate file with the file extension *.MTK*.

6.3.2 Editing saved keys

You can use *Programmable Keys Edit* to modify or delete the assignment of P keys before you finally assign the key.

The *Free* field shows the memory space still available for key assignments.

1. Open *Utilities > Programmable Keys Edit* from the menu. The *Programmable Keys* window is opened.
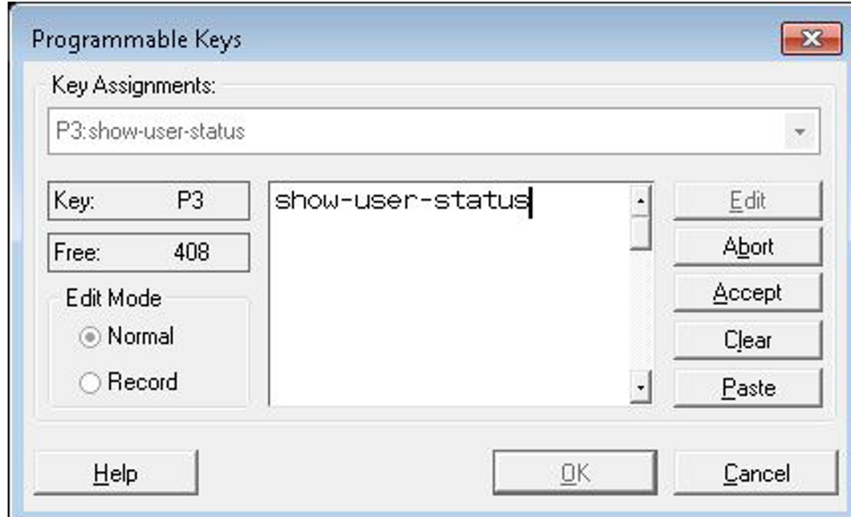
2. Select the programmable key whose assignment you want to change from the *Key Assignments* list box.

    The assignment is shown in the description field (large field in the center). If the selected P key is not yet assigned, the menu is closed.

3. Click on **Edit**.

    The current assignment can now be deleted or edited.

    If function keys are to be integrated into the P key assignment, you can change the *Edit Mode*:

    *   *Normal* if you want to use standard editing keys, e. g. `[<--]` (backspace) and `[Del]` (Delete), which will **not** be included in the key sequence to be saved.

    *   *Record* if you want to record every key stroke in the key sequence. For example, this means that `[<--]` (backspace) is interpreted as a key stroke to be recorded and does not move the cursor to the left in the editing field.

4. Click on **OK** to accept the changes made **for the duration of this session**.

    *   If you want to change more key assignments immediately, click on **Accept** instead. After the last change, click on **OK**.

    *   Clicking on **Abort** discards all changes made for the selected P key.

    *   In Unicode mode, you can use **Paste** to paste content from the clipboard.

        Unicode mode displays the data from the clipboard in Unicode format (notation U+xxyy) in the description field.

        Example: Unicode value 03A3 is displayed as U+03A3

        Without Unicode mode, the data from the clipboard is displayed in normal format (ANSI/ISO).

5. To **permanently** save the assignment in the current open session, the session - including the P key assignment - must be saved.

6.4 Macro keys (MAx)

Sequences of commands used to run other Windows applications, can be assigned to what are known as macro keys (MAx), which are assigned in the same way as the P keys.

Eight macro keys are available, designated **MA1** to **MA8**.

The assignment of MAx keys can be displayed in a separate window by selecting *Settings > Keyboard Mappings > Keyboard Mappings* in the menu.

The macro keys can be pressed using the *Function Keys Mac1 - Mac8 toolbar*. For details of showing, hiding and customizing the toolbar, see the *Settings > Toolbars > ...* or *Settings > Toolbars > Customize* menu.

The macro keys can be called up using a key combination on the numerical keypad on the PC keyboard.

Example call

> For the macro key MA3, press the key combination **[Ctrl]+[3]**. The numerical keypad must be activated.

Editing macro keys

The dialog box for editing macro keys has a similar structure to the dialog box for editing the P keys, but there is no function for recording macro keys.

1. Open *Utilities > Macro Keys Edit* from the menu.
2. Select the macro key to be assigned or edited and click on **Change**.
3. Enter a (new) command to call up the Windows application and associated parameters in the text field.
4. Confirm your entry with **Accept** and **OK**.

Example assignment

> If you define the macro key **[MA6]** as shown in the example screen, and then call it up, the file *vtl32.ini* in the specified file folder is opened for editing in Notepad.

6.5 Macros (macro recorder)

To automate recurring sequences of functions (e. g. starting host applications with particular options and other recurring actions) in the host application, you can record user inputs, edit them using a simple programming language (queries, loops), save them, and retrieve them when required.

This saved sequence of functions in its entirety is referred to as a macro.

Running a recorded macro

1. Open *Utilities > Start Macro* from the menu.

2. Select the macro you want from the files displayed (extension *.MAC*).

   While the macro is being run, the active window is given the session title:

   ```
   <session title>: macro playing
   ```

If menu operations are performed while running a macro, the subsequent screen output is suppressed by the operating system. (The program itself is unaffected and continues running in the background.)

The screen output only recommences when the menu is exited. This can result in premature termination of running the macro. If running the macro is aborted, the message "`Macro playing`" in the title bar is deleted early.

Recording a macro

1. Open *Utilities > Record Macro > Start* from the menu.

2. Do the work you wish to do in the emulation. All entries are recorded in the background and then written to a macro.

   During recording, the active window is given the session title:

   ```
   <session title>: macro recording
   ```

3. To exit the recording, select *Utilities > Record Macro > Stop*.

4. Give the macro a name or discard the recording.

   The macro is saved with the file extension *.MAC*.

   If necessary, you can edit the macros later using an editor, e. g. Notepad++.

6.6 Session recording

The *Utilities* menu contains an option for recording sessions. This enables recordings of the data flow to be produced, which can be used for error analysis.

This option is only available if a session window has first been opened.

It is possible to record the entire data exchange between the host and the emulated terminal, or parts of it. The following options are available:

- Recording the data flow sent by MT9750 to the host
- Recording the information that the terminal has received from the host
- Recording the entire data exchange between MT9750 and the host

Recording can be started and ended at any time during a session.

Starting session recording

1. Open *Utilities > Record Session > Start* from the menu.
2. Enter a file name in the *Record to File* text field. The file type must be *.REC*.
3. Select the recording mode:
   - Send only
   - Send and receive
   - Receive only
4. Select the file format:
   - Text for files that can be edited using a text editing program. You can choose between recording in ASCII or EBCDIC format.
   - Binary for binary recording of the data flow (without conversion).
5. Confirm the entries with **OK** to start recording.

> **i** If you exit the emulation program without first saving the session recording, all the information recorded in the session will be lost.

Ending session recording

1. Open *Utilities > Record Session > Stop* from the menu.

   The *Record session* dialog box is opened on the screen. This dialog box shows the name of the file in which the session is currently being recorded.
2. Select **OK** to confirm saving to the specified file or **Cancel** to cancel the recording.

6.7 Displaying the connection parameters

Selecting *Utilities > Show connection parameter* displays a new window that shows the valid parameters for the current session, including:

- Session title
- Connection mode
- Session file directory
- Connection method
- Address of target computer
- Station name
- Station type

This option is only available if a session window has first been opened.

7 Diagnostic file

MT9750 logs various activities such as opening and closing sessions, starting and exiting emulation, connection terminations, etc. in a diagnostic file *MT9750.DIA*.

This ASCII format file can be up to 500 kB in size. The file is then archived with the file extension *.OLD* and further events are written to a new diagnostic file. Unless otherwise configured, the file is created in the configuration directory.

Example of entries in the file MT9750.DIA

```
1 15.03.18 17:25:34.40 0000 MT9750 8.0C01 MT9750_Start 00 01 000000000000
2 15.03.18 17:25:34.44 08AA MT9750 8.0C01 dia_716      10 01 000000000000
3 15.03.18 17:28:40.79 0DF8 MT9750 8.0C01 dia_416      10 02 000000000000
```

7.1 Configuring diagnostics

As supplied, diagnostics is active and the diagnostic file is created in the configuration directory.

You can change these settings. To do this, insert a "*Diagnostics*" section in the file `MT9750.INI`.

Example

```
:
[Diagnostics]
TracePath=C:\DIAG
DiagSize=400
:
```

Two parameters determine the properties of the diagnostic file:

TracePath

Path for the diagnostic file; if no such path exists on the PC, it is written to the shared files directory (default).

DiagSize:

Parameter for the size of the diagnostic file in kB; the range of values is between 0 and 500.
Entering `DiagSize=0` deactivates writing to the diagnostic file.

7.2 Entries in the diagnostic file

For each event to be logged, an entry is created in the diagnostic file and it has the following structure:

```
  274 15.03.18 17:25:34.44 08AA MT9750 8.0C01 dia_716 10 01 FFFFFFFFFFD
   |       |          |          |      |        |        |      | |     |
   |       |          |          |      |        |        |      | |   Error code
   |       |          |          |      |        |        |      | | Message type
   |       |          |          |      |        |        |      | Component
   |       |          |          |      |        |        | Session title
   |       |          |          |      |    Version
   |       |          |          | Product
   |       |          |     Process ID
   |       Date and Time of entry
Sequential number
```

The sequential number always relates to an emulation session. It begins with one (1).

The error number is normally 0 and, in case of errors, can provide information about which problems are being encountered.

8 Appendix

The appendix contains information and overview on the following topics:

- 7-bit / 8-bit / Unicode character sets
- Compose characters
- Supported printer control characters
- Generation of UTM applications
- Meaning of selected BS2000 keys

8.1 7-bit / 8-bit / Unicode character sets

MT9750 supports the following character sets:

7 Bit	8 Bit and Unicode
- International - Danish - German - English - French - Italian - Swedish - Spanish	- Latin alphabet no. 1 (Latin West) ISO 8859-1 - Latin alphabet no. 2 (Latin East) ISO 8859-2 - Latin/Cyrillic ISO 8859-5 - Latin/Greek ISO 8859-7 - Latin alphabet no. 5 (Latin West, Turkish) ISO 8859-9 - Latin alphabet no. 9 (Latin West, with Euro symbol and all special characters for French, Estonian and Finnish) ISO 8859-15

MT9750 does not support a function that enables you to load character sets from the host.

Unicode support

Unicode mode enables characters from different character sets to be displayed in a form (example: Greek and Cyrillic characters).

Unicode is an international standard that has the long-term aim of defining a digital coding for every character or text element from every known script. Characters from the most important ISO character sets (such as the ISO standards from the 8859 series) have a 1:1 correspondence in Unicode, which means that an unaltered result is obtained when converting from one to the other and back.

Unicode values are displayed using the following notation: **U+xxyy**

Prerequisites for Unicode

- Selection of Unicode **and** DSS Type 9763 under *Configuration > Terminal Settings (DSS) > Configure Terminal* in the menu
- Host sends the Unicode flag.
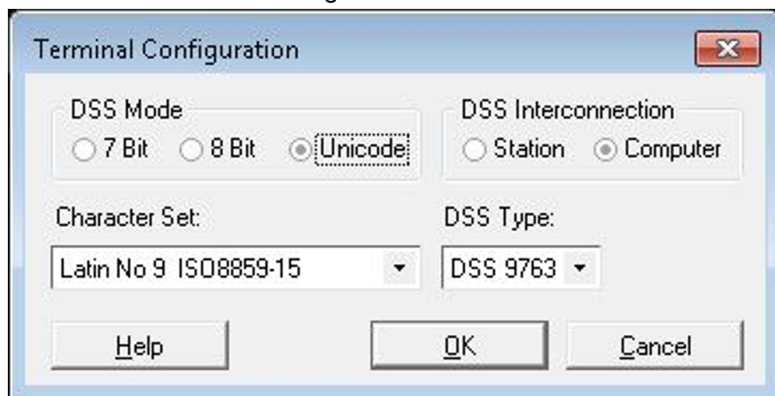
Advantages of Unicode

- Simultaneous display of characters from different character sets
- Copy/Paste operations using Unicode characters
- Printing of Unicode characters
- P key editor adds Unicode characters to the P key memory
- Full support for ISO-compliant Unicode characters (ISO 8859-x; x=1, 2, 5, 7, 9, 15)
- Support for some non-ISO8859-compliant characters

  However, printing of non-ISO8859-compliant characters is not possible.

More information about Unicode can be found in the "Unicode in BS2000" manual [4].

8.1.1 Character set ISO 8859-1 (Latin alphabet no.1)

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00			SP	0	@	P	`	p			NBSP	°	À	Ð	à	ð
01			!	1	A	Q	a	q			¡	±	Á	Ñ	á	ñ
02			"	2	B	R	b	r			¢	²	Â	Ò	â	ò
03			#	3	C	S	c	s			£	³	Ã	Ó	ã	ó
04			$	4	D	T	d	t			¤	´	Ä	Ô	ä	ô
05			%	5	E	U	e	u			¥	µ	Å	Õ	å	õ
06			&	6	F	V	f	v			¦	¶	Æ	Ö	æ	ö
07			'	7	G	W	g	w			§	·	Ç	×	ç	÷
08			(	8	H	X	h	x			¨	¸	È	Ø	è	ø
09			)	9	I	Y	i	y			©	¹	É	Ù	é	ù
0A			*	:	J	Z	j	z			ª	º	Ê	Ú	ê	ú
0B			+	;	K	[	k	{			«	»	Ë	Û	ë	û
0C			,	<	L	\	l	|			¬	¼	Ì	Ü	ì	ü
0D			-	=	M	]	m	}			SHY	½	Í	Ý	í	ý
0E			.	>	N	^	n	~			®	¾	Î	Þ	î	þ
0F			/	?	O	_	o				¯	¿	Ï	ß	ï	ÿ

8.1.2 Character set ISO 8859-2 (Latin alphabet no.2)

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00			SP	0	@	P	`	p			NBSP	°	Ŕ	Đ	ŕ	đ
01			!	1	A	Q	a	q			Ą	ą	Á	Ń	á	ń
02			"	2	B	R	b	r			˘	˛	Â	Ň	â	ň
03			#	3	C	S	c	s			Ł	ł	Ă	Ó	ă	ó
04			$	4	D	T	d	t			¤	´	Ä	Ô	ä	ô
05			%	5	E	U	e	u			Ľ	ľ	Ĺ	Ő	Í	ő
06			&	6	F	V	f	v			Ś	ś	Ć	Ö	ć	ö
07			'	7	G	W	g	w			§	ˇ	Ç	×	ç	÷
08			(	8	H	X	h	x			¨	¸	Č	Ř	č	ř
09			)	9	I	Y	i	y			Š	š	É	Ů	é	ů
0A			*	:	J	Z	j	z			Ş	ş	Ę	Ú	ę	ú
0B			+	;	K	[	k	{			Ť	ť	Ë	Ű	ë	ű
0C			,	<	L	\	l	|			Ź	ź	Ě	Ü	ě	ü
0D			-	=	M	]	m	}			SHY	˝	Í	Ý	í	ý
0E			.	>	N	^	n	~			Ž	ž	Î	Ţ	î	ţ
0F			/	?	O	_	o				Ż	ż	Ď	ß	ď	˙

8.1.3 Character set ISO 8859-5 (Latin/Cyrillic)

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00			SP	0	@	P	`	p			NBSP	А	Р	а	р	№
01			!	1	A	Q	a	q			Ё	Б	С	б	с	ё
02			"	2	B	R	b	r			Ђ	В	Т	в	т	ђ
03			#	3	C	S	c	s			Ѓ	Г	У	г	у	ѓ
04			$	4	D	T	d	t			Є	Д	Ф	д	ф	є
05			%	5	E	U	e	u			Ѕ	Е	Х	е	х	ѕ
06			&	6	F	V	f	v			І	Ж	Ц	ж	ц	і
07			'	7	G	W	g	w			Ї	З	Ч	з	ч	ї
08			(	8	H	X	h	x			Ј	И	Ш	и	ш	ј
09			)	9	I	Y	i	y			Љ	Й	Щ	й	щ	љ
0A			*	:	J	Z	j	z			Њ	К	Ъ	к	ъ	њ
0B			+	;	K	[	k	{			Ћ	Л	Ы	л	ы	ћ
0C			,	<	L	\	l	|			Ќ	М	Ь	м	ь	ќ
0D			-	=	M	]	m	}			SHY	Н	Э	н	э	§
0E			.	>	N	^	n	~			Ў	О	Ю	о	ю	ў
0F			/	?	O	_	o				Џ	П	Я	п	я	џ

8.1.4 Character set ISO 8859-7 (Latin/Greek)

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00			SP	0	@	P	`	p			NBSP	°	ΐ	Π	ΰ	π
01			!	1	A	Q	a	q			'	±	Α	Ρ	α	ρ
02			"	2	B	R	b	r			'	²	Β		β	ς
03			#	3	C	S	c	s			£	³	Γ	Σ	γ	σ
04			$	4	D	T	d	t			€	´	Δ	Τ	δ	τ
05			%	5	E	U	e	u			₯	¨	Ε	Υ	ε	υ
06			&	6	F	V	f	v			¦	Ά	Ζ	Φ	ζ	φ
07			'	7	G	W	g	w			§	·	Η	Χ	η	χ
08			(	8	H	X	h	x			¨	Έ	Θ	Ψ	θ	ψ
09			)	9	I	Y	i	y			©	Ή	Ι	Ω	ι	ω
0A			*	:	J	Z	j	z			˻	Ί	Κ	Ϊ	κ	ϊ
0B			+	;	K	[	k	{			«	»	Λ	Ϋ	λ	ϋ
0C			,	<	L	\	l	|			¬	Ό	Μ	ά	μ	ό
0D			-	=	M	]	m	}			SHY	½	Ν	έ	ν	ύ
0E			.	>	N	^	n	~				Ύ	Ξ	ή	ξ	ώ
0F			/	?	O	_	o				―	Ώ	Ο	ί	ο	

8.1.5 Character set ISO 8859-9 (Latin alphabet no. 5)

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00			SP	0	@	P	`	p			NBSP	°	À	Ğ	à	ğ
01			!	1	A	Q	a	q			¡	±	Á	Ñ	á	ñ
02			"	2	B	R	b	r			¢	²	Â	Ò	â	ò
03			#	3	C	S	c	s			£	³	Ã	Ó	ã	ó
04			$	4	D	T	d	t			¤	´	Ä	Ô	ä	ô
05			%	5	E	U	e	u			¥	µ	Å	Õ	å	õ
06			&	6	F	V	f	v			¦	¶	Æ	Ö	æ	ö
07			'	7	G	W	g	w			§	·	Ç	×	ç	÷
08			(	8	H	X	h	x			¨	¸	È	Ø	è	ø
09			)	9	I	Y	i	y			©	¹	É	Ù	é	ù
0A			*	:	J	Z	j	z			ª	º	Ê	Ú	ê	ú
0B			+	;	K	[	k	{			«	»	Ë	Û	ë	û
0C			,	<	L	\	l					¬	¼	Ì	Ü	ì	ü
0D			-	=	M	]	m	}			SHY	½	Í	İ	í	ı
0E			.	>	N	^	n	~			®	¾	Î	Ş	î	ş
0F			/	?	O	_	o				─	¿	Ï	ß	ï	ÿ

8.1.6 Character set ISO 8859-15 (Latin alphabet no. 9)

	00	10	20	30	40	50	60	70	80	90	A0	B0	C0	D0	E0	F0
00			SP	0	@	P	`	p			NBSP	°	À	Ð	à	ð
01			!	1	A	Q	a	q			¡	±	Á	Ñ	á	ñ
02			"	2	B	R	b	r			¢	²	Â	Ò	â	ò
03			#	3	C	S	c	s			£	³	Ã	Ó	ã	ó
04			$	4	D	T	d	t			€	Ž	Ä	Ô	ä	ô
05			%	5	E	U	e	u			¥	µ	Å	Õ	å	õ
06			&	6	F	V	f	v			Š	¶	Æ	Ö	æ	ö
07			'	7	G	W	g	w			§	·	Ç	×	ç	÷
08			(	8	H	X	h	x			š	ž	È	Ø	è	ø
09			)	9	I	Y	i	y			©	¹	É	Ù	é	ù
0A			*	:	J	Z	j	z			ª	º	Ê	Ú	ê	ú
0B			+	;	K	[	k	{			«	»	Ë	Û	ë	û
0C			,	<	L	\	l	|			¬	Œ	Ì	Ü	ì	ü
0D			-	=	M	]	m	}			SHY	œ	Í	Ý	í	ý
0E			.	>	N	^	n	~			®	Ÿ	Î	Þ	î	þ
0F			/	?	O	_	o				―	¿	Ï	ß	ï	ÿ

8.1.7 Unicode characters with no ISO 8859 equivalent

ISO-compliant symbols are covered by the corresponding character sets.

The Unicode notation is: **U+xxyy**

The following table lists Unicode characters that do not have an equivalent in the ISO 8859 character set family.

Coding	Zeichen	Description
u+0114	Ĕ	Latin capital letter E with breve (curve open at the top)
u+0115	ĕ	Latin small letter E with breve (curve open at the top)
u+012C	Ĭ	Latin capital letter I with breve (curve open at the top)
u+012D	ĭ	Latin small letter I with breve (curve open at the top)
u+014E	Ŏ	Latin capital letter O with breve (curve open at the top)
u+014F	ŏ	Latin small letter O with breve (curve open at the top)
u+0166	Ŧ	Latin capital letter T with stroke
u+0167	ŧ	Latin small letter T with stroke
u+0174	Ŵ	Latin capital letter W with circumflex (angle pointing upwards)
u+0175	ŵ	Latin small letter W with circumflex (angle pointing upwards)
u+0176	Ŷ	Latin capital letter Y with circumflex (angle pointing upwards)
u+0177	ŷ	Latin small letter Y with circumflex (angle pointing upwards)
u+019D	Ɲ	Latin capital letter N with left hook
u+01A0	Ơ	Latin capital letter O with horn
u+01A1	ơ	Latin small letter O with horn
u+01AF	Ư	Latin capital letter U with horn
u+01B0	ư	Latin small letter U with horn

u+01CD	Ǎ	Latin capital letter A with caron (angle pointing downwards)
u+01CE	ǎ	Latin small letter A with caron (angle pointing downwards)
u+01CF	Ǐ	Latin capital letter I with caron (angle pointing downwards)
u+01D0	ǐ	Latin small letter I with caron (angle pointing downwards)
u+01D1	Ǒ	Latin capital letter O with caron (angle pointing downwards)
u+01D2	ǒ	Latin small letter O with caron (angle pointing downwards)
u+01D3	Ǔ	Latin capital letter U with caron (angle pointing downwards)
u+01D4	ǔ	Latin small letter U with caron (angle pointing downwards)
u+01E6	Ǧ	Latin capital letter G with caron (angle pointing downwards)
u+01E7	ǧ	Latin small letter G with caron (angle pointing downwards)
u+01F4	Ǵ	Latin capital letter G with acute accent
u+01F5	ǵ	Latin small letter G with acute accent
u+0212	Ȓ	Latin capital letter R with inverted breve (curve open at the bottom)
u+0213	ȓ	Latin small letter R with inverted breve (curve open at the bottom)
u+0272	ɲ	Latin small letter N with left hook
u+1E20	Ḡ	Latin capital letter G with macron (line)
u+1E21	ḡ	Latin small letter G with macron (line)
u+1E24	Ḥ	Latin capital letter H with dot below
u+1E25	ḥ	Latin small letter H with dot below

u+1E30	Ḱ	Latin capital letter K with acute accent
u+1E31	ḱ	Latin small letter K with acute accent
u+1E44	Ṅ	Latin capital letter N with dot above
u+1E45	ṅ	Latin small letter N with dot above
u+1E60	Ṡ	Latin capital letter S with dot above
u+1E61	ṡ	Latin small letter S with dot above
u+1E62	Ṣ	Latin capital letter S with dot below
u+1E63	ṣ	Latin small letter S with dot below
u+1E84	Ẅ	Latin capital letter W with diaeresis (horizontal double dot)
u+1E85	ẅ	Latin small letter W with diaeresis (horizontal double dot)
u+1E8E	Ẏ	Latin capital letter Y with dot above
u+1E8F	ẏ	Latin small letter Y with dot above
u+1E90	Ẑ	Latin capital letter Z with circumflex (angle pointing upwards)
u+1E91	ẑ	Latin small letter Z with circumflex (angle pointing upwards)
u+1E92	Ẓ	Latin capital letter Z with dot below
u+1E93	ẓ	Latin small letter Z with dot below
u+1EA0	Ạ	Latin capital letter A with dot below
u+1EA1	ạ	Latin small letter A with dot below
u+1EAA	Ẫ	Latin capital letter A with circumflex (angle pointing upwards) and tilde
u+1EAB	ẫ	Latin small letter A with circumflex (angle pointing upwards) and tilde

u+1EBC	Ẽ	Latin capital letter E with tilde
u+1EBD	ẽ	Latin small letter E with tilde
u+1EC4	Ễ	Latin capital letter E with circumflex (angle pointing upwards) and tilde
u+1EC5	ễ	Latin small letter E with circumflex (angle pointing upwards) and tilde
u+1ECA	Ị	Latin capital letter I with dot below
u+1ECB	ị	Latin small letter I with dot below
u+1ECC	Ọ	Latin capital letter O with dot below
u+1ECD	ọ	Latin small letter O with dot below
u+1ED6	Ỗ	Latin capital letter O with circumflex (angle pointing upwards) and tilde
u+1ED7	ỗ	Latin small letter O with circumflex (angle pointing upwards) and tilde
u+1EE4	Ụ	Latin capital letter U with dot below
u+1EE5	ụ	Latin small letter U with dot below
u+1EF2	Ỳ	Latin capital letter Y with grave accent
u+1EF3	ỳ	Latin small letter Y with grave accent
u+1EF8	Ỹ	Latin capital letter Y with tilde
u+1EF9	ỹ	Latin small letter Y with tilde
u+2264	≤	Less than or equal to

8.2 Compose characters

This section shows all compose characters supported by MT9750 and the valid key sequences to generate them.

> **i** The compose function is only available if:
>
> - DSS and host application are running in 8-bit mode, and
> - the DSS interconnection setting is *Computer*.
>
> Information on changing the DSS mode and DSS interconnection can be found in section "Configuring the data display terminal".

Composing characters

1. Press the `[Compose]` key on your keyboard and release it.

   If you do not have this key, use the `[Alt Gr]` key.

2. Enter a valid compose sequence (see tables on the following pages). The compose character appears on the screen.

If you enter an invalid character sequence the terminal emits a beep and does not display
a character. In this case, you must start the procedure again from the beginning.

If you accidentally activate the compose function, you can cancel any entries made and return to normal mode
using the Backspace key `[<--]`.

ISO 8859-1 compose key sequences

Á	'A	Ì	I`	Ü	U"	ê	^e	ù	ù	¢	|C	§	!s	–	--	µ	/U
Á	A'	Î	`I	×	**	ë	e"	û	u^	¢	c|	§	0S	®	OR	¶	!P
À	A`	Î	I^	×	xx	ë	"e	û	^u	¢	|c	§	0s	®	Or	¶	!p
À	`A	Î	^I	Ý	'Y	í	i'	ü	u"	£	-L	§	S0	®	RO	¶	P!
Â	A^	Ï	I"	Ý	Y'	í	'i	ü	"u	£	-l	§	s0	®	rO	¶	p!
Â	^A	Ï	"I	á	a'	ì	i`	ý	y'	£	=L	§	S!	®	oR	·	.
Ã	A~	Ñ	N~	á	'a	ì	`i	ý	'y	£	=l	§	s!	®	or	·	.
Ã	~A	Ñ	~N	à	a`	î	i^	ÿ	y"	£	L-	§	SO	®	Ro	،	'
Ä	A"	Ó	'O	à	`a	î	^i	ÿ	"y	£	l-	§	so	®	ro	،	'
Ä	"A	Ó	O'	â	a^	ï	i"	#	++	£	L=	§	os	‾	_	¹	1^
Å	A°	Ò	O`	â	^a	ï	"i	@	aa	£	l=	§	OS	‾	_	¹	^1
Å	°A	Ò	`O	ã	a~	ñ	n~	@	AA	¤	0X	¨	''	‾		º	-O
Å	Ao	Ô	O^	ã	~a	ñ	~n	[	((	¤	0x	©	0C	‾	^	º	-o
Å	oA	Ô	^O	ä	a"	ó	o'	\	//	¤	X0	©	0c	‾	_^	º	O-
Æ	AE	Õ	O~	ä	"a	ó	'o	\	/<	¤	x0	©	C0	°	#	º	o-
Ç	,C	Õ	~O	å	ao	ò	o`	\	</	¤	OX	©	c0	°	o	»	>>
Ç	C,	Ö	O"	å	oa	ò	`o	]	))	¤	XO	©	CO	°	#	¼	14
Ð	-D	Ö	"O	å	a°	ô	o^	{	(-	¤	xo	©	co	°	o	½	12
Ð	D-	Ø	O/	å	°a	ô	^o	{	-(	¤	ox	©	OC	°	0^	¾	34
É	'E	Ø	/O	æ	ae	ö	o"	|	/^	¥	-Y	©	oc	°	^0	¿	??
É	E'	Þ	PT	ç	,c	ö	"o	|	^/	¥	-y	ª	-A	±	+-	÷	/
É	`E	Þ	TP	ç	c,	õ	o~	}	)-	¥	=Y	ª	-a	±	-+	÷	:-
É	E`	Ú	U'	ð	-d	õ	~o	}	-)	¥	=y	ª	A-	²	2^	þ	pt
Ê	E^	Ú	'U	ð	d-	ø	o/	;	!!	¥	Y-	ª	a-	²	^2	þ	tp
Ê	^E	Ù	U`	é	e'	ø	/o	¢	C/	¥	y-	«	<<	³	3^		
Ë	"E	Ù	`U	é	'e	ß	ss	¢	c/	¥	Y=	¬	!-	³	^3		
Ë	E"	Û	U^	è	`e	ú	u'	¢	/C	¥	y=	¬	-!	،	'		
Í	I'	Û	^U	è	e`	ú	'u	¢	/c	¦	|	–	–	،	'		
Í	'I	Ü	U"	ê	e^	ù	u`	¢	C|	§	!S	–	–	µ	/u		

ISO 8859-2 compose key sequences

Ch	Seq	Ch	Seq	Ch	Seq	Ch	Seq	Ch	Seq	Ch	Seq	Ch	Seq	Ch	Seq	Ch	Seq
Á	'A	Ë	E:	Ő	O"	×	XX	đ	d-	ň	<n	ü	u:	§	!s	°	oo
Á	A'	Ë	:E	Ő	O"	Ý	'Y	ď	<d	ó	o'	ü	:u	§	0S	˛	;
Ă	A(	Ě	E<	Ŕ	'R	Ý	Y'	ď	d<	ó	'o	ů	ou	§	0s	˛	;
Ă	(A	Ě	<E	Ŕ	R'	Ź	Z'	é	e'	ô	o^	ů	uo	§	S0	˛	;;
Â	A^	Ę	;E	Ř	R<	Ź	'Z	é	'e	ô	^o	ű	u"	§	s0	´	'
Â	^A	Ę	E;	Ř	<R	Ž	<Z	ě	<e	ő	o"	ű	"u	§	S!	´	'
Ä	A:	Í	I'	Ś	S'	Ž	Z<	ě	e<	ő	"o	ý	y'	§	s!	´	''
Ä	:A	Í	'I	Ś	'S	Ż	.Z	ë	"e	ö	o:	ý	'y	§	SO	ˇ	<
Ä	A"	Î	I^	Š	<S	Ż	Z.	ë	e"	ö	:o	ź	'z	§	so	ˇ	<
Ä	"A	Î	^I	Š	S<	á	a'	ë	:e	ŕ	r'	ź	z'	§	os	ˇ	<<
Ą	A;	Ĺ	L'	Ş	S,	á	'a	ë	e:	ŕ	'r	ž	<z	§	OS	¸	´
Ą	;A	Ĺ	'L	Ş	,S	â	a^	ę	e;	ř	<r	ž	z<	¨	:	¸	´
Ć	C'	Ł	/L	Ť	<T	â	^a	ę	;e	ř	r<	ż	.z	¨	:	¸	´´
Ć	'C	Ł	L/	Ť	T<	ă	(a	í	i'	ś	s'	ż	z.	¨	::	~	"
Č	C<	Ľ	L<	Ţ	T,	ă	a(	í	'i	ś	's			-	-	~	"
Č	<C	Ľ	<L	Ţ	,T	ä	a"	î	i^	š	<s			-	-	~	""
Ç	,C	Ń	N'	Ú	U'	ä	"a	î	^i	š	s<			-	--	÷	-:
Ç	C,	Ń	'N	Ú	'U	ą	;a	ĺ	l'	ş	,s			¤	0X	°	#
Ď	D<	Ň	<N	Ü	:U	ą	a;	ĺ	'l	ş	s,			¤	0x	°	o
Ď	<D	Ň	N<	Ü	U:	ć	c'	ľ	<l	ß	ss			¤	X0	°	0
Đ	-D	Ó	'O	Ů	Uo	ć	'c	ľ	l<	ţ	t,			¤	x0	°	#
Đ	D-	Ó	O'	Ů	oU	č	<c	ł	/l	ţ	,t			¤	OX	°	o
É	'E	Ô	O^	Ű	U"	č	c<	ł	l/	ť	t<			¤	XO	°	0
É	E'	Ô	^O	Ű	"U	ç	,c	ń	n'	ť	<t			¤	xo	°	0^
Ë	"E	Ö	O:	×	**	ç	c,	ń	'n	ú	u'			¤	ox	°	^0
Ë	E"	Ö	:O	×	xx	đ	-d	ň	n<	ú	'u			§	!S	°	00

ISO 8859-5 compose key sequences

А	AA	Ж	ZH	Л	LL	ў	(U	Ђ	D-	ё	e:	й	jj	в	нь	щ	sh
Б	BB	Ѕ	DS	Љ	BL	ў	U(	Ђ	DJ	є	je	j	j	о	оо	щ	sc
В	WW	Ѕ	CC	Љ	LB	ў	(У	Ђ	D|	є	ээ	j	йй	п	pp	ъ	''
Г	GG	З	ZZ	Љ	LJ	ў	У(	Ђ	Дъ	ж	zh	к	kk	р	rr	ы	уу
Ѓ	G'	И	II	Љ	L|	Ф	FF	Ђ	Дь	з	zz	ќ	'k	с	ss	ь	'
Ѓ	'	Ӏ	I	Љ	ЛБ	Х	HH	Э	EA	s	ds	ќ	k'	т	tt	э	ea
Ѓ	'Г	Ӏ	ИИ	Љ	БЛ	Ц	CC	Ю	JU	s	cc	ќ	'к	ħ	tj	ħ	-d
Ѓ	Г'	Ї	"I	М	ММ	Ч	CH	Я	JA	и	ii	ќ	к'	ħ	t'	ħ	d'
Д	DD	Ї	I"	Н	NN	Ц	,Ц	а	aa	i	i	л	ll	ħ	ть	ħ	d-
Е	EE	Ї	I:	Њ	NJ	Ц	Ц,	б	bb	i	ии	љ	l'	у	uu	ħ	dj
Ё	"E	Ї	:I	Њ	N|	Ц	DZ	в	ww	ï	:i	љ	lj	ў	(u	ħ	дь
Ё	E"	Ї	"И	Њ	Нъ	Щ	SH	г	gg	ï	i:	љ	ль	ў	u(	ю	ju
Ё	:E	Ї	И"	Њ	Нь	Щ	SC	д	dd	ï	:и	м	mm	ў	(у	я	ja
Ё	:E	Ї	И:	О	ОО	Ђ	TJ	ѓ	'g	ï	и:	№	NO	ў	y(	-	--
Ё	E:	Ї	:И	П	PP	Ђ	T|	ѓ	'r	ï	"i	№	No	ф	ff	§	&&
Ё	E:	Й	JJ	Р	RR	Ђ	ТЪ	ѓ	g'	ï	i"	№	HO	х	hh	§	os
Ё	"E	Ј	ЙЙ	С	SS	Ђ	ТЬ	ѓ	r'	ï	"и	№	Ho	ц	cc	§	so
Ё	E"	Ј	J	Т	TT	Ъ	||	е	ee	ï	и"	н	nn	ч	ch		
Є	JE	К	KK	У	UU	Ы	YY	ё	"e			в	nj	џ	dz		
Є	TE	Ќ	'К			Ь	|	ё	e"			в	n'	џ	,ц		
Є	ЭЭ	Ќ	К'			Ђ	-D	ё	:e					џ	ц,		

ISO 8859-7 compose key sequences

Α	A	Ϊ	I"	Τ	T	γ	g	λ	l	ύ	y'	¦	|	©	oc	³	3
Α	AA	Ϊ	"I	Τ	TT	γ	gg	λ	ll	ύ	'y	¦	||	«	<	³	33
Ά	A'	Ί	'I	Υ	Y	δ	d	μ	m	ϋ	y"	§	!S	«	<<	΄	'
Ά	'A	Ί	I'	Υ	YY	δ	dd	μ	mm	ϋ	"y	§	!s	¬	!-	΄	''
Β	B	Κ	K	Ϋ	Y"	ε	e	ν	n	ΰ	'"y	§	0S	¬	-!	΅	'"
Β	BB	Κ	KK	Ϋ	"Y	ε	ee	ν	nn	ΰ	"'y	§	0s	—	—	΅	"'
Γ	G	Λ	L	Υ	Y'	έ	'e	ξ	j	φ	f	§	S0	—	--	΅	':
Γ	GG	Λ	LL	Υ	'Y	έ	e'	ξ	jj	φ	ff	§	s0	—	=	΅	:'
Δ	D	Μ	M	Φ	F	ζ	z	ο	o	χ	x	§	S!	—	==	·	..
Δ	DD	Μ	MM	Φ	FF	ζ	zz	ο	oo	χ	xx	§	s!	΄	00	·	.
Ε	E	Ν	N	Χ	X	η	h	ό	'o	ψ	c	§	S0	΄	#	»	>
Ε	EE	Ν	NN	Χ	XX	η	hh	ό	o'	ψ	cc	§	s0	΄	o	»	>>
Έ	E'	Ξ	J	Ψ	C	ή	'h	π	p	ω	v	§	0s	΄	#	½	12
Έ	'E	Ξ	JJ	Ψ	CC	ή	h'	π	pp	ω	vv	§	0S	΄	o		
Ζ	Z	Ο	O	Ω	V	θ	u	ρ	r	ώ	v'	§	@@	΄	0^		
Ζ	ZZ	Ο	OO	Ω	VV	θ	uu	ρ	rr	ώ	'v	¨	:	΄	^0		
Η	H	Ό	O'	Ώ	V'	ι	ii	σ	s	΄	(	¨	::	±	+-		
Η	HH	Ό	'O	Ώ	'V	ι	i	σ	ss	΄	((	©	0C	±	-+		
Ή	H'	Π	P	α	a	ϊ	"i	ς	w	`	)	©	0c	²	2		
Ή	'H	Π	PP	α	aa	ϊ	i"	ς	ww	`	))	©	C0	²	22		
Θ	U	Ρ	R	ά	a'	ί	i'	τ	t	£	-1	©	c0	²	2^		
Θ	UU	Ρ	RR	ά	'a	ί	'i	τ	tt	£	L-	©	C0	²	^2		
Ι	I	Σ	S	β	b	κ	k	υ	y	£	1-	©	co	³	3^		
Ι	II	Σ	SS	β	bb	κ	kk	υ	yy	£	-L	©	0C	³	^3		

ISO 8859-9 compose key sequences

Ch	Seq	Ch	Seq	Ch	Seq	Ch	Seq	Ch	Seq	Ch	Seq	Ch	Seq	Ch	Seq	Ch	Seq
Á	'A	Ì	I`	Û	U^	ê	e^	ø	o/	£	L=	$	s!	®	oR	¶	!P
Á	A'	Ì	`I	Û	^U	ê	^e	ø	/o	£	l=	$	SO	®	or	¶	!p
À	A`	Î	I^	Ü	U"	ë	e"	ş	s,	£	-L	$	so	®	Ro	¶	P!
À	`A	Î	^I	Ü	"U	ë	"e	ş	,s	£	-l	$	os	®	ro	¶	p!
Â	A^	İ	.I	×	**	ğ	(g	ß	ss	¤	0X	$	OS	¯	_	·	.
Â	^A	İ	I.	×	xx	ğ	g(	ú	u'	¤	0x	¨	"	¯	_	·	.
Ã	A~	Ï	I"	á	a'	ı	i-	ú	'u	¤	X0	©	0C	¯	__	¸	,
Ã	~A	Ï	"I	á	'a	ı	-i	ù	u`	¤	x0	©	0c	¯	^	¸	,
Ä	A"	Ñ	N~	à	a`	í	i'	ù	`u	¤	OX	©	C0	¯	_^	¹	1^
Ä	"A	Ñ	~N	à	`a	í	'i	û	u^	¤	XO	©	c0	°	#	¹	^1
Å	A°	Ó	'O	â	a^	ì	i`	û	^u	¤	xo	©	CO	°	o	º	-O
Å	°A	Ó	O'	â	^a	ì	`i	ü	u"	¤	ox	©	co	°	#	º	-o
Å	Ao	Ò	O`	ã	a~	î	i^	ü	"u	¥	-Y	©	OC	°	o	º	O-
Å	oA	Ò	`O	ã	~a	î	^i	ÿ	y"	¥	-y	©	oc	°	0^	º	o-
Æ	AE	Ô	O^	ä	a"	ï	i"	ÿ	"y	¥	=Y	ª	-A	°	^0	»	>>
Ç	,C	Ô	^O	ä	"a	ï	"i	¡	!!	¥	=y	ª	-a	±	+-	¼	14
Ç	C,	Õ	O~	å	ao	ñ	n~	¢	C/	¥	Y-	ª	A-	±	-+	½	12
Ğ	(G	Õ	~O	å	oa	ñ	~n	¢	c/	¥	y-	ª	a-	²	2^	¾	34
Ğ	G(	Ö	O"	å	a°	ó	o'	¢	/C	¥	Y=	«	<<	²	^2	¿	??
É	'E	Ö	"O	å	°a	ó	'o	¢	/c	¥	y=	¬	!-	³	3^	÷	/
É	E'	Ø	O/	æ	ae	ò	o`	¢	C|	¦	|	¬	-!	³	^3	÷	:-
È	E'	Ø	/O	ç	,c	ò	`o	¢	|C	¦	|		-	´	'	þ	pt
È	'E	Ş	S,	ç	c,	ô	o^	¢	c|	§	!S		-	´	'	þ	tp
Ê	E^	Ş	,S	é	e'	ô	^o	¢	|c	§	!s		--	µ	/u		
Ê	^E	Ú	U'	é	'e	ö	o"	£	=L	§	0S	®	OR	µ	/U		
Ë	"E	Ú	'U	è	`e	ö	"o	£	=l	§	0s	®	Or				
Ë	E"	Ù	U`	è	e`	õ	o~	£	L-	§	S0	®	RO				
Í	I'	Ù	`U			õ	~o	£	l-	§	s0	®	rO				
Í	'I									§	S!						

8.3 Supported printer control characters

The control characters that are taken into account during interpretation of the host data flow in bypass printing are listed below. There is a difference depending on whether the control character function is ignored or is fully or partly emulated.

If a control character sequence is ignored, the characters are removed from the data flow.
A warning that the print output may be incorrect is also displayed. You have the option of suppressing this warning. Printing is continued in any case.

If a control character function is only partially emulated, you are informed of the nature and effect of the restriction.

Control character sequences not listed below can lead to various error situations. They can either lead to an error message being displayed and printing being canceled, or they are forwarded to the printer, which can lead to undefined results.

Several control character sequences may be possible for each control character function, but the control character sequence is unique.

Control character function	Control character sequence (ISO 7 BIT)	Emulated	Note
Program form length	1B 5B p_1 70	Yes	The control character sequence with P1=0 is ignored and a warning is displayed. Disables the FF function.
Reset form length	1B 5B 70 x	Yes	
Program first and last print line	1B 5B p_1 3Bp2 7B	Yes	
Reset first and last print line	1B 5B 7B	Yes	
Program beginning and end of line	1B 5B p_1 3Bp_2 73	-	
Reset beginning and end of line	1B 5B 73	-	
Form feed	0C	Yes	
Program line spacing	1B 5B p_1 78	Yes	
Reset line spacing	1B 5B 78	Yes	
Line feed	0A	Yes	
Half line feed forwards	1B 4B	-	
Half line feed reverse	1B 4C	-	
Set vertical tab stops	1B 5B p_1 3B.. 3B p_{16} 72	-	
Delete all vertical tab stops	1B 5B 34 67	-	

Delete vertical tab stops for one channel	1B 5B 72	-	
Initiate vertical tabulation	0B	-	
Select VT channel	1B 5B p_1 20 75	-	
Relative vertical tabulation\ in lines	1B 36 n_1	-	
Relative vertical tabulation in micro-lines	1B 5B p_1 21 78	-	
Carriage return	0D	Yes	When using Windows printers, CR is always interpreted as a combination of CR and LF. Any subsequent LF is ignored.
Space	20	Yes	
Backspace	08	Yes	When using Windows printers, the print manager replaces the character output before the BS with the following character instead of printing the two characters over one another.
Program character pitch	1B 5B p_1 77	Yes	Emulated: p_1=31: Character pitch 1/10 inch p_1=32: Character pitch 1/12 inch p_1=33: Character pitch 1/15 inch p_1=34: Char. pitch 1/17.1 inch p_1=35: Char. pitch 1/13.3 inch
	14 37	Yes	Character pitch 1/10 inch (BAM)
	14 38	Yes	Character pitch 1/12 inch (BAM)
	14 39	Yes	Character pitch 1/15 inch (BAM)
Set spaced mode	1B 5B p_1 20 45	-	
Reset spaced mode	1B 5B 20 45	-	
Set proportional mode	1B 5B 3C 77	Yes	
Reset proportional mode	1B 5B 3D 77	Yes	
Print direction bidirectional	1B 20 3A	-	
Print direction unidirectional	1B 20 3D	-	
Justify left and right	1B 20 38	-	

Reset justification	1B 20 39	-	
Relative horizontal tabulation	1B 5B p_1 61	Yes	
	1B 38 n_1	-	
Absolute horizontal tabulation by character pitch	1B 5B p_1 60	-	
Absolute horizontal tabulation by microcolumns	1B 5B p_1 20 72	-	
Set horizontal tab stops	1B 5B p_1 3B.. 3B p_{32} 71	Yes	Fixed HT stops are automatically set at every 8th position (1st, 9th, 17th column etc.)
Delete horizontal tab stops	1B 5B 33 67	Yes	
	1B 5B 71	Yes	
Initiate horizontal tabulation	09		
Set expanded mode	1B 2A 38 1B 38	Yes	
Reset expanded mode	1B 3C	Yes	
Set NLQ mode	1B 21 3A	Yes	
Set draft mode	1B 21 39	Yes	
Set superscript mode	1B 21 37	Yes	
Set subscript mode	1B 21 38	Yes	
Reset superscript or subscript mode	1B 21 36	Yes	
Set italics mode	1B 2A 33 1B 33	Yes	
Reset italics mode	1B 2A 34 1B 34	Yes	
Set underline mode	1B 30	Yes	
Reset underline mode	1B 39 1B 2A 39	Yes	
Set boldface mode	1B 21 31	Yes	
Reset boldface mode	1B 21 30	Yes	
Set double point	1B 21 33	-	

Reset double point	1B 21 32	-	
Set tall mode	1B 21 35	-	
Reset tall mode	1B 21 34	-	
Smudge	7F	Yes	
Select national character sets	1B 28 p_1	Yes	Emulated: p_1=40:International p_1=41:English p_1=42:ASCII p_1=45:Danish, Norwegian p_1=48:Swedish-2 p_1=4B:German p_1=52:French p_1=59:Italian p_1=33:Spanish p_1=35:Swiss p_1=36:Norwegian-2 p_1=37:Danish-2 p_1=38:French, Belgian-2
Print characters at code points x'00' to x'1F' and x'80' to x'9F'	1B 3A	-	
Activate character set 1 (SI)	0F	Yes	
Activate character set 2 (SO)	0E	Yes	
Activate loadable character generator	1B 35	-	
Load loadable character generator (96 characters)	1B 5B 74	-	
Load base character generator to LCG	1B 5B 20 74	-	
Load single character to LCG (8 bit mode)	1B 5B p_1 74	-	
Load single character to LCG (6 bit mode)	1B 5B p_1 70	-	
Set bit image graphics (8-bit single density)	1B 5B p_1 79	-	
Set bit image graphics (8-bit double density)	1B 5B p_1 7A	-	

Set bit image graphics (8-bit quadruple density)	1B 5B p_1 21 7A	-	
Set bit image graphics (6-bit, single density)	1B 5B p_1 22 79	-	
Set bit image graphics (6-bit, double density)	1B 5B p_1 22 7A	-	
Set bit image graphics (6-bit, quadruple density)	1B 5B p_1 22 7B	-	
Set scanner graphics	1B 5B 7C	-	
Reset scanner graphics	1B 5B 7E	-	
Acoustic signal (BEL)	07	-	
Define start of text	1B 5B p_1 20 79	-	
Define end of text	1B 5B 20 79	-	
Control character for initial status	1B 52	Yes	Handled like resetting the printer to its initial status
Request device ID	1B 5B 63	-	
Load sequence numbers\	1B 50 3B s_2 1B 5C	-	
Request status message	1B 5B 35 6E	-	
Reset printer to initial status	1B 63	Yes	
Line density 6 LPI	14 31	-	
Line density 8 LPI	14 32	-	
Absolute vertical tabulation	1B 5B p_1 64	-	
Relative vertical tabulation	1B 5B p_1 65	-	
Select character component	1B 2C p_1	-	
Set overrule mode	1B 20 32	-	
Reset overrule mode	1B 20 33	-	
Select dot group	1B 5B p_1 20 77	-	
Set graphics mode with repeat factor	1B 5B p_1 3B p_2 76	-	
Load text and graphics memory	1B 20 34	-	

Exit text and graphics memory loading	1B 20 35	-	
Read text and graphics memory content	1B 20 36	-	
Automatic single sheet feeding from front cartridge	1B 5B 31 20 70	-	
Automatic single sheet feeding from rear cartridge	1B 5B 32 20 70	-	

8.4 Generation of UTM applications

1. Define UTM dialog station with unique station name:

   KDCDEF instructions LTERM and PTERM

   `PTERM <station>,LTERM=<log term>,PRONAM=<PC name>,PTYPE=T9750`

   `LTERM <log term>`

   `<station>` = Terminal name (in LAN: PPort of Local Name)

   `<log term>` = Logical name of terminal in UTM

   `<PC name>` = Computer name of PC in BS2000

2. Define UTM dialog station for any connections on a PC:

   KDCDEF instruction TPOOL:

   `TPOOL PRONAM=<PC name>,LTERM=<log prefix>,NUMBER=<number>,PTYPE=T9750`

   `<log prefix>` = Start of logical terminal name

   `<number>` = Number of terminals

   `<PC name>` = Computer name of PC in BS2000

   A logical terminal name is made up of `<log prefix><number>`.

3. Define bypass printer on unique terminal:

   `PTERM <RSO printer>,CID=D3,CNTRLU=T9750,LTERM=<log printer>,PRONAM=<PC name>,`
   `PTYPE=T9022,USAGE=0UTPUT`
   `LTERM <log printer>,CTERM=<log term>,PLEV=1,QLEV=1000,USAGE=OUTPUT`

   `<RSO printer>` = RSO name of printer

   `<log term>` = Logical name of the dialog terminal to which the printer is connected

   `<log printer>` = Logical name used to address the printer from UTM

   `<PC name>` = Computer name of PC in BS2000

8.5 Meaning of selected BS2000 keys

BS2000 key functions can be used in format mode and in format-free mode.

The following description relates to **format-free** mode.

Functions that are identical in format mode are indicated by the suffix "(+formatted mode)".

> **i**
> - The term "pointer" refers to the mouse pointer.
> - The term "cursor" refers to the cursor in the BS2000 session window.

[AFG] (Delete character)

Deletes the character at the current cursor position and the subsequent characters shift to the left.

[AFZ] (Delete line)

All lines after the line containing the cursor move one line upwards.

[AM] (Start marker)

Start flag for data transfer to the host (+formatted mode)

[LSP] (Delete memory)

The screen is completely deleted. (+formatted mode)

[DUE1] (Data transfer)

Transfers data to the BS2000 host. (+formatted mode)

[DUE2] (Data transfer)

Transfers data to the BS2000 host. (+formatted mode)

[EFG] (Switch to Insert mode)

The characters starting at the current cursor position are moved in the writing direction by the number of characters pasted. This mode is exited by pressing the RS key. (+formatted mode)

[EFZ] (Insert line)

The characters in the line containing the cursor and the characters in the subsequent lines move one line downwards.

[EM] (End marker)

The end mark indicates the end of a data area to be transferred to the host or to the printer, or an area to be deleted using LVD. (+formatted mode)

[LA1] (Print with device 1)

Data exchange between terminal and printer. The data is sent to print device 1. (+formatted mode)

[LA2] (Print with device 2)

The data is sent to print device 2. (+formatted mode)

[LA3] (Print with device 3)

The data is sent to print device 3. (+formatted mode)

[LSP] (Delete memory)

The entire screen memory is deleted.

[LVD] (Delete variable data)

The characters are deleted starting from the current cursor position up to an end mark or to the lower right corner of the screen.

[LZE] (Logical end of line)

Indicates the logical end of the line. A logical line can include one or more lines.

[LZF] (Delete up to end of line or field)

The characters between the current cursor position and the end of the line or an end mark are deleted.

[MAR] (Mark)

The Mark function can only be used in format mode. A field can only be marked if the cursor is in it and it has the field attribute *Markable*. The marked field flashes or has the assigned color.

[RS] (Reset)

Resets the error displays, send request and operating statuses; the content of the data memory is not deleted. (+formatted mode)

[RU] (Roll Up)

The characters starting from the last line are moved one line upwards. The characters in the first line are lost.

[SBA] (Home)

Moves the cursor to the start of the screen (top left).

9 Glossary

9632

>See LAN channel adapter.

9750, 9755, 9756, 9758, 9762, 9763

>See terminal.

ANSI

>The 8 bit character set from the American National Standards Institute. MS Windows uses the ANSI character set. The first 128 characters correspond to those from the ASCII character set.

ASCII

>Acronym for American Standard Code for Information Interchange. The ASCII character set defines a standard set of codes for text characters. You can normally edit and retrieve files containing ASCII characters using a text editing program. You can also retrieve the content of an ASCII file using the MS DOS command TYPE or the UNIX command cat.

BS2000

>Mainframe operating system from Fujitsu Technology Solutions

BS2000 procedure

>BS2000 command sequences that are saved in files are referred to as procedures.

Communication computer (CC)

>A computer in a data network that primarily performs communication services, i.e. services corresponding to ISO layers 1 to 4 or the NEA protocols NEAN and NEATE. A communication computer ensures correct distribution and secure transfer of data. A communication system works in conjunction with the operating system PDN. The configuration parameters for a data network are described in the form of KOGS macros. Communication computers can be front-end processors (FEPs), network hub computers, or data terminal computers.

Data display terminal

>A data display terminal is made up of a screen, a system unit, and a keyboard. From a *9750* data display terminal, you can use a *BS2000* computer.

Display attributes

>Define how data is displayed on the screen. For example, an attribute can be a particular color on a color screen, or apply effects such as reverse display, flashing, high intensity, underline, etc.

Ethernet

>A standard method for linking two computers, which results in a local network (LAN) based on the network protocol CSMA/CD (Carrier Sense Multiple Access with Collision Detection). The Ethernet software you require to use MT9750 is LAN1 V2.0.

Ethernet address

>The Ethernet address is used to uniquely identify an Ethernet card. The address is 6 bytes long, is assigned by the manufacturer of the card and is unique globally.

Host

The computer to which a *data display terminal* is connected. On the host, programs are run, files are saved, and the input and output to/from the *data display terminal* are controlled. The host to which a 9750 data display terminal is connected is a BS2000 host (synonym: mainframe).

Internet address

The Internet address is the network-wide unique address of a computer. It consists of the network address and a computer number. The Internet address is assigned a computer name. A computer can be addressed using its Internet address or using the computer name.

Internet Protocol (IP)

IP is a protocol that selects paths in a computer network. The protocol uses the Internet address to specify the source and destination. These addresses contain information about which network and which computer is to be contacted.

LAN channel adapter 9632

The LAN channel adapter 9632 connects a BS2000 host computer to a *LAN* using an *Ethernet* protocol.

Local Area Network (LAN)

A network in which all *operating units* and other devices are installed in close proximity to one another and can be connected to one another using cables.

Multiple session

In MT9750 you can use multiple sessions (up to 16) simultaneously. In this case, we refer to multiple sessions.

Online help

If any issues occur when using the MT9750 emulation software (e. g. with operation), you can get information about the problem in the Help menu or in a dialog box by clicking on the Help button.

Placeholder

A character that can stand for any single character or group of characters. Placeholders are used for copying, deleting, and for other functions.

Protocol

Rules for data exchange between two computers, which determine the type of electrical connection, the data format, and the sequence of the data.

Session

A window on the screen in which the BS2000 prompt is displayed. A session is saved using the file extension *.MTS*.

Session recording

An MT9750 function that enables you to save your *session* with the *host* in a text file. This allows you to retain data that the BS2000 host displays on your PC, or to create stack program files.

TCP

TCP stands for Transport Control Protocol. TCP is a protocol that handles data transfer between two computers. TCP uses port addresses and allows multiplexing of the computer-computer addressing supported by the lower layers. The protocol includes mechanisms for securing data transfer.

User account, User ID

Character string with which the user can identify his or herself to the host operating system.

10 Abbreviations

ANSI	American National Standards Institute
API	Application Programming Interface
ASCII	American Standard Code for Information Interchange
BCAM	Basic Communication Access Method
BS	Backspace
BS2000	Operating system 2000
CECP	Country-Extended-Code-Page
Com	Communication Port
CR	Carriage Return
DCAM	Data Communication Access Method
DOS	Disk Operating System
DSS	Data display terminal
DSR	Data terminal computer
DUE	Data transfer
FEP	Front-end processor
EBCDIC	Extended Binary Coded Decimal Interchange Code
EHCS	Extended Host Code Support
FF	Form Feed
FTP	File Transfer Protocol
FTS	Fujitsu Technology Solution
GDI	Graphic Device Interface
GSM	Global System for Mobile communications (EC standard)
HT	Horizontal Tabulator
HTML	Hypertext Markup Language
INCA	Intelligent Network and Communications Access point
ISDN	Integrated Services Digital Network
ISO	International Organization for Standardization

IVR	Integrated host
CC	Communication computer
LAN	Local Area Network
LDUES	Loadable Communication Controller
LF	Line Feed
LLS	Loadable controller
LPT	Line Printer
MDC	MODACOM
MODACOM	Mobile Data Communication
MS	Microsoft
NT	New Technology
OEM	Original Equipment Manufacturer
openFT	open File Transfer
PC	Personal Computer
PDN	Programming system for remote data processing and network control
PLUS	Load and Save program keys
RFC1006	Request for Comment 1006
RS	Reset
RSO	Remote SPOOL Output
XREQ	Send command
SMCS	Siemens Mobile Communication Services
TCP/IP	Transmission Control Protocol/Internet Protocol
TELNET	Teletype Network
TNS	Transport Name Service
UTM	Universal Transaction Monitor
VFT	Virtual File Transfer
VGA	Video Graphics Adapter
TC	Terminal computer

VT   Vertical Tabulator

WAN   Wide Area Network   126

ACT   Alternating cycle transmission

WWW   World Wide Web

XHCS   Extended-Host-Code-Support

11 Related publications

You will find the manuals on the internet at http://manuals.ts.fujitsu.com. You can order printed versions of all manuals that are displayed with the order number.

[1] openUTM
     Generating Applications
     User Guide

[2] openFT
     Command Line Interface
     User Guide

[3] RSO
     Remote SPOOL Output
     User Guide

[4] Unicode in BS2000/OSD
     Unicode Introduction
     User Guide