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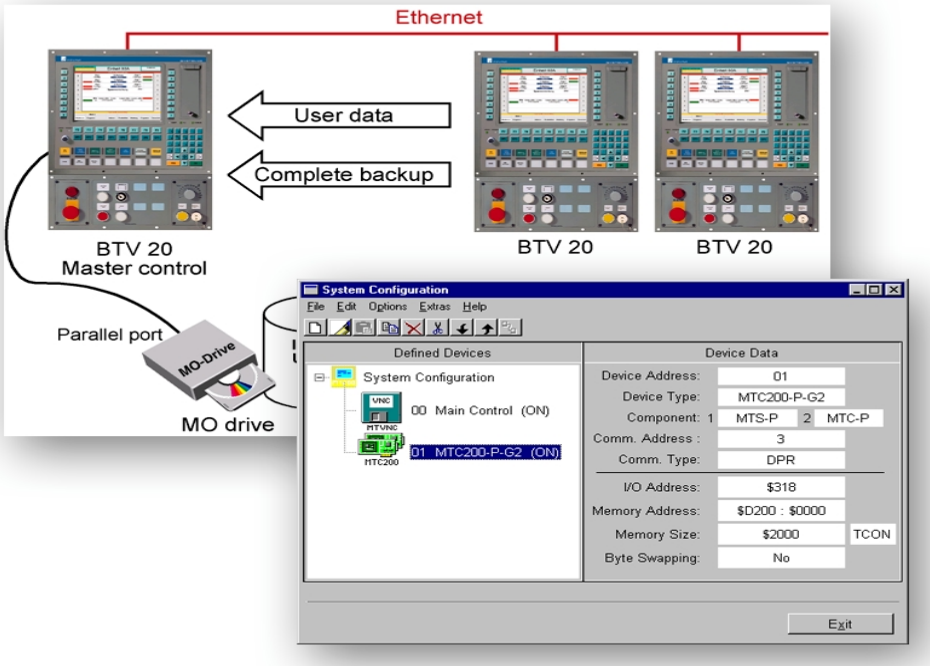

MTC200/TRANS200
System Services
21VRS

Application Manual

SYSTEM200

DOK-CONTRL-SYS*SER*V21-AW01-EN-P

Rexroth Indramat

Title MTC200/TRANS200
System Services
21VRS

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Purpose of Documentation This documentation describes the system services of the controller families MTC200 and TRANS200 with the functions language selection, system configuration and data backup.

Record of Revisions

Description	Release Date	Notes
120-0400-B368-01/EN	04.02	First issue

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Bgm.-Dr.-Nebel-Str. 2 • D-97816 Lohr a. Main
Telephone +49 (0)93 52/40-0 • Tx 68 94 21 • Fax +49 (0)93 52/40-48 85
http://www.boschrexroth.de/
Dept. BRC/ESS (ML, FW)
Dept. BRC/ESM6 (DH)

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Contents

1 General

1.1 Overview

This documentation describes the installation of the MTC200 and TRANS200 control systems. The following individual components are described.

- Language Switch
- System Configurator
- Data Backup

1.2 Language Switch

This chapter describes how the language in use can be changed.

1.3 System Configurator

The System Configurator is an editor that is used to describe and configure the devices connected to the Control PC. The device address, the device type and the description of the communication path to the unit can be configured. This creates a 1:1 image of the device structure (known as the system configuration) that is connected to the controller PC and determines the form of communication between the user interface and the devices connected.

1.4 Data Backup

Backup of program, user and configuration data is an important component of an EDP system. The MTC200/TRANS200 system provides multiple backup levels with differing data capacities. In addition, complete backups can be made using external programs.

This documentation describes the execution of a data backup at the workstations of a MTC200/TRANS200 system unit.

2 Switching Language

2.1 Procedure

The language in use is changed by modifying an entry in the **"Language.ini"** file.

Note: The Rexroth Indramat user interface must be exited before making any changes. Changes take effect on the next restart of the user interface.

The **"Language.ini"** file can be found in the Rexroth Indramat user interface path in the directory "..\MTGUI\Config". The file can be directly edited with a Unicode-capable text editor (e.g. Notepad).

In the "General" section, the entry "ActLanguage = **XX**" must be edited, where XX stands for the corresponding language identification.

Extract from Language.ini file:

```
[General]
ActLanguage=DE
DefaultLanguage=EN
```

Language identification corresponds to the DIN/INN standards.

Language identification corresponding to DIN/INN standards.

Language	Language Identification
German	DE
English	EN
French	FR

Fig. 2-1: Language identification corresponding to DIN/INN standards.

3 Overview of System Configurator

3.1 Field of application

The System Configurator is an editor which is used to describe the devices connected to the Control PC. The device address, the device type and the description of the communication path to the unit are employed for this purpose. The goal is to create an 1:1 image of the unit structure (known as the system configuration) that is connected to the control PC. The system configuration is stored in the control PC.

The System Configurator is used by the Function Interface and the User Interface (MTGUI) for the organization of communication with devices connected to the Control PC.

3.2 Menu Structure and Data Input

Menu structure

The left-hand half of the screen shows a graphical representation of the configured units in a tree diagram. For the device selected in the tree, the corresponding data is displayed on the right-hand side of the screen.

Data input

When entering data, for example when creating a new device or when editing an existing device, the user is guided by an Assistant. The Assistant splits the data entry into several steps.

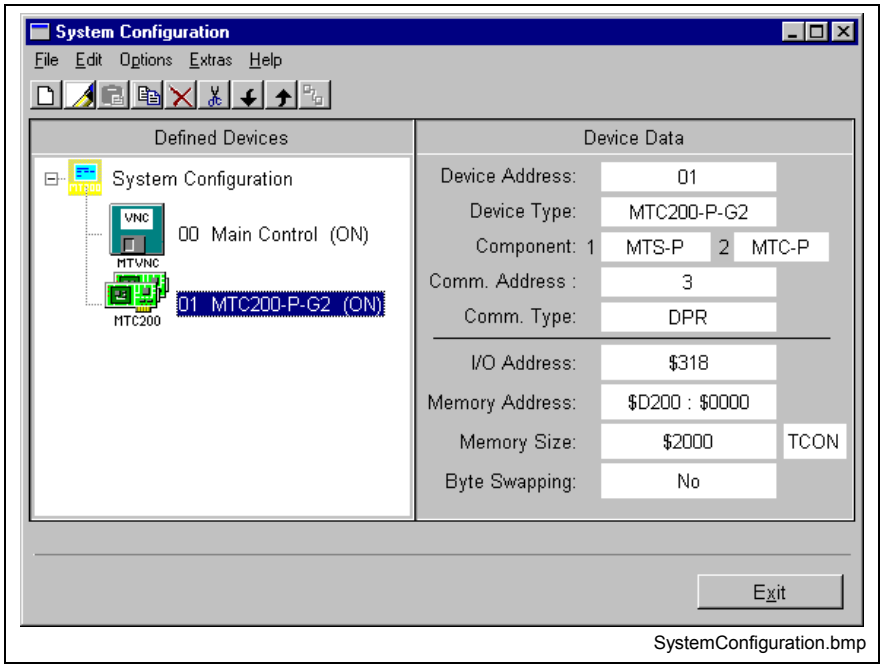


Fig. 3-1: System Configurator with two devices

3.3 Installation and Start of the System Configurator

The System Configurator is installed when installing the MTGUI. The System Configurator is started automatically after the installation.

Note: The System Configurator is an independent program and must be started at least once before starting the MTGUI. The System Configurator and the user interface cannot be simultaneously active. The System Configurator must be exited before starting the MTGUI.

The set-up program creates a link to the System Configurator on the Desktop. Simultaneously, a link is added in the Rexroth Indramat program path in the start menu. In both cases, the System Configurator is started directly by the Syscon.exe program call.

3.4 Example scenario

Connecting a new device

If, for example, for an MTC200-R-G2, address 0 is selected at the selector switch, and is connected via RS232 to COM2 of the Control PC, the configuration must be entered in the System Configurator, i.e. a device of type MTC200-R-G2, with device address 0, with a communication address that includes the settings RS232 and COM2, etc..

Changing an existing device

If the physical configuration of a device is changed, the device must be adjusted or edited in the System Configurator. If, for example, the connection of device 0 to the Control PC is modified from COM2 to COM1, device 0 must be edited in the System Configurator. This means that COM1 has to be selected instead of COM2 as the channel in the corresponding communication address.

4 Information about the System Configurator

4.1 Device type

The device types available in this specific installation of the System Configurator are shown in the “Device Type” selection list in the first step of the “New Device” function (see Create New Device, Step 1).

The following list shows device types which are available depending on the installation.

Device type	Class	Description
MTVNC	MTCX	Virtual MTC
MTC200-P-G2	MWCX	MTC with PLC PC variant
MTC200-R-G2	MWCX	MTC with PLC RECO variant
MTA200-P-G2	MTAX	MTA with WIN-PLC PC variant
ISP200-P-G2	MWSX	Standalone WIN-PLC PC variant
ISP200-R-G2	MWSX	Standalone WIN-PLC RECO variant
SYNAX200-P	MSYX	SYNAX as PC variant
SYNAX200-R	MSYX	SYNAX as RECO variant
SERCANS-A	MSCX	SCS-A card
SERCANS-P	MSCX	SCS-P card
TRA200-R	MTRX	TRANS200 as RECO variant
ECODRIVE03	MECX	ECODRIVE03

Fig. 4-1: Device Types and Device Classes

4.2 Device / Device Address

A device is understood to mean, for example, control hardware or a drive device.

The range of values for entering the device address is 0 to 63.

4.3 Checking Free Serial Ports

A check of the free serial ports is performed. Serial ports already in use (e.g. mouse) are not offered when editing communication addresses in the System Configurator.

The check can be disabled (Menu **Options**, Entry **Show only free COM ports).**

4.4 Communication Address

The communication address is a Rexroth Indramat specific data set which describes the communication path to the device. The communication address has a symbolic identifier which consists of the fixed part CommAddr and a number, e. g. CommAddr2. Up to 8 communication addresses can be specified (CommAddr1 to CommAddr8).

Note: Devices which are connected to the same serial port have the same communication address.

4.5 Updating the Directory Structure

When saving the system configuration data, an update of the directory structure will be carried out if necessary. The update of the directories will only be carried out if devices have been deleted or new devices have been added.

4.6 File Menu

The **File** Menu contains the **Save** and **Exit** menu items.

Save The system configuration is saved. (refer to 4.5 Updating the Directory Structure)

Exit If changes have been made, you will be asked by a MSG-BOX whether to save and exit or exit without saving.

4.7 Options Menu

List free ports Refer to 4 Information about the System Configurator

Network active The server service required for interconnection is started the next time the user interface is started.

Device interrogation cycle The device interrogation cycle is activated or deactivated, i.e. the device status (error status, device online, ...) is actively continuously checked.

It is furthermore possible to determine how often this interrogation is to be carried out.

5 System Configurator Functions

5.1 Overview

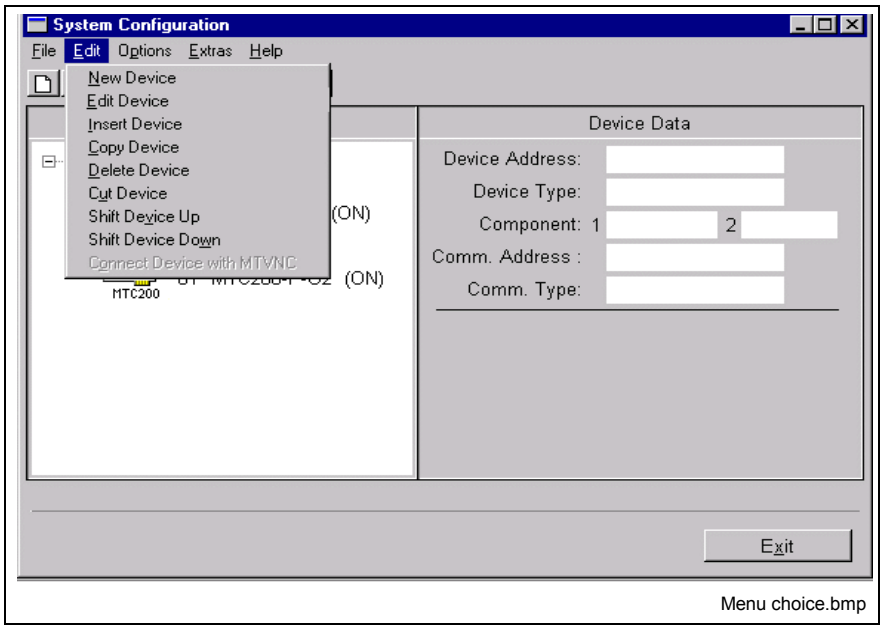


Fig. 5-1: Menu Edit

The functions can be called in the **Edit** menu with the menu items **New Device**, **Edit Device, Insert Device, Copy Device, Delete Device, Cut Device, Shift Device Up, Shift Device Down** or with the toolbar button to which the command is assigned.

Note: The underlined words correspond to the function designations in the **Edit** menu.

The command **New Device** has the effect that this new device will be inserted before the device currently selected in the tree.

The content of the functions create **New** device, **Edit** device and **Insert** device (refer to 3.2, 3.3 and 3.8) depends on the device type. The following tables provide an overview of these functions.

Create New Device	Devices except MTVNC	MTVNC
Step 1	Select device type	Select device type
Step 2	Select device address	Select device address
Step 3	Enter device name and device status	Enter device name and device status
Step 4	Select component type 1/2	No selection
Step 5	Enter communication address	Configuration of MTVNC (start mode, memory size)

Fig. 5-2: Steps for “Create New Device”

Edit Device	Devices except MTVNC	MTVNC
Step 1	Enter device name and device status	Enter device name and device status
Step 2	Select component type 1/2	No selection
Step 3	Enter communication address	Configuration of MTVNC (start mode, memory size)

Fig. 5-3: Steps for “Edit Device”

Insert Device	Devices except MTVNC	MTVNC
Step 1	Select device address	Select device address
Step 2	Enter device name and device status	Enter device name and device status
Step 3	Select component type 1/2	No selection
Step 4	Enter communication address	Configuration of MTVNC (start mode, memory size)

Fig. 5-4: Steps for “Insert Device”

5.2 Create New Device

The function can be called in the **Edit** Menu, via the menu item **New Device** or via the toolbar button **New**. The new device is inserted ahead of the device currently marked in the tree.

When entering data the user is guided by an Assistant. The Assistant splits the data entry into several steps. The creation of a new device is finished using the button **Ready** in the last step.

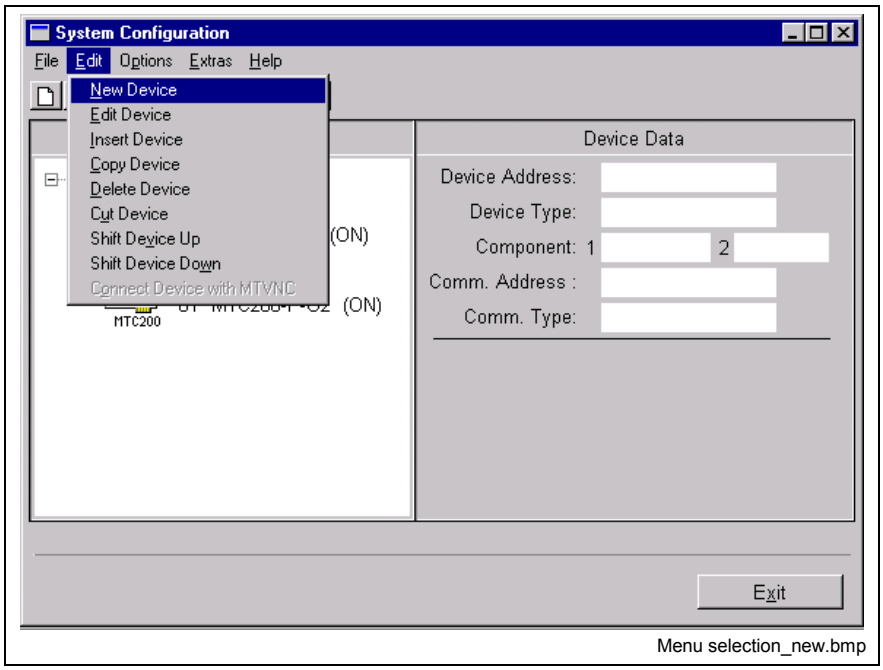


Fig. 5-5: Menu selection New Device

Create New Device, Step 1

The device type is selected in this step. The device type must correspond to the connected control PC.

Note: The device type cannot be changed after it has been created.

Create New Device, Step 2

The device address is selected in this step.

If the device is connected to the control PC by a serial connection and has a selector switch, the device address has to correspond to the participant's address selected at the device by the selector switch.

Note: The device address must be unambiguous.

The device type cannot be changed after it has been created.

Create New Device, Step 3

The device name is entered and the device status given. The device name may include up to 32 characters and should not include special characters.

Note: Set the device status to ON if the device exists and is ready, otherwise to OFF.

Create New Device, Step 4

The component type is selected in this step. The selection list of permissible combinations can be opened with the ALT + ↓ keys.

Create New Device, Step 5

Devices except MTVNC

A communication address is assigned to the device. A communication address must first be selected in the **Comm. Address** selection list.

In the selection list, only communication addresses are offered that correspond to the device type of the device being currently edited and that have not yet been used by other devices. Devices connected by a serial port are an exception. Please see also the note below.

If no communication address yet exists, it must be created by using the **New** entry in the selection list or via the **New** toolbar button.

The communication address data depends on the device type and is displayed in the corresponding entry fields. The data must correspond to the device settings.

⇒ For further information on devices, please refer to the technical documentation for the device.

Note: If devices are connected to the control PC by a serial connection, several devices may use the same communication path (the same communication address), for example when the RS485 protocol is used. The devices are addressed by the participant's device address selected by the selector switch.

MTVNC Configuration of type MTVNC devices is performed in this step.

The start mode of the MTVNC can be changed via the selection list:

- ON: The MTVNC is started when starting the MUI/GUI.
- OFF: The MTVNC is not started.

Note: If device status is ON, the start mode of the MTVNC device is automatically set to ON. The start mode of the MTVNC can only be changed if the device status is set to OFF.

The amount of computer memory used by the MTVNC can be adjusted to meet requirements:

- Default: 512KB
- Range of Values: from 256KB to 16383KB in 1 KB steps

The ”Options” entry can be accessed using the ”Extended” button. These options are not needed for normal use.

Note: For the “Options” entry, data may only be entered following agreement with Rexroth Indramat personnel. In normal operation, no data is entered.

5.3 Edit Device

The device to be edited must be selected in the 'System Configuration' tree.

Editing of the device can be initiated by means of **<Enter>** or double-clicking on the selected device, or via the **Edit Device** entry in the **Edit** Menu as well as via the **Edit Device** toolbar button.

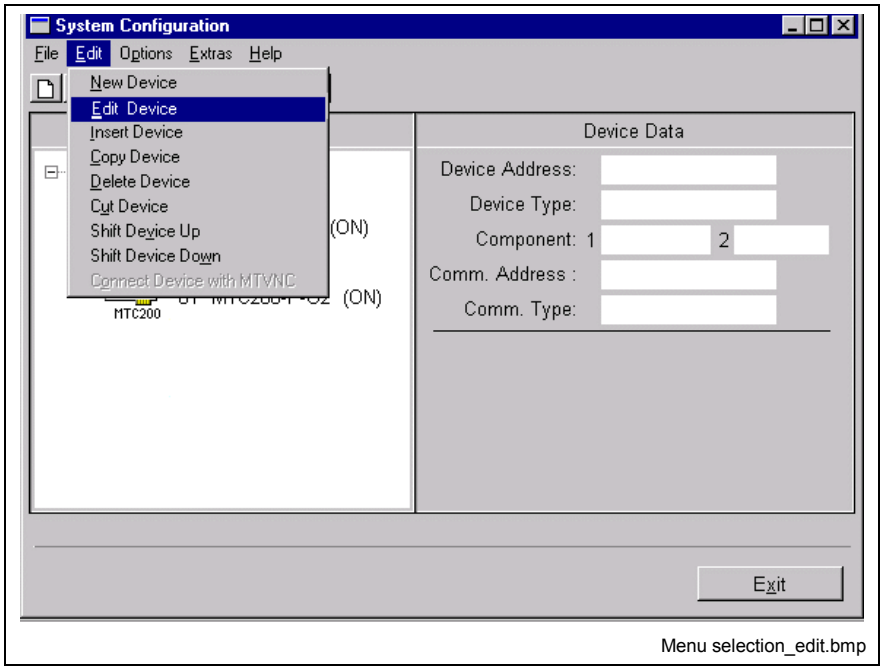


Fig. 5-6: Edit menu selection

When editing data, the user is guided by an Assistant. The Assistant splits the data entry into several steps. The Edit Device function will be finished using the **Finish** button in the last step.

Note: Both the device address and the device type cannot be changed.

Edit device, Step 1

The device name is entered and the device status given. The device name may include up to 32 characters and should not include special characters.

Note: Set the device status to ON if the device exists and is ready, otherwise to OFF.

Edit device, Step 2

The component type is selected in this step. The selection list of permissible combinations can be opened with the ALT + ↓ keys.

Edit device, Step 3

Devices except MTVNC

The communication address data can be changed and a new communication address created. Furthermore, the communication address currently assigned to a device can be changed.

The communication address selected in the **Comm. Address** selection list is assigned to the device.

In the selection list, only communication addresses are offered that correspond to the device type of the device being currently edited and that have not yet been used by other devices. Devices connected by a serial port are an exception. Please see also the note below.

The communication address data depends on the device type and is displayed in the corresponding entry fields. This data must correspond to the device settings. For further information on devices, please refer to the technical documentation for the device.

Note: If devices are connected to the control PC by a serial connection, several devices may use the same communication path (the same communication address), for example when the RS485 protocol is used. The devices are addressed by the participant's device address selected by the selector switch.

MTVNC

Configuration of type MTVNC devices is performed in this step.

The start mode of the MTVNC can be changed via the selection list:

- ON: The MTVNC is started when starting the MUI/GUI.
- OFF: The MTVNC is not started.

Note: If device status is ON, the start mode of the MTVNC device is automatically set to ON. The start mode of the MTVNC can only be changed if the device status is set to OFF.

The amount of computer memory used by the MTVNC can be adjusted to meet requirements:

- Default: 512KB
- Range of Values: from 256KB to 16383KB in 1 KB steps

With the button "Extended", the "Options" can be accessed. These options are not needed for normal use.

Note: For the "Options" entry, data may only be entered following agreement with Rexroth Indramat personnel. In normal operation, no data is entered.

5.4 Delete Device

The device to be deleted must be selected in the 'System Configuration' tree.

The selected device is deleted via the **Delete** entry in the **Edit** menu, or via the **Delete** toolbar button, as well as via the **<Del>** keyboard key. A security prompt then appears.

Note: By deleting a device, the data in this device's directory is also deleted.

5.5 Cut Devices

The device which is to be cut must be selected in the 'System Configuration' tree.

The selected device is deleted and copied into a temporary buffer via the **Cut** entry in the **Edit** menu or via the **Cut** toolbar button. A security prompt then appears.

For inserting the device, refer to 5.7 Insert Device.

5.6 Copy Device

The device to be copied must be selected in the 'System Configuration' tree.

The selected device is copied into a temporary buffer via the **Copy Device** entry in the **Edit** menu or via the **Copy** toolbar button.

For inserting the device, refer to 5.7 Insert Device.

5.7 Insert Device

If a device is saved in the temporary buffer, it can be inserted via the Paste Device function. The device will be inserted ahead of the device currently selected in the 'System Configuration' tree.

The user must enter a device address when the device is inserted. If necessary, further settings may be changed. The user is guided through this process by an Assistant. The following general procedure is valid:

- The device address must be assigned as in Step 1 (refer to 'Create New Device').

From Step 2 on, the steps as for the Edit Device function are gone through.

- In Step 2 of Insert Device, the device name and the device status are set.
- In Step 3 of Insert Device, component type 1/2 is chosen.
- In Step 4 of Insert Device, the communication address is edited or the MTVNC configured.

Note: Copy / Cut / Insert includes the device's system configuration data (device type etc.). It does not include data such as NC programs, message texts, etc., located in the device directories.

5.8 Move Device Upwards

The device to be shifted must be selected in the 'System Configuration' tree.

The selected device is shifted one entry up in the tree via the **Shift Device Up** entry in the **Edit** menu or via the **Shift Device Up** toolbar button.

5.9 Move Device Downwards

The device to be shifted must be selected in the 'System Configuration' tree.

The selected device is shifted one entry down in the tree via the **Shift Device Down** entry in the **Edit** menu or via the **Shift Device Down** toolbar button.

6 Data Backup - Introduction

6.1 Chapter Overview

This chapter gives you an overview of the data structure, the backup mechanisms and the data organization of the MTC200/ISP200 control family.

6.2 Purpose of this Documentation

This documentation describes how to carry out a data backup at the workstations of an MTC200/ISP200 system unit. Both single-seat systems and networked systems are considered. The data backup (complete backup) is described with the help of three programs currently available on the market and used by Rexroth Indramat.

6.3 Determine Hardware and Software Configuration

Due to the variety of possible hardware components in use (MO drive, network card), this manual only considers one specific configuration. Nevertheless the data backup can also be carried out with other suitable programs and mass storage. However, only one of the configurations tested by Rexroth Indramat is described in this documentation. This description refers to the following hardware and software components.

Hardware

Operation and Visualization Terminal	BTV20, BTV30
Network card	SMC 9000, typically found in the BTV20/30
External mass storage	Fujitsu M 2513 Parallel MO drive

Software

Operating system	MS-DOS
Data backup software	Ghost 5.1d from Symantec
	HDCOPY 2.0 Pro from HDTRONIC
	DriveImage Pro 3.0 from PowerQuest

6.4 Purpose of Data Backup

EDP systems are not static systems. Data is continuously created, modified, moved or deleted. Components are added or removed, updates are carried out, settings are modified. Furthermore, both user and system data must be taken into account. There are many reasons for carrying out a data backup:

- Saving of data in case of a hardware failure
- Restoring the system environment after incorrect operation
- Saving main system settings
- Archiving a system state before carrying out an update
- Providing an identical system environment

The MTC200/ISP200 system provides multiple backup possibilities, each with a different quantity of data.

6.5 Data Structure

The MTC200/ISP200 system data can be divided into three groups.

Operating system WindowsNT operating system data. These include system files, network files, service pack files, files with settings such as the registry, etc.

Rexroth Indramat user interface The Rexroth Indramat user interface files include the user interface, language files and configuration files with settings.

User data User data includes both preparation data on hard disk and data that is loaded in the controller or the drives.

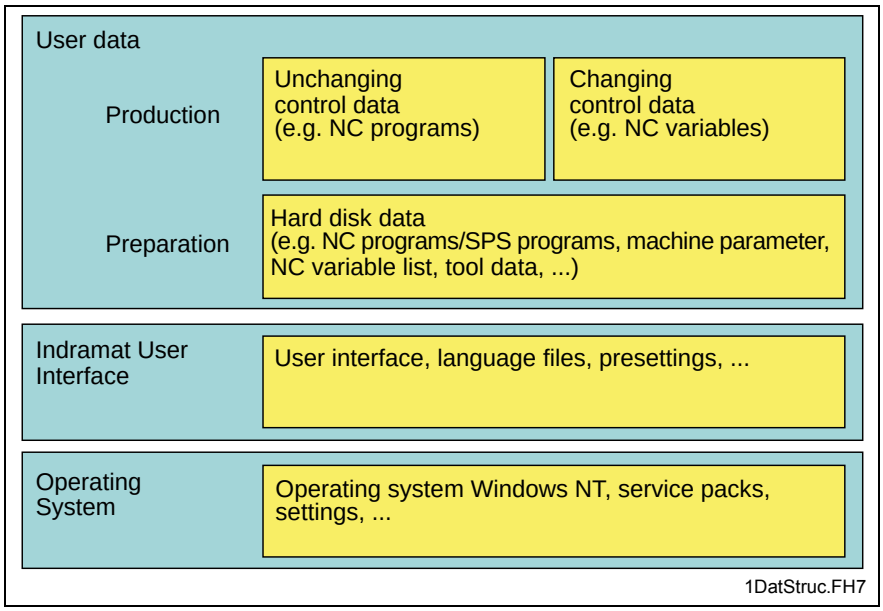


Fig. 6-1: Data structure

6.6 Backup Mechanisms

For the backup and/or the restore of the different data areas, various backup mechanisms are available.

Operating system After a system crash the operating system can be re-installed using the WindowsNT CD. WindowsNT must be again configured afterwards. The configuration settings can only be restored if they have been completely saved beforehand.

Rexroth Indramat user interface The Rexroth Indramat user interface can be re-installed after a system crash using the installation CD or the diskettes. The settings can only be restored if they have been completely saved beforehand.

User data User data is saved on an external data storage medium (server, MO, diskettes) by the Rexroth Indramat data backup program. It is possible to restore the data after a system crash.

Complete backup The complete backup is the most comprehensive backup method. It includes all data areas. During complete backup using an external program, the complete data area of a hard disk (complete hard disk or single partitions) is written in an image file. Besides user data, the operating system and the Rexroth Indramat programs, including all settings, are also saved.

This complete backup is the only way of restoring an identical system environment after a hardware failure.

6.7 Which Data Should Be Saved?

User data User data loaded in the controller (e.g. NC programs, NC variables etc.) should be saved.

Further user data can be found on the hard disk, e. g. NC programs/PLC programs, machine parameters, tool data, NC variable lists and configuration files, etc.

User interface data These are control interface program and language files.

Operating system data These include WindowsNT interface program and configuration files, the network environment, and service packs.

6.8 When Should Data Be Backed Up or Restored?

User data

Backup
- for archiving after the project is completed
- after setup
- before testing
- before carrying out software and firmware updates
- cyclically at fixed time intervals

Restore
- after an incorrect software and firmware update
- after incorrect operation
- after replacing PLC, NC or drives containing firmware
- after replacing a hard disk containing pre-installed software

Complete backup

Backup

- cyclically at fixed time intervals
- before replacing hardware, e. g. installation of a larger hard disk
- after handing over to the customer

Restore

- after a hard disk failure
- after a complete control system crash
- for duplication of a control system

Note: Please take the operating system and the Rexroth Indramat software licensing agreement into account when a hard disk or a partition is duplicated.

6.9 Where Should I Backup?

Diskette

- Suitable for small amounts of data such as user data
- Easily handled
- Inexpensive data storage medium

Hard disk

- Large memory capacity
- Fast medium
- All stations of a transfer line can be saved centrally.

MO Drive

- Safe medium (40 years archiving period guaranteed)
- Can be re-written as often as desired
- No additional PC necessary for local data backup
- Large memory capacity (640 MB). About 450 MB is currently needed for a complete(uncompressed) data backup.

7 Backup Strategies

7.1 Chapter Overview

This chapter informs you which data is to be saved on which data storage medium.

For data backup, the following procedures are available. Depending on the amount of data, it can be saved on diskette, on MO connected to the BTV or via Ethernet on a backup PC.

7.2 Backup on Local Data Storage Media

Which data is saved? User data from the controller and the drives on the hard disk of the BTV is saved on external data storage media by the data backup program delivered together with the software. Depending on the amount of data, various types of data storage media can be used.

What is the data saved on? Diskette

MO drive (rewritable optical disk)

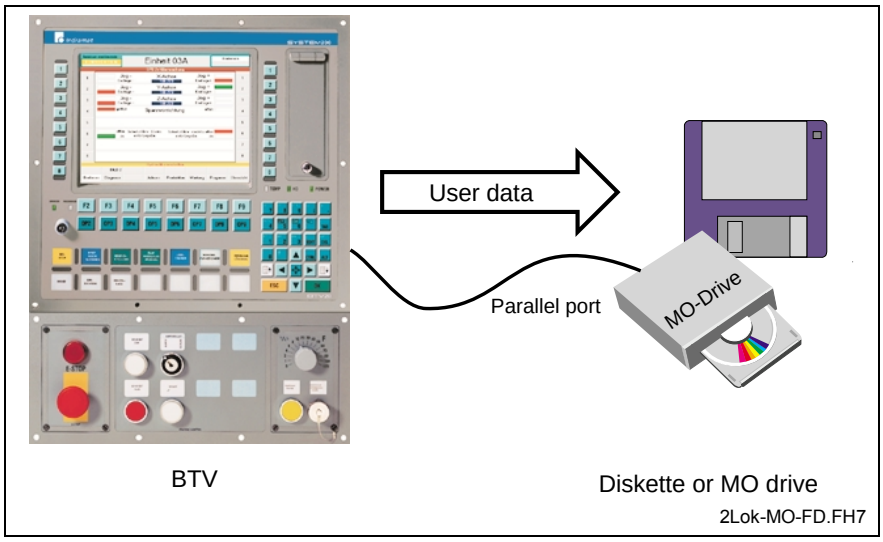


Fig. 7-1: Local backup on diskette or MO drive

7.3 Backup over Ethernet on Master Controller BTV

Which data is saved? For stations networked by Ethernet, individual station user data can be saved on the master controller's data storage media. Furthermore, the image files of the complete backup can be transferred to the master controller.

What is the data saved on? For data backup, an MO drive connected to the master controller is used.

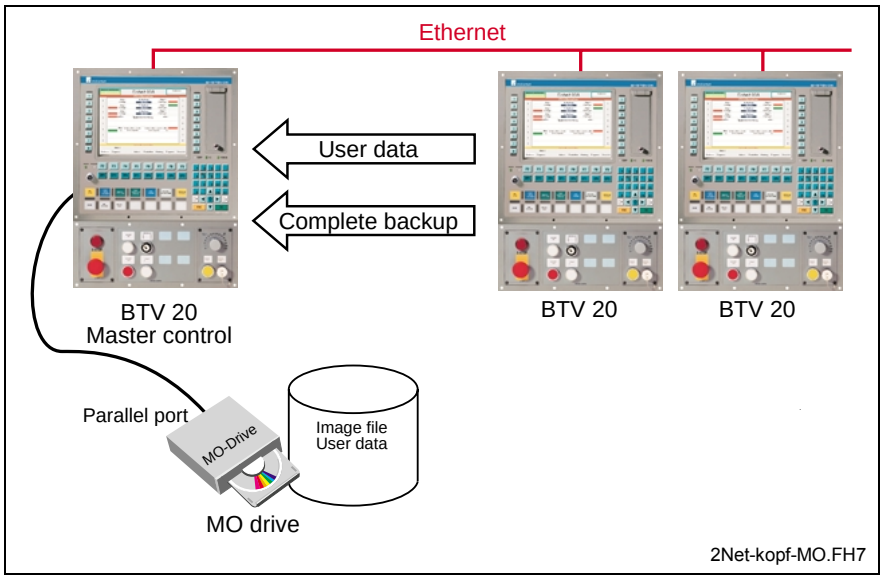


Fig. 7-2: Backup to master controller MO drive

7.4 Backup over Ethernet to Backup PC

Which data is saved?

As an alternative, a backup PC connected to the network can save the individual station user data and image files of the complete backup.

What is the data saved on?

The hard disk of the PC can also be used for backup if it has enough disk space. The use of an MO drive is also feasible, with each station having its own medium.

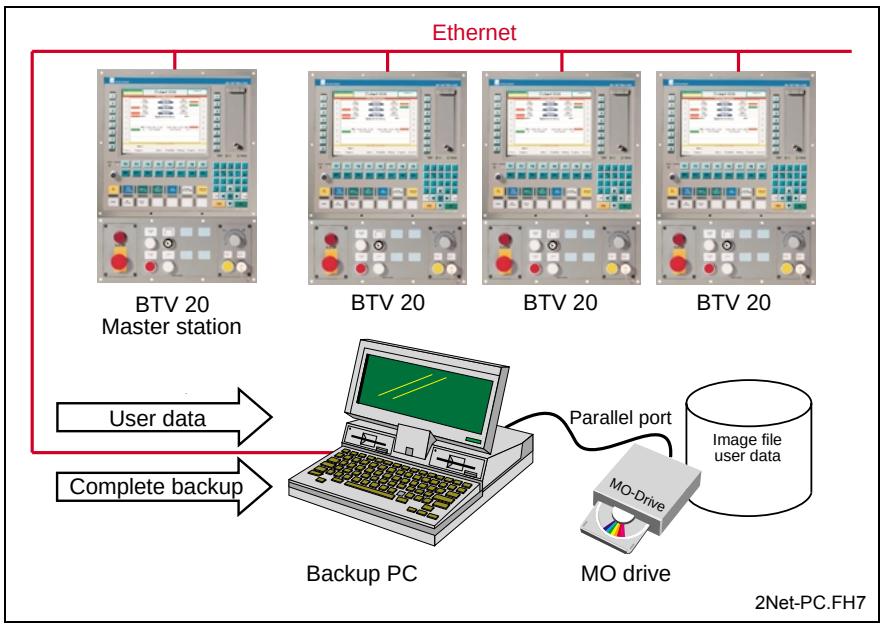


Fig. 7-3: Backup on backup PC hard disk or MO drive

8 Archiving User Data

8.1 Chapter Overview

This chapter describes how user data is archived (backup and restore) with the help of the archiving program delivered with the controller.

8.2 Procedure

Data files on the hard disk are saved and can be restored as necessary with the help of an archiving program. The files are compressed and written to the data storage medium during the archiving process. Diskettes, hard disks or MO drives can be used as media for archiving.

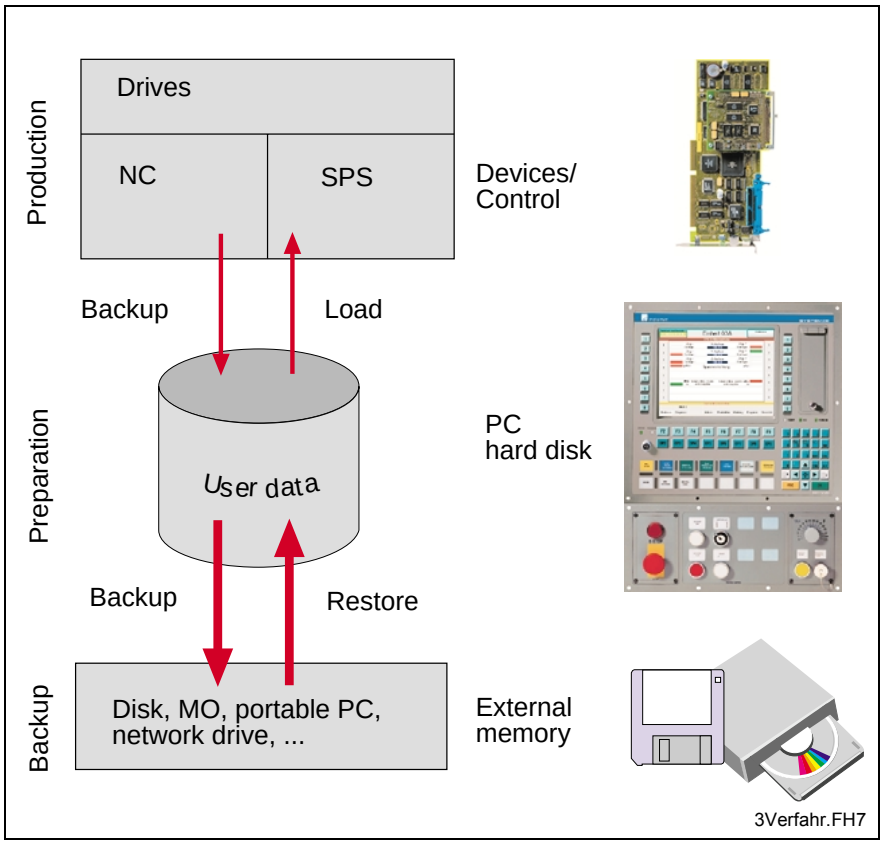


Fig. 8-1: The archiving procedure

Data Not Included in Archiving

Not all of the total system data is saved with the archiving function. Optional Rexroth Indramat systems such as Dolfi, Application Builder, Screen Manager and WOP are not saved. In addition, external programs such as the NC programming systems ARTIS, Fremd-WOP, etc., are not saved. This data can only be saved by executing a complete backup.

Preparation

Before beginning the backup, data that can be modified within the controller (NC variables, NC events, D-corrections, tool lists, zero offset data, machine data, residual PLC data, SERCOS parameters) must be saved on the hard disk. This can be done via the corresponding menus or centrally via the archive function (menu item 1 **Archive**) in the BOF.

SERCOS parameters and residual PLC data

The SERCOS parameters are not saved via menu item 1, **Filing**, but can be saved in menu item 5, **Edit Machine Parameters,** under **Drive Parameters**. Residual PLC data must be saved using the block commands in the PLC.

Backup

The backup consists of two steps. The data to be saved is defined in a batch file. Firstly, all data to be saved is copied to a temporary directory on the local hard disk. In addition to the temporary directory, the structure file “archive.asl” is created. This structure file includes all necessary information about the saved data (e. g. origin, date, etc.). Compression is first done after ensuring that all files to be saved are available. The complete temporary directory content is always compressed. The result of compression is a ZIP file. A ZIP file which exceeds the size of the selected storage medium is automatically split across multiple media. When compression is finished, the temporary directory and all sub-directories are deleted.

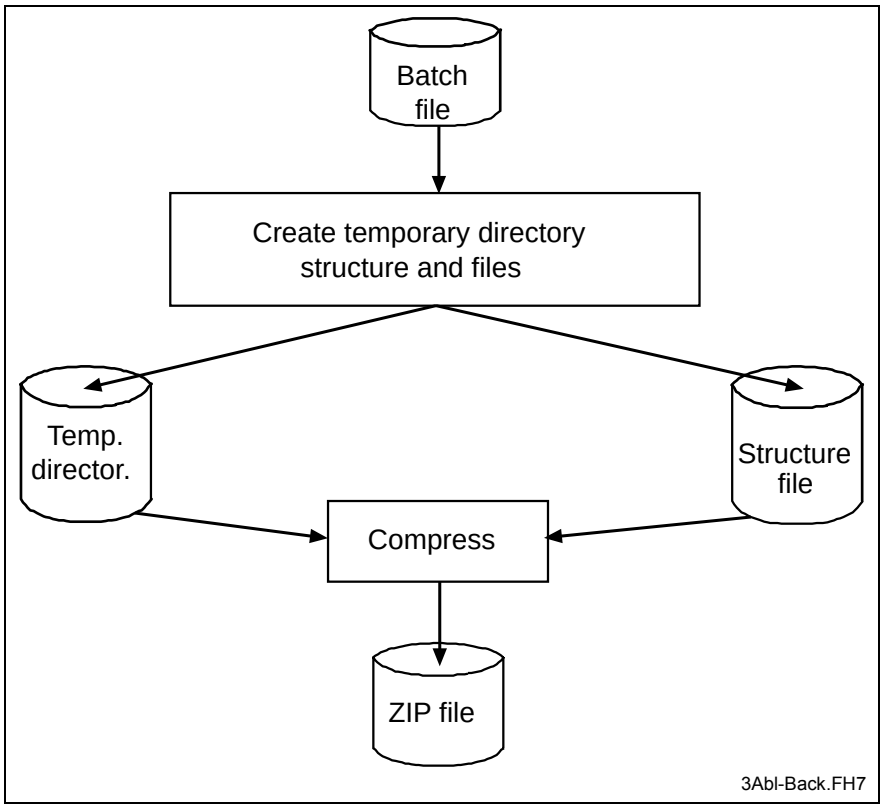


Fig. 8-2: Procedure for backing up user data

Restoring

From the selected archive file (ZIP file), the files are decompressed into a temporary directory. The complete archive file contents are always decompressed. Single files cannot be restored. The files are copied to their destination directories only after fault-free decompression of all files. The temporary directory is deleted after the files have been successfully copied.

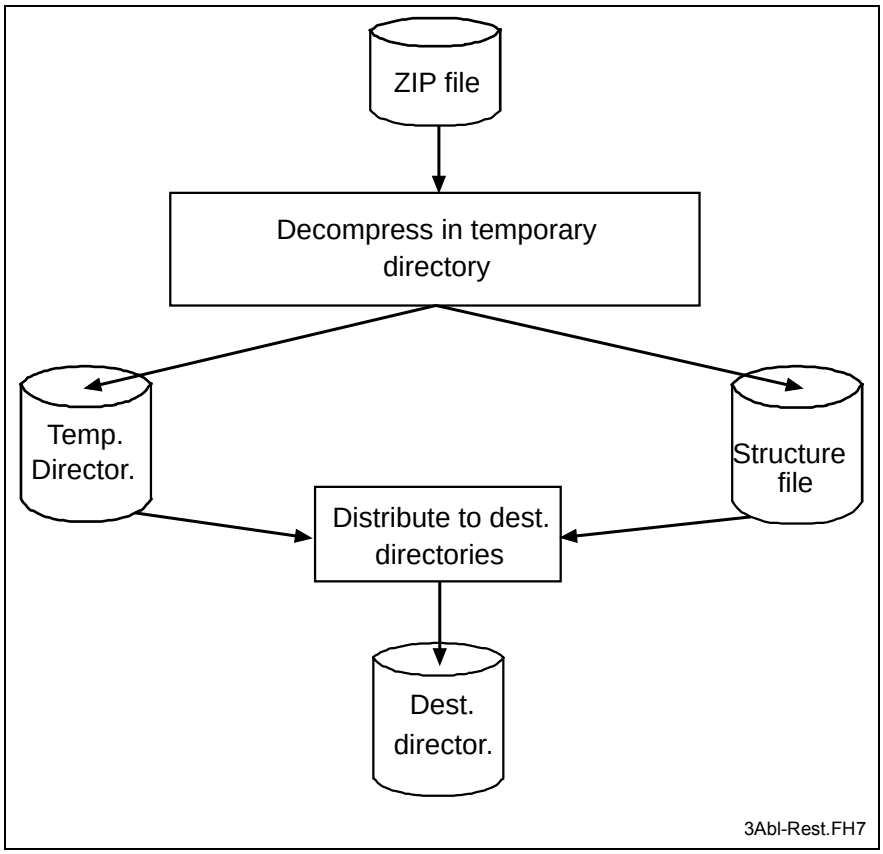


Fig. 8-3: Procedure for restoring user data

Restoring Data to the Controller

After the restore, data that can be modified (NC variables, NC events, D-corrections, tool lists, zero offset data, machine data, residual PLC data, SERCOS parameters) must be loaded back into the controller. This is done in the corresponding menus.

8.3 Selecting Data

The files to be saved are selected by means of batch files. This is done so that the user does not have to select individual files. A range of pre-defined batch files lets the user determine the extent of the backup. Individual data types such as NC data can be selected, or individual devices up to a complete backup of all devices. The data packets can be selected via a list field.

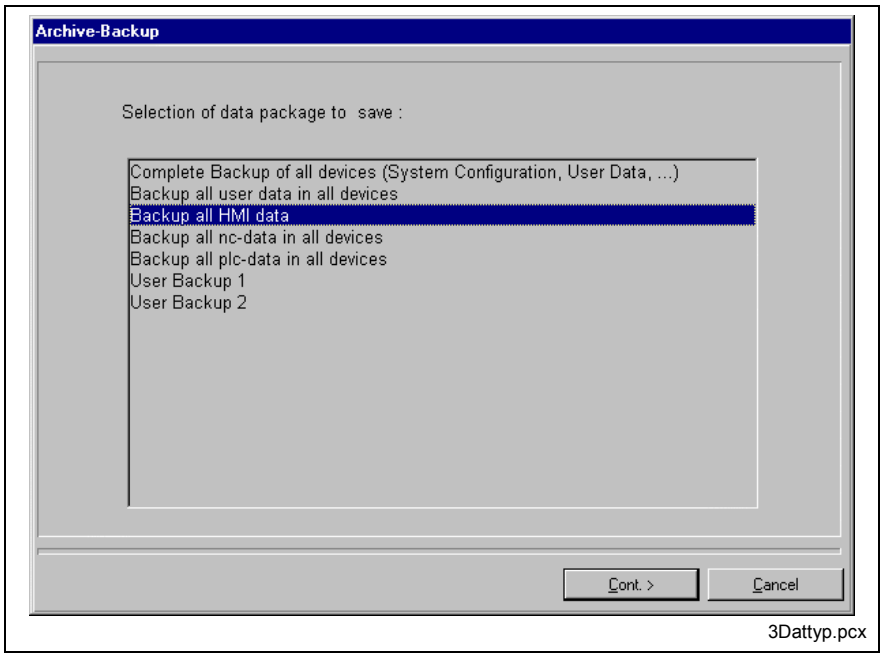


Fig. 8-4: Selection of data packets via a list field

8.4 Batch Files

In addition to the pre-defined batch files for the backup of individual data types or devices there are two user-specific files. The user can create his own backup selection via these user defined batch files. The batch files are called “BACKUP_USER_IND_1.ASD” and “BACKUP_USER_IND_2.ASD”. They are located in the <Drive>\...\Project_000\CustomData\Resource directory. ASD files are ASCII files and can be modified using an editor.

```
;BACKUP_USER_IND_1.asd
;
$AREA$\CONFIG\ /DIR /DEL
$AREA$\CONFIG\*.* /-

$AREA$\PROJECT_000\ /DIR /DEL
$AREA$\PROJECT_000\*.* /- /SUB
```

Fig. 8-5: The batch file “BACKUP_USER_IND_1.ASD”

File Structure

The file consists of individual command lines in which the files/directories to be saved are indicated.

Syntax <Path(logical path)><File><Space><Switches>

Example:

```
$AREA$\CONFIG\*.* /- /SUB
```

Rules

Paths Path information must always be given as logical paths, no physical paths must be used.

Logical path information is given at the beginning of the command line and is enclosed by **"$"** characters.

File names File names can be indicated with wildcards (e. g. *.*, *.dat, ...).

Comments Blank lines and comments are ignored.

Comments are introduced by a ";" character, the character may be positioned at the beginning of a comment line and at the end of a command line.

Example:

```
; a comment line
$AREA$\Project_000\*.* /SUB ; comment within a command line
```

Switches

In addition to path and file information, it is also possible to add additional information to the command line by means of switches.

/SUB Any subdirectories present are taken into account.

/- If a file is not present, it is ignored. An error message is displayed for any other case.

/DIR The directory indicated in the command line is always created during the restore process if it does not already exist. This is independent of whether there are files in this directory or not. Files to be copied into this directory must, in addition, be indicated in a separate command line.

This switch is either standalone or in connection with /DEL.

/DEL During restore, the directory is emptied; any existing files are deleted.

/EXC During restore, files having this switch are not overwritten by files from the archive that have the same name.

Example of a batch file:

```
;Area Files
$Area$\*.* /SUB
;Drive
$Drive$\my_dir\myfile.dat
```

Areas

Physical path information is replaced by logical path information.

These are split as follows:

Area $Area$: replaces the installation directory, e.g. …\MTGUI

e.g. $Area$.* /SUB:* backs up all files in the directory …\MTGUI including any subdirectories present

Drive $Drive$: replaces installation drive D:

e.g. $Drive$\my_texts\myfile.dat: backs up the file MYFILE.DAT in the \MY_TEXTS subdirectory on the installation drive

8.5 Executing a Backup

Prerequisites

- The data to be saved must be hard disk data. User data from controller and drives must therefore be saved to the hard disk before backup.
- The backup program requires unlimited and exclusive access to the files to be saved. It is therefore necessary that all active applications (user interface, function interface, System Configurator) are terminated.
- Sufficient memory must be available on the drive (hard disk, MO drive) to be archived. Furthermore, the program requires enough memory on the hard disk for the temporary files archive of the data to be saved. Several diskettes must be available when backing up to a diskette drive. The diskettes do not have to be formatted. Formatting can be carried out by the program if so desired.
- It is recommended that only tested, fault-free diskettes are used. Most problems encountered when restoring are due to faulty diskettes.

Note: The archive diskettes must be clearly labeled, so that the correct diskette is inserted when prompted.

⇒ Attach labels to a number of diskettes and number these sequentially.

Using the Backup Program

Assistant The backup is carried out with the help of an Assistant. This guarantees easy handling. After selecting an option, pressing the **Next** button leads to the subsequent dialog. The **Back** button leads to the previous dialog. In the final dialog, archiving is started by pressing **Execute,** and the previously-made settings are used.

Online Help Function key **<F1>** opens the help function at any time. The table of contents points to the required topic. The various backup mechanisms are described.

Saving Control Data on Hard Disk

Data that can be modified within the controller (NC variables, NC events, D-corrections, tool lists, zero offset data, machine data, residual PLC data, SERCOS parameters) must be saved on the hard disk before executing the backup.

Calling the Backup Program

The backup program is called via the Windows start menu.

⇒ Open the backup program using the **Start - Programs - Indramat - Backup** menu sequence

The program is loaded. A dialog window with a selection list of pre-defined data packets is displayed.

Selecting data packets to be saved

This lists the possibilities currently available for data backup. The data packets delivered by Rexroth Indramat at installation include

- Backup of all user data (complete backup: directory ...\Project_000\...)
- Backup of all HMI data (backup of HMI data: directory ...\Project_000\CustomData\..., as well as ...\Project_000\OemData\...)
- Two packets are reserved for users who only wish to backup special directories: user-defined backup 1 & 2. The associated files BACKUP_USER_IND_1.asd and BACKUP_USER_IND_2.asd can be found in directory ...Project_000\CustomData\Resource. At installation time, their contents represent a complete backup. These files can be modified by the user.

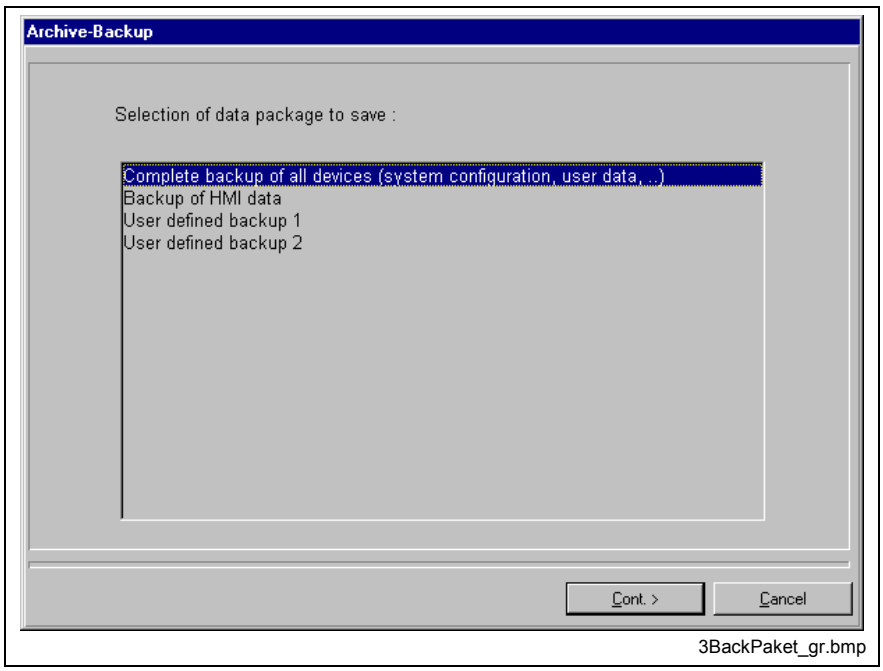


Fig. 8-6: Selecting data packets to be saved

⇒ Select the data packet to be archived by marking it and pressing **Cont.**.

A dialog window for selection of the file archive is displayed.

Entering the Destination File

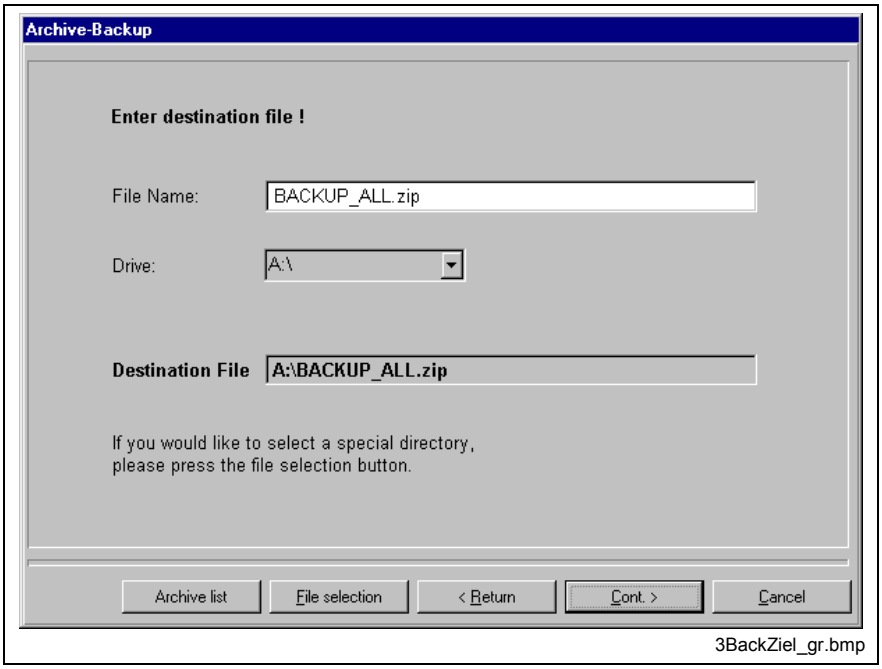


Fig. 8-7: Selection dialog for destination file

There are three ways of selecting a destination file.

Three ways of selecting an archive

- Accept the proposed file name and drive enter a new file name and drive. The proposed for file name corresponds to the data package selected.
- The **Archive list** button opens a list of previously-created archives. It offers an overview and the possibility to select an existing archive. This archive is then overwritten.
- Create a new archive by opening a file selection window with the **Browse** button and determine drive, folder and file name. A file name for the archive file is also proposed here. It is also possible to save via the network. During backup on a network drive, this drive is connected.

⇒ Select one of the possibilities.

Independently of the possibility selected, an entry field for additional file information is displayed.

Selecting an Existing Archive

The last archives, to a maximum of 8, are listed here. The user can select one of these by clicking it. This existing archive is then overwritten.

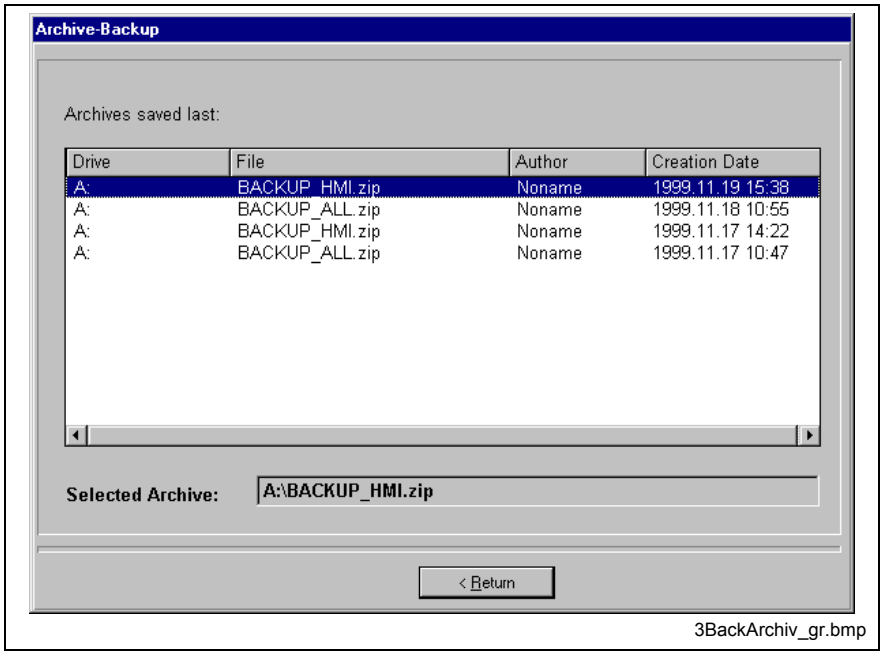


Fig. 8-8: Selection list for file archive

Entering Archive Information

The user can enter his name and any commentary on the archive to be created in this screen mask. Entry of a name is mandatory, a commentary may be entered if so desired.

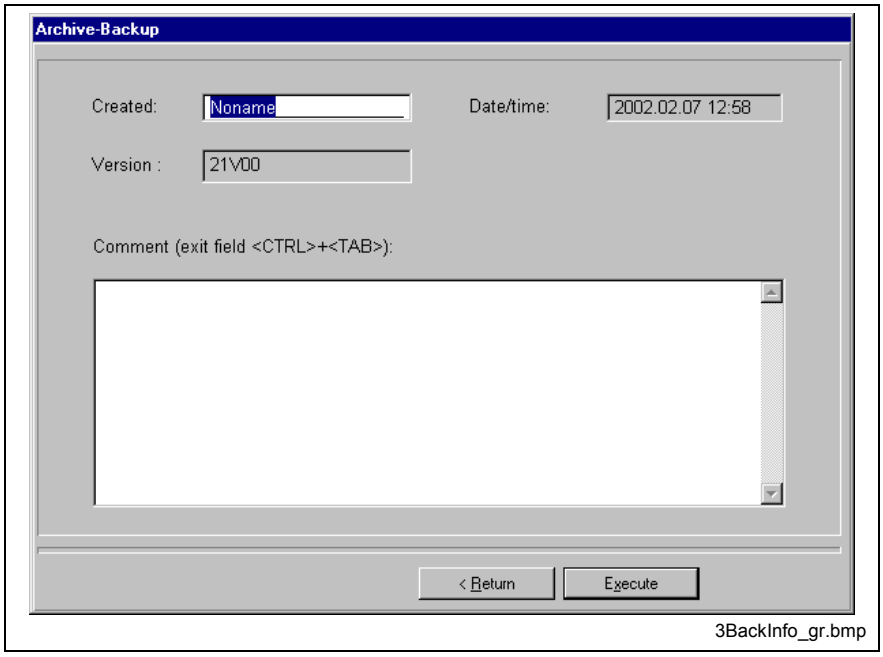


Fig. 8-9: Entry dialog for file information

⇒ Enter the name of the author; date and time will be entered automatically by the system. Enter any desired comment text in the text field and press the **Execute** button.

The archiving is started. The data is copied to a temporary directory.

If a floppy drive has been selected as backup destination drive, a prompt will be displayed asking whether the diskette should be formatted.

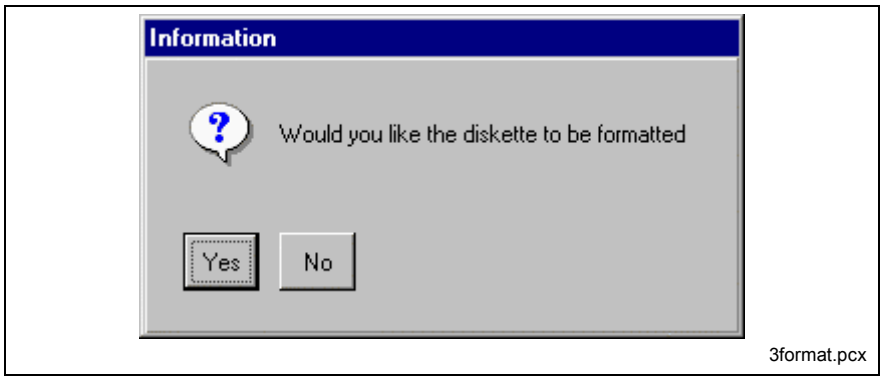


Fig. 8-10: Dialog for formatting

⇒ Confirm with **Yes** if the diskette is to be formatted

- or -

press **No** if formatting is not required.

⇒ Insert the first diskette into the drive when requested and press **Yes**.

The compression procedure then starts. A dialog window with a progress display gives information on the archiving status. If the backup file is to be saved on several diskettes, insertion of new diskettes will be requested. When archiving is finished, the file information window is again displayed.

Finishing Archiving

After the archive has been created, the information window for the just-created archive is displayed again for the last time.

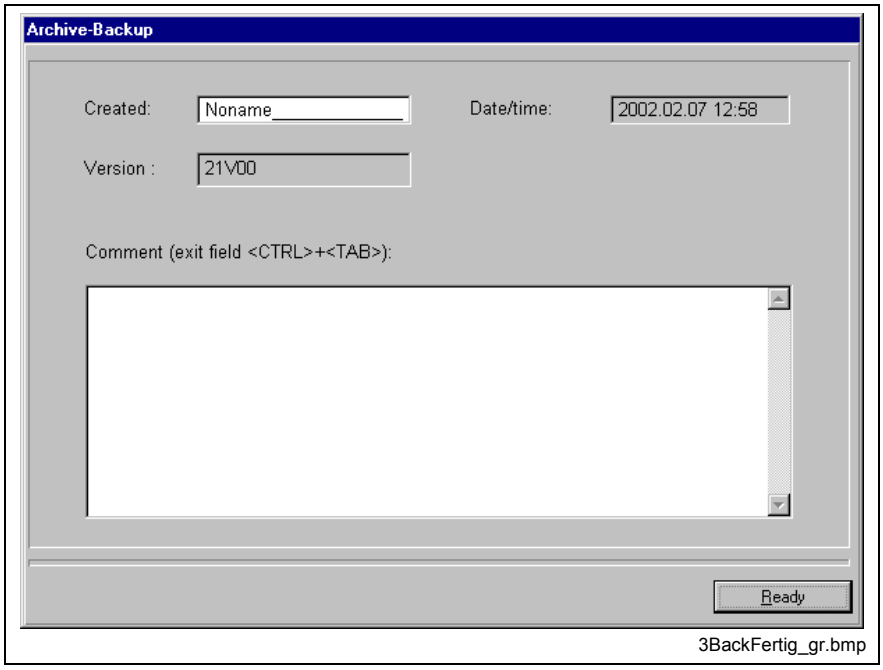


Fig. 8-11: Final dialog after finishing the backup

⇒ Terminate archiving by pressing **Ready**.

Archiving is now terminated, the program is exited.

8.6 Executing a Restore

Prerequisites

- The restore program requires unlimited and exclusive access to the files to be saved. It is therefore necessary that all active applications (user interface, function interface, System Configurator) are terminated.
- The drive with the archived data must be ready (MO drive switched on). If the data is saved on diskettes, all diskettes must be available.

Note: Labels are assigned to the backup diskettes by the program. This designation is required for the restore procedure. If diskettes are copied or forwarded electronically, the labels assigned to the diskettes must be also forwarded.

Using the Restore Program

Assistant Restore is also carried out with the help of a dialog Assistant. After selecting an option, pressing the **Cont.** button leads to the subsequent dialog. The **Return** button leads to the previous dialog. The archiving procedure is started in the last dialog by pressing **Execute**.

Online Help Function key **F1** opens the help function at any time. The table of contents points to the required topic. The various backup mechanisms are described.

Calling the Restore Program

The restore program is called via the Windows start menu.

⇒ Open the program with the **Start - Programs - Indramat - Restore** menu sequence

The program is loaded. The dialog window with the selection list of available file archives is displayed.

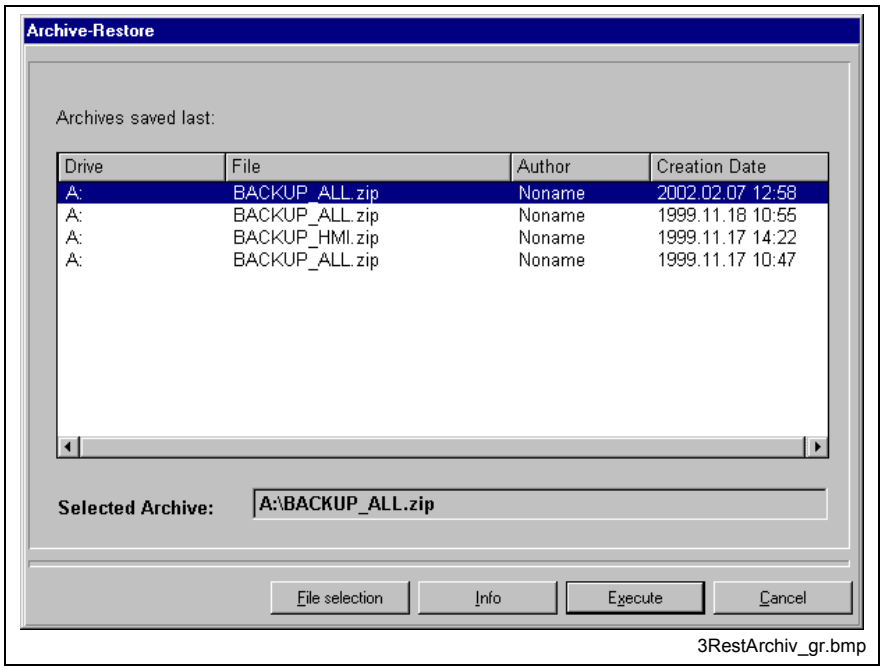


Fig. 8-12: Selection list for file archive

In the selection list , all archive files already created are displayed.

⇒ Select the archive to be restored from the list

- or -

⇒ press the **File selection** button in order to select a valid ZIP archive not shown in the list. If the ZIP archive is saved on a diskette, a prompt to first insert the last archive diskette into the floppy drive will be displayed. The program requires this diskette in order to determine the archive size. After archive selection, the file information window is displayed.

⇒ Press the **Execute** button to start the restore function.

A message box asks if existing user data is to be deleted during restore.

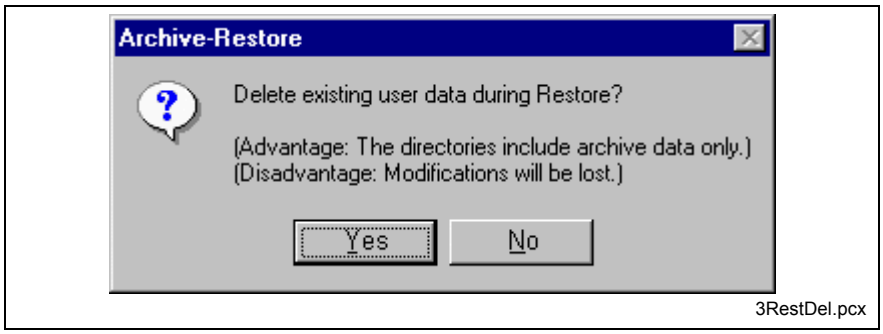


Fig. 8-13: Delete existing user data?

⇒ If the dialog is answered with **Yes**, the directories will only include archive data; temporary data will be lost.

- or -

⇒ If the question is answered with **No**, temporary data will remain.

⇒ Answer the dialog “Is last medium in drive?” with **Yes** if the archive is located on the inserted medium. Otherwise change the medium.

Note: Occasionally, several prompts to change the diskettes are issued. This is unavoidable if the internal ZIP archive file is split onto two diskettes.

The ZIP data is copied to a temporary directory and then to the destination directories. The procedure is shown in a progress display.

When the restore is finished, the file information window is displayed.

⇒ Terminate the restore by pressing **Ready**.

The restore procedure is now terminated, the program is exited.

Restoring Control Data

After the restore, data that can be modified within the controller (NC variables, NC events, D-corrections, tool lists, zero offset data, machine data, residual PLC data) must be restored into the controller.

9 Complete Backup

9.1 Chapter Overview

This chapter describes the complete backup with the help of external data backup programs.

9.2 Procedure

Backup With the help of an external program, individual partitions of a hard disk or the complete contents of a hard disk are written into an image file. This image file represents a complete copy of the data storage medium. All system data and system settings are saved. In addition to the control software program data and user data, the operating system programs and settings and any external software, if present, are also saved.

Restore When data is lost or the hard disk is replaced, the image file is restored to the data storage medium.

Procedure Overview

All system data is saved during the complete backup,. All files must therefore be closed and the system must be shut down. The system is started at the workstation with the help of a boot diskette. The boot diskette includes all necessary programs and device drivers for the data backup. The data backup program creates an image file which is saved on the data storage medium. If a MO drive is used for backup, an individual data storage medium is used for each station.

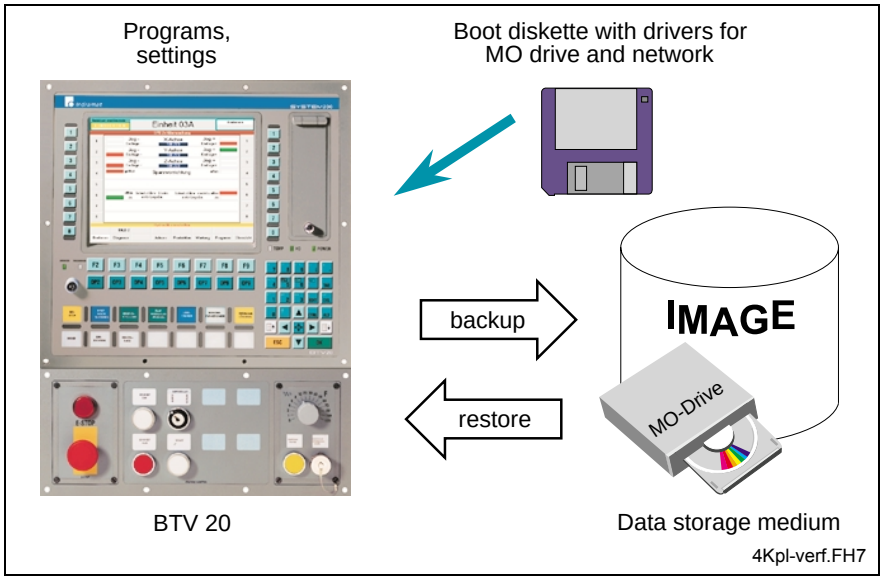


Fig. 9-1: Overview of the archiving procedure

Backup - Saving data

1. Shut down system
2. Start station with boot diskette
   - Operating system is loaded
   - Network drivers are loaded
   - Device drivers for MO drive are loaded
3. Load data backup program
4. Execute backup interactively or with batch file

Restore - Restoring data

1. Shut down system
2. Start station with boot diskette
   - Operating system is loaded
   - Network drivers are loaded
   - Device drivers for MO drive are loaded
3. Load data backup program
4. Execute restore interactively or with batch file

Depending on the system configuration, the data backup is executed on local data storage media or on a data storage medium connected via Ethernet.

Local Data Storage Media

On single-seat systems, data backup is executed on a mass storage medium connected to the BTV. A second hard disk in the BTV is also suitable.

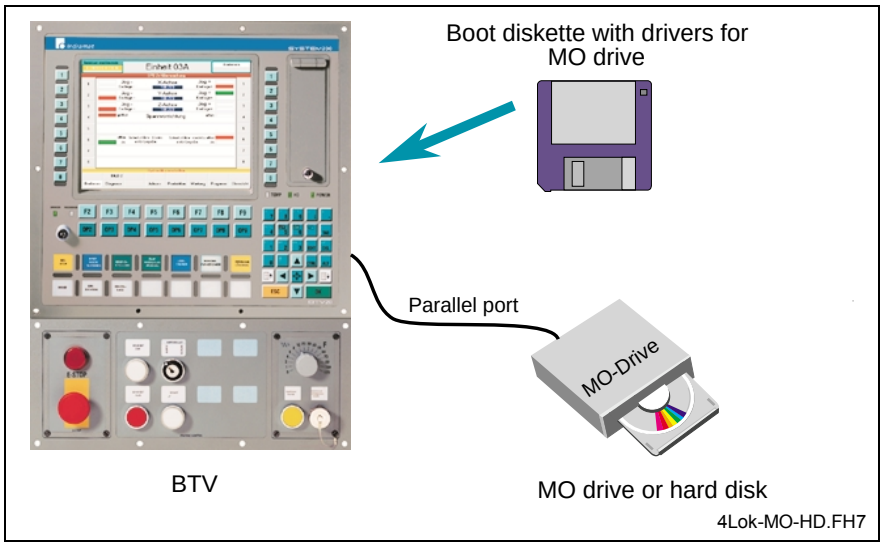


Fig. 9-2: Local data backup on MO drive or second hard disk

Networked Data Storage Media

For networked systems, central data backup via Ethernet is recommended. The mass storage media of a networked backup PC or an MO drive connected to the master controller can be used. The advantages and disadvantages of data backup via the data network are as follows:

Advantages

- Only one mass storage medium is necessary at the central location
- The mass storage medium (MO drive) does not have to be connected to each station

Disadvantages

The network connection must be created under MS-DOS; an additional program (MS-CLIENT) is necessary for this.

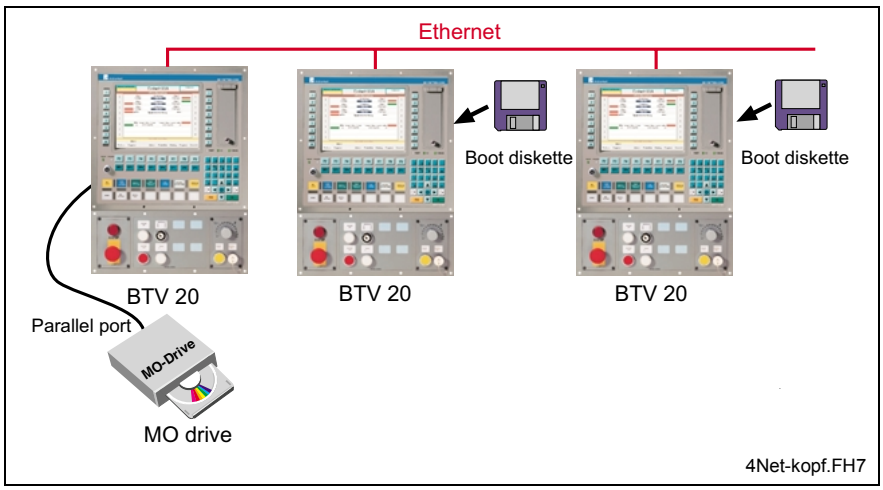


Fig. 9-3: Backup to master controller MO drive

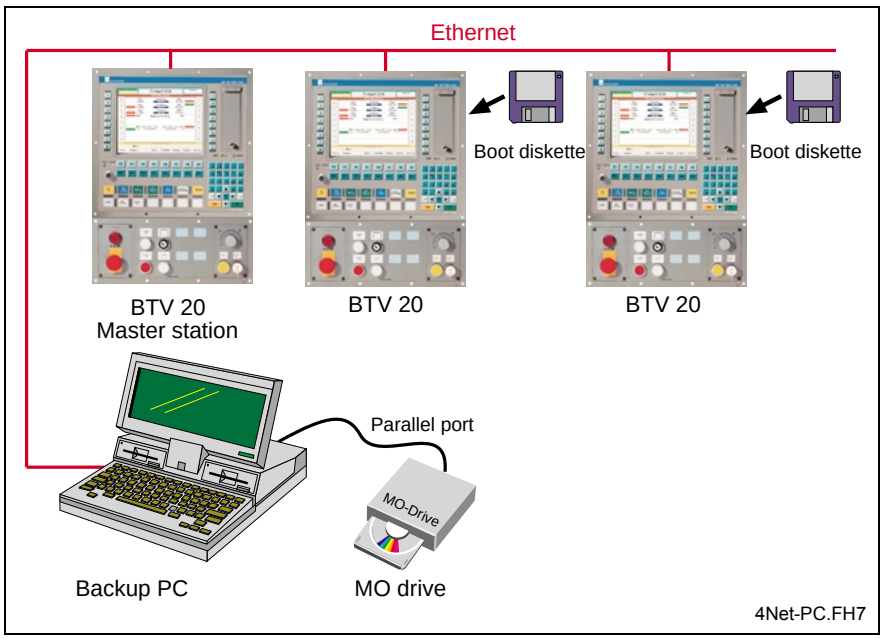


Fig. 9-4: Data Backup on hard disk or MO drive of the backup PC

9.3 Hardware and Software Requirements

The components described as follows must be available for data backup with the shown configuration.

For data backup on a MO drive connected to the work station the following are needed:

- a bootable diskette
- MO drive with 640 MB disk (Fujitsu M2 13)
- a backup program (Norton Ghost Pro 5.1d, DriveImage Pro 3.0, HDCOPY 2.0 Pro)

- or -

for data backup via Ethernet to MO drive or hard disk:

- a bootable diskette
- network under DOS (created using MS-Client)
- MO drive with 640 MB disk (Fujitsu M2 13)
- a backup program (Norton Ghost Pro 5.1d, DriveImage Pro 3.0, HDCOPY 2.0 Pro).

9.4 Programs for Data Backup

Three programs for data backup are introduced in these instructions. With the help of these programs, complete hard disks or single data storage medium partitions can be transferred to another data storage medium. All partition data and data storage medium settings are saved. This allows complete duplication of a data storage medium. Depending on the program, further possibilities for complete or a differentiated data backup on various mediums and with various transfer possibilities are offered.

The selection and the order of the programs shown in this description do not imply any judgement on their respective usefulness. Each program has advantages and disadvantages in each of the functions. If necessary, test the programs to find the one most suited to requirements. The manufacturers offer free trial versions that may be used for this purpose.

Note: Please also refer to the corresponding manufacturer's documentation.

9.5 Preparations

Before the data backup can be successfully executed, some preparations must be made. In detail, the user must:

- create a boot diskette
- set-up the network client for image file transfer over the network
- install the drivers for the MO drive
- set up the data backup program

Preparing diskettes

Depending on whether the data backup is executed at the local workstation or over Ethernet, different diskettes are needed. The diskettes must be bootable and must contain all system files and drivers necessary for the given configuration.

Creating a Diskette for Backup on MO Drive

For data backup on a MO drive connected locally or connected via the parallel port, a boot diskette with the necessary device drivers is needed. These should furthermore contain the auxiliary program “HDPREP.EXE” for formatting the diskettes and the “AUTOEXEC.BAT” and “CONFIG.SYS” MS-DOS files.

Boot diskette

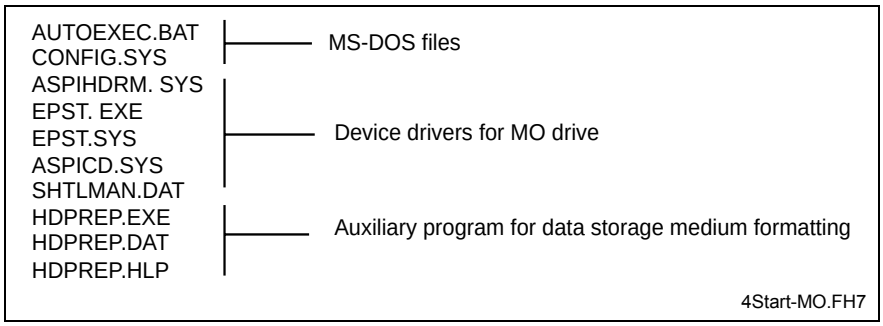


Fig. 9-5: Contents of the boot diskette for local data backup on MO drive

CONFIG.SYS

```
Device = epst.sys
Device = aspihdrm.sys
BUFFERS=10,0
FILES=30
LASTDRIVE=Z
FCBS=4,0
```

Fig. 9-6: Contents of the CONFIG.SYS file

AUTOEXEC.BAT

```
keyb gr
```

Fig. 9-7: Contents of the AUTOEXEC.BAT file

Furthermore, the diskette can contain the batch files for the backup (BACKUP.BAT) and restore (RESTORE.BAT) for the data backup program.

BACKUP.BAT

```
REM BACKUP.BAT
REM saves the complete hard disk in an image file on MO
drive E:
ghost -xint13on -sure -z1
-clone,mode=dump,src=1,dst=E:\BTV01.IMG
```

Fig. 9-8: Example of a BACKUP.BAT batch processing file

RESTORE.BAT

```
REM RESTORE.BAT
REM Restore the complete hard disk from an image file from
MO drive E:
ghost –xint13on -sure
-clone,mode=load,src= E:\BTV01.IMG,dst=1
```

Fig. 9-9: Example of a RESTORE.BAT batch processing file

⇒ In addition, copy the data backup program to this diskette. If an ASCII editor (for editing the batch files) is also copied to the diskette, all necessary files for data backup are contained on one diskette.

Creating a Diskette for Data Backup with Ethernet

For data backup over Ethernet, a bootable diskette with drivers and system files for a network running under MS-DOS is necessary. A DOS network can be created using the Microsoft MS-CLIENT product. MS-CLIENT is included in the “WINDOWS NT SERVER” program package and can be found on the installation CD.

The network client must be configured for the network card in use. The necessary system programs and drivers can be saved on one boot diskette. For a SMC9000 network card, the diskette must have the following content (see Fig. 4.10)

⇒ Create a network diskette with the help of MS-CLIENT

⇒ Compare the contents of the network diskette and the contents of the files AUTOEXEC.BAT, CONFIG.SYS, SYSTEM.INI and PROTOCOL.INI with the listings of the following figures and edit them if necessary.

If another configuration is needed, for example if another network card is used, call SETUP.EXE in order to reconfigure MS-CLIENT.

Boot diskette

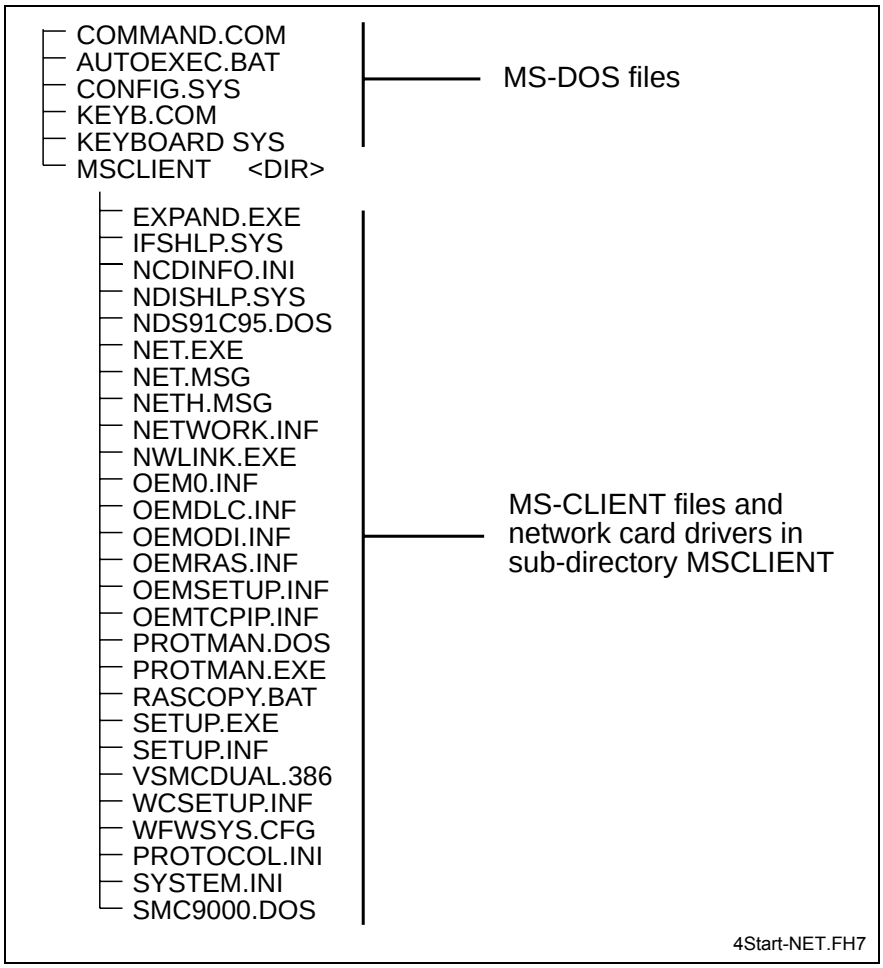


Fig. 9-10: Contents of the boot diskette for networked operation

CONFIG.SYS

```
BUFFERS=10,0
FILES=30
LASTDRIVE=Z
FCBS=4,0
DEVICE=A:\MSCLIENT\IFSHLP.SYS
```

Fig. 9-11: Contents of the CONFIG.SYSfile

AUTOEXEC.BAT

```
PATH=A:\;A:\MSCLIENT
keyb gr
A:\MSCLIENT\NET INITIALIZE
A:\MSCLIENT\NWLINK
A:\MSCLIENT\NET START
A:\MSCLIENT\NET
```

Fig. 9-12: Contents of the AUTOEXEC.BAT file

PROTOCOL.INI

```
[network.setup]
version=0x3110
netcard=smc9000,1,SMC9000,1
transport=ms$nwlink,MS$NWLINK
transport=ms$ndishlp,MS$NDISHLP
transport=ms$netbeui,MS$NETBEUI
lana0=smc9000,1,ms$nwlink
lana1=smc9000,1,ms$ndishlp
lana2=smc9000,1,ms$netbeui
[MS$NWLINK]
FRAME=ETHERNET_802.2
DriverName=nwlink$
BINDINGS=SMC9000
[protman]
DriverName=PROTMAN$
PRIORITY=MS$NDISHLP
[SMC9000]
DriverName=SMC9X$
IOBase=0x280
[MS$NDISHLP]
DriverName=ndishlp$
BINDINGS=SMC9000
[MS$NETBEUI]
DriverName=nnetbeui$
Sessions=10
NCBS=12
BINDINGS=SMC9000
LANABASE=1
```

Fig. 9-13: Contents of the PROTOCOL.INI file

SYSTEM.INI settings

Network settings must be edited in the SYSTEM.INI MS-CLIENT file (in the \MSCLIENT directory on the diskette).

⇒ Overwrite the default settings with the correct values for the network being used. In case of doubt consult a network administrator.

The following settings must be modified:

- Computer name
- User name
- Workgroup

The following figure shows the lines (marked) where modifications are necessary.

```
[network]
sizworkbuf=1498
filesharing=no
printsharing=no
autologon=yes
computername=MAHO
lanroot=A:\MSCLIENT
username=Wirthmann_Egon
workgroup=ESM1
reconnect=yes
dospophotkey=N
lmlogon=0
logondomain=
preferredredir=full
autostart=
maxconnections=8
[network drivers]
netcard=SMC9000.dos
transport=ndishlp.sys,*netbeui
devdir=A:\MSCLIENT
LoadRMDrivers=yes
[Password Lists]
*Shares=A:\MSCLIENT\Share000.PWL
SYSTEM200=A:\MSCLIENT\SYSTEM20.PWL
```

Fig. 9-14: SYSTEM.INI MS-CLIENT settings

Transferring the Operating System to Diskette

For starting the system, the diskettes for MO and network operation should include the operating system. For this, the DOS command “SYS.COM” in a MS DOS system should be used. The operating system is transferred to diskette in this way.

⇒ Create one bootable diskette with the operating system MS-DOS from the two start diskettes for network and MO operation.

9.6 The Norton Ghost 5.1d Program

The Norton Ghost 5.1d program from Symantec is a DOS program. It is not possible to start it in the DOS window under Windows NT. Windows NT does not permit exclusive access to data media. Two modes are available for program settings and data backup.

Interactive operation The software is set up and operated via menu calls. The selection of the areas of data to be saved and the settings of destination drives, etc. are done by means of program dialogs.

Batch operation The program can be started in batch mode for fast, automatic processing. Various parameters can be added to the call name of the program in a batch file. The backup and/or restore operation can then be run fully automatically by calling the batch file.

Setting up a Diskette for Ghost

The Ghost DOS program does not have to be installed. It is sufficient to copy the “GHOST.EXE” program file to a formatted diskette. Ghost can be copied to the starting diskette for data backup on a local MO drive. The start diskette storage capacity is not sufficient for network operation. For Ghost, a second diskette must be inserted.

Set up the software as required by selecting program options interactively or by setting call parameters.

Setting Options for Interactive Operation

The program options are determined in the **Options** menu.

For example, the image file can be set up such that it is split onto multiple data storage media (spanning) or that safety prompts are not displayed (Sure).

⇒ Select the **Options** menu.

An entry field with flags is displayed.

⇒ Move from flag to flag with the Tab key

The active field is illuminated, a help text is displayed in the form of a balloon.

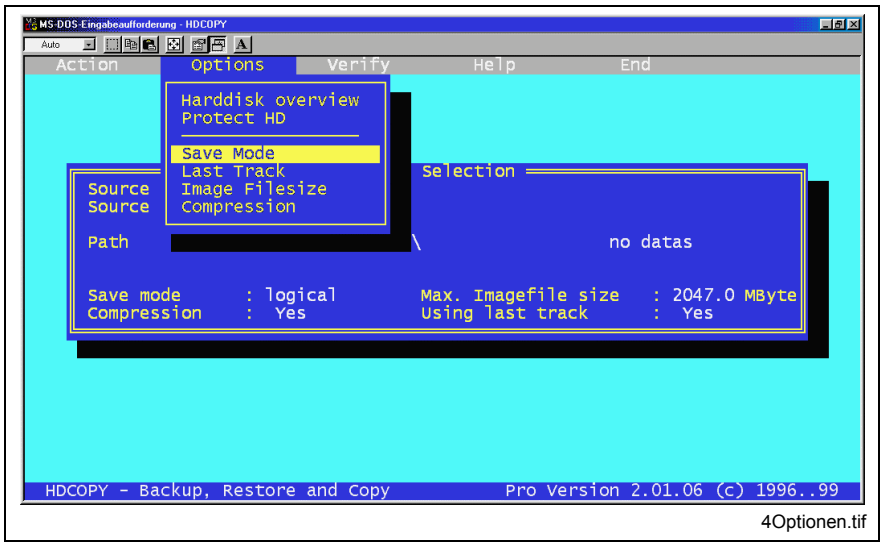
⇒ Press Enter in order to activate the option.

A check mark displays that the option is selected.

⇒ Set the required options

⇒ Press the **Accept** button

The settings are applied.



4Optionen.tif

Fig. 9-15: The settings in the “Options” menu

Creating or Modifying a Batch File

The program settings are added as parameters to the call names of the program with the help of a batch file. The batch file should be structured as follows.

Batch File for Backup in an Image File

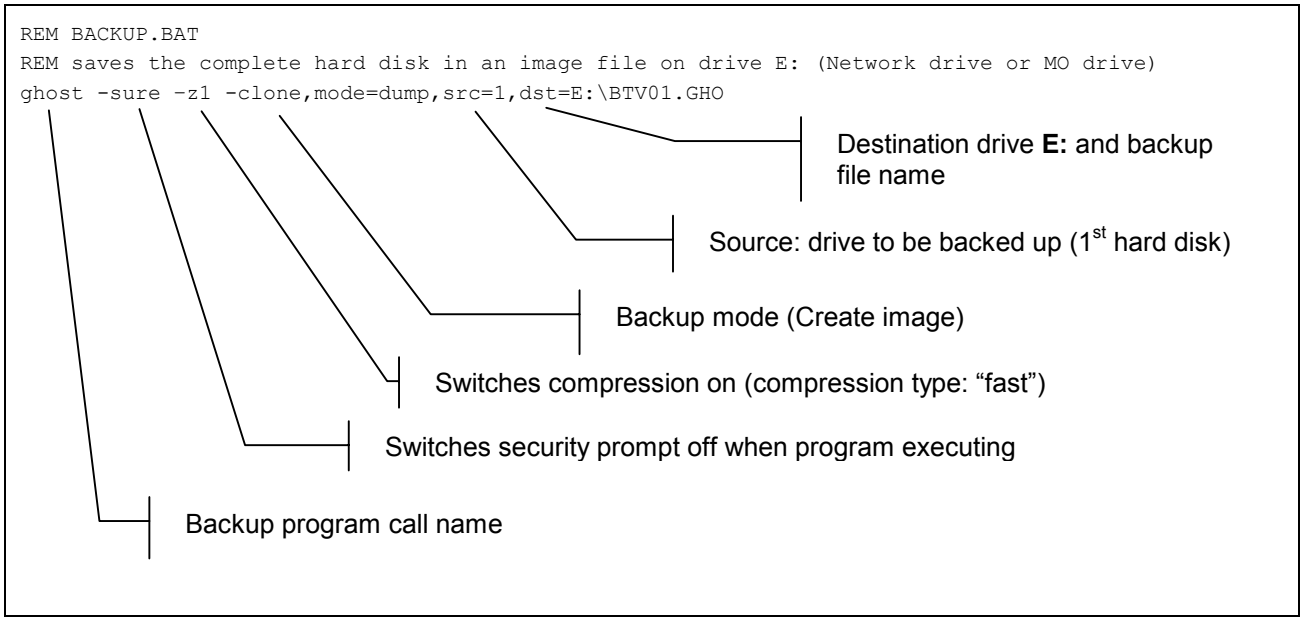


Fig. 9-16: Batch file for backup in an image file

⇒ Open the batch file in an ASCII editor and edit the destination drive and the file name of the backup file as necessary.

Batch File for Restoring Data from an Image File

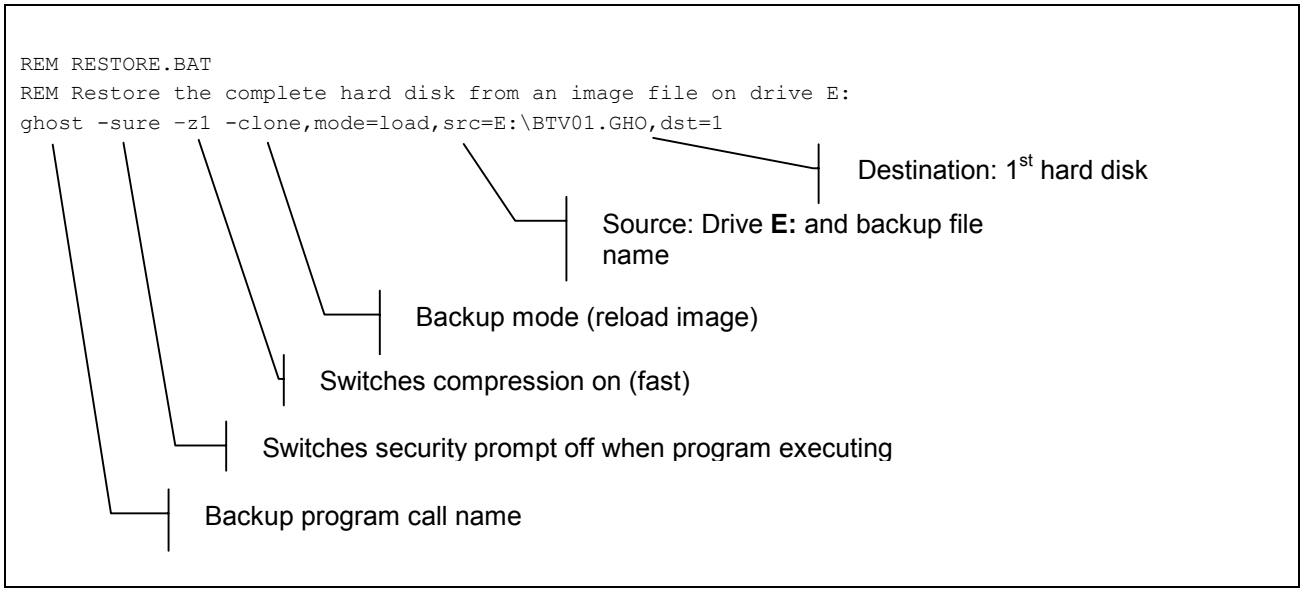


Fig. 9-17: Batch file for restoring from an image file

Optional Parameters

-span If the storage capacity of the connected MO drive is not sufficient, the image file can be saved on multiple data storage media. To do this, the "-span" parameter must be entered in the batch file.

-z Using the parameter "-z", two modes can be selected for compression of the image file.

-z1: Compression "fast"; the image file is compressed to approximately 60% of the original size. The backup time is 10% less than without compression. (Less data must be transferred through the relatively slow network connection or to the MO drive connected in parallel). This is the recommended compression mode.

-z2: Compression "high"; the image file is compressed to approximately 50% of the original size. However, the backup takes approximately three times longer than without compression. This compression mode is not recommended.

Note: For further settings such as copying individual partitions, please refer to the Ghost product documentation.

9.7 The DriveImage Pro 3.0 Program

The DriveImage Pro 3.0 program from Powerquest can be started from hard disk under Windows 95/98 or from a bootable diskette. It is not possible to start it in the DOS window under Windows NT. Start the program under Windows NT from a bootable diskette or a bootable DOS partition of the hard disk.

Two modes are available for program settings and data backup.

Interactive operation The software is set up and operated via menu calls. The selection of the areas of data to be saved and destination drive settings, etc. are done by the program by means of dialogs.

Batch operation The program can be started in batch mode for fast, automatic processing. Various parameters can be added to the call name of the program in a batch file and a script file. The backup and/or restore operation can then be run fully automatically by calling the batch file.

Setting up a Diskette for DriveImage

The DriveImage program is installed from the installation CD. The set-up program copies all necessary data to the hard disk. The set-up program allows to create the necessary diskettes for diskette operation. A bootable diskette with the drivers for external data storage mediums and a program diskette for DriveImage are created.

⇒ Select the option **Create emergency diskettes** in the set-up program.

Adjust the software to your requirements by selecting program options interactively or by setting call parameters.

Setting Options for Interactive Operation

The program interface is similar to Windows and offers assistance; it can be operated with the keyboard or the mouse.

Advanced Options offers special settings e. g. to protect the image file with a password orto split the image file into multiple files with a fixed size each.

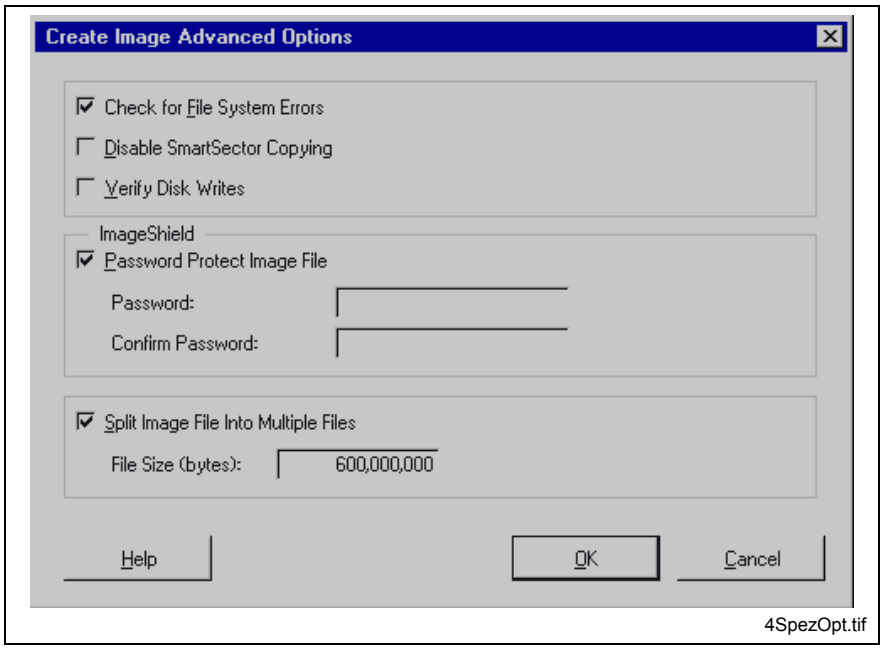


Fig. 9-18: Assisted “Advanced Options” menu

Creating or Modifying a Batch File

The program settings can be attached to the program call with the help of a batch file or a script file. The batch file should be structured as follows.

Batch File for Backup in an Image File

The following figure shows a simple batch file. With its help, the complete hard disk (all partitions) with the main program settings on drive E: are written in the BTV01.PQI image file.

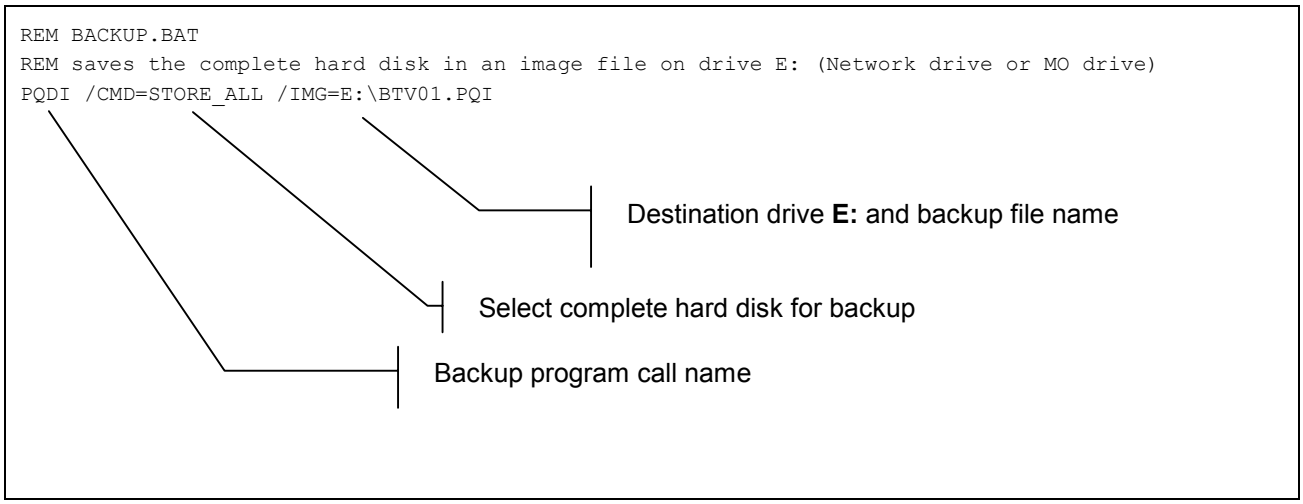


Fig. 9-19: Batch file for easy backup in an image file

⇒ Open the batch file in an ASCII editor and edit the destination drive and the file name of the backup file as necessary.

For differentiated backups it is necessary to create a script file. This is then executed via the batch file.

Application Example 1

Partition 3 on drive 1 and partitions 1 and 4 on drive 2 are to be written in the file E:\BTV20.PQI. Furthermore, the image file must be limited to 630 MB so it can be copied to an MO or to a CD.

Batch file The script file which is to be executed, the destination file for the image, and the file size limit are entered in the batch file.

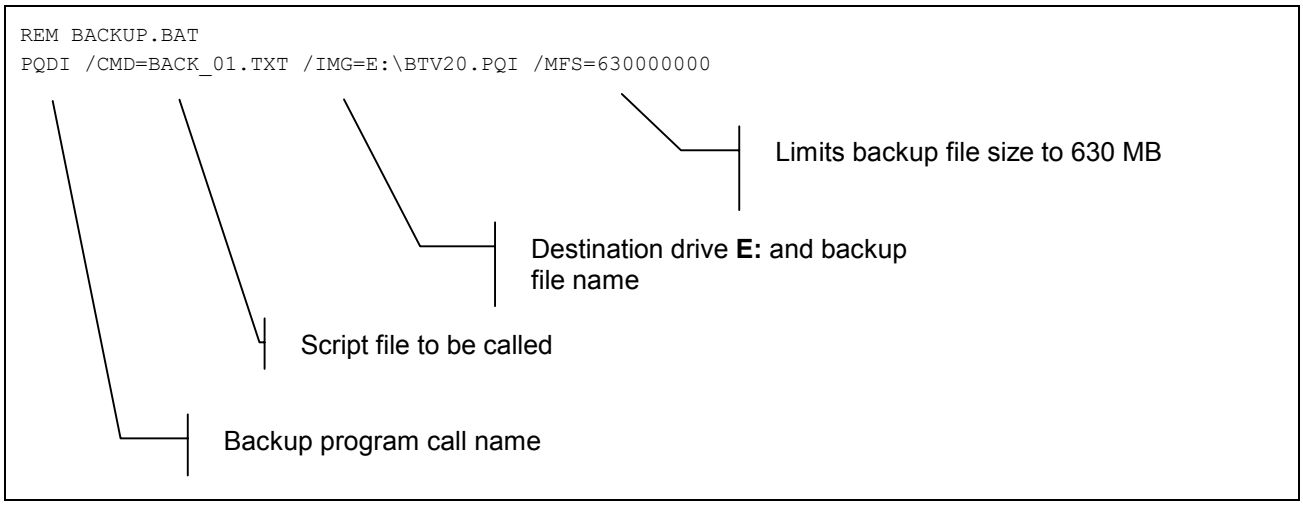


Fig. 9-20: Batch file for backing up a partition

Script file The BACK_01.TXT script file includes the call parameters to be transferred to the program.

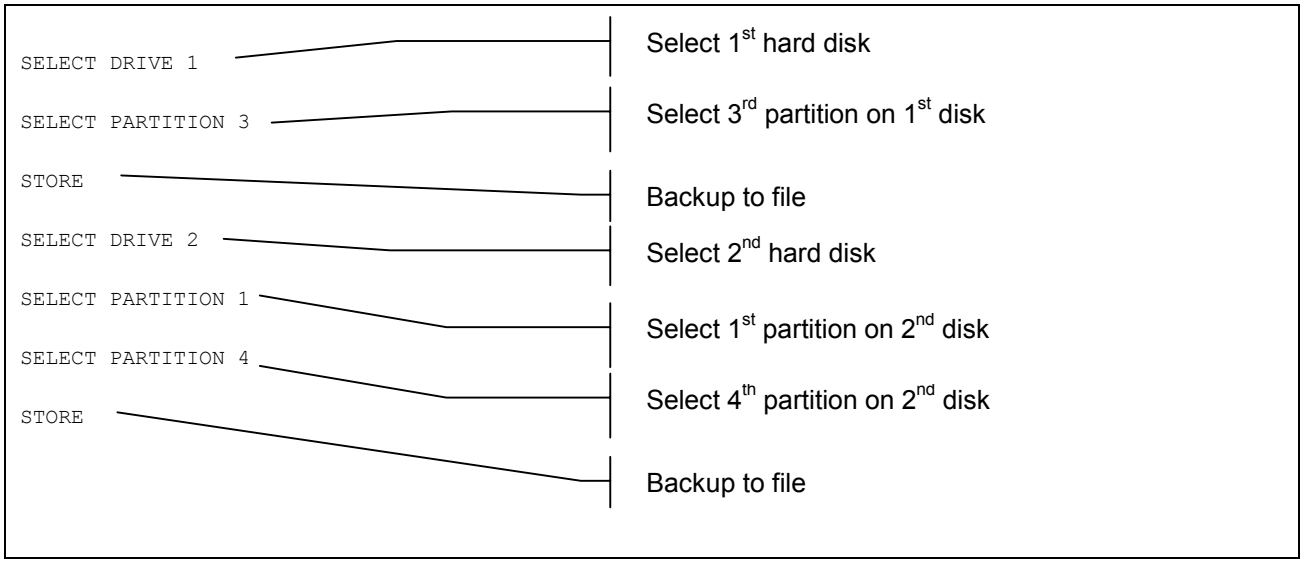


Fig. 9-21: Script file for backup

Batch File for Restoring Data from an Image File

Using the following batch file, an image file can be easily completely restored.

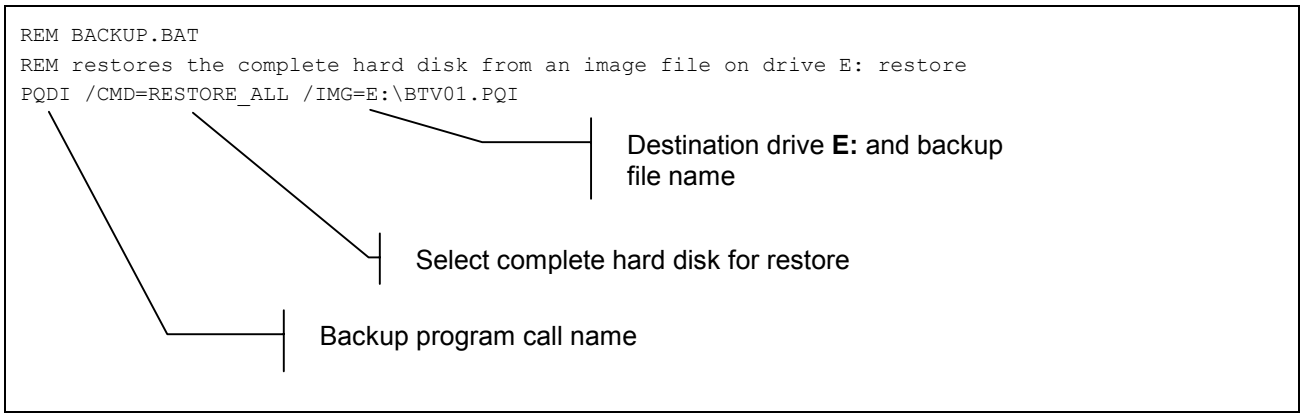


Fig. 9-22: Batch file for easy restore of an image file

⇒ Open the batch file in an ASCII editor and modify the destination drive and the file name of the image file as necessary.

A script file can be used for restore details. In this way the partition size, for example, can be modified or single partitions selected.

Application Example 2

Batch file

The first two images of the E:\BTV20.PQI file are to be restored to the last free memory area. The size of each image is to be limited to 500 MB. The image file is protected with the password “SECURE”.

The script file (REST_01.TXT) to be called, the image file (BTV20.PQI) to be restored and the password (SECURE) for the image file are entered in the batch file.

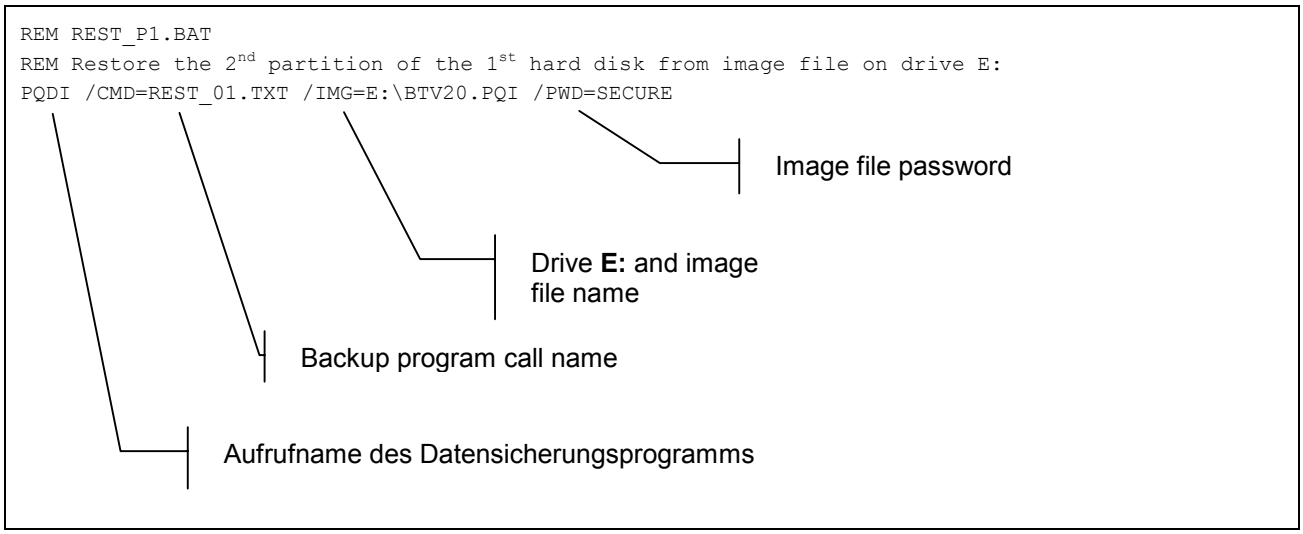


Fig. 9-23: Batch file for an extended restore

Script file The REST_01.TXT script file includes the call parameters which are to be transferred to the program.

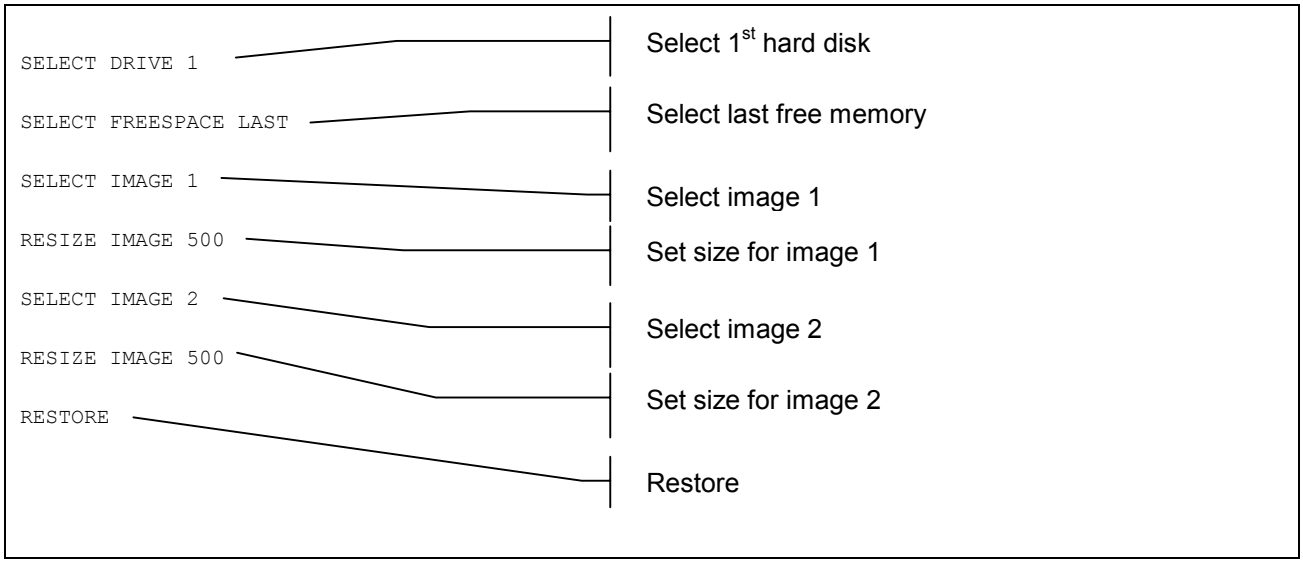


Fig. 9-24: Script file for backup

Note: For further settings such as compressing files, please refer to the DriveImage product documentation.

9.8 The HDCOPY 2.0 Pro Program

The HDCOPY 2.0 Pro program from HDTRONIC EDV Service GmbH is a DOS program. It is not possible to start it in the DOS window under Windows NT. Windows NT does not allow exclusive access to data media. Two modes are available for program settings and data backup.

Interactive operation The software is set up and operated via menu calls. Selection of data areas to be saved and settings of destination drives, etc. are executed by program menu entries.

Batch operation The program can be started in batch mode for fast, automatic processing. Various parameters can be added to the call name of the program in a batch file. The backup and/or restore operation can then be run fully automatically by calling the batch file.

Setting up a Diskette for HDCOPY

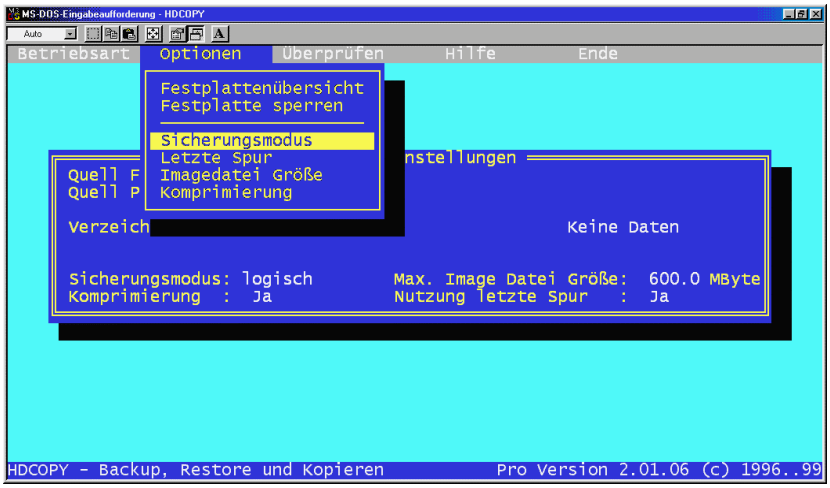
The HDCOPY DOS program does not have to be installed. It is sufficient to copy the original diskettes files to a formatted diskette. For data backup on a local MO drive, HDCOPY can be copied to the start diskette. The start diskette storage capacity is not sufficient for network operation. For HDCOPY, a second diskette must be inserted.

Set up the software as required by selecting program options interactively or by setting call parameters.

Setting Options for Interactive Operation

In the **Options** menu, define the program settings for executing data backup.

For example, the size of the image file can be determined or compression can be selected or deselected.



4Optionen.pcx

Fig. 9-25: Options menu

The following options can be set.

- **Backup mode**
  Determines if the partitions are saved logically or physically.
- **Last track**
  Use of the last track can be activated in order to make up to 8 MB hard disk memory available.
- **Image file size**
  Image file size can be limited in order to transfer the image file to a MO drive or to a CD-ROM.
- **Compression**
  If compression is active, the image file size will be reduced by approximately 50%. This is recommended if not enough memory is available or if the backup is to be saved to a slow medium (MO drive).

Creating or Modifying a Batch File

The program settings are added as parameters to the call names of the program with the help of a batch file. The batch file should be structured as follows.

Batch File for Backup in an Image File

The following batch file saves all partitions of the first hard disk of the system in the BTV01.IMG file on drive E.

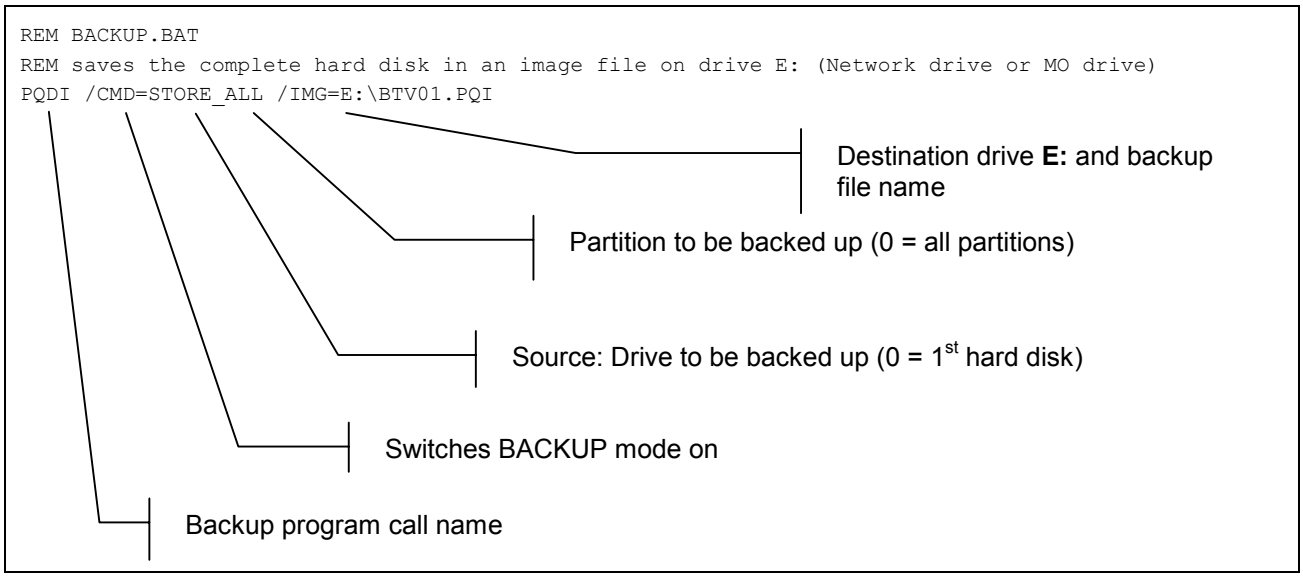


Fig. 9-26: Batch file for backup in an image file

⇒ Open the batch file in an ASCII editor and edit the destination drive and the file name of the backup file as necessary.

Batch File for Restoring Data from an Image File

To restore an image file, in addition to the batch file, a make file is necessary. This file includes the necessary information in script form for a detailed restore.

Batch file

The script file to be called is entered in the batch file.

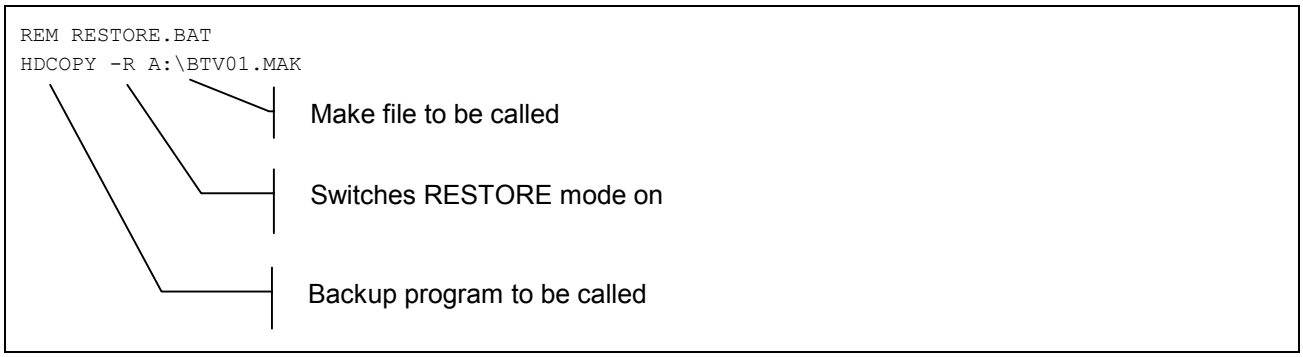


Fig. 9-27: Batch file for restore of a partition

Make file The BTV01.MAK make file includes the call parameters which are to be transferred to the program. The first and the last line are important and must always be present.

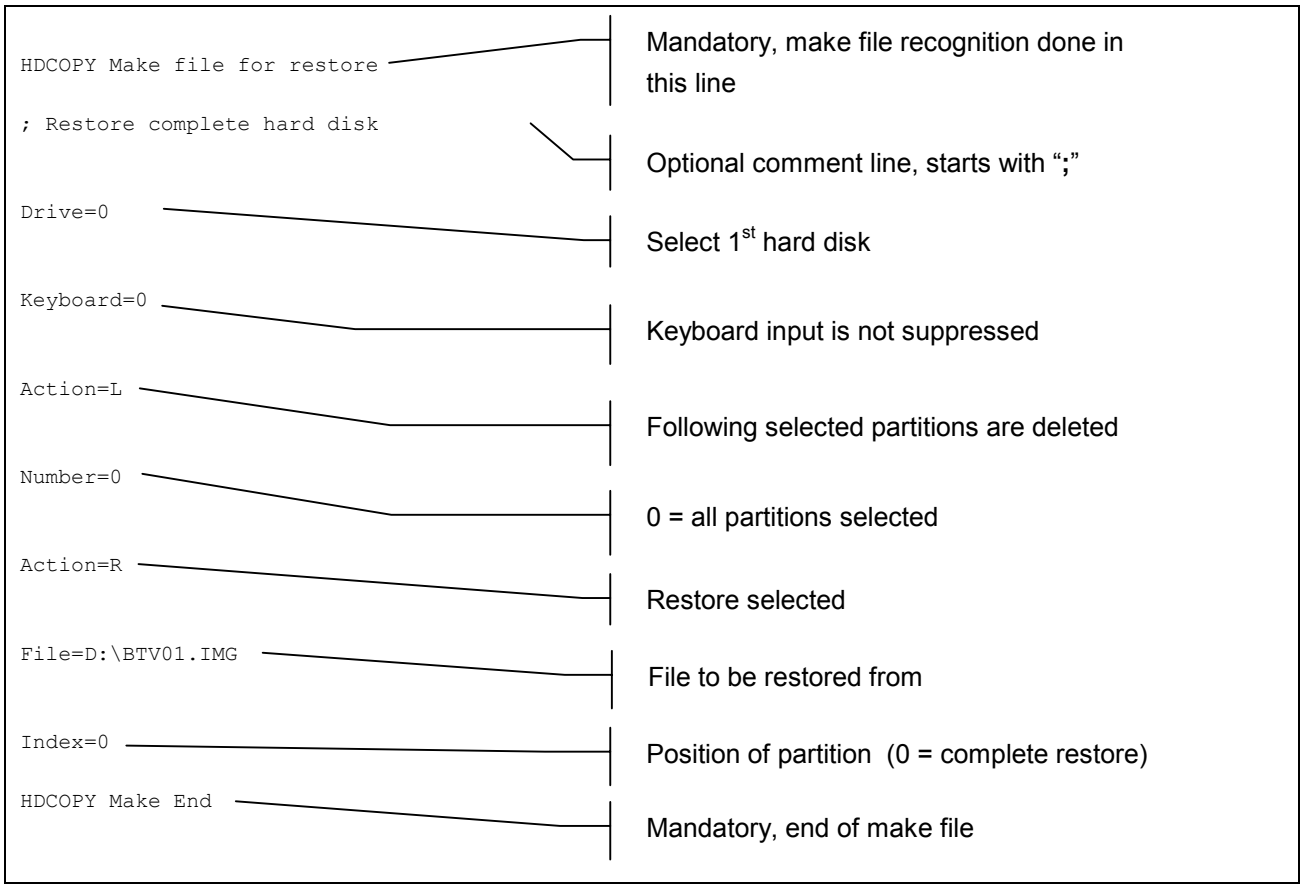


Fig. 9-28: Script file for backup

Note: For further settings such as modifying partition size, please refer to the HDCOPY product documentation.

9.9 Executing Data Backup to a Local MO Drive

Prerequisites

- The MO drive is connected to the parallel port and is ready for operation.
- A formatted data storage medium with enough storage capacity is inserted in the MO drive
- A bootable diskette with device drivers and the backup program has been created
- Controller data that can be modified (NC variables, NC events, D-corrections, tool lists, zero offset data, machine data, residual PLC data) are saved on hard disk. For procedure see.

Editing a batch file

Edit the BACKUP.BAT batch file on the diskette.

⇒ Open the batch file in an ASCII editor

⇒ Enter the drive letter for the MO drive and determine a name for the image file to be created.

⇒ Save the modified file to the diskette

Executing a backup

⇒ Shut down the system

⇒ Insert the diskette in the boot drive and start the computer again

The computer starts from diskette and loads the device drivers for the MO drive

⇒ Start the program by entering the start name at the prompt and execute it interactively.

- or -

⇒ Call the “BACKUP.BAT” batch file at the prompt

The program is loaded and started automatically. A progress bar on the screen displays the data backup progress. Depending on the program, the statistics show further information about data volume, data throughput and remaining backup time.

When data backup is finished, the program is automatically exited.

9.10 Executing Data Backup on a Network Drive

Prerequisites

- A bootable diskette using Network Client has been created.
- A diskette with the data backup program and the BACKUP.BAT batch file is available.
- The network drive (hard disk, MO drive), to which the data backup is to be executed, is available.
- The backup drive is ready (MO drive switched on) and has enough storage capacity.
- Controller data that can be modified (NC variables, NC events, D-corrections, tool lists, zero offset data, machine data, residual PLC data, SERCOS parameters) is saved to hard disk. For procedure see 1260960.1258384 .

Editing a batch file

Edit the BACKUP.BAT batch file on the program diskette.

⇒ Open the batch file in an ASCII editor

⇒ Enter the drive letter for the network drive and determine a name for the image file to be created.

⇒ Save the modified file to the diskette

Creating a network connection

⇒ Shut down the system

⇒ Insert the boot diskette in the boot drive and start the computer again

The computer starts from diskette; the drivers for the network are loaded and MS-CLIENT is started.

⇒ Confirm the question whether the network service is to be started with “Y” for Yes.

The workstation service is started.

⇒ Enter user name and password when prompted.

If this is a first-time start, the password must be again confirmed.

Information about the network connection must be entered in the following screen. Moving around within the screen mask is done using the Tab key.

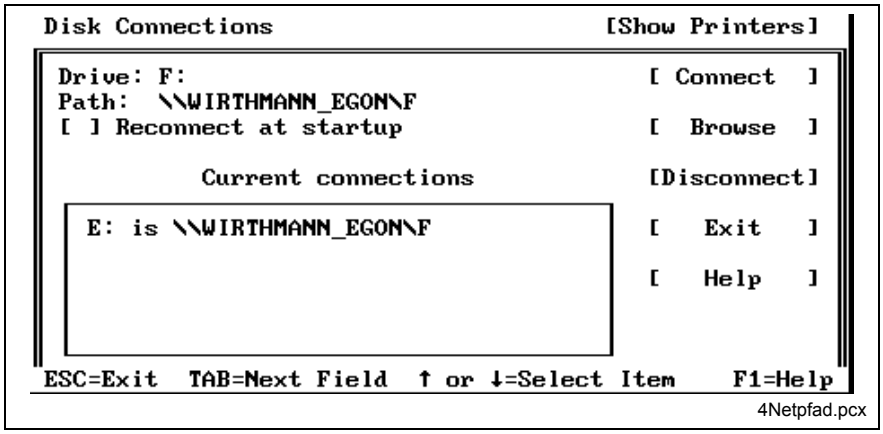


Fig. 9-29: Screen mask for network connection

⇒ Enter the path for the network computer backup drive (see above figure).

The path name is inserted in the list of current connections. The drive letter assigned to this connection is displayed in this list.

If an error message (error 53) is displayed:

The connection cannot be created because the indicated computer name cannot be found.

- Check whether the indicated path exists in the current network and whether the computer has been started
- Make sure that the path name starts with an double backslash (\\).

⇒ Mark “Reconnect at Startup” if the same drive is always to be used for saving to.

⇒ Exit the screen mask with the **Exit** button

The connection to the network drive has been now created.

Executing a backup

⇒ Insert the diskette with the data backup program

⇒ Start the program by entering the start name at the prompt and execute it interactively.

- or -

⇒ Call the “BACKUP.BAT” batch file at the prompt

The program is loaded and started automatically. A progress bar on the screen displays the data backup progress. Depending on the program, the statistics show further information about data volume, data throughput and remaining backup time.

When data backup is finished, the program is automatically exited.

Restoring Data

The same procedure is principally used for restoring data. The hard disk content is completely recreated by writing back the image file. This version of Ghost does not allow restoring of individual files. If the hard disk “Autoconfiguration” entry in the BIOS is set, it is not necessary to log the new hard disk in the BIOS after replacing it. In addition, the hard disk does not have to be partitioned and formatted. Partition data is saved by Ghost and again retransferred.

Restoring from a Local MO Drive

⇒ Insert the MO disk with the image file into the MO drive

⇒ Boot the workstation with the start diskette for the MO drive

The MO drive drivers are loaded

⇒ Modify the path and file names in the RESTORE.BAT batch file on the diskette as necessary

⇒ Start Ghost by entering “GHOST” at the prompt and execute it interactively.

- or -

⇒ Start the restore by calling the RESTORE.BAT batch file.

The image file is restored and the hard disk data is recreated. When the restore is finished, the program is exited.

Restoring from a Network Drive

⇒ Make sure that the computer with the backup file is ready and the drive is available.

⇒ Boot the workstation with the start diskette for the network drive

The computer starts from diskette; the drivers for the network are loaded and MS-CLIENT is started.

⇒ Confirm the question whether the network service is to be started with “Y” for Yes.

The workstation service is started.

⇒ Enter user name and password when prompted.

⇒ Enter the path of the backup drive on the network computer in the following screen. The path name is inserted in the list of current connections. The letter of the drive which has been assigned to this connection is displayed in this list.

⇒ Finish the dialog by pressing the **Ready** button

⇒ Modify the path and file names in the RESTORE.BAT batch file on the diskette

⇒ Start the program at the prompt and execute it interactively

- or -

⇒ Start the restore by calling the RESTORE.BAT batch file.

The image file is restored and the hard disk data is recreated. When the restore is finished, the program is exited.

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12 Service & Support

12.1 Helpdesk

Unser Kundendienst-Helpdesk im Hauptwerk Lohr am Main steht Ihnen mit Rat und Tat zur Seite. Sie erreichen uns

- telefonisch: **+49 (0) 9352 40 50 60**
  über Service Call Entry Center Mo-Fr 07:00-18:00
- per Fax: **+49 (0) 9352 40 49 41**
- per e-Mail: **service@indramat.de**

Our service helpdesk at our headquarters in Lohr am Main, Germany can assist you in all kinds of inquiries. Contact us

- by phone: **+49 (0) 9352 40 50 60**
  via Service Call Entry Center Mo-Fr 7:00 am - 6:00 pm
- by fax: **+49 (0) 9352 40 49 41**
- by e-mail: **service@indramat.de**

12.2 Service-Hotline

Außerhalb der Helpdesk-Zeiten ist der Service direkt ansprechbar unter

+49 (0) 171 333 88 26
oder **+49 (0) 172 660 04 06**

After helpdesk hours, contact our service department directly at

+49 (0) 171 333 88 26
or **+49 (0) 172 660 04 06**

12.3 Internet

Unter **www.indramat.de** finden Sie ergänzende Hinweise zu Service, Reparatur und Training sowie die **aktuellen** Adressen *) unserer auf den folgenden Seiten aufgeführten Vertriebs- und Servicebüros.

- Verkaufsniederlassungen
- Niederlassungen mit Kundendienst

Außerhalb Deutschlands nehmen Sie bitte zuerst Kontakt mit unserem für Sie nächstgelegenen Ansprechpartner auf.

*) http://www.indramat.de/de/kontakt/adressen
Die Angaben in der vorliegenden Dokumentation können seit Drucklegung überholt sein.

At **www.indramat.de** you may find additional notes about service, repairs and training in the Internet, as well as the **actual** addresses *) of our sales- and service facilities figuring on the following pages.

- sales agencies
- offices providing service

Please contact our sales / service office in your area first.

*) http://www.indramat.de/en/kontakt/adressen
Data in the present documentation may have become obsolete since printing.

12.4 Vor der Kontaktaufnahme... - Before contacting us...

Wir können Ihnen schnell und effizient helfen wenn Sie folgende Informationen bereithalten:

1. detaillierte Beschreibung der Störung und der Umstände.
2. Angaben auf dem Typenschild der betreffenden Produkte, insbesondere Typenschlüssel und Seriennummern.
3. Tel.-/Faxnummern und e-Mail-Adresse, unter denen Sie für Rückfragen zu erreichen sind.

For quick and efficient help, please have the following information ready:

1. Detailed description of the failure and circumstances.
2. Information on the type plate of the affected products, especially type codes and serial numbers.
3. Your phone/fax numbers and e-mail address, so we can contact you in case of questions.

12.5 Kundenbetreuungsstellen - Sales & Service Facilities

Deutschland – Germany

vom Ausland: (0) nach Landeskennziffer weglassen!
from abroad: don't dial (0) after country code!

Vertriebsgebiet Mitte Germany Centre	**SERVICE**	**SERVICE**	**SERVICE**
Rexroth Indramat GmbH Bgm.-Dr.-Nebel-Str. 2 / Postf. 1357 97816 Lohr am Main / 97803 Lohr **Kompetenz-Zentrum Europa** Tel.: +49 (0)9352 40-0 Fax: +49 (0)9352 40-4885	**CALL ENTRY CENTER** **MO – FR** **von 07:00 - 18:00 Uhr** **from 7 am – 6 pm** **Tel. +49 (0) 9352 40 50 60** service@indramat.de	**HOTLINE** **MO – FR** **von 17:00 - 07:00 Uhr** **from 5 pm - 7 am** + SA / SO **Tel.: +49 (0)172 660 04 06** **oder / or** **Tel.: +49 (0)171 333 88 26**	**ERSATZTEILE / SPARES** verlängerte Ansprechzeit - extended office time - ♦ nur an Werktagen - only on working days - ♦ von 07:00 - 18:00 Uhr - from 7 am - 6 pm - **Tel. +49 (0) 9352 40 42 22**
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