



## User Guide for

# USB Stick CopyStation 21 Ultra

Thank you for deciding to buy an altec product. In order to ensure correct functioning and to avoid problems when installing this high-quality German-made product, please read the entire manual and carefully observe the following points:

- Observe the general guidelines when handling components or modules which can be damaged by electrostatic charge or discharge (this applies to the products described in this manual).
- If you should encounter any problems during the installation or use of this product, please contact our service department and ask for technical advice. If you do not do this, your guarantee rights may be impaired.

**Support hotline**, Monday to Friday: Phone **+49 511 98381-70** or eMail **support@altec-cs.com**

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# 1. Introduction

## 1.1 Product description

The USB Stick CopyStation 21 Ultra allows for easy duplication of data images to up to twenty-one USB memory sticks simultaneously. The fully pre-installed hardware and software and the user-friendly Windows software makes it very easy to use, even by untrained personnel.

The USB Stick CopyStation 21 Ultra consists of a PC with three built-in active USB 2.0 hi-speed hubs for a total of 21 USB slots, either English (Item no. B31AL186E) or German (B31AL186) Windows XP Professional operating system and keyboard, pre-installed altec copying software, mouse and DVD drive. You only need to connect up a monitor.

USB 2.0 and USB 1.1 memory sticks can be used in the USB Stick CopyStation 21 Ultra. The USB sticks must be less than 11 mm in width and less than 42 mm in heights, if all 21 USB slots are to be used. There are no restrictions concerning the lengths of the USB sticks used.

The USB memory sticks need to be supported by Windows XP. We strongly recommend that you only use USB memory sticks from international brand manufacturers such as SanDisk, Lexar or Transcend (see chapter 8.2).

The following **software options** are currently available:

- 1.) Optional software interface for data exchange with external applications. This allows you to modify the data which is being copied, e.g. by assigning individual serial numbers or applying data encryption.  
Software interface for e.g. external serialization – 31AL1864
- 2.) Software option for creating and copying smaller image files. This allows programming to take place much faster if the master (source) USB stick is only partly filled with data.  
Software Short Image Files – 31AL1862
- 3.) File Copy option to copy files from a specified directory to FAT format USB sticks instead of copying from an image file; the sub-directory structure (if present) is also copied.  
Software File Copy – 31AL1867

In addition, the CopyStation software can be modified to meet custom requirements. Please contact us for further information.

## 1.2 Features

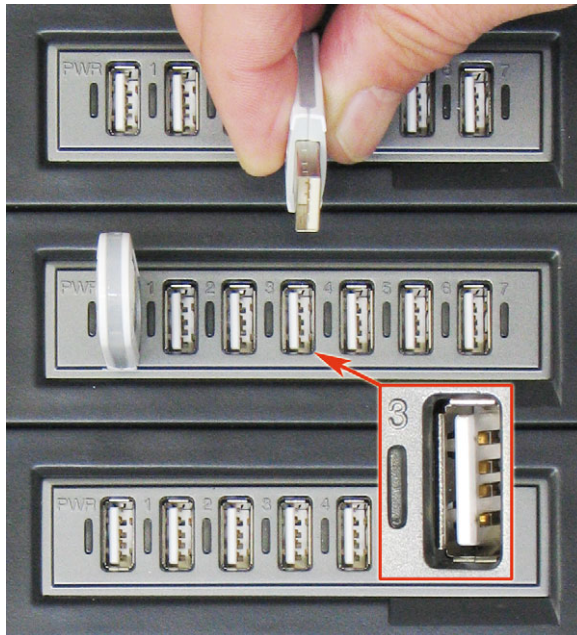
- ◆ Duplication of data images to up to 21 USB memory sticks simultaneously.
- ◆ Preinstalled system including altec copying software under Windows XP Professional with 21 USB 2.0 slots.
- ◆ Compatible with USB 2.0 and 1.1 memory sticks.
- ◆ In-house developed copy software with the same «look & feel» as all other altec CopyStations, for Windows XP.
- ◆ English or German user interface selectable.
- ◆ Job Wizard to specify parameters for the copy job such as the image file name, number of copies and whether to verify after writing or not.
- ◆ Copies up to 21 USB 2.0 sticks with 512 MB in approx. 2.5 minutes (speed depends on USB stick type).

## 1.3 Scope of delivery

- ◆ Quick Start Guide. Software and User Guide (as PDF file) on a CD ROM.
- ◆ Complete system (PC without monitor) plus altec copying software that runs under Windows XP Professional; with a total of 21 USB slots.
- ◆ English or German keyboard and operating system plus a mouse.
- ◆ PC supplied with built-in DVD drive, graphic card and standard interfaces.

## 2. Inserting of USB sticks

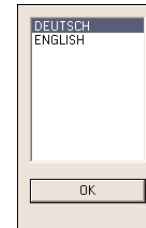
Please do not apply any force when you insert the USB memory sticks in the slots of USB Stick CopyStation 21 Ultra.



If there is any resistance when you try to insert the USB stick then please turn it 180 degrees and try it again (see figure on left).

## 3. Starting the software and logging in

### 3.1 Starting the software

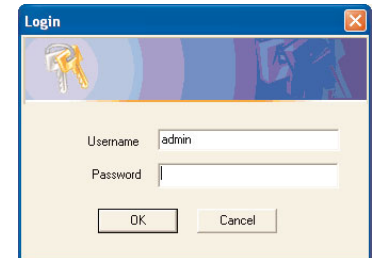


After the first start of the program "**usbcopy21.exe**" you have to select German or English as the user interface language (see figure left). This can be changed later (see page 17).

After every start of the program, you have to accept the license agreement by clicking "OK".

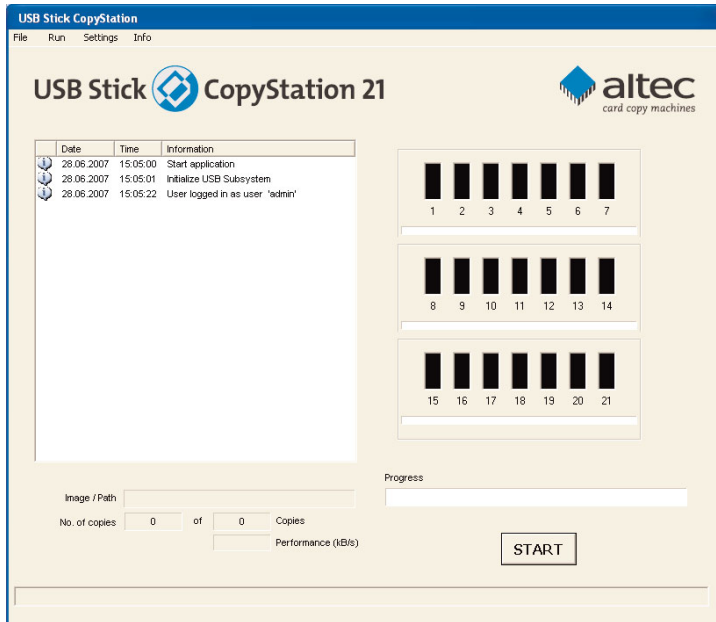
### 3.2 User log in

After accepting the licensing agreement you will be shown the login dialog box (see figure). The default user name and password to log in as the administrator is **admin** and **admin**.



The default user name and password to log in as a normal user is **user** and **user**. In this case you are only given limited rights to the program functions. You can only open and run existing copy jobs.

After successful user login the following program window appears (see figure on the next page).



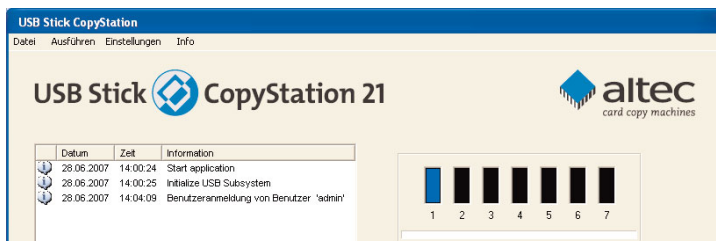
## 4. Copying from data images

### 4.1 Creating an image file

The storage capacity of the master (source) USB stick must be identical to the storage capacity of the destination sticks (the sticks onto which you want to copy). Accordingly, we strongly recommend that the master stick and the destination sticks are from the same manufacturer and preferably from the same manufacturing batch.

After logging in as **admin**, insert the master stick in the CopyStation.

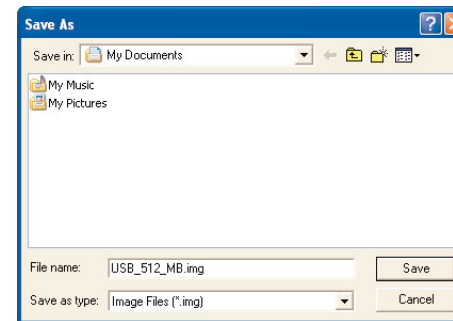
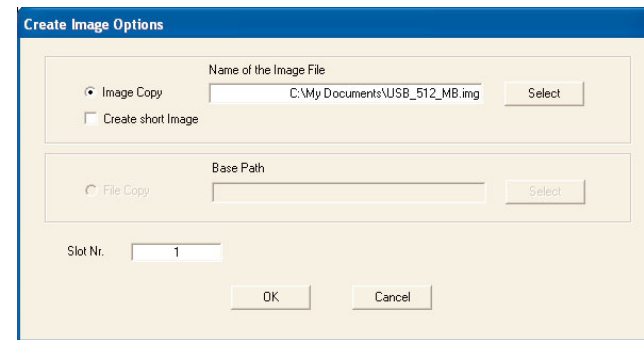
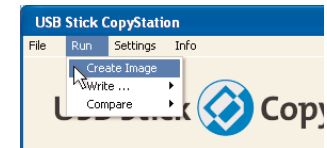
After a short delay, the color of the slot changes to blue to indicate that a stick is inserted (see figure below).



Empty slots are shown in black. Slots are also shown in black if the memory stick they contain cannot be recognized or does not respond.

Choose "**Create Image**" in the "**Run**" menu to create an image of the master memory stick.

This opens the "**Create Image Options**" dialog box (see figure below).

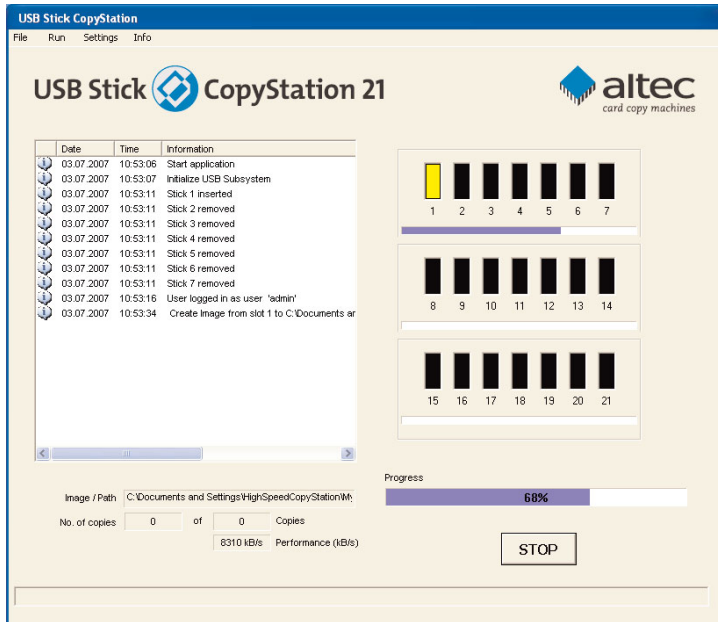


Click the "**Select**" button and enter the required name and location for the image file in the "**Save As**" dialog box which is shown (see figure left).

Use the file extension "**.img**". Click "Save" to save your settings. Then specify the slot which contains the master stick by entering the slot number. Slot number 1 is on the top left.

Click "OK" to read the stick contents and create the image file. Progress is shown in the main window using a progress bar (see figure on next page). The color of the chosen slot changes to yellow (slot is busy).

The image has been fully created when the progress bar reaches 100%, the message "Operation done" appears in the message panel on the left of the main window and the slot color changes to green again.



## 4.2 Optional: Creating a short image file

This feature is only available if you have purchased the software option Short Image Files (Item no. 31AL1862).

USB memory sticks often only need to be partly filled with data. The rest of the media is left empty and can be used by the customer to store his or her personal files. The Short Image Files software option significantly speeds up copying smaller amounts of data.

The Short Image Files software option only supports USB sticks which have a block size of 512 bytes (see page 19 for instructions on how to check the block size) and which are FAT(16) or FAT32 formatted.

The FAT (File Allocation Table) of the file system stores information on memory blocks which contain user data. By analyzing the FAT, the CopyStation software can determine the last block of memory which contains user data. If you create a short image file, it will only contain data for memory blocks which are being used.

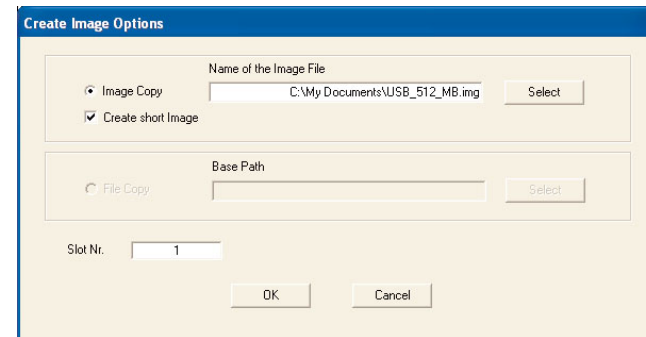
To maximize the speed benefit (minimize the size of the short image file), the master (source) memory stick should not have fragmented data blocks. Data blocks get fragmented if the stick has often been written to since it was last formatted.

If necessary, format the source memory stick and copy the data back on again before using it to create the short image file.

When making copies using a short image, it is only necessary for the CopyStation to write data to some of the memory blocks in the destination memory stick. This leads to a speed advantage. However, if the destination stick has already been used to store files, some of the unused and unwritten blocks may still contain old data. Although the old data will not appear as files in the file system (directory), in some cases the data can be analyzed using special software tools. This could present a security risk if the memory stick was previously used to store sensitive information.

For short images too, the storage capacity of the master (source) memory stick must be identical to the storage capacity of the destination sticks (the sticks onto which you want to copy).

Choose **"Create Image"** in the **"Execute"** menu. This opens the **"Create Image Options"** dialog box:

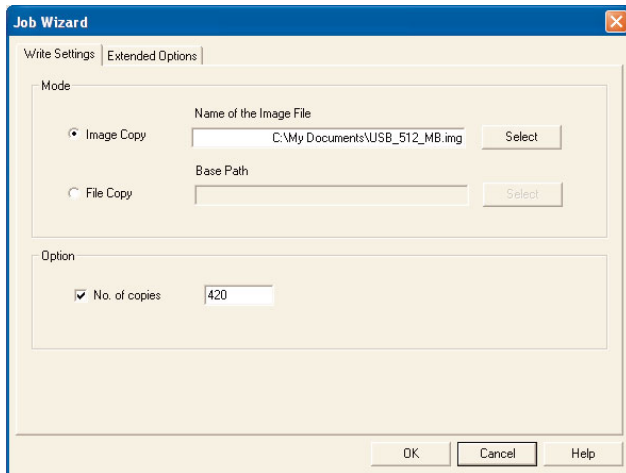
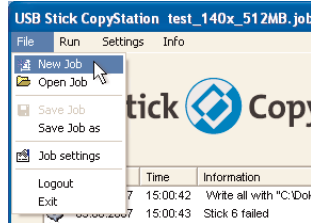


If you check the **"Create short image"** checkbox, the CopyStation software will create a normal image and a second image with the file extension **".img.short"**. Use the second image to create a short image job. When you specify the copy job in the **Job Wizard**, you must check the **"Allow short image file"** checkbox in the **"Extended Settings"** tab (see next chapter).

### 4.3 Creating a copy job

Choose **"New Job"** in the **"File"** menu to create a new copy job with the Job Wizard.

In the Job Wizard, clicking the **"Select"** button (see figure below) to select an image. Then choose the required image using the **"Open"** dialog box which is shown.

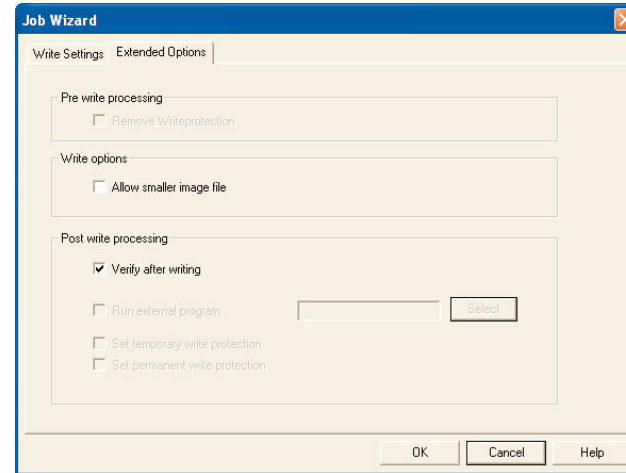


If you want to use a **Short Image** please be aware that **".img.short" files will not be shown in the Open dialog** due to the standard settings that only shows \*.img files. Please select "Files of type: All Files (\*.\*)" to open the Short Image.

Check the "No. of copies" check box and enter the total number of copies you want to produce (see figure above). If you don't mark the "No. of copies" check box, an unlimited amount of copies is produced until you cancel the copying process manually by loading a new job.

### Extended Options

Click the **"Extended Options"** tab to specify additional settings (see figure below). Check **"Verify after write"** if you want the data to be verified automatically after writing.

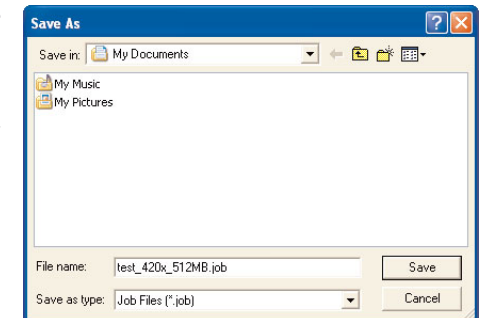


### Short Image Copy

The **"Extended Options"** tab also contains the check box "Allow smaller image file" which must be activated if you want to copy short image files (see chapter 4.2).

### Saving a copy job

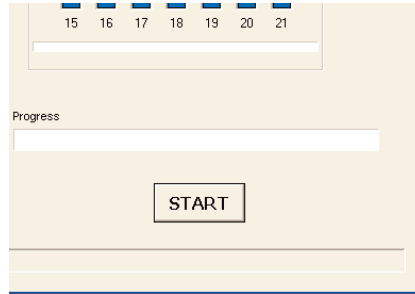
Click the **"OK"** button and enter the required name and location for the job file in the **"Save As"** dialog box which is shown. Use the file extension ".job". Click **"Save"** to save the file.



#### 4.4 Starting a copy job

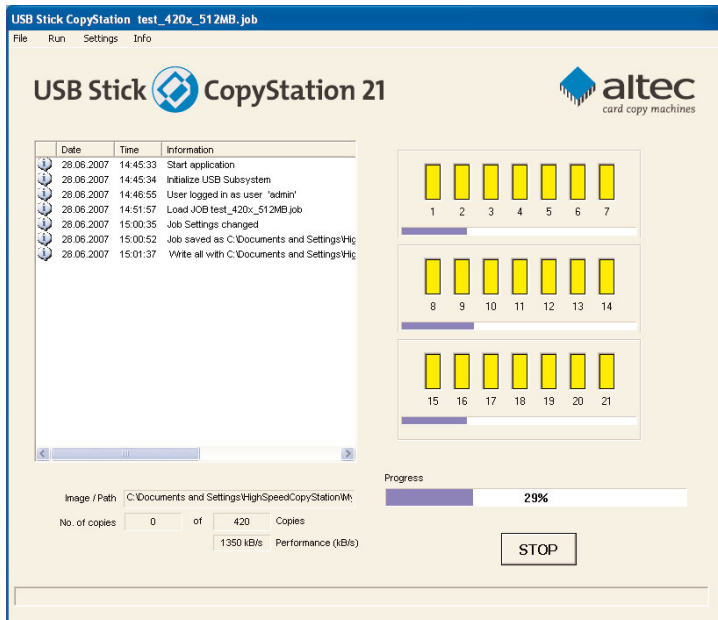
Remove the master memory stick from the CopyStation and insert fresh memory sticks you want to copy to.

According to our experience, the inserting of several USB memory sticks at the same time can cause difficulties as the sticks are not always recognized. Therefore we recommend you insert the USB sticks one by one.



Click "START" to start programming (see figure above).

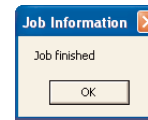
The color of the slots which contain memory sticks changes from blue to yellow (slot is busy). See figure below.



The data has been copied successfully to all of the sticks in the CopyStation when the progress bar reaches 100%, the message "Operation done" appears in the message panel on the left and the slot color changes to green again.

Replace the programmed memory sticks with fresh sticks.

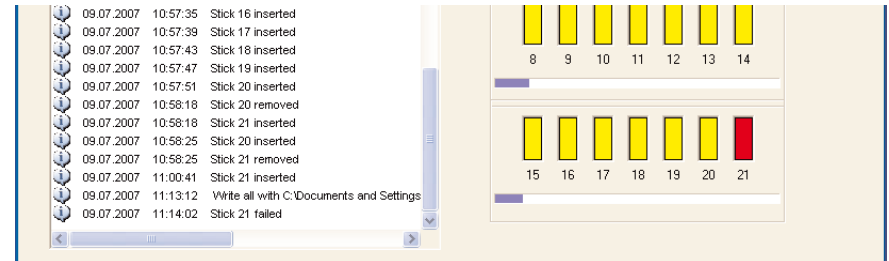
When all fresh sticks are activated (slots are blue) click the "START" button again.



Keep on replacing memory sticks until you see the "Job finished" message, which indicates that the specified number of copies have been made.

#### Copying error

A red slot and an error message in the message panel on the left indicate that a copying error has occurred (see figure below).



#### Re-use copy jobs

You can re-use saved copy jobs at any time.

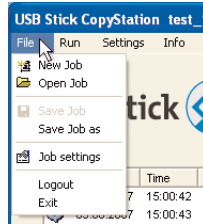
If you want to change settings for a job, we recommend saving it with a new name. Then choose "Job Settings" in the "File" menu to modify the job and confirm by clicking "OK".

## 5. User software menus and functions

### 5.1 "File" menu

This menu lets you create, save, open or modify jobs or exit the program.

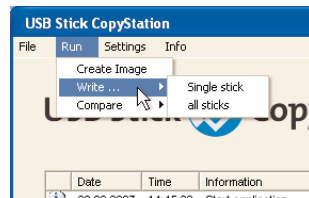
- **"New Job"** creates a new job. Choose an image file in the Job Wizard (see page 12). Choose the number of copies you want to produce (see page 12). Click the "Extended Options" tab if you want to carry out verification after writing (see. page 13).
- **"Open Job"** opens an existing copy job.
- **"Save Job"** saves an open copy job.
- **"Save Job as"** saves a job under a new name.
- **"Job settings"** opens the Job Wizard where you can modify and save an open job. If no job has been opened, the command has the same effect as the "New Job" command (see above).
- **"Logout"** logs the current user out.
- **"Exit"** terminates the program.



### 5.2 "Run" menu

This menu lets you create image files and select direct copy or verify commands for single or all memory cards.

- **"Create Image"** reads the data image of a memory stick and saves it at any user selected directory (see page 8 ff).
- **"Write . . . single stick"** opens the "Write Options" dialog where you have to select an image file and a stick slot. After confirming the selection with "OK", copying to the selected stick is started.
- **"Write . . . all stick"** opens the "Write Options" dialog where you have to select an image file. After confirming the selection with "OK", copying to all sticks is started.

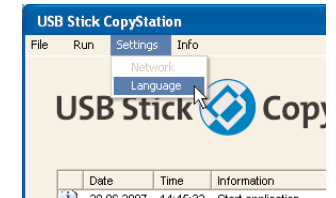
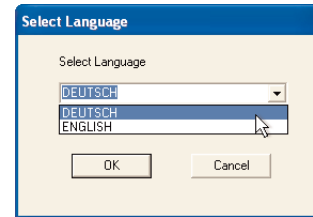


- **"Compare . . . single stick"** opens the "Verify Options" dialog where you have to select an image file and a stick slot. After confirming the selection with "OK", data comparison between the image file and the selected stick is started.
- **"Compare . . . all stick"** opens the "Verify Options" dialog where you have to select an image file. After confirming the selection with "OK", data comparison between the image file and all sticks is started.

### 5.3 "Settings" menu

This menu lets you select the user interface language.

- **"Language"** opens the "Select Language" window where you can select German (DEUTSCH) or English as the user interface language. Note that standard Windows dialogs shown by the CopyStation software are always in the language of the Microsoft operating system you are using.



## 5.4 "Info" menu

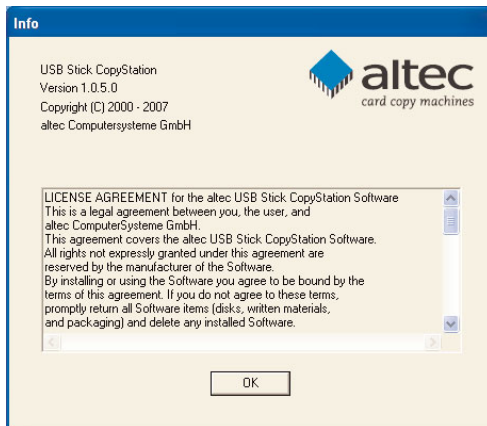
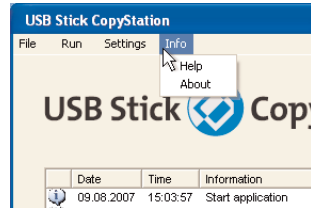
This menu lets you open this manual as a PDF file and call up information about the program.

- **"Help"** opens this manual as a PDF file in the selected user interface language. Please note that you can only read PDF files if Acrobat Reader has been installed on your computer.

You can find setup files for the Acrobat Reader on the CD delivered with your USB Stick CopyStation 21 Ultra.

The manual files are stored on the CD and in the program folder and can also be opened directly.

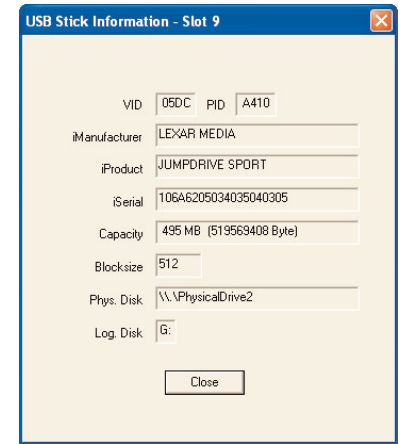
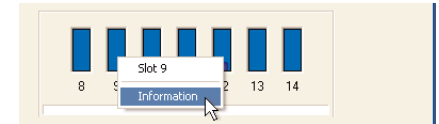
- **"About"** opens the program's information window where you can find the software version number and the license agreement.



## 5.5 USB stick information

With a right-click on the slot of an inserted stick, the slot number as well as stick information is provided.

In order to get detailed information on a memory stick, right-click the respective stick slot and choose "Information" from the context menu. This opens a new window with information such as the storage capacity, block size and the hardware address and logical drive letter under Windows.

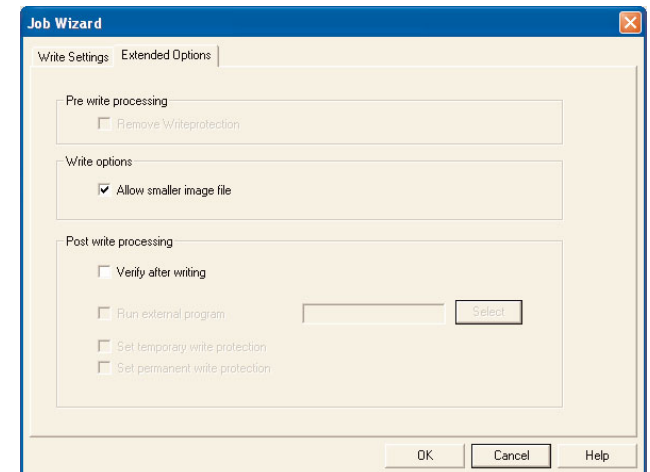


## 6. Software options

### 6.1 Software option "Short Image Files"

This software option allows you to create and copy short image files. If the master (source) memory media is only partly filled with user data, the resulting smaller image files allow faster programming of the target memory media.

Detailed information on using this software feature can be found in chapters 4.2 and 4.3.



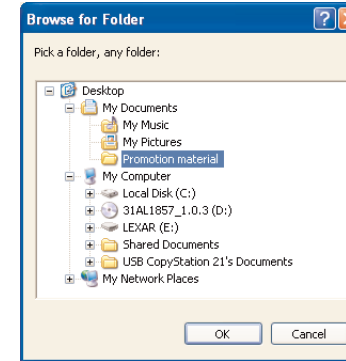
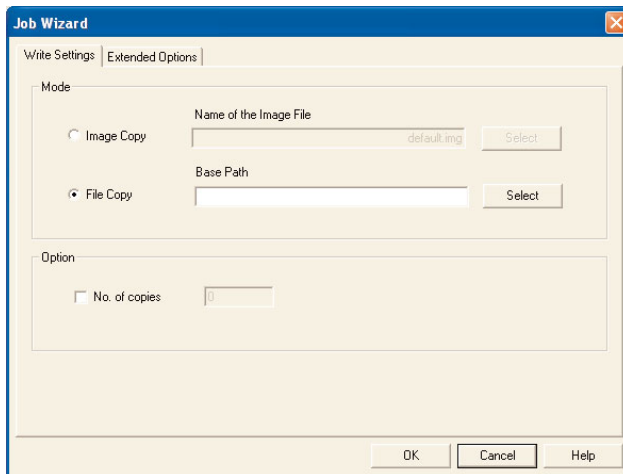
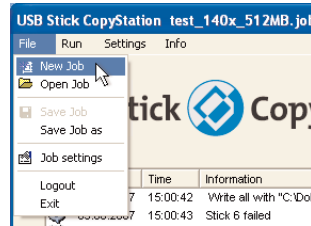
## 6.2 Software option "File Copy"

This software option allows you to copy files from a specified directory to USB sticks, which are supported by Windows, instead of copying from an image file. The sub-directory structure (if present) is also copied.

This feature is only available if you have purchased the software option "File Copy" (Item no. 31AL1867).

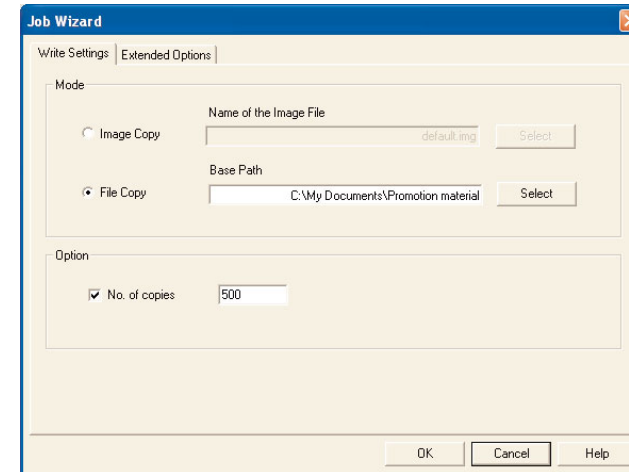
Choose "New Job" in the "File" menu to create a new copy job with the Job Wizard (see figure right).

In the Job Wizard, activating "File Copy" and then clicking the "Select" button (see figure below).



In the following window (see figure left) you will be asked to choose the file or folder including all files and – if present – sub-directories, which you want to copy to the USB memory sticks.

Check the "No. of copies" check box in the Job Wizard and enter the total number of copies you want to produce (see figure below). If you don't mark the "No. of copies" check box, an unlimited amount of copies is produced until you cancel the copying process manually by loading a new job.



After having chosen the tab "Extended Options" you will be able to adjust further settings (see page 13).

Click the "OK" button and enter the required name and location for the job file in the "Save As" dialog box which is shown (see page 13).

Click "START" to start programming (see page 14).

## 6.3 Software interface for e.g. external serialization

### 6.3.1 General Description

The USB Stick CopyStation 21 Ultra has an optional software interface for data exchange with an external application to allow customization of individual memory sticks.

This can be used for a serialization of sticks to protect stick contents such as data files or programs against unauthorized duplication or usage.

USB Sticks have individual serial numbers in most cases, although these can also be missing.

If the target application allows to read out this serial number, the application can check, whether this is an authorized copy or not.

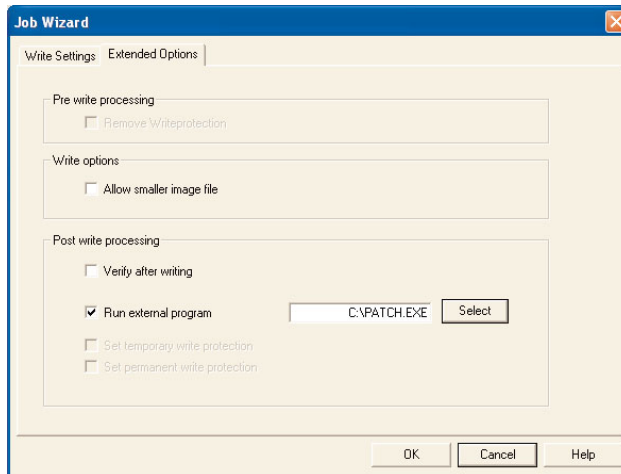
This feature is only available if you have purchased the software option "Serialization" (Item no. 31AL1864).

### 6.3.2 How it works

When this software feature is activated, each memory stick will be shown as logical drive under Windows XP after it has been programmed and as the case may be has verified the content, and an external software program is started (see figure below).

Serial number and logical drive letter of each memory stick are passed on to this program. Please note: not every memory stick has an individual serial number. In cases with no serial number, a series of zeros is transferred.

The external software needs to be programmed by the customer according to his needs. This programming can also be done by Altec's Development Division. For instance this program could create specific data files, which are then copied to the individual memory stick.



This allows an individualization of each memory stick's content.

### 6.3.3 Accessing the memory stick through filesystem calls

When the memory stick has been mapped to the logical drive, the external patch application can communicate with the memory stick.

The application can use the standard operating system file system calls like fopen() fread() fwrite() .... With these calls, the application has full access to all files and subdirectories which reside on the stick. In addition, using special fopen() calls, the application has also full access to any data on the stick, starting from the first and ending on the last storage block of the stick.

### Example

The example shows, how to access the USB stick through the standard operating system file system calls.

In this example, the serial number, which is given as a parameter to the application, is written to a text file named CID.BIN to the USB stick. The name of the logical drive is taken from the second parameter.

```
#include "stdio.h"
#include "stdlib.h"
#include "string.h"

int main(int argc, char* argv[])
{
    char v_drive_letter, filename[256];
    FILE *f1;
    int retcode=0;

    if (argc == 2) {
        // Please note: argv[1] = drive letter and argv[0] = serial number

        v_drive_letter = argv[1][0]; // get the drive letter from 2nd parameter
        sprintf(filename,"%c:\\CID.BIN",v_drive_letter);
        f1 = fopen(filename,"w+"); // open a file on the Virtual Drive and
        fwrite(argv[0],1,strlen(argv[0]),f1); // write the serial number.
        fclose(f1);
    }
    else
        retcode = 1; // invalid number of parameters

    return retcode;
}
```

### 6.3.4 Requirements

The requirements to use serialization are:

- USB Stick CopyStation 21 Ultra Hardware
- USB Stick CopyStation application with serialization enabled
- Microsoft Windows XP
- USB sticks, which are supported by Windows

## 7. Technical specifications

### Hardware

- Case: PC (without monitor) with three USB hubs; incl. keyboard, mouse, graphic card, DVD drive and standard interfaces
- Supported storage media: USB 1.1 or 2.0 memory sticks
- Slots: for 21 USB sticks; horizontal center-to-center distance between the slots 11.5 mm, vertical center-to-center distance 42 mm

### Performance

- Copying speed (example): 21 USB 2.0 sticks à 512 MB in approx. 2.5 min. (speed depends on USB Stick type)  
Data transfer rate is approx. 75 MB/sec

### Software

- Supplied OS: Windows XP Professional

### Environmental specifications

- Temperature: 5° to +45°C (operating)  
0° to +75°C (non-operating)
- Humidity: 10% to 90%, non-condensing

### Accessories

- 31AL1862: Software Short Image Files
- 31AL1864: Software interface for e.g. external serialization
- 31AL1867: Software File Copy

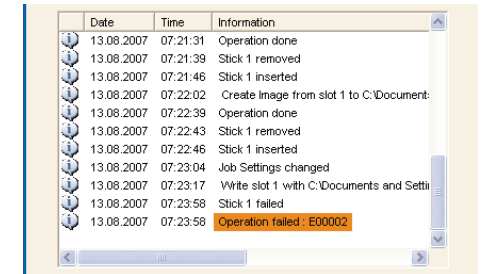
## 8. Troubleshooting

### 8.1 Error code «E00002»

**Problem:** Copying fails to one or more USB sticks and the error code «Operation failed: E00002» is shown (see figure on the right).

**Cause:** The capacity of the USB stick is too small for the data image.

**Solution:** The storage capacity of the master (source) USB stick should normally be identical to the storage capacity of the destination USB sticks.

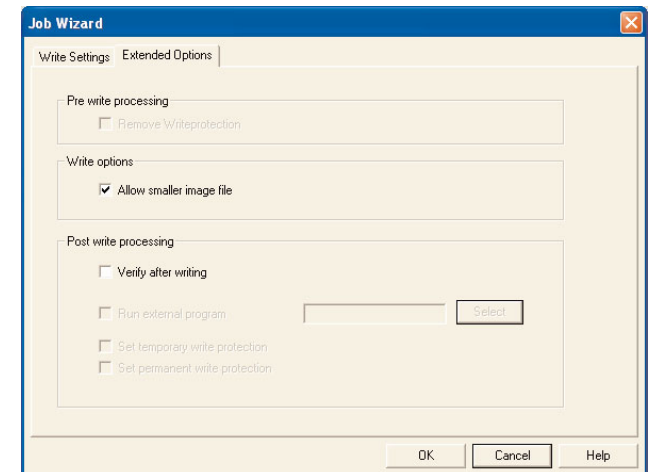


We recommend that the master stick and the destination sticks are from the same manufacturer and preferably from the same manufacturing batch (see Chapter 4.1).

Before you create the master USB stick, check several of the sticks to make sure that they all have exactly the same capacity. See Chapter 5,5 for information on how to do this. Check the exact size in bytes which is shown in brackets – the size which is shown in MB is not accurate enough for this test.

If not all of the USB sticks have exactly the same capacity, create the master USB stick using the stick which has the smallest capacity. Since the size of the data image created from the master USB stick will then be smaller than the storage capacity of the destination sticks, you must check the "Allow smaller image file" checkbox in the "Extended Settings" tab of the Job Wizard (see figure right and Chapter 4.2).

On the destination USB sticks, the additional storage capacity, which is often only a few bytes, will no longer be available for storing data until the USB sticks are re-formatted.



## 8.2 Other possible sources of error

- We have received some feedback from a few customers using no-name USB memory sticks with our USB Stick CopyStation 21 Ultra.

So we have been doing more research and testing with low-cost products as well. Whenever problems occurred, there were always no-name products involved.

**Therefore we strongly recommend that you only use USB memory sticks from international manufacturers such as SanDisk, Lexar or Transcend.**

- The CopyStation software needs to have **21 unused drive letters** for the 21 USB stick slots. Each slot needs its own drive letter.

Assignment of the CopyStation drive letters may not take place correctly if Windows Explorer lists drive letters for network drives which are not mounted. Before starting the CopyStation software, it is recommended to disconnect the network drives or to ensure that they are correctly mounted.

## 9. Support and further information

**Support hotline** from Monday to Friday:

Phone **+49-511-98381-70** or eMail **support@altec-cs.com**

Please ask for our product overview or visit our website for information on further CopyStations, storage products, Flash Card Drives and Solid State Disks from altec:

**www.altec-cs.com**