BD Rowa™
Personal Backup Service

User Manual

BD Rowa™

Table of Contents

1 General information

1.1 Use of this user manual

This user manual is a component of the system. Please note the following instructions:

– The user manual must be available to all users of the system at all times.

– Read the user manual carefully before using the product: Pay attention to all warnings and notes in order to operate the system safely, correctly, and reliably.

– Hardware, software, and methods are updated on a regular basis. Information in this regard will be taken into account in future versions of this user manual. Make sure that you are working with the latest version of the user manual.

1.2 Manufacturer's address

Becton Dickinson Rowa Germany GmbH, Rowastraße, 53539 Kelberg, Germany

Phone: +49-2692-9206-0, Fax: +49-2692-9206-1299

http://www.bd.com/rowa, rowa@bd.com

Becton Dickinson Rowa Germany GmbH is part of Becton, Dickinson and Company headquartered in Franklin Lakes, USA. The manufacturer, Becton Dickinson Rowa Germany GmbH, will be referred to in the following as "BD Rowa".

1.3 Customer service

Contact your sales partner/service partner or BD Rowa Service:

Country	Phone number	E-mail address
Australia	1800 385471	rowa-service-au@bd.com
Belgium	0800 10076	rowa-service-be@bd.com
Denmark	80 200100	rowa-service-dk@bd.com
Germany	0800 2273387466	rowa-service@bd.com
Finland	020 7871098	rowa-service-fi@bd.com
France	04 76043888	rowa-service-fr@bd.com
Ireland	+44 870 7702996	rowa-service-uk@bd.com
Italy	02 87188852	assistenza.rowa@bd.com
Netherlands	0800 2200051	rowa-service-nl@bd.com
Norway	800 69 549	rowa-service-no@bd.com
Austria	0800 400060	rowa-service@bd.com
Sweden	020 792663	rowa-service-se@bd.com
Switzerland	0800 000994	rowa-service@bd.com
Spain	900 820 822	sp-tecnico@bd.com
United Kingdom	0870 7702996	rowa-service-uk@bd.com
All other countries	+49 2692 92062527	rowa-service@bd.com

1.4   Formatting conventions

Operating Instructions

Operating instructions consist of multiple steps. The steps in operating instructions are numbered sequentially. All steps must be completed in sequence in order to achieve the objective of the operating instructions. Operating instructions are structured as follows:

Heading of the operating instructions

1.   First step.

2.   Second step.

Notes

Important or helpful notes are structured as follows:

> The text of a note contains important or helpful information.

Identifiers in the text

– Software strings, i.e., references to text that appears on the screen of a product: Softwaretext

– Text that appears on keys or keyboards: **Key**

– Hyperlinks: http://www.bd.com/rowa

– Cross references: *Manufacturer's address [▷ 4]*

Figures

– The screenshots of the user interface and other figures are used for illustration purposes. They may deviate from the actual version.

– Figures have a separate numbering system inside the figure. A circled number refers to an object within the figure, for example, ①.

2   Introduction

BD Rowa Personal Backup Service is a software program that can be used to access the database of a BD Rowa automated storage and retrieval system via an external computer, if necessary. The user can thereby, for example, maintain the essential operation of their machine in the event of power loss, and access a copy of the inventory database with all input packs. This copy is stored on an external USB flash drive. The external USB flash drive functions regardless of the computers integrated in the automated storage and retrieval system and guarantees that packs can still be located even during non-availability of the computer.

During use of the Personal Backup Service, no stock input is possible and the "Multitenancy" and "Multi-stock handling" options cannot be used.

For the BD Rowa Vmax 210, Personal Backup Service is implemented differently than for the BD Rowa 130/160/320 and Smart automated storage and retrieval systems (see chapter *System Requirements [▷ 7]* and *Operation [▷ 15]*). Differences are indicated at the corresponding places.

Hazard Zones

BD Rowa Personal Backup Service is part of a BD Rowa automated storage and retrieval system. Observe the notes in the instructions of the automated storage and retrieval system to prevent dangerous situations. The use of this software does not result in any additional risk for the users of the machine.
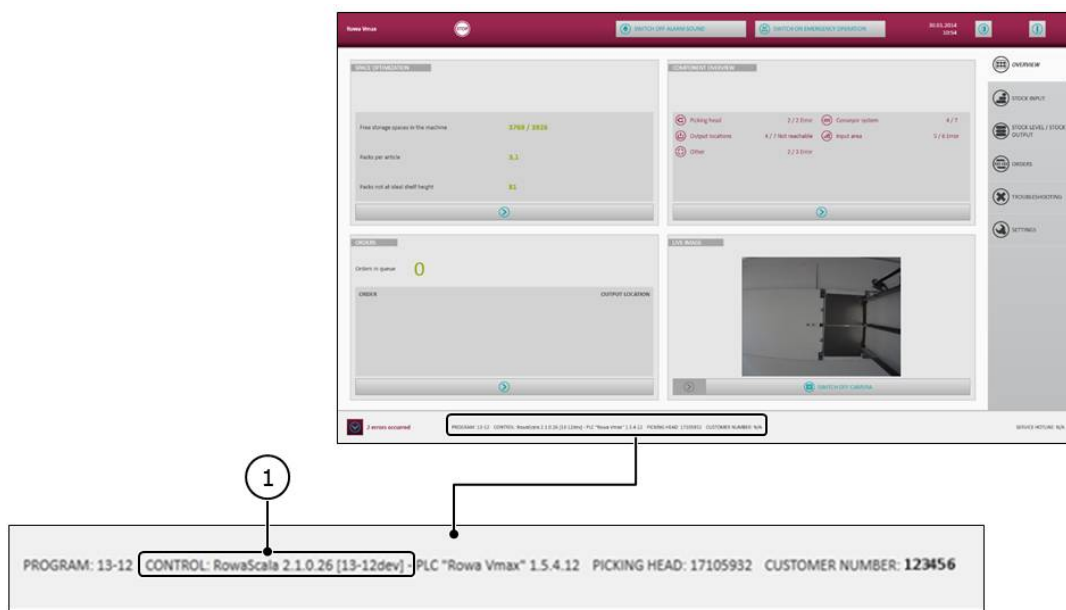
2.1   Software Version

Vmax 130/160/320 and Smart

You can find information on the version currently used in the **SystemBackup.info** file in the master directory of the USB flash drive.

```
softwareVersion = 2.1.0.26
releaseVersion| = 13-12dev
```

BD Rowa Personal Backup Service Stand-Alone is continuously updated automatically. The details in the **SystemBackup.info** file and the software version of the automated storage and retrieval system must be identical.

Vmax 210

The software is integrated in the standard Vmax user interface and therefore corresponds to the software version of the Vmax user interface.

2.2   System Requirements

The main differences between the implementation of the Personal Backup Service on BD Rowa Vmax 210 and the BD Rowa 130/160/320 and Smart automated storage and retrieval systems are:

Vmax 130/160/320 and Smart

– Stand-alone software program that has previously been installed both on the management computers of the BD Rowa automated storage and retrieval systems as well as on an external USB flash drive.

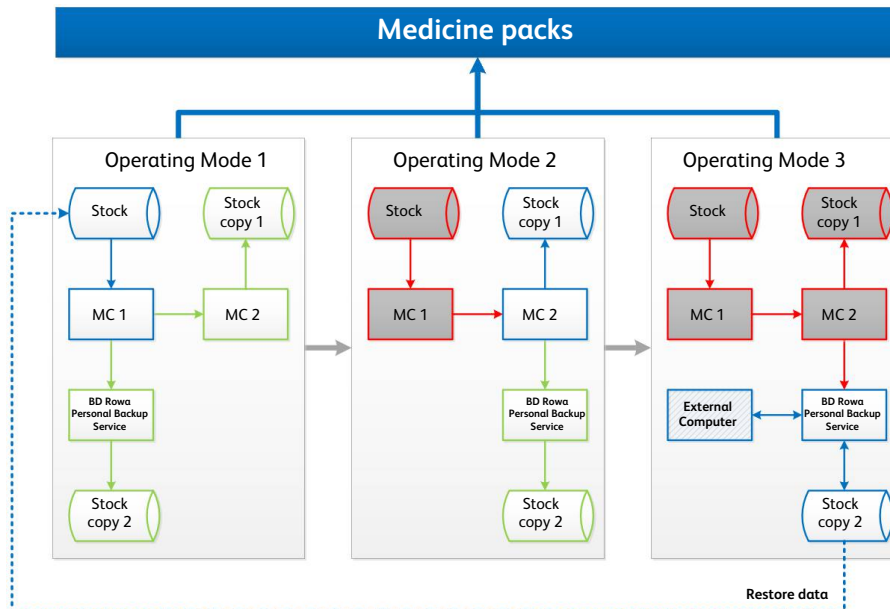– The software can be used on an external computer regardless of the platform and operating system.

Vmax 210

– The software program is integrated in the standard user interface. Contact BD Rowa service personnel for activation.

– The software program can only be used on an external computer with Windows operating system (from Windows 7).

2.3 Scenario for Use of Personal Backup Service

The following diagram shows when Personal Backup Service must be accessed actively. In operating mode 3, both management computers (MC 1 and MC 2) of the automated storage and retrieval system have failed, which means limited operation can only be continued with Personal Backup Service in conjunction with an external computer.

Designation	Definition
Medicine packs	Content input in the automated storage and retrieval system.
Operating mode	Scenario for the use of BD Rowa Personal Backup Service. There can be only one operating mode at any one time. Operating modes follow each other.
Stock	Database with a list of all input medicine packs.
Stock copy	Stand-alone database with a real-time copy of the stock of the input medicine packs.
USB flash drive	External storage medium for the database of "Stock copy 2"
MC	Abbreviation for the management computer. Among other things, a management computer controls the input/output process and includes a current database of the stock of medicine packs.
BD Rowa Personal Backup Service	Software program, which runs on the computers MC1, MC2 or "external computer". Consists of a USB flash drive. Must be configured individually for each machine with Vmax 130/160/320 and Smart.
External computer	(Any) computer which is not part of a BD Rowa automated storage and retrieval system. When used in conjunction with a Vmax 210, this must be a computer with a Windows operating system (from Windows 7).
Restore data	Procedure to transfer the database from "Stock copy 2" to the "Stock" database

3 What is Personal Backup Service?

3.1 Functional Principle

Ensuring Access to Packs at Any Time

BD Rowa Personal Backup Service increases the reliability of an automated storage and retrieval system. In case all management computers of the automated storage and retrieval system fail, a copy of the inventory database with the input packs can be accessed manually. This copy is stored on an external USB flash drive. The external USB flash drive functions independently of the management computers. When both management computers operate normally, the copy of the inventory database in the USB flash drive is constantly updated.

Chaotic Storage Management Complicates Manual Retrieval

Manually finding individual packs in the bays is difficult without the help of the inventory database. The functional principle of BD Rowa automated storage and retrieval systems is based on a chaotic storage management which allows the ideal use of the available storage space. However, from a human perspective, the packs have been stored in an unsorted manner. BD Rowa Personal Backup Service helps to find packs manually during a complete breakdown of the automated storage and retrieval system.

Automatic Operation Can Be Restored Faster

After the automatic access to packs with the automated storage and retrieval system has been restored, the inventory database of the management computers can be synchronized with the backup database within a short period of time.

## 3.2 Backup Database on USB Flash Drive

The inventory database of the active management computer is constantly synchronized with a copy on an external USB flash drive. If necessary, the database can be read from this USB flash drive. The USB flash drive is connected to a computer (management computer or external computer) via a USB cable for this purpose. The USB flash drive is supplied with power from the USB interface of the respective computer.

3.3 Operating Phases and Fault Indicators

Operating Phases

BD Rowa Personal Backup Service consists of a USB flash drive and the software program. The software program is distributed between the management computers of the automated storage and retrieval system and the USB flash drive. The software on the USB flash drive is prepared for the access from an external computer.

The program design can be divided into two operating phases:
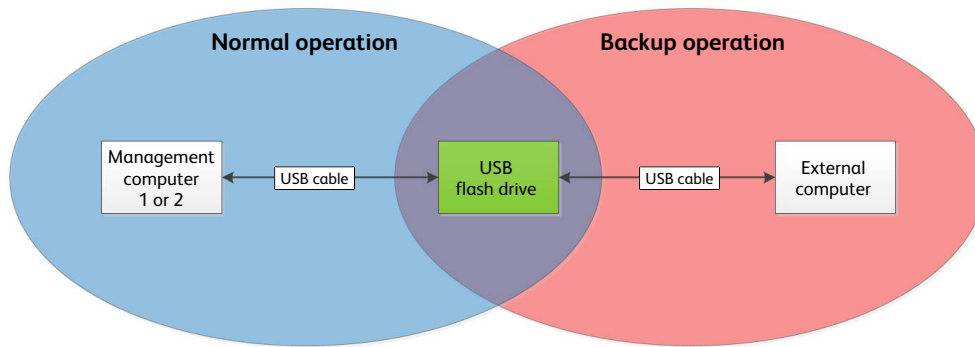
The operating phases correlate with the respective operating modes in chapter *Scenario for Use of Personal Backup Service [▶ 8]*, with the USB flash drive acting as the save destination in one case and as the data source in the other case:

Operating phase	Operating mode	Purpose
Normal operation	1	Copy/save stock data from management computer 1 or 2 to USB flash drive
	2	
Backup operation	3	Access stock data with an external computer during extended emergency operations

Fault Indicators

BD Rowa Personal Backup Service will not issue explicit warnings in the event of malfunction or failure.

The breakdown of a management computer would be considered a failure. The breakdown of a management computer would be displayed on the operator interface of the automated storage and retrieval system.

All possible failures are listed in the following table. Most new failures require a change of the operating mode as shown in chapter *Scenario for Use of Personal Backup Service [▶ 8]*.

No.	Failure/warning signal	Change of mode	New state	Action
1	MC1 breaks down, MC2 works	1 → 2	Normal operation	Connect USB flash drive to MC2
2	MC2 breaks down, MC1 works	1	Normal operation	USB flash drive remains connected to MC1
3	Both MC1 and MC2 break down	1/2 → 3	Backup operation	Connect USB flash drive to external computer
4	MC2 breaks down after MC1	2 → 3	Backup operation	Connect USB flash drive to external computer
5	MC1 works again after breakdown during which MC2 was working	2 → 1	Normal operation	Connect USB flash drive to MC1
6	MC1 works again after breakdown, MC2 has/is broken down	3 → 1	Normal operation	Connect USB flash drive to MC1
7	MC2 works again after breakdown during which MC1 was working	1	Normal operation	USB flash drive remains connected to MC1

| No.	Failure/warning signal	Change of mode	New state	Action
8	MC2 works again after breakdown, MC1 has/is broken down	3 → 1	Normal operation	Connect USB flash drive to MC2

4 Commissioning

For commissioning, a distinction must be made between the two operating phases, normal operation, and backup operation. Normal operation can only be established with the support of BD Rowa service personnel

4.1 Normal Operation

4.1.1 Connecting the USB Flash Drive to a Management Computer

i The following figures are examples of the connection of the USB flash drive to a BD Rowa Smart and BD Rowa Vmax 160. The connection to the Vmax 210 is the same.

The USB flash drive must be connected to the management computer 1 or 2 of the corresponding automated storage and retrieval system. The automated storage and retrieval system can be a BD Rowa Smart or a BD Rowa Vmax.
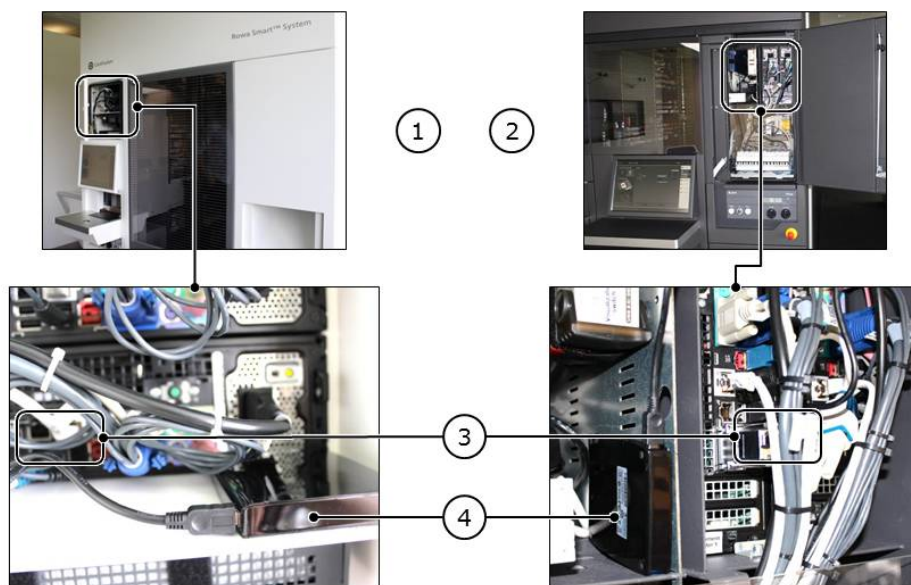
No.	Designation
①	Management computer 1 or 2 in a BD Rowa Smart automated storage and retrieval system
②	Management computer 1 or 2 in a BD Rowa Vmax automated storage and retrieval system
③	Connection USB flash drive to USB connection on Smart/Vmax computers
④	Location of USB flash drive in the Smart/Vmax switch cabinet

1. Open the switch cabinet with the management computers (1 or ②).
2. Position the USB flash drive near the management computer (④).
3. Make sure that the USB flash drive cannot slip out of place.
4. If the management computer 1 (MC1) works correctly, the USB flash drive must be connected to MC1. If the MC1 does not work correctly, the USB flash drive must be connected to MC2.

i If one management computer breaks down, the USB flash drive must be reconnected to the remaining management computer.

5. Find a free USB port on the management computer (③).
6. Connect the USB cable to the free USB port of the management computer.
7. Connect the other end of the USB cable to the USB flash drive.

### 4.1.2   Activating BD Rowa Personal Backup Service for A Management Computer

If Settings Need to Be Configured on the Server Side

The work steps to adjust the settings on the server side of BD Rowa Personal Backup Service have to be carried out by BD Rowa service personnel on site or via remote access in the following cases:

– A USB flash drive is reconnected to a management computer.

– The drive of the USB flash drive must be changed.

– Normal operation must be restored after backup operation.

– The settings on the server side of BD Rowa System Backup have to be checked.

In case of system requests to reassign the USB flash drive

If the BD Rowa operating software cannot find the USB flash drive under the drive letter that has been entered in the parameters (for example, because the USB flash drive has been connected to another USB port), a window opens in the software interface of the machine:
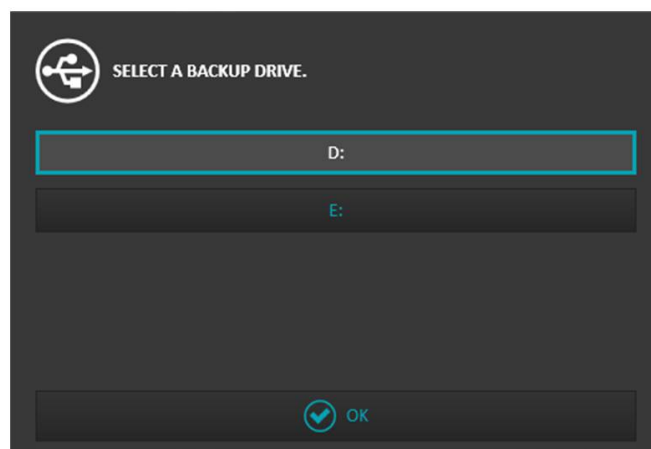
All available drives are shown in this window. The operator has the possibility of changing the drive letter:

1. Go to the drive directory of the operating system and check which drive has been assigned to the USB flash drive.

2. Assign the drive of the USB flash accordingly in the selection of Personal Backup Service.

3. Click OK to update the configuration of Personal Backup Service with the new drive assignment.

4.2　　Backup Operation

During backup operation, if both management computers have broken down, an external computer is used to access the latest saved inventory database.

During backup operation, the USB flash drive is connected to an external computer. The external computer is not included in the scope of the BD Rowa delivery because it is the operator's own computer.

> ℹ️ The following figure shows BD Rowa Personal Backup Service in conjunction with a Vmax 130/160/320 or Smart. Together with a Vmax 210, the software interface corresponds to the illustration of the software interface on the machine.
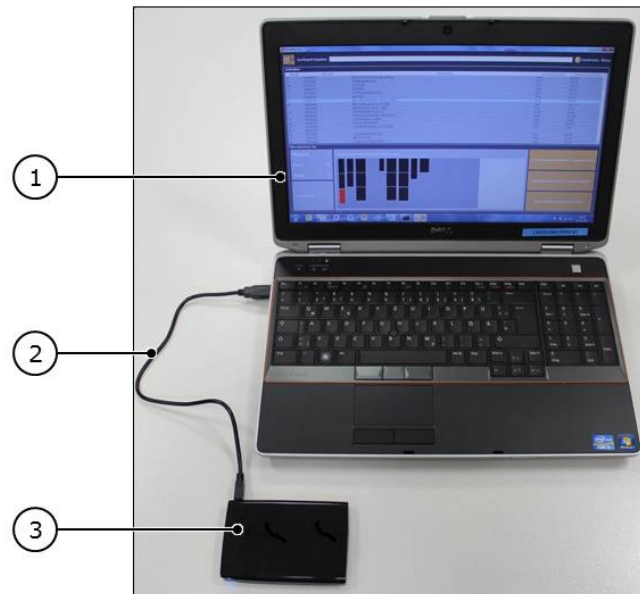
1. Remove the USB flash drive from the switch cabinet of the automated storage and retrieval system.
2. Switch on the external computer ①.
3. Position the USB flash drive ③ near the external computer.
4. Connect the computer and the USB flash drive with the USB cable ②.
   ⇨ The USB flash drive is installed on the external computer.
5. If you are asked, assign an arbitrary drive letter on the external computer to the USB flash drive.

5 Operation

5.1 Operation on the Vmax 130/160/320 and Smart

5.1.1 Software Interface
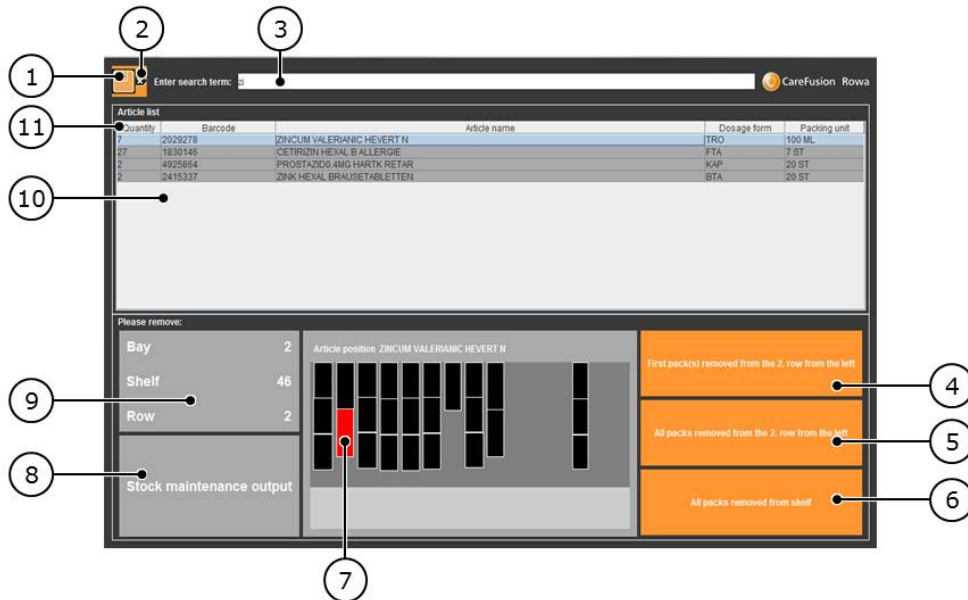
No.	Designation	Function
①	Disk button	Opens a backup database on the USB flash drive.
②	Clear search field	Sets the search field to the starting state for a new search.
③	Search field	Entering parts of the barcode or article name filters the results in the article list according to the search term.
④	Pack removed	Click to confirm the manual output of a pack.
⑤	All packs in a row removed	Click to confirm the manual output of all packs in a row.
⑥	All packs in a shelf removed	Click to confirm the manual output of all packs in a shelf.
⑦	Graphic visualization of pack location	Orientation guide to localize a selected pack in the specified shelf.
⑧	Stock maintenance output	Output compartment to acknowledge the request (without practical relevance during backup operation)
⑨	Storage location	Details on the exact position of the selected pack to help the operator to remove packs manually
⑩	Article list	List of all input packs (is narrowed down when an entry is made in the search field)
⑪	Article list headline	Labeling of the columns of the article list and control of the sorting order of the article list

5.1.2　Starting BD Rowa Personal Backup Service During Backup Operation

> ℹ️ Only start the backup operation when both management computers of the automated storage and retrieval system have broken down! During backup operation, the inventory database for the input packs is changed. Normal operation can only be restored with the support of BD Rowa service personnel.

Connect USB Flash Drive

During backup operation, if both management computers have broken down, an external computer is used to access the latest saved inventory database.

During backup operation, the USB flash drive is connected to an external computer. The external computer is not included in the scope of the BD Rowa delivery because it is the operator's own computer.

1. Remove the USB flash drive from the switch cabinet of the automated storage and retrieval system.
2. Switch on the external computer ①.
3. Position the USB flash drive ③ near the external computer.
4. Connect the computer and the USB flash drive with the USB cable ②.
   ⇨ The USB flash drive is installed on the external computer.
5. If you are asked, assign an arbitrary drive letter on the external computer to the USB flash drive.
6. Go to the file overview of the USB flash drive.

7. Start batch file **SystemBackup** ①. Ensure that you select the batch file for the start (②).

⇨ The BD Rowa Personal Backup Service Stand-Alone user interface is displayed and the inventory database saved most recently is loaded.

5.1.3 Opening a Saved Inventory Database Manually

Assigning the Inventory Databases Saved Status

Every half an hour a new state of an inventory database is determined and filed on the USB flash drive as per the following folder system:

– USB flash drive directory

– Backup

– Day recorded

– Computer name (Ⓐ)

– Program name (RowaScala.SystemBackup [Ⓑ])

Name	Date modified	Type	Size
📁 WINDOWSVM	23.06.2015 13:56	File folder	

(A)

Name	Date modified	Type	Size
📁 RowaScala.SystemBackup	23.06.2015 13:56	File folder	

(B)

Name	Date modified	Type	Size
📄 Scala.132949.sqlite	23.06.2015 13:29	SQLITE File	1 KB
📄 Scala.sqlite	23.06.2015 13:56	SQLITE File	588 KB

(C)

The folder "RowaScala.SystemBackup" has all the databases recorded on this date (Ⓒ).

The newest database does not have an add-on (so, **Scala.sqlite**). Older files have a time stamp; for example, **Scala.132949.sqlite** is the database backup that was created at 13:29:49.

In the case of database backups that are older than a week, only one database backup per day is retained. Database backups that are over four weeks old are deleted.

Selecting and Downloading an Inventory Database

The following describes the process for selecting and downloading an inventory database. This is required in the following scenarios:

– The inventory database is not opened automatically when starting the program.

– The inventory database was not found.

– The inventory database is defective.

– You deliberately want to open an older version of the inventory database.

1. Click the disk button 🔲.

   ⇨ A window opens.

2. If the Backup directory is not displayed directly, switch to the directory of the USB flash drive and select Backup, the folder with the title of the day on which the database you are trying to open was saved.
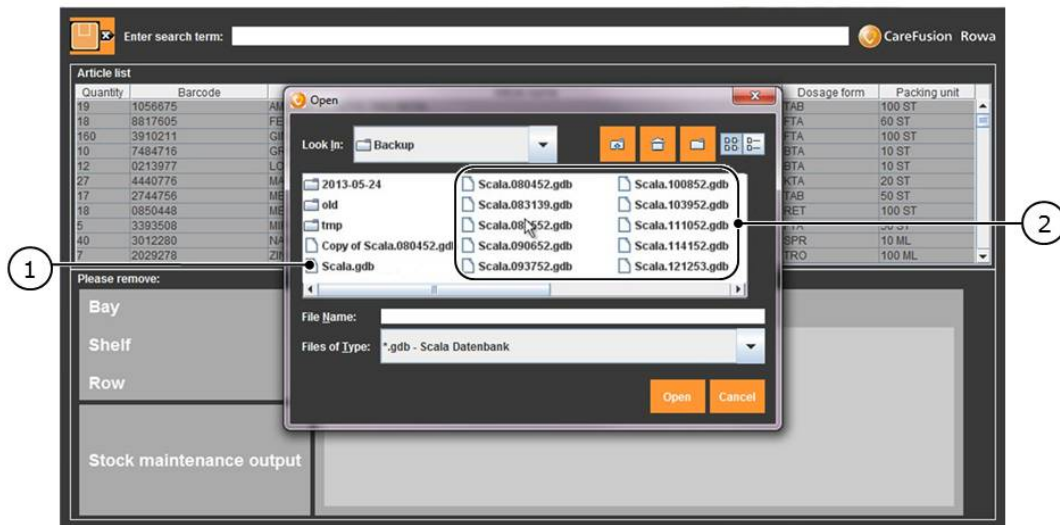
3. Select file Scala.sqlite (if file Scala.sqlite is not displayed, select file Scala.gdb ①).

4. Click on Open.

5. If the file Scala.sqlite is not legible or cannot be opened, select the Scala.xxxxxx.sqlite file ② with the latest date and click on Open.

5.1.4 Outputting Articles Manually

Selecting an Article

If the required article is already shown, you can select the article directly without further inputs.

1. Enter the desired search term in the search field (article name or barcode).

   ⇨ The article list is shown. The article list is constantly updated while you type in the search term.

   i   It is possible to only enter parts of the search term (example "Sta"). All articles with this word component are shown:

2. In the article list, click on the article to be removed.

You can recognize packs that are stored in the refrigerated unit by the asterisk ① in front of the shelf number.
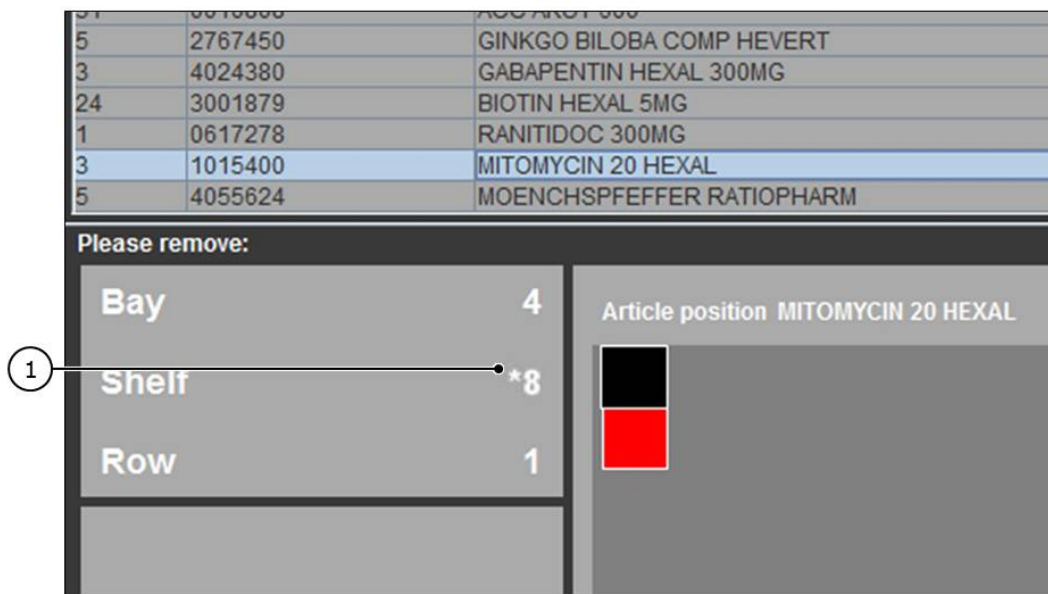
Removing Articles From the Shelf

ℹ️ Remove packs such as not to impede the machine operation! If other packs are in front of the pack you want to remove, you need to remove these packs from the shelf, too. If removing the requested pack involves displacing packs of adjacent rows, remove all the packs on that shelf.

1. Open the machine door.
2. Go into the machine.
3. Remove the packs or packs.
4. Click First pack(s) removed from the X row, All packs removed from the X row or All packs removed from shelf to acknowledge the pack(s) removed.

   ⇨ A dialog window opens to confirm the acknowledgment.
5. Click OK.

Registering Removed Articles Using BD Rowa Personal Backup Service

After articles have been manually retrieved from storage, BD Rowa Personal Backup Service updates the inventory database:

– Removed articles are not shown in the article list any longer during backup operation.

– As soon as it's possible to resume normal operation, the inventory database of the automated storage and retrieval system is synchronized with the modified database created during backup operation.
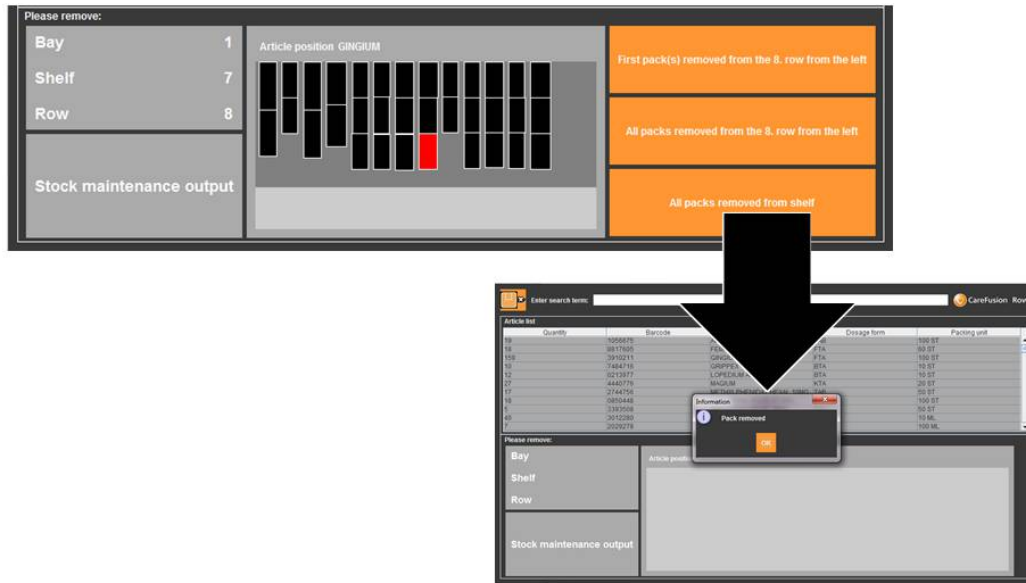
5.1.5 Ending Backup Operation and Resuming Normal Operation

Avoid missing stock: Register all removed packs!

The inventory database is transferred to the active management computer by ending the backup operation. It is necessary to know the current shelf occupancy to guarantee error-free, automatic normal operation.

BD Rowa recommends performing a complete storage scan after resuming normal operation.

Normal operation can only be restored by BD Rowa service personnel.

5.2 Vmax 210 Operation

Executing the BD Rowa Personal Backup Service

1. Remove the backup data carrier ② from the management computer and connect it to the USB connection of the external computer.

2. Open the file structure of the data carrier and double click to execute the file **start offline access.bat** ③.

3. Wait until the system has carried out all necessary steps and aligned the stored data. The backup function is ready as soon as BD Rowa Vmax backup user guidance is displayed on the screen.
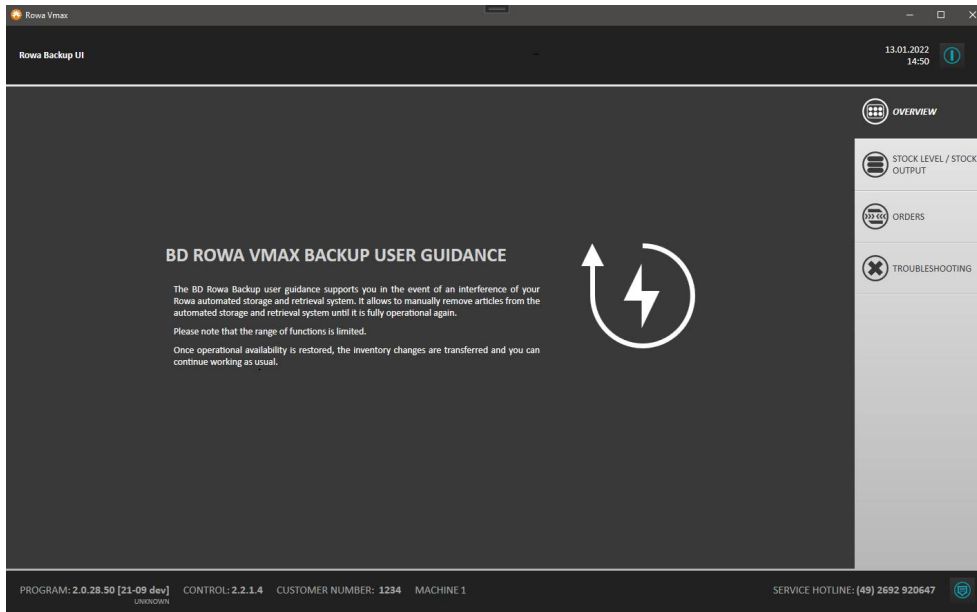

⇨ The visualization can be operated as usual. However, only a limited scope of functions is available.

ⓘ The subsequent return of the database into the BD Rowa automated storage and retrieval system must be carried out by BD Rowa service personnel.

4. After using the backup system, start the machine again normally as soon as possible.

ⓘ Do not start the machine with the USB flash drive! If the USB stick is inserted, do not select drive D:. The button must be deselected as shown in ①.

Otherwise the data from the USB flash drive will be overwritten by the machine data!
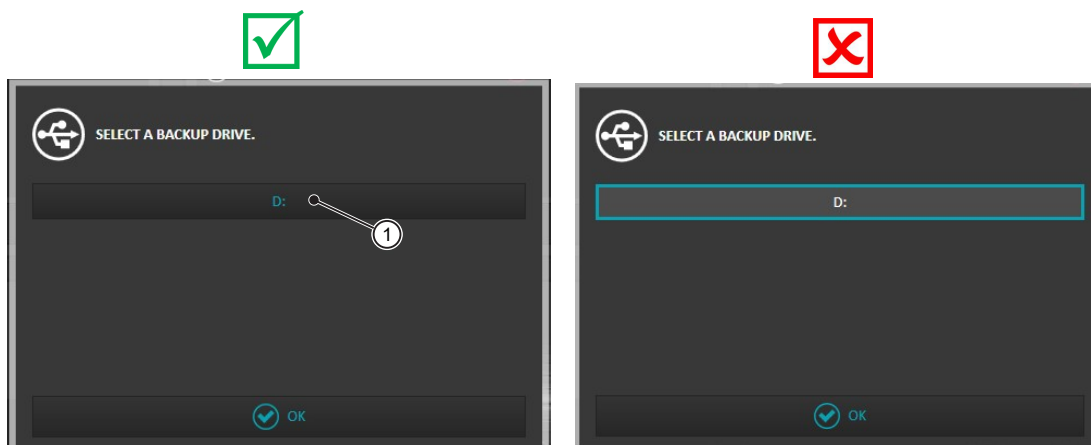
6 Additional Information

6.1 Checking the Backup Function via Visualization

1. Start the visualization of the BD Rowa automated storage and retrieval system.
   - In the Overview under Component Overview, you will find an overview of the available components and corresponding error messages.
   - BD Rowa Personal Backup Service belongs to the Other components. Therefore, if any errors are displayed here, the detailed error list under the menu item Troubleshooting > Component Overview must be checked:
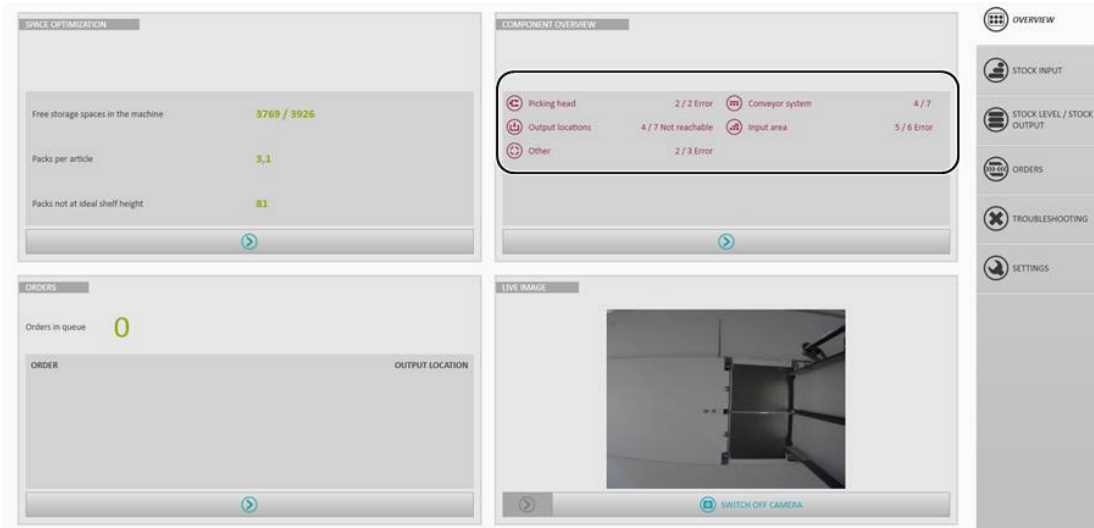
2. Switch to the Troubleshooting > Component Overview menu option ②.
3. In the Other area, check which error message is listed under Backup (①).
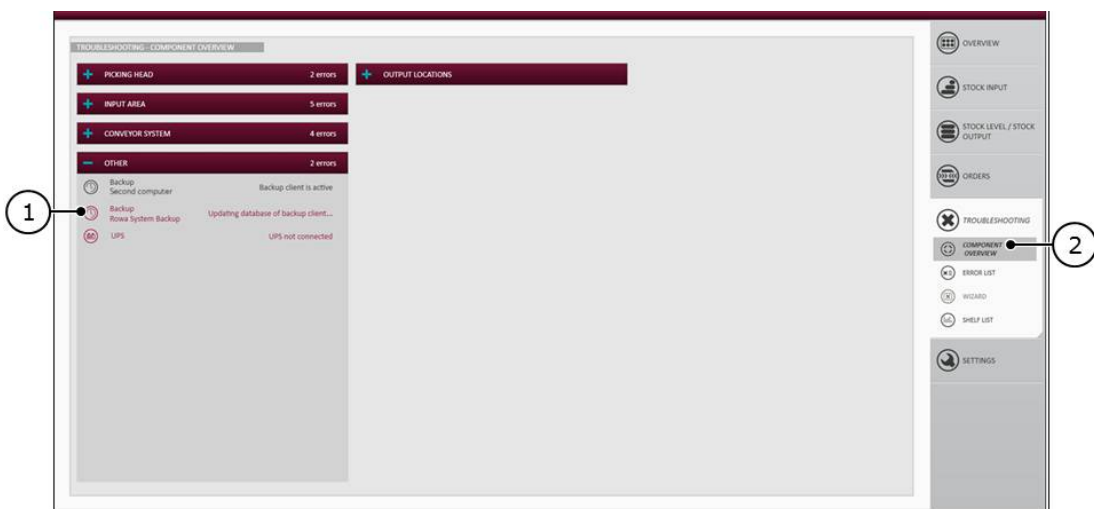
In the example ① shows that the database of the Backup component is being updated.

The status of the management computers 1 and 2 is also displayed under Other (in the example: Backup Second Computer - Backup Client is active). The table in the "Fault indicators" section of chapter *Operating Phases and Fault Indicators [▸ 9]* provides an overview of actions to be taken if management computer 1 or management computer 2 have broken down.

6.2   Disposal

The USB flash drive is RoHS compliant according to 2002/95/EC. However, according to the WEEE-guideline, the USB flash drive must not be disposed of with domestic garbage.

To dispose of the USB flash drive, contact a specialist in the disposal of electric and electronic equipment or contact BD Rowa service personnel to arrange for the correct disposal of the USB flash drive.

6.3   Spare Parts

The USB flash drive can be ordered in the BD Rowa webshop as a spare part.

The software for BD Rowa fault indicators is delivered together with the operating software for BD Rowa automated storage and retrieval systems. The software is installed or updated automatically.

7   Appendix

7.1   Document History

ⓘ The version number of your translated manual corresponds to the respective version number of the German manual. The date refers to publication of the German-language version. Some versions may not be available in your language.

Version	Date	Changes
1.0	23/Jan/2023	Initial version

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bd.com/rowa