Rescue Media

Introduction

Rescue media are live discs or USB sticks from which computers can boot directly into the Macrium recovery environment. This is a lightweight version of Windows (the Windows Preinstallation Environment or Windows PE) customized to include Macrium Reflect so users can manually recover computers that cannot boot Windows normally. Such computers are unable to run the Site Manager Agent; consequently, they can not be restored remotely.

Site Manager can create rescue media which can be downloaded through the Site Manager interface; giving users easy access to a centralized source of rescue media to recover failed agents.

Site Manager can create generic rescue media or rescue media which is targeted for a managed computer. Generic rescue media only contain the Macrium recovery environment and will be compatible with most machines with dynamic network settings. Agent rescue media includes driver and network information from the agent; it should be used for computers with static network settings or hardware not supported by Windows PE.

For advanced needs, use a copy of Reflect on a managed computer or the Site Manager server to create rescue media manually. See Restoring an Image Through Macrium Reflect for further information.

Rescue Media Types

Agent Rescue Media

Site Manager can create rescue media that is custom-built for a particular agent to minimize the manual configuration required to restore it. Agent rescue media will be based on the right version of Windows PE for the target agent and contain copies of hardware drivers for devices which the agent detects as being unsupported by Windows PE. These devices can then be used in the rescue environment even if they are not supported in Windows PE by default. An up-to-date set of agent drivers is stored in a database on the Site Manager server so that agent rescue media can be created for failed agents at the time of need.

Agent network configurations are also stored in the rescue media so that the backup repository can be easily accessed through the rescue environment. Note that network settings must be configured manually within the rescue environment if the agent is restored to different hardware as network configurations are associated with a MAC address.

Generic Rescue Media

Site Manager can also create generic rescue media which does not target any single agent. These media will not include any extra drivers but users can manually specify drivers to be included in rescue media for a given Windows PE configuration (see below). Such rescue media will be appropriate for use on agents with common hardware configurations.

Network settings for all agents are stored in generic rescue media. Appropriate network settings are selected when an agent boot the rescue environment from the rescue media. Note that network configuration selection is determined by MAC address so network settings may not be configured automatically if agent hardware has changed.

Universal Rescue Media

Universal rescue media contain all versions of generic rescue media on a single bootable disk. This can be used to restore groups of computers which run different versions of Windows without creating the necessary generic rescue media individually. Drivers for generic rescue media will also be included in universal rescue media and will be loaded with the corresponding version of Windows PE.

Windows PE

Site Manager rescue media are based on one of four Windows PE configurations. Windows PE 10 is suitable for use on computers running Windows 8 and later and Windows PE 3.1 should be used for Windows 7, Vista, and XP. There is also support for 32-bit and 64-bit processors for each Windows PE version.

Windows PE files are downloaded when creating rescue media or performing agent restores and are stored for future use in the rescue media working directory (see below). This requires an active internet connection to download Windows PE from Microsoft.

Creating Rescue Media Offline

Rescue Media and restore operations can continue in networks without internet access if the Windows PE files were previously downloaded using the Macrium Reflect Download Agent as seen above. Click '**Options**' to select the version of Windows PE to download (Site Manager only supports Windows PE 10 and Windows PE 3).
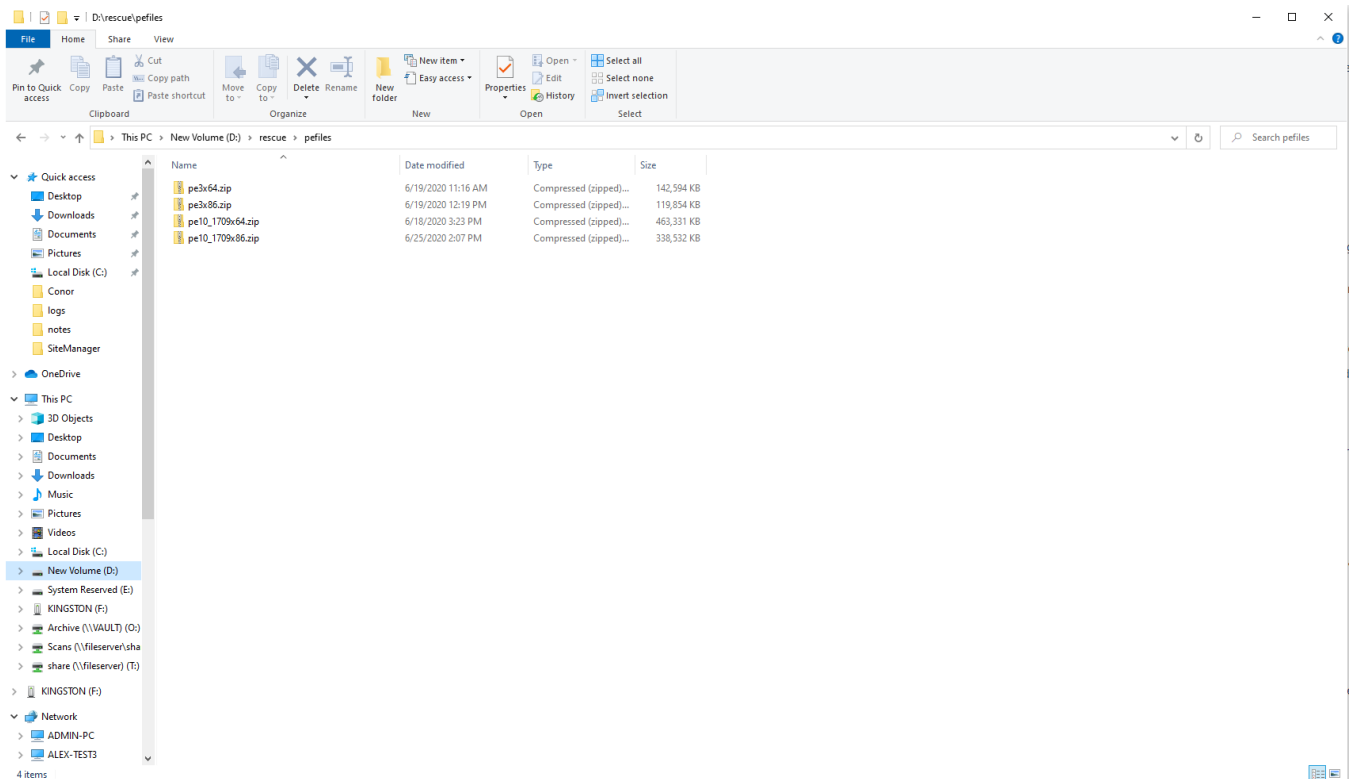
These files should then be placed into **\pefiles** subfolder within the rescue media working directory without changing the name of the zip; it may be necessary to create the pefiles folder manually.

Managing Rescue Media

Rescue Media Working Directory

The rescue media working directory will contain the rescue media images, Windows PE files downloaded from Microsoft, and device drivers extracted from the driver database. Rescue media are a few hundred MB so this folder can grow large if several media are created (this is one reason why it is advised to create Rescue Media only at the time of need).

Consequently, users may want this directory to be on a drive with spare space and this can be set in the rescue media settings. Before saving the settings, Site Manager will test the suitability of the folder by creating a small file which is deleted immediately; the save will fail if an error occurs during this process. There is no automatic cleanup of the previous working directory to avoid erasing custom driver files.

Note that the tools used to build rescue media require the working directory to be on an NTFS formatted drive, local to the Site Manager server.

Drivers

From Macrium Site Manager 8.1.7888, a new '**Drivers**' page has been added to the '**Restore**' menu. This page provides greater visibility and ease of management for drivers in Macrium Site Manager. For more information about this page and how to manage drivers, please see this article (Link to managing drivers in Macrium Site Manager).

When creating rescue media, any drivers that have been harvested by, or manually added to, Site Manager will be included in the rescue media. When creating '**Agent Rescue Media**' the '**Device Drivers**' tab of the '**Build Rescue Media**' wizard will show the drivers that are being included in the rescue media.

Build Rescue Media

| Type | Agent Selection | Device Drivers |

	Description	Status	Driver Date	
▼	USB xHCI Compliant Host ...	Supported with agent driver	02/20/2020	

This device will be supported using the following files copied from CONORPC:

USBXHCI.inf
usbxhci.inf
USBXHCI.SYS
UsbXhciCompanion.dll

▸	Standard Dual Channel PCI ...	Supported	06/21/2006
▸	Standard SATA AHCI Contr...	Supported	06/21/2006
▸	Standard Dual Channel PCI ...	Supported	06/21/2006

|◄ ◄ **1** ► ►| 50 ▾ items per page   1 - 9 of 9 items

[Previous] [Next] [**Finish**] [Cancel]

Creating Rescue Media

Builds   [New]

	Target	Type	Status	Build Time	Actions	
▸	PE10x64	Generic	Built	07/05/2020 15:42:28	[Download]	
▸	CONORPC	Computer	Built	07/05/2020 15:40:09	[Download]	

|◄ ◄ **1** ► ►| 10 ▾ items per page   1 - 2 of 2 items

Rescue Media are created through a wizard on the Rescue Media page, accessed by clicking on the "New" button above the table.

Create Rescue Media

| Type | Agent Selection | Device Drivers |

Agent Rescue Media
Agent rescue media contain the appropriate rescue environment and drivers for a given agent. It should be used if agent driver compatibility problems make generic or universal rescue media unsuitable.

Generic Rescue Media
Generic rescue media contain a single version of Windows PE and drivers for all agents compatible with it. This can be used to restore groups of agents compatible with the selected Windows PE version.

Universal Rescue Media
Universal rescue media include all Windows PE versions. These can support agents running different versions of Windows; the required Windows PE configuration can be selected from the boot menu. Because they contain multiple Windows PE versions, these media take longer to generate and are larger than other types.

Cancel   Previous   Next   Finish

A choice between building generic and agent Rescue Media is immediately presented. Generic Rescue Media should be created for restoring non-agent computers or computers without specialized hardware or network needs. Agent Rescue Media will be configured for the target computer.

Create Rescue Media

Type	Windows PE

Windows PE

Rescue media boots a custom version of the Windows Preinstallation Environment (PE).

Choose Windows PE 10 for recovery of machines running Windows 8 and later. Windows PE 3.1 is suitable for Windows Vista, 7 and XP.

○ Windows PE 10 (64-bit)

○ Windows PE 10 (32-bit)

○ Windows PE 3.1 (64-bit)

○ Windows PE 3.1 (32-bit)

| Cancel | Previous | Next | Finish |

The generic Rescue Media build pathway continues with a selection of Windows PE versions which the medium will be based on. The tools which Reflect relies upon varies between Windows PE versions so it is important to choose the right version for the operating systems the media may target. Use the following table as a reference:

Windows version of the target computer	Architecture of the target computer	Rescue Media configuration
Windows 10, Windows 8.1, Windows 8	x64	PE10x64
	x86	PE10x86
Windows XP, Windows Vista, Windows 7	x64	PE3x64
	x86	PE3x86

Create Rescue Media

Type	Agent Selection	Device Drivers

	Computer	⋮	Description	⋮	Status	⋮	Devices	⋮	Last Driver Update
☐	DC-0				Not Built		0		07/21/2023 5:17:14 AM
☐	F-CLIENT-01				Not Built		0		07/06/2023 7:04:18 AM
☐	F-CLIENT-02				Not Built		0		07/06/2023 7:04:39 AM
☐	F-CLIENT-03				Not Built		0		07/06/2023 7:04:49 AM
☐	F-CLIENT-04				Not Built		0		07/06/2023 7:04:40 AM
☐	F-CLIENT-05				Not Built		0		07/06/2023 7:04:27 AM
☐	F-CLIENT-06				Not Built		0		07/06/2023 7:04:40 AM
☐	F-CLIENT-07				Not Built		0		07/06/2023 7:04:50 AM
☐	F-CLIENT-08				Not Built		0		07/06/2023 7:04:50 AM
☐	F-CLIENT-09				Not Built		0		07/06/2023 7:04:39 AM
☐	F-CLIENT-10				Not Built		0		07/06/2023 7:04:50 AM
☐	F-CLIENT-11				Not Built		0		07/06/2023 7:04:39 AM
☐	F-CLIENT-12				Not Built		0		07/06/2023 7:04:27 AM

|◄ ◄ **1** 2 3 ► ►| 25 ▼ items per page

Cancel   Previous   Next   Finish

Agent Rescue Media creation begins by selecting the target computer from the computer table shown above.

Device and driver information for the selected computer is displayed on the final page of the sequence. The hardware is categorized as either supported in Windows PE by default, supported by drivers from the agent, or not supported at all (in this uncommon case a driver will need to be supplied manually). Expanding a device will list the driver files (if any) to be included in the rescue medium.

Builds in progress will be listed in the Rescue Media table with the status of '**Building**'. Details on the progress of the build and any errors can be displayed by expanding the row. The build can be cancelled but this may not have an immediate effect as some stages of the build process can not be interrupted or there may be terminal steps to stop the build cleanly.

Built rescue media can be rebuilt by clicking on the '**Rebuild**' button which appears when the row is expanded. This is useful for updating rescue media when there have been changes in agent hardware. Further details of the build and a deletion option are also shown in the expanded view.

Using Rescue Media

Rescue media are stored as ISO image files in the rescue media working directory on the Site Manager server and can be downloaded by users logged into Site Manager. The image can be burned onto a disc or used to create a bootable USB stick which can be inserted into the target computer to load the rescue environment.

It is not necessary to create agent rescue media before it is needed. Agent drivers and network configurations are transferred to the Site Manager server during normal agent communications so the server can generate rescue media for an agent even if that computer is offline. Storing rescue media for all agents ahead of time may be a significant storage burden.

Rescue Media for the Site Manager server should be created ahead of time and stored on another system so that Rescue Media capabilities can be retained in disaster scenarios.

Rescue USB Tool

Rescue media can be loaded onto USB flash drives to create rescue USB sticks. Drivers can be copied onto rescue USB media after it has been created as the root of the USB is included in the driver load process. USB rescue media may then be the best choice when recovering from hardware failure or restoring older operating systems where the drivers may not have been added automatically because drivers on these media can be continually updated to support recovery needs.

This flexibility means that rescue USB sticks are particularly suited for loading universal rescue media; drivers can be added as needed to support the set of computers the medium is intended for.

However, some third-party flashing tools are incompatible with Macrium rescue images. Therefore, Macrium has developed a tool to create rescue USB sticks from rescue media images created by Site Manager 8.

This tool has a command line or GUI interface. The command line interface supports the following commands:

Command	Shortcut	Description
--help	-h	Prints help and copyright information
--list-devices	-l	Lists USB devices suitable for use as rescue sticks
--create	-c	Creates the rescue USB stick. Takes the path to the iso file (-i) and a device number (-d) as mandatory arguments. -f and -q are optional arguments to suppress the confirmation prompt and progress output respectively.

USB rescue stick creation begins by listing compatible USB devices with the --list-devices command. The tool will search for suitable devices and print their details in the console. This will display device numbers which are used to specify which device this tool should target.

The rescue USB stick will be created with the --create command. The path to the iso file containing the rescue media image and the target device number can respectively be used as the --iso and --device arguments to --create. A confirmation prompt may appear to confirm the selection because this process overwrites data already on the USB stick.

The optional parameters --force and --quiet are intended for use in non-interactive environments and are implied if the tool output is redirected into a file.

Alternatively, the '**Rescue USB Builder**' can be launched with a GUI by double-clicking on the '**RescueUsbBuilder_x64.exe**' file:

Rescue USB Builder　　　　　　　　　　　　　　　✕

Rescue media images created by Site Manager are not compatible with all third party flashing tools. Use this tool to create USB rescue media. Note that this tool is only compatible with iso files created by Site Manager 8.

Site Manager Rescue Media Image

[   ]　　[Browse]

Rescue USB Drive　　　　　　　　　　　　　　　　　⟳

Description	Drive
☑ KingstonDataTraveler 3.0 - E: - 28.87 GB	E:\

Progress

[   ]

　　　　　　　　　　　　　　　[Create]　[Exit]