Administrator's Guide for Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0

MDOP Information Experience Team

Guide

Microsoft

Administrator's Guide for Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0

MDOP Information Experience Team

Summary: Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0 lets you diagnose and repair a computer that cannot be started or that has problems starting as expected. By using DaRT 8.0, you can recover end-user computers that have become unusable, diagnose probable causes of issues, and quickly repair unbootable or locked-out computers. When it is necessary, you can also quickly restore important lost files and detect and remove malware, even when the computer is not online.

DaRT 8.0 lets you create a DaRT recovery image in International Organization for Standardization (ISO) and Windows Imaging (WIM) file formats and burn the image to a CD, DVD, or USB. You can then use the recovery image files and deploy them locally or to a remote partition or a recovery partition.

DaRT 8.0 is an important part of the Microsoft Desktop Optimization Pack (MDOP), a dynamic solution available to Software Assurance customers that helps reduce software installation costs, enables delivery of applications as services, and helps manage and control enterprise desktop environments.

Microsoft

Contents

Getting Started with DaRT 8.0

Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0 requires thorough planning before you deploy it or use its features. If you are new to this product, we recommend that you read the documentation carefully. Before you deploy the product to a production environment, we also recommend that you validate your deployment plan in a test network environment. You might also consider taking a class about relevant technologies. For more information about Microsoft training opportunities, see the Microsoft Training Overview at http://go.microsoft.com/fwlink/p/?LinkId=80347.

📝 **Note**

> A downloadable version of this document and the DaRT 8.0 Evaluation Guide can be downloaded from http://go.microsoft.com/fwlink/?LinkId=267420.

Getting started with DaRT 8.0

* About DaRT 8.0

  Provides information specifically related to DaRT, including what is new in DaRT 8.0.
* Overview of the Tools in DaRT 8.0

  Describes the tools in DaRT 8.0.
* Accessibility for DaRT 8.0

  Provides information about features and services that make this product and its corresponding documentation more accessible for people with disabilities.

About DaRT 8.0

Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0 helps you troubleshoot and repair Windows-based desktops. This includes those desktops that cannot be started. DaRT 8.0 is a powerful set of tools that extend the Windows Recovery Environment (WinRE). By using DaRT, you can analyze an issue to determine its cause, for example, by inspecting the computer's event log or system registry.

DaRT also provides tools to help you fix a problem as soon as you determine the cause. For example, you can use the tools in DaRT to disable a faulty device driver, remove hotfixes, restore deleted files, and scan the computer for malware even when you cannot or should not start the installed Windows operating system.

DaRT can help you quickly recover computers that are running either 32-bit or 64-bit versions of Windows 8, typically in less time than it would take to reimage the computer.

Functionality in DaRT lets you create a recovery image. The recovery image starts Windows Recovery Environment (Windows RE), from which you can start the **Diagnostics and Recovery Toolset** window and access the DaRT tools.

Use the **DaRT Recovery Image Wizard** to create the DaRT recovery image. By default, the wizard creates an International Organization for Standardization (ISO) image file and a Windows Imaging Format (WIM) file and let you burn the image to a CD, DVD, or USB. You can deploy the image locally at end user's computers, or you can deploy it from a remote network partition or a recovery partition on the local hard drive.

What's new in DaRT 8.0

DaRT 8.0 can help you quickly recover computers that are running either 32-bit or 64-bit versions of Windows 8, typically in less time than it would take to reimage the computer. DaRT 8.0 has the following new features.

Create DaRT images by using Windows 8 or Windows Server 2012

DaRT 8.0 enables you to create DaRT images using either Windows® 8 or Windows Server® 2012. For versions of Windows earlier than Windows 8 and Windows Server 2012, customers should continue to use earlier versions of DaRT.

Generate both 32- and 64-bit images from one computer

DaRT 8.0 enables you to generate both 32-bit and 64-bit images from a single computer that is running DaRT, regardless of whether the computer is a 32-bit or 64-bit computer. In DaRT 7, the image that was created had to be the same, bit-wise, as the computer that was running DaRT.

Create one image that supports computers that have either a BIOS or UEFI interface

DaRT 8.0's support for both the Unified Extensible Firmware Interface (UEFI) and BIOS interfaces enables you to create just one image that works with computers that have either interface.

Use a GUID partition table (GPT) for partitioning

DaRT 8.0 tools now support Windows 8 GPT disks, which provide a more flexible mechanism for partitioning disks than the older master boot record (MBR) partitioning scheme. DaRT 8.0 tools continue to support MBR partitioning.

Install Windows 8 and Windows Server 2012 on the local hard disk

DaRT 8.0 tools can be used only when Windows 8 and Windows Server 2012 are installed on the local hard disk. Currently, there is no support for Windows To Go.

DaRT 8.0 release notes

For more information, and for late-breaking news that did not make it into the documentation, see the Release Notes for DaRT 8.0.

Overview of the Tools in DaRT 8.0

From the **Diagnostics and Recovery Toolset** window in Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0, you can start any of the individual tools that you include when you create the DaRT 8.0 recovery image. For information about how to access the **Diagnostics and Recovery Toolset** window, see [How to Recover Local Computers by Using the DaRT Recovery Image](#).

If it is available, you can use the **Solution Wizard** on the **Diagnostics and Recovery Toolset** window to select the tool that best addresses your particular issue, based on a brief interview that the wizard provides.

Exploring the DaRT tools

A description of the DaRT 8.0 tools follows.

Computer Management

Computer Management is a collection of Windows administrative tools that help you troubleshoot a problem computer. You can use the **Computer Management** tools in DaRT to view system information and event logs, manage disks, list autoruns, and manage services and drivers. The **Computer Management** console is customized to help you diagnose and repair problems that might be preventing the Windows operating system from starting.

Crash Analyzer

Use the **Crash Analyzer Wizard** to quickly determine the cause of a computer failure by analyzing the memory dump file on the Windows operating system that you are repairing. **Crash Analyzer** examines the memory dump file for the driver that caused a computer to fail. You can then disable the problem device driver by using the **Services and Drivers** node in the **Computer Management** tool.

The **Crash Analyzer Wizard** requires the Debugging Tools for Windows and symbol files for the operating system that you are repairing. You can include both requirements when you create the DaRT recovery image. If they are not included on the recovery image and you do not have access to them on the computer that you are repairing, you can copy the memory dump file to another computer and use the stand-alone version of **Crash Analyzer** to diagnose the problem.

Running **Crash Analyzer** is a good idea even if you plan to reimage the computer. The image could have a defective driver that is causing problems in your environment. By running **Crash Analyzer**, you can identify problem drivers and improve the image stability.

For more information about **Crash Analyzer**, see [Diagnosing System Failures with Crash Analyzer](#).

Defender

Defender can help detect malware and unwanted software and warn you of security risks. You can use this tool to scan a computer for and remove malware even when the installed Windows operating system is not running. When **Defender** detects malicious or unwanted software, it prompts you to remove, quarantine, or allow for each item.

Malware that uses rootkits can mask itself from the running operating system. If a rootkit-enabled virus or spyware is in a computer, most real-time scanning and removal tools can no longer see it or remove it. Because you boot the problem computer into DaRT and the installed operating system is offline, you can detect the rootkit without it being able to mask itself.

Disk Commander

Disk Commander lets you recover and repair disk partitions or volumes by using one of the following recovery processes:

- Restore the master boot record (MBR)
- Recover one or more lost volumes
- Restore partition tables from **Disk Commander** backup
- Save partition tables to **Disk Commander** backup

⚠️ **Warning**

We recommend that you back up a disk before you use **Disk Commander** to repair it. By using **Disk Commander**, you can potentially damage volumes and make them inaccessible. Additionally, changes to one volume can affect other volumes because volumes on a disk share a partition table.

Disk Wipe

You can use **Disk Wipe** to delete all data from a disk or volume, even the data that is left behind after you reformat a hard disk drive. **Disk Wipe** lets you select from either a single-pass overwrite or a four-pass overwrite, which meets current U.S. Department of Defense standards.

⚠️ **Warning**

After wiping a disk or volume, you cannot recover the data. Verify the size and label of a volume before erasing it.

Explorer

The **Explorer** tool lets you browse the computer's file system and network shares so that you can remove important data that the user stored on the local drive before you try to repair or reimage the computer. And because you can map drive letters to network shares, you can easily copy and move files from the computer to the network for safekeeping or from the network to the computer to restore them.

File Restore

File Restore lets you try to restore files that were accidentally deleted or that were too big to fit in the Recycle Bin. **File Restore** is not limited to regular disk volumes, but can find and restore files on lost volumes or on volumes that are encrypted by BitLocker.

File Search

Before reimaging a computer, recovering files from the local hard disk is important, especially when the user might not have backed up or stored the files elsewhere.

The **Search** tool opens a **File Search** window that you can use to find documents when you do not know the file path or to search for general kinds of files across all local hard disks. You can search for specific file-name patterns in specific paths. You can also limit results to a date range or size range.

Hotfix Uninstall

The **Hotfix Uninstall Wizard** lets you remove hotfixes or service packs from the Windows operating system on the computer that you are repairing. Use this tool when a hotfix or service pack is suspected in preventing the operating system from starting.

We recommend that you uninstall only one hotfix at a time, even though the tool lets you uninstall more than one.

⬥ **Important**
Programs that were installed or updated after a hotfix was installed might not work correctly after you uninstall a hotfix.

Locksmith

The **Locksmith Wizard** lets you set or change the password for any local account on the Windows operating system that you are analyzing or repairing. You do not have to know the current password. However, the password that you set must comply with any requirements that are defined by a local Group Policy Object. This includes password length and complexity.

You can use **Locksmith** when the password for a local account, such as the local Administrator account, is unknown. You cannot use **Locksmith** to set passwords for domain accounts.

Registry Editor

You can use **Registry Editor** to access and change the registry of the Windows operating system that you are analyzing or repairing. This includes adding, removing, and editing keys and values, and importing registry (.reg) files.

⚠ **Warning**
Serious problems can occur if you change the registry incorrectly by using **Registry Editor**. These problems might require you to reinstall the operating system. Before you make changes to the registry, you should back up any valued data on the computer. Change the registry at your own risk.

SFC Scan

The **SFC Scan** tool starts the **System File Repair Wizard** and lets you repair system files that are preventing the installed Windows operating system from starting. The **System File Repair Wizard** can automatically repair system files that are corrupted or missing, or it can prompt you before it performs any repairs.

Solution Wizard

The **Solution Wizard** presents a series of questions and then recommends the best tool for the situation, based on your answers. This wizard helps you determine which tool to use when you are not familiar with the tools in DaRT.

TCP/IP Config

When you boot a problem computer into DaRT, it is set to automatically obtain its TCP/IP configuration (IP address and DNS server) from Dynamic Host Configuration Protocol (DHCP). If DHCP is unavailable, you can manually configure TCP/IP by using the **TCP/IP Config** tool. You first select a network adapter, and then configure the IP address and DNS server for that adapter.

Accessibility for DaRT 8.0

Microsoft is committed to making its products and services easier for everyone to use. This section provides information about features and services that make this product and its corresponding documentation more accessible for people with disabilities.

Access any command with a few keystrokes

Access keys let you quickly use a command by pressing a few keys. You can get to most commands by using two keystrokes. To use an access key:

1. Press ALT.

   The keyboard shortcuts are displayed over each feature that is available in the current view.

2. Press the letter shown in the keyboard shortcut over the feature that you want to use.

📝 **Note**

   To cancel the action that you are taking and hide the keyboard shortcuts, press ALT.

Documentation in alternative formats

If you have difficulty reading or handling printed materials, you can obtain the documentation for many Microsoft products in more accessible formats. You can view an index of accessible product documentation on the Microsoft Accessibility website. In addition, you can obtain additional Microsoft publications from Learning Ally (formerly Recording for the Blind & Dyslexic, Inc.). Learning Ally distributes these documents to registered, eligible members of their distribution service.

For information about the availability of Microsoft product documentation and books from Microsoft Press, contact:

Learning Ally (formerly Recording for the Blind & Dyslexic, Inc.) 20 Roszel Road Princeton, NJ 08540	

Telephone number from within the United States:	(800) 221-4792
Telephone number from outside the United States and Canada:	(609) 452-0606
Fax:	(609) 987-8116
http://www.learningally.org/	Web addresses can change, so you might be unable to connect to the website or sites mentioned here.

Customer service for people with hearing impairments

If you are deaf or hard-of-hearing, complete access to Microsoft product and customer services is available through a text telephone (TTY/TDD) service:

- For customer service, contact Microsoft Sales Information Center at (800) 892-5234 between 6:30 AM and 5:30 PM Pacific Time, Monday through Friday, excluding holidays.
- For technical assistance in the United States, contact Microsoft Product Support Services at (800) 892-5234 between 6:00 AM and 6:00 PM Pacific Time, Monday through Friday, excluding holidays. In Canada, dial (905) 568-9641 between 8:00 AM and 8:00 PM Eastern Time, Monday through Friday, excluding holidays.

Microsoft Support Services are subject to the prices, terms, and conditions in place at the time the service is used.

For more information

For more information about how accessible technology for computers helps to improve the lives of people with disabilities, see the Microsoft Accessibility website.

Planning for DaRT 8.0

The goal of deployment planning is to successfully and efficiently deploy Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0 so that it does not disrupt your users or the network.

Before you deploy DaRT 8.0, you should consider the different deployment configurations and prerequisites. This section includes information that can help you gather the information to formulate a deployment plan that best meets your business requirements.

Planning information

- Planning to Deploy DaRT 8.0

   There are several deployment configurations and prerequisites that you must consider before you create your deployment plan. This section includes information that can help you gather

the information that you must have to formulate a deployment plan that best meets your business requirements.

- [DaRT 8.0 Planning Checklist](#)

  This checklist can assist you in preparing your computing environment for the DaRT deployment.

Planning to Deploy DaRT 8.0

You should consider all of the different deployment configurations and prerequisites before you create your deployment plan. This section includes information that can help you gather the information that you must have to formulate a deployment plan that best meets your business requirements.

Review the Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0 software prerequisites and supported configurations

After preparing your computing environment for DaRT 8.0 installation, make sure that you review the prerequisite software to install and the supported configurations to confirm that the selected computers for the installation meet the minimum hardware and operating system requirements. For information about prerequisites that you need to consider to create the DaRT recovery image, see [Planning to Create the DaRT 8.0 Recovery Image](#).

[DaRT 8.0 Supported Configurations](#)

Plan for creating the DaRT 8.0 recovery image

Before you start to create the DaRT recovery image, you need to consider possible security issues, the tools that you want to include on the recovery image, and the prerequisite software that you need to install.

[Planning to Create the DaRT 8.0 Recovery Image](#)

Plan how to save and deploy the DaRT recovery image

There are several methods that you can use to save and deploy the DaRT recovery image. Before you start to create the recovery image, review the advantages and disadvantages of each method and consider how you want to use DaRT in your enterprise.

[Planning How to Save and Deploy the DaRT 8.0 Recovery Image](#)

DaRT 8.0 Supported Configurations

This topic specifies the prerequisite software and supported configurations requirements that are necessary to install and run Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0 in your environment. Both the operating system requirements and the system requirements that are required to run DaRT 8.0 are specified. For information about prerequisites that you need to consider to create the DaRT recovery image, see [Planning to Create the DaRT 8.0 Recovery Image](#).

You can install DaRT in one of two ways. You can install all functionality on an IT administrator computer, where you will perform all the tasks associated with running DaRT. Alternatively, you can install, on the administrator computer, only the DaRT functionality that creates the recovery image, and then install the functionality used to run DaRT (that is, the DaRT Remote Connection Viewer) on a help desk computer.

DaRT 8.0 prerequisite software

Make sure that the following prerequisites are met before you install DaRT.

Administrator computer prerequisites

The following table lists the installation prerequisites for the administrator computer when you are installing DaRT 8.0 and all of the DaRT tools.

Prerequisite	Details
Windows Assessment and Development Kit (ADK)	Required for the DaRT Recovery Image wizard. Contains the Deployment Tools, which are used to customize, deploy, and service Windows images, and contains the Windows Preinstallation Environment (Windows PE). The ADK is not required if you are installing only the Remote Connection Viewer and/or Crash Analyzer.
.NET Framework 4.5	Required by the DaRT Recovery Image wizard.
Windows Development Kit OR Software Development Kit (optional)	Crash Analyzer requires the Windows 8 Debugging Tools from the Windows Driver Kit to analyze memory dump files.
Windows 8 64-bit ISO image	DaRT requires the Windows Recovery Environment (Windows RE) image from the Windows 8 media. Download the 32-bit or 64-bit version of Windows 8, depending on the type of DaRT recovery image you want to create. If you support both system types in your environment, download both versions of Windows 8.

Help desk computer prerequisites

The following table lists the installation prerequisites for the help desk computer when you are running the DaRT 8.0 Remote Connection Viewer.

Prerequisite	Details
DaRT 8.0 Remote Connection Viewer	Must be installed on a Windows 8 operating system.
NET Framework 4.5	Required by the DaRT Recovery Image wizard
Debugging Tools for Windows	Required only if you are installing the Crash Analyzer tool

End-user computer prerequisites

There is no prerequisite software that must be installed on end-user computers, other than the Windows 8 operating system.

DaRT operating system requirements

Administrator computer system requirements

The following table lists the operating systems that are supported for the DaRT administrator computer installation.

📝 **Note**

Make sure that you allocate enough space for any additional tools that you want to install on the administrator computer.

📝 **Note**

Microsoft provides support for the current service pack and, in some cases, the immediately preceding service pack. To find the support timelines for your product, see the Lifecycle Supported Service Packs. For additional information about Microsoft Support Lifecycle Policy, see Microsoft Support Lifecycle Support Policy FAQ.

Operating System	Edition	Service Pack	System Architecture	Operating System Requirements	RAM Requirement for Running DaRT
Windows 8	All editions	N/A	64-bit	2 GB	2.5 GB
Windows 8	All editions	N/A	32-bit	1 GB	1.5 GB
Windows Server 2012	Standard, Enterprise, Data Center	N/A	64-bit	512 MB	1 .0 GB

DaRT help desk computer system requirements

If you allow a help desk to remotely troubleshoot computers, you must have the Remote Connection Viewer installed on the help desk computer. You can optionally install the Crash Analyzer tool on the help desk computer.

DaRT 8.0 enables a help desk worker to connect to a DaRT 8.0 computer by using either the DaRT 7.0 or DaRT 8.0 Remote Connection Viewer. The DaRT 7.0 Remote Connection Viewer requires a Windows 7 operating system, while the DaRT 8.0 Remote Connection Viewer requires Windows 8. The DaRT 8.0 Remote Connection Viewer and all other DaRT 8.0 tools can be installed only on a computer running Windows 8.

The following table lists the operating systems that are supported for the DaRT help desk computer installation.

Operating System	Edition	Service Pack	System Architecture	Operating System Requirements	RAM Requirements for Running DaRT
Windows 8	All editions	N/A	64-bit	2 GB	2.5 GB
Windows 8 (with Remote Connection Viewer 8.0 only)	All editions	N/A	32-bit	1 GB	1.5 GB
Windows 7 (with Remote Connection Viewer 7.0 only)	All editions	SP1, SP2	64-bit or 32-bit	1 GB	N/A
Windows Server 2012	Standard, Enterprise, Data Center	N/A	64-bit	51	1.0 GB

DaRT also has the following minimum hardware requirements for the end-user computer:

A CD or DVD drive or a USB port - required only if you are deploying DaRT in your enterprise by using a CD, DVD, or USB.

BIOS support for starting the computer from a CD or DVD, a USB flash drive, or from a remote or recovery partition.

DaRT end-user computer system requirements

The Diagnostics and Recovery Toolset window in DaRT requires that the end-user computer use one of the following operating systems together with the specified amount of system memory available for DaRT:

Operating System	Edition	Service Pack	System Architecture	Operating System Requirements	RAM Requirements
Windows 8	All editions	N/A	64-bit	2 GB	2.5 GB
Windows 8	All editions	N/A	32-bit	1 GB	1.5 GB
Windows Server 2012	Standard, Enterprise, Data Center	N/A	64-bit	512 MB	1.0 GB

Planning to Create the DaRT 8.0 Recovery Image

Use the information in this section when you are planning to create the Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0 recovery image.

Planning to create the DaRT 8.0 recovery image

When you create the DaRT recovery image, you have to decide which tools to include on the image. To make the decision, consider that end users may have access to those tools. If support engineers will take the recovery image media to end users' computers to diagnose issues, you may want to install all of the tools on the recovery image. If you plan to diagnose end user's computers remotely, you may want to disable some of the tools, such as Disk Wipe and Registry Editor, and then enable other tools, including Remote Connection.

When you create the DaRT recovery image, you will also specify whether you want to include additional drivers or files. Determine the locations of any additional drivers or files that you want to include on the DaRT recovery image.

For more information about the DaRT tools, see Overview of the Tools in DaRT 8.0. For more information about how to help create a secure recovery image, see Security Considerations for DaRT 8.0.

Prerequisites for the recovery image

The following items are required or recommended for creating the DaRT recovery image:

Prerequisite	Details
Windows 8 source files	Required to create the DaRT recovery image. Provide the path of a Windows 8 DVD or of Windows 8 source files.
Windows Debugging Tools for your platform	Required when you run the **Crash Analyzer** to determine the cause of a computer failure. We recommend that you specify the path of the Windows Debugging Tools at the time that you create the DaRT recovery image. You can

	download the Windows Debugging Tools here: [Download and Install Debugging Tools for Windows]().
Optional: **Defender** definitions	The latest definitions for **Defender** are required when you run **Defender**. Although you can download the definitions when you run **Defender**, we recommend that you download the latest definitions at the time you create the DaRT recovery image so that you can still run the tool with the latest definitions even if the problem computer does not have network connectivity.
Optional: Windows symbols files for use with **Crash Analyzer**	Typically, debugging information is stored in a symbol file that is separate from the program. You must have access to the symbol information when you debug an application that has stopped responding, for example, if it stopped working. For more information, see [Diagnosing System Failures with Crash Analyzer]().

Planning How to Save and Deploy the DaRT 8.0 Recovery Image

You can save and deploy the Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0 recovery image by using the following methods. When you are determining the method that you will use, consider the advantages and disadvantages of each. You should also consider your infrastructure and support staff. If you have a small infrastructure, you might want to deploy DaRT 8.0 by using removable media, since the recovery image will always be available if you install it to the local hard drive.

If your organization uses Active Directory Domain Services (AD DS), you may want to deploy recovery images as a network service by using Windows DS. Recovery images are always available to any connected computer. You can deploy multiple images from Windows DS and maintain them all in one place.

📝 **Note**
> You may want to use more than one method in your organization. For example, you can boot into DaRT from a remote partition for most situations and have a USB flash drive available in case the end-user computer cannot connect to the network.

The following table shows some advantages and disadvantages of each method of using DaRT in your organization.

Method to Boot into DaRT	Advantages	Disadvantages
Removable Media The recovery image is written to a CD, DVD, or USB drive to enable support staff to take the recovery tools with them to the unstable computer.	Supports scenarios in which the master boot record (MBR) is corrupted and you cannot access the hard disk and supports cases in which there is no network connection. Enables you to create multiple recovery images with different tools to provide different levels of support. Provides a built-in tool for burning recovery images to removable media.	Requires that support staff are physically at the end-user computer to boot into DaRT. Requires time and maintenance to create multiple media with different configurations for 32-bit and 64-bit computers.
From a remote (network) partition The recovery image is hosted on a network boot server like Windows Deployment Services (Windows DS), which allows users or support staff to stream it to computers on demand.	Available to all computers that have access to the network boot server. Recovery images are hosted on a central server, which enables centralized updates. Centralized help desk staff can provide repairs by using remote connectivity. No local storage requirement on the clients. Ability to create multiple recovery images with different tools for specific support levels.	The need to secure Windows DS infrastructure to ensure that regular users can start only the DaRT recovery image and not the full operating system imaging process. Requires that the end-user computer is connected to the network at runtime. Requires that the recovery image is brought across the network.
From a recovery partition on the local hard drive The recovery image is installed on a local hard drive either manually or by using electronic software distribution systems like System Center Configuration Manager.	The recovery image is always available because it is pre-staged on the computer. Centralized help desk staff can provide support by using Remote Connection. The recovery image is centrally managed and deployed. Additional recovery key	Local storage is required. A dedicated, unencrypted partition for recovery image placement is recommended to reduce the risk of a failed boot partition. When updating DaRT, you must update all computers in your enterprise instead of just one partition (on the network)

Method to Boot into DaRT	Advantages	Disadvantages
	requests on computers that are protected by Windows BitLocker drive encryption are eliminated.	or removable device. Additional consideration is required if you deploy the recovery image after BitLocker has been enabled.

DaRT 8.0 Planning Checklist

This checklist can be used to help you plan for preparing your computing environment for Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0 deployment.

📝 **Note**

This checklist outlines the recommended steps and a high-level list of items to consider when planning for product deployment. It is recommended that you copy this checklist into a spreadsheet program and customize it for your use.

	Task	References
☐	Review the DaRT 8.0 Supported Configurations information to confirm that the computers you have selected for client or feature installation meet the minimum hardware and operating system requirements.	DaRT 8.0 Supported Configurations
☐	Understand the deployment prerequisites and decide which tools to include on the DaRT recovery image.	Planning to Create the DaRT 8.0 Recovery Image
☐	Determine which method, or methods, you will use to deploy the DaRT recovery image.	Planning How to Save and Deploy the DaRT 8.0 Recovery Image

Deploying DaRT 8.0

Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0 supports a number of different deployment configurations. This section includes information you should consider about the deployment of DaRT 8.0 and step-by-step procedures to help you successfully perform the tasks that you must complete at different stages of your deployment.

Deployment Information

-

    This section describes the different DaRT deployment options for your requirements and explains how to deploy them.

-

    This section describes the methods you can use to create the DaRT recovery image and provides instructions to create the recovery image by using the DaRT Recovery Image wizard.

-

    This section provides information to help you decide on the best DaRT recovery image deployment option for your requirements and provides instructions on how to deploy the recovery image.

-

    This section contains a deployment checklist that can help you to deploy DaRT.

Deploying DaRT 8.0 to Administrator Computers

Before you begin the deployment of Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0, review the requirements for your environment. This includes the hardware requirements for installing DaRT 8.0. For more information about DaRT hardware and software requirements, see [DaRT 8.0 Supported Configurations](#).

The topics in this section can be used to help you deploy DaRT in your enterprise based on your environment and deployment strategy.

Deploy DaRT 8.0

You can use the Windows Installer file for DaRT to install DaRT on a computer that you will use to first create the DaRT recovery image and then troubleshoot and fix end-user computers. Frequently, across an organization, you might install on the administrator computer only the DaRT functionality that you need to create a DaRT recovery image. Then, on a help desk administrator's computer, you might install only the DaRT functionality that you must have to troubleshoot a problem computer, such as the DaRT Remote Connection Viewer and the Crash Analyzer.

In addition to manually running the Windows Installer file to install DaRT, you can also install DaRT at the command prompt to support enterprise software deployment systems such as System Center Configuration Manager 2012.

Change, repair, or remove DaRT 8.0

You can change, repair, or remove the DaRT installation by double-clicking the DaRT installation file and then clicking the button that corresponds to the action that you want to perform or through the Windows Control Panel.

[How to Change, Repair, or Remove DaRT 8.0](#)

How to Deploy DaRT 8.0

The following instructions explain how to deploy Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0 in your environment. It is assumed that you are installing all functionality on one administrator computer. If you need to deploy or uninstall DaRT 8.0 on multiple computers, using an electronic software distribution system, for example, it might be easier to use command line installation options. Descriptions and examples of the available command line options are provided in this section.

🔷 **Important**

Before you install DaRT, see [DaRT 8.0 Supported Configurations](#) to ensure that you have installed all of the prerequisite software and that the computer meets the minimum system requirements. The computer onto which you install DaRT must be running Windows 8 or Windows Server 2012.

You can install DaRT using one of two different configurations:

- Install DaRT and all of the DaRT tools on the administrator computer.

- Install on the administrator computer only the tools that you need to create the DaRT recovery image, and then install the **Remote Connection Viewer** and, optionally, **Crash Analyzer** on a help desk computer.

The DaRT installation file is available in both 32-bit and 64-bit versions. Install the version that matches the architecture of the computer on which you are running the DaRT Recovery Image wizard, not the computer architecture of the recovery image that you are creating.

You can use either version of the DaRT installation file to create a recovery image for either 32-bit or 64-bit computers, but you cannot create one recovery image for both 32-bit and 64-bit computers.

▶ **To install DaRT and all DaRT tools on an administrator computer**

1. Download the 32-bit or 64-bit version of the DaRT 8.0 installer file. Choose the architecture that matches the computer on which you are installing DaRT and running the DaRT Recovery Image wizard.

2. From the folder into which you downloaded DaRT 8.0, run the **MSDaRT80.msi** installation file that corresponds to your system requirements.

3. On the **Welcome to the Microsoft DaRT 8.0 Setup Wizard** page, click **Next**.

4. Accept the Microsoft Software License Terms, and then click **Next**.

5. On the **Microsoft Update** page, select **Use Microsoft Update when I check for updates**, and then click **Next**.

6. On the **Select Installation Folder** page, select a folder, or click **Next** to install DaRT in the default installation location.

7. On the **Setup Options** page, select the DaRT features that you want to install, or click **Next** to install DaRT with all of the features.

8. To start the installation, click **Install**.

9. After the installation has completed successfully, click **Finish** to exit the wizard.

To install DaRT and all DaRT tools on an administrator computer by using a command prompt

When you install or uninstall DaRT, you have the option of running the installation files at the command prompt. This section describes some examples of different options that you can specify when you install or uninstall DaRT at the command prompt.

The following example shows how to install all DaRT functionality.

```
msiexec /i MSDaRT80.msi ADDLOCAL=CommonFiles,
DaRTRecoveryImage,CrashAnalyzer,RemoteViewer
```

The following example shows how to install only the DaRT Recovery Image wizard.

```
msiexec /i MSDaRT80.msi ADDLOCAL=CommonFiles, ,DaRTRecoveryImage
```

The following example shows how to install only the Crash Analyzer and the DaRT Remote Connection Viewer.

```
msiexec /i MSDaRT80.msi ADDLOCAL=CommonFiles,CrashAnalyzer,RemoteViewer
```

The following example creates a setup log for the Windows Installer. This is valuable for debugging.

```
msiexec.exe /i MSDaRT80.msi /l*v log.txt
```

📝 **Note**
You can add /qn or /qb to perform a silent installation.

▶**To validate the DaRT installation**

1. Click **Start**, and select **Diagnostics and Recovery Toolset**.
   The **Diagnostics and Recovery Toolset** window opens.

2. Check that all of the DaRT tools that you selected for installation were successfully installed.

How to Change, Repair, or Remove DaRT 8.0

You can change, repair, or remove the Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0 installation by double-clicking the DaRT 8.0 installation file and then clicking the button that corresponds to the action that you want to perform.

You can also change, repair, or remove the DaRT installation using the Windows Control Panel by completing the following steps.

To change, repair, or remove DaRT

1. Click **Start**, and then click **Control Panel**.
2. On **Control Panel**, navigate to the feature that lets you uninstall programs.
3. Click **Microsoft Diagnostics and Recovery Toolset 8.0**, and then click the button that corresponds to the action that you want to perform.

Creating the DaRT 8.0 Recovery Image

After installing Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0, you create a DaRT 8.0 recovery image. The recovery image starts Windows RE, from which you can then start the DaRT tools. You can generate International Organization for Standardization (ISO) files and Windows Imaging Format (WIM) images. In addition, you can use PowerShell to generate scripts that use the settings you select in the DaRT Recovery Image wizard. You can use the script later to rebuild recovery images by using the same settings. The recovery image provides a variety of recovery tools. For a description of the tools, see Overview of the Tools in DaRT 8.0.

After you boot the computer into DaRT, you can run the different DaRT tools to try to diagnose and repair the computer. This section walks you through the process of creating the DaRT recovery image and lets you select the tools and features that you want to include as part of the image.

You can create the DaRT recovery image by using either of two methods:

- Use the DaRT Recovery Image wizard, which runs in a Windows environment.
- Modify an example PowerShell script with the values you want. For more information, see How to Use a PowerShell Script to Create the Recovery Image.

You can write the ISO to a recordable CD or DVD, save it to a USB flash drive, or save it in a format that you can use to boot into DaRT from a remote partition or from a recovery partition.

Once you have created the ISO image, you can burn it onto a blank CD or DVD (if your computer has a CD or DVD drive). If your computer does not have a drive for this purpose, you can use most generic programs that are used to burn CDs or DVDs.

Select the image architecture and specify the path

On the Windows 8 Media page, you select whether to create a 32-bit or 64-bit DaRT recovery image. Use the 32-bit Windows to build 32-bit DaRT recovery images, and 64-bit Windows to build 64-bit DaRT recovery images. You can use a single computer to create recovery images for both architecture types, but you cannot create one image that works on both 32-bit and 64-bit

architectures. You also indicate the path of the Windows 8 installation media. Choose the architecture that matches the one of the recovery image that you are creating.

▶ **To select the image architecture and specify the path**

1. On the **Windows 8 Media** page, select one of the following:

   - If you are creating a recovery image for 64-bit computers, select **Create x64 (64-bit) DaRT image**.
   - If you are creating a recovery image for 32-bit computers, select **Create x86 (32-bit) DaRT image**.

2. In the **Specify the root path of the Windows 8 <64-bit or 32-bit> install media** box, type the path of the Windows 8 installation files. Use a path that matches the architecture of the recovery image that you are creating.

3. Click **Next**.

Select the tools to include on the recovery image

On the Tools page, you can select numerous tools to include on the recovery image. These tools will be available to end users when they boot into the DaRT image. However, if you enable remote connectivity when creating the DaRT image, all of the tools will be available when a help desk worker connects to the end user's computer, regardless of which tools you chose to include on the image.

To restrict end-user access to these tools, but still retain full access to the tools through the Remote Connection Viewer, do not select those tools on the Tools page. End users will be able to use only Remote Connection and will be able to see, but not access, any tools that you exclude from the recovery image.

▶ **To select the tools to include on the recovery image**

1. On the **Tools** page, select the check box beside each tool that you want to include on the image.

2. Click **Next**.

Choose whether to allow remote connectivity by a help desk

On the Remote Connection page, you can choose to enable a help desk worker to remotely connect to and run the DaRT tools on an end user's computer. The remote connectivity option is then shown as an available option in the Diagnostics and Recovery Toolset window. After help desk workers establish a remote connection, they can run the DaRT tools on the end-user computer from a remote location.

To choose whether to allow remote connectivity by help desk workers

1. On the **Remote Connection** page, select the **Allow remote connections** check box to allow remote connections, or clear the check box to prevent remote connections.

2. If you cleared the **Allow remote connections** check box, click **Next**. Otherwise, go to the next step to continue configuring remote connectivity.

3. Select one of the following:

   • Let Windows choose an open port number.

   • Specify the port number. If you select this option, enter a port number between 1 and 65535 in the field beneath the option. This port number will be used when establishing a remote connection. We recommend that the port number be 1024 or higher to minimize the possibility of a conflict.

4. (Optional) in the **Remote connection welcome** message box, create a customized message that end users receive when they establish a remote connection. The message can be a maximum of 2048 characters.

5. Click **Next**.

   For more information about running the DaRT tools remotely, see How to Recover Remote Computers by Using the DaRT Recovery Image.

Add drivers to the recovery image

On the Drivers tab of the Advanced Options page, you can add additional device drivers that you may need when repairing a computer. These may typically include storage or network controllers that Windows 8 does not provide. Drivers are installed when the image is created.

Important

When you select drivers to include, be aware that wireless connectivity (such as Bluetooth or 802.11a/b/g/n) is not supported in DaRT.

►**To add drivers to the recovery image**

1. On the **Advanced Options** page, click the **Drivers** tab.

2. Click **Add**.

3. Browse to the file to be added for the driver, and then click **Open**.

   Note

   The driver file is provided by the manufacturer of the storage or network controller.

4. Repeat Steps 2 and 3 for every driver that you want to include.

5. Click **Next**.

Add WinPE optional packages to the recovery image

On the WinPE tab of the Advanced Options page, you can add WinPE optional packages to the DaRT image. These packages are part of the Windows ADK, which is an installation prerequisite for the DaRT Recovery Image wizard. The tools that you can select are all optional. Any required packages are added automatically, based on the tools you selected on the Tools page.

You can also specify the size of the scratch space. Scratch space is the amount of RAM disk space that is set aside for DaRT to run. The scratch space is useful in case the end user's hard disk is not available. If you are running additional tools and drivers, you may want to increase the scratch space.

▶ **To add WinPE optional packages to the recovery image**

1. On the **Advanced Options** page, click the **WinPE** tab.
2. Select the check box beside each package that you want to include on the image, or click the **Name** check box to select all of the packages.
3. In the **Scratch Space** field, select the amount of RAM disk space to allocate for running DaRT in case the end user's hard disk is not available.
4. Click **Next**.

Add the debugging tools for Crash Analyzer

If you include the Crash Analyzer tool in the ISO image, you must also include the Debugging Tools for Windows. On the Crash Analyzer tab of the Advanced Options page, you enter the path of the Windows 8 Debugging Tools, which Crash Analyzer uses to analyze memory dump files. You can use the tools that are on the computer where you are running the DaRT Recovery Image wizard, or you can use the tools that are on the end-user computer. If you decide to use the tools on the end-user computer, remember that every computer that you diagnose must have the Debugging Tools installed.

If you installed the Microsoft Windows Software Development Kit (SDK) or the Microsoft Windows Development Kit (WDK), the Windows 8 Debugging Tools are added to the recovery image by default, and the path to the Debugging Tools is automatically filled in. You can change the path of the Windows 8 Debugging Tools if the files are located somewhere other than the location indicated by the default file path. A link in the wizard lets you download and install debugging tools for Windows if they are not already installed.

To download the Windows Debugging Tools, see [Debugging Tools for Windows](). Install the Debugging Tools to the default location.

📝 **Note**

The DaRT wizard checks for the tools in the `HKLM\Software\Microsoft\Windows Kits\Installed Roots\WindowsDebuggersRoot` registry key. If the registry value is not there, the wizard looks in one of the following locations, depending on your system architecture:

`%ProgramFilesX86%\Windows Kits\8.0\Debuggers\x64`

`%ProgramFilesX86%\Windows Kits\8.0\Debuggers\x86`

To add the debugging tools for Crash Analyzer

1. On the **Advanced Options** page, click the **Crash Analyzer** tab.

2. (Optional) Click **Download the Debugging Tools** to download the Debugging Tools for Windows.

3. Select one of the following options:

    - **Include the Windows 8 <64-bit or 32-bit> Debugging Tools**. If you select this option, browse to and select the location of the tools if the path is not already displaying.

    - **Use the Debugging Tools from the system that is being debugged**. If you select this option, the Crash Analyzer will not work if the Debugging Tools for Windows are not found on the problem computer.

4. Click **Next**.

Add definitions for the Defender tool

On the Defender tab of the Advanced Options page, you add definitions, which are used by the Defender tool to determine whether software that is trying to install, run, or change settings on a computer is unwanted or malicious software.

To add definitions for the Defender tool

1. On the **Advanced Options** page, click the **Defender** tab.

2. Select one of the following options:

    - **Download the latest definitions (Recommended)** – The definition update starts automatically, and the definitions are added to the DaRT recovery image. This option is recommended to help you avoid cases where the definitions might not be available. You must be connected to the Internet to download the definitions.

    - **Download the definitions later** – Definitions will not be included in the DaRT recovery image, and you will need to download the definitions from the computer that is running DaRT.

       If you decide not to include the latest definitions on the recovery image, or if the definitions included on the recovery image are no longer current by the time that you are ready to use Defender, obtain the latest definitions before you begin a scan by following the instructions that are provided in Defender.

       Important
       You cannot scan if there are no definitions.

3. Click **Next**.

Select the types of recovery image files to create

On the Create Image page, you choose an output folder for the recovery image, enter an image name, and select the types of DaRT recovery image files to create. During the recovery image creation process, Windows source files are unpacked, DaRT files are copied to it, and the image is then "re-packed" into the file formats that you select on this page.

The available image file types are:

- **Windows Imaging File (WIM)** - used to deploy DaRT to a preboot execution environment (PXE) or local partition).

- **International Standards Organization (ISO)** – used to deploy to CD or DVD, or for use in virtual machines (VM)s). The wizard requires that the ISO image have an .iso file name extension because most programs that burn a CD or DVD require that extension. If you do not specify a different location, the ISO image is created on your desktop with the name DaRT8.ISO.

- **PowerShell script** – creates a DaRT recovery image with commands that provide essentially the same options that you can select by using the DaRT Recovery Image wizard. The script also enables you to add or changes files in the DaRT recovery image.

If you select the Edit Image check box on this page, you can customize the recovery image during the image creation process. For example, you can change the "winpeshl.ini" file to create a custom startup order or to add third-party tools.

▶ **To select the types of recovery image files to create**

1. On the **Create Image** page, click **Browse** to choose the output folder for the image file.

   📝 **Note**
   The size of the image will vary, depending on the tools that you select and the files that you add in the wizard.

2. In the **Image name** box, enter a name for the DaRT recovery image, or accept the default name, which is DaRT8.

   The wizard creates a subfolder in the output path by this name.

3. Select the types of image files that you want to create.

4. Choose one of the following:

   - To change the files in the recovery image before you create the image files, select the **Edit Image** check box, and then click **Prepare**.

   - To create the recovery image without changing the files, click **Create**.

5. Click **Next**.

Edit the recovery image files

You can edit the recovery image only if you selected the Edit Image check box on the Create Image page. After the recovery image has been prepared for editing, you can add and modify the recovery image files before creating the bootable media. For example, you can create a custom order for startup, add various third-party tools, and so on.

1. On the **Edit Image** page, click **Open** in Windows Explorer.
2. Create a subfolder in the folder that is listed in the dialog box.
3. Copy the files that you want to the new subfolder, or remove files that you don't want.
4. Click **Create** to start creating the recovery image.

Generate the recovery image files

On the Generate Files page, the DaRT recovery image is generated for the file types that you selected on the Create Image page.

▶**To generate the recovery image files**

- On the **Generate Files** page, click **Next** to generate the recovery image files.

Copy the recovery image to a CD, DVD, or USB

On the Create Bootable Media page, you can optionally copy the image file to a CD, DVD, or USB flash drive (UFD). You can also create additional bootable media from this page by restarting the wizard.

📝 **Note**

The Preboot execution environment (PXE) and local image deployment are not supported natively by this tool since they require additional enterprise tools, such as System Center Configuration Manager server and Microsoft Development Toolkit.

▶**To copy the recovery image to a CD, DVD, or USB**

1. On the **Create Bootable Media** page, select the iso file that you want to copy.
2. Insert a CD, DVD, or USB, and then select the drive.

    📝 **Note**

    If a drive is not recognized and you install a new drive, you can click **Refresh** to force the wizard to update the list of available drives.

3. Click the **Create Bootable Media** button.
4. To create another recovery image, click Restart, or click **Close** if you have finished creating all of the media that you want.

Deploying the DaRT Recovery Image

After you have created the International Organization for Standardization (ISO) file that contains the Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0 recovery image, you can deploy the DaRT 8.0 recovery image throughout your enterprise so that it is available to end users and help desk workers. There are four supported methods that you can use to deploy the DaRT recovery

image. To review the advantages and disadvantages of each method, see [Planning How to Save and Deploy the DaRT 8.0 Recovery Image](#).

- Burn the ISO image file to a CD or DVD by using the DaRT Recovery Image wizard.

- Save the contents of the ISO image file to a USB Flash Drive (UFD) by using the DaRT Recovery Image wizard.

- Extract the boot.wim file from the ISO image and deploy as a remote partition that is available to end-user computers.

- Extract the boot.wim file from the ISO image and deploy in the recovery partition of a new Windows 8 installation.

⚠ **Important**

The **DaRT Recovery Image Wizard** provides the option to burn the image to a CD, DVD or UFD, but the other methods of saving and deploying the recovery image require additional steps that involve tools that are not included in DaRT. Some guidance and links for these other methods are provided in this section.

Deploy the DaRT recovery image as part of a recovery partition

After you have finished running the DaRT Recovery Image wizard and created the recovery image, you can extract the boot.wim file from the ISO image file and deploy it as a recovery partition in a Windows 8 image.

How to Deploy the DaRT Recovery Image as Part of a Recovery Partition

Deploy the DaRT recovery image as a remote partition

You can host the recovery image on a central network boot server, such as Windows Deployment Services, and allow users or support staff to stream the image to computers on demand.

[How to Deploy the DaRT Recovery Image as a Remote Partition](#)

How to Deploy the DaRT Recovery Image as Part of a Recovery Partition

After you have finished running the Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0 Recovery Image wizard and created the recovery image, you can extract the boot.wim file from the ISO image file and deploy it as a recovery partition in a Windows 8 image. A partition is recommended, because any corruption issues that prevent the Windows operating system from starting would also prevent the recovery image from starting. A separate partition also eliminates the need to provide the BitLocker recovery key twice. Consider hiding the partition to prevent users from storing files on it.

▶ **To deploy DaRT in the recovery partition of a Windows 8 image**

1. Create a target partition in your Windows 8 image that is equal to or greater than the size of the ISO image file that you created by using the **DaRT 8.0 Recovery Image wizard**.

   The minimum size required for a DaRT partition is 500MB to accommodate the remote

connection functionality in DaRT.

2. Extract the boot.wim file from the DaRT ISO image file.

   a. Using your company's preferred method, mount the ISO image file that you created on the **Create Startup Image** page.

   b. Open the ISO image file and copy the boot.wim file from the \sources folder in the mounted image to a location on your computer or on an external drive.

      📝 **Note**

      If you burned a CD, DVD, or USB of the recovery image, you can open the files on the removable media and copy the boot.wim file from the \sources folder. If you copy boot.wim file, you don't need to mount the image.

3. Use the boot.wim file to create a bootable recovery partition by using your company's standard method for creating a custom Windows RE image.

   For more information about how to create or customize a recovery partition, see Customizing the Windows RE Experience.

4. Replace the target partition in your Windows 8 image with the recovery partition.

   For more information about how to deploy a recovery solution to reinstall the factory image in the event of a system failure, see Deploy a System Recovery Image.

How to Deploy the DaRT Recovery Image as a Remote Partition

After you have finished running the Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0 Recovery Image wizard and created the recovery image, you can extract the boot.wim file from the ISO image file and deploy it as a remote partition on the network.

▶**To deploy DaRT 8.0 as a remote partition**

1. Extract the boot.wim file from the DaRT ISO image file.

   a. Mount the ISO image file that you created in the **Create Startup Image** dialog box by using your company's preferred method of mounting an image.

   b. Open the ISO image file and copy the boot.wim file from the \sources folder in the mounted image to a location on your computer or on an external drive.

      📝 **Note**

      If you burned a CD or DVD of the recovery image, you can open the files on the CD or DVD and copy the boot.wim file from the \sources folder. This lets you skip the need to mount the image.

2. Deploy the boot.wim file to a WDS server that can be accessed from end-user computers in your enterprise.

3. Configure the WDS server to use the boot.wim file for DaRT by following your standard WDS deployment procedures.

For more information about how to deploy DaRT as a remote partition, see [Walkthrough: Deploy an Image by Using PXE](#) and [Windows Deployment Services Getting Started Guide](#).

DaRT 8.0 Deployment Checklist

This checklist can be used to help you during Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0 deployment.

📝 **Note**

This checklist outlines the recommended steps and a high-level list of items to consider when planning for product deployment. It is recommended that you copy this checklist into a spreadsheet program and customize it for your use.

	Task	References
☐	Decide on the best DaRT 8.0 deployment option for your requirements and deploy it.	[Deploying DaRT 8.0 to Administrator Computers](#)
☐	Use the DaRT Recovery Image wizard to create the DaRT recovery image ISO.	[Creating the DaRT 8.0 Recovery Image](#)
☐	Decide on the best DaRT 8.0 recovery image deployment option for your requirements and deploy it.	[Deploying the DaRT Recovery Image](#)

Operations for DaRT 8.0

This section includes information about the various types of Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0 administration and operating tasks that are typically performed by an administrator. This section also includes step-by-step procedures to help you successfully perform those tasks.

Operations information

- [Recovering Computers Using DaRT 8.0](#)

  This section provides instructions on how to use DaRT 8.0 to recover local or remote computers by using the DaRT recovery image.

- [Diagnosing System Failures with Crash Analyzer](#)

  This section explains how to open and run the Crash Analyzer on either an end-user or non-end-user computer to debug a memory dump file and then diagnose computer errors.

- [Security and Privacy for DaRT 8.0](#)

This section describes measures for maintaining security while using DaRT.

- [Administering DaRT 8.0 Using PowerShell](#)

  This section lists the Windows PowerShell commands that administrators can use to perform various DaRT tasks.

Recovering Computers Using DaRT 8.0

After deploying the Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0 recovery image, you can use DaRT 8.0 to recover computers. The information in this section describes the recovery tasks that you can perform.

You have several different methods to choose from to boot into DaRT, depending on how you deploy the DaRT recovery image.

- Insert a DaRT recovery image CD, DVD, or USB flash drive into the problem computer and use it to boot into the computer.
- Boot into DaRT from a recovery partition on the problem computer.
- Boot into DaRT from a remote partition on the network.

For information about the advantages and disadvantages of each method, see [Planning How to Save and Deploy the DaRT 8.0 Recovery Image](#).

Whichever method that you use to boot into DaRT, you must enable the boot device in the BIOS for the boot option or options that you want to make available to the end user.

📝 **Note**

Configuring the BIOS is unique, depending on the kind of hard disk drive, network adapters, and other hardware that is used in your organization.

Recover a local computer by using the DaRT recovery image

To recover a local computer by using DaRT, you must be physically present at the end-user computer that is experiencing problems that require DaRT.

[How to Recover Local Computers by Using the DaRT Recovery Image](#)

Recover a remote computer by using the DaRT recovery image

The Remote Connection feature in DaRT lets an IT administrator run the DaRT tools remotely on an end-user computer. After certain information is provided by the end user (or by a help desk professional working on the end-user computer), the IT administrator or help desk worker can take control of the end user's computer and run the necessary DaRT tools remotely.

🔵 **Important**

The two computers establishing a remote connection must be part of the same network.

The **Diagnostics and Recovery Toolset** window includes the option to run DaRT on an end-user computer remotely from an administrator computer. The end user opens the DaRT tools on the problem computer and starts the remote session by clicking **Remote Connection**.

The Remote Connection feature on the end-user computer creates the following connection information: a ticket number, a port, and a list of all available IP addresses. The ticket number and port are generated randomly.

The IT administrator or help desk worker enters this information into the **DaRT Remote Connection Viewer** to establish the terminal services connection to the end-user computer. The terminal services connection that is established lets an IT administrator remotely interact with the DaRT tools on the end-user computer. The end-user computer then processes the connection information, shares its screen, and responds to instructions from the IT administrator computer.

[How to Recover Remote Computers by Using the DaRT Recovery Image](#)

How to Recover Local Computers by Using the DaRT Recovery Image

Use these instructions to recover a computer when you are physically present at the end-user computer that is experiencing problems.

▶**How to recover a local computer by using the DaRT recovery image**

1. Boot the end-user computer by using the Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0 recovery image.

    As the computer is booting into the DaRT 8.0 recovery image, the **NetStart** dialog box appears.

2. When you are asked whether you want to initialize network services, select one of the following:

    Yes - it is assumed that a DHCP server is present on the network, and an attempt is made to obtain an IP address from the server. If the network uses static IP addresses instead of DHCP, you can later use the **TCP/IP Configuration** tool in DaRT to specify a static IP address.

    No - skip the network initialization process.

3. Indicate whether you want to remap the drive letters. When you run Windows online, the system volume is typically mapped to drive C. However, when you run Windows offline under WinRE, the original system volume might be mapped to another drive, and this can cause confusion. If you decide to remap, DaRT tries to map the offline drive letters to match the online drive letters. Remapping is performed only if an offline operating system is selected later in the startup process.

4. On the **System Recovery Options** dialog box, select a keyboard layout.

5. Check the displayed system root directory, the kind of operating system installed, and the partition size. If you do not see your operating system listed, and suspect that the lack of drivers is a possible cause of the failure, click **Load Drivers** to load the suspect drivers, and then insert the installation media for the device and select the driver.

6. Select the installation that you want to repair or diagnose, and then click **Next**.

> If the Windows Recovery Environment (WinRE) detects or suspects that Windows 8 did not start correctly the last time that it was tried, **Startup Repair** might start to run automatically.

If any of the registry hives are corrupted or missing, Registry Editor and several other DaRT utilities will have limited functionality. If no operating system is selected, some tools will not be available.

The **System Recovery Options** window appears and lists various recovery tools.

7. On the **System Recovery Options** window, click **Microsoft Diagnostics and Recovery Toolset**.

The **Diagnostics and Recovery Toolset** window opens. You can now run any of the individual tools or wizards that were included when the DaRT recovery image was created.

You can click **Help** on the **Diagnostics and Recovery Toolset** window to open the client Help file that provides detailed instruction and information needed to run the individual DaRT tools. You can also click the **Solution Wizard** on the **Diagnostics and Recovery Toolset** window to choose the best tool for the situation, based on a brief interview that the wizard provides.

For general information about any of the DaRT tools, see Overview of the Tools in DaRT 8.0.

▶ **How to run DaRT at the command prompt**

- To run DaRT at the command prompt, specify the **netstart.exe** command then use any of the following parameters:

Parameter	Description
-network	Initializes the network services.
-remount	Remaps the drive letters.
-prompt	Displays messages that ask the end user to specify whether to initialize the network and remap the drives. ⚠️ **Warning** The end user's response to the prompt overrides the –network and –remount switches.

How to Recover Remote Computers by Using the DaRT Recovery Image

Use the Remote Connection feature in Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0 to run the DaRT tools remotely on an end-user computer. After the end user provides the

administrator or help desk worker with certain information, the IT administrator or help desk worker can take control of the end user's computer and run the necessary DaRT tools remotely.

If you disabled the DaRT tools when you created the recovery image, you still have access to all of the tools. All of the tools, except Remote Connection, are unavailable to end users.

▶ **To recover a remote computer by using the DaRT recovery image**

1. Boot an end-user computer by using the DaRT recovery image.

   You will typically use one of the following methods to boot into DaRT to recover a remote computer, depending on how you deploy the DaRT recovery image. For more information about deploying the DaRT recovery image, see Deploying DaRT 8.0.

   - Boot into DaRT from a recovery partition on the problem computer.
   - Boot into DaRT from a remote partition on the network.

   For information about the advantages and disadvantages of each method, see Planning How to Save and Deploy the DaRT 8.0 Recovery Image.

   Whichever method that you use to boot into DaRT, you must enable the boot device in the BIOS for the boot option or options that you want to make available to the end user.

   📝 **Note**

   Configuring the BIOS is unique, depending on the kind of hard disk drive, network adapters, and other hardware that is used in your organization.

   As the computer is booting into the DaRT recovery image, the **NetStart** dialog box appears.

2. When you are asked whether you want to initialize network services, select one of the following:

   Yes - it is assumed that a DHCP server is present on the network, and an attempt is made to obtain an IP address from the server. If the network uses static IP addresses instead of DHCP, you can later use the **TCP/IP Configuration** tool in DaRT to specify a static IP address.

   No - skip the network initialization process.

3. Indicate whether you want to remap the drive letters. When you run Windows online, the system volume is typically mapped to drive C. However, when you run Windows offline under WinRE, the original system volume might be mapped to another drive, and this can cause confusion. If you decide to remap, DaRT tries to map the offline drive letters to match the online drive letters. Remapping is performed only if an offline operating system is selected later in the startup process.

4. On the **System Recovery Options** dialog box, select a keyboard layout.

5. Check the displayed system root directory, the kind of operating system installed, and the partition size. If you do not see your operating system listed, and suspect that the lack of drivers is a possible cause of the failure, click **Load Drivers** to load the suspect drivers, and then insert the installation media for the device and select the driver.

6. Select the installation that you want to repair or diagnose, and then click **Next**.

   📝 **Note**

   If the Windows Recovery Environment (WinRE) detects or suspects that Windows 8 did not start correctly the last time that it was tried, **Startup Repair** might start to run automatically. For information about how to resolve this issue, see Troubleshooting DaRT 8.0.

   If any of the registry hives are corrupted or missing, Registry Editor and several other DaRT utilities will have limited functionality. If no operating system is selected, some tools will not be available.

   The **System Recovery Options** window appears and lists various recovery tools.

7. On the **System Recovery Options** window, click **Microsoft Diagnostics and Recovery Toolset** to open the **Diagnostics and Recovery Toolset**.

8. On the **Diagnostics and Recovery Toolset** window, click **Remote Connection** to open the **DaRT Remote Connection** window. If you are prompted to give the help desk remote access, click **OK**.

   The DaRT Remote Connection window opens and displays a ticket number, IP address, and port information.

9. On the help desk computer, open the **DaRT Remote Connection Viewer**.

10. Click **Start**, click **All Programs**, click **Microsoft DaRT 8.0**, and then click **DaRT Remote Connection Viewer**.

11. In the **DaRT Remote Connection** window, enter the required ticket, IP address, and port information.

    📝 **Note**

    This information is created on the end-user computer and must be provided by the end user. There might be multiple IP addresses to choose from, depending on how many are available on the end-user computer.

12. Click **Connect**.

The IT administrator now assumes control of the end-user computer and can run the DaRT tools remotely.

📝 **Note**

A file is provided that is named inv32.xml and contains remote connection information, such as the port number and IP address. By default, the file is typically located at %windir%\system32.

▶**To customize the Remote Connection process**

- You can customize the Remote Connection process by editing the winpeshl.ini file. For more information about how to edit the winpeshl.ini file, see Winpeshl.ini Files.

  Specify the following commands and parameters to customize how a remote connection is established with an end-user computer:

Command	Parameter	Description
RemoteRecovery.exe	-nomessage	Specifies that the confirmation prompt is not displayed. **Remote Connection** continues just as if the end user had responded "Yes" to the confirmation prompt.
WaitForConnection.exe	none	Prevents a custom script from continuing until either **Remote Connection** is not running or a valid connection is established with the end-user computer. 💠 **Important** This command serves no function if it is specified independently. It must be specified in a script to function correctly.

- The following is an example of a winpeshl.ini file that is customized to open the **Remote Connection** tool as soon as an attempt is made to boot into DaRT:

```
[LaunchApps]
"%windir%\system32\netstart.exe -network -remount"
"cmd /C start %windir%\system32\RemoteRecovery.exe -
nomessage"
"%windir%\system32\WaitForConnection.exe"
"%SYSTEMDRIVE%\sources\recovery\recenv.exe"
```

When DaRT starts, it creates the file inv32.xml in \Windows\System32\ on the RAM disk. This file contains connection information: IP address, port, and ticket number. You can copy this file to a network share to trigger a Help desk workflow. For example, a custom program can check the network share for connection files, and then create a support ticket or send email notifications.

▶**To run the Remote Connection Viewer at the command prompt**

- To run the **DaRT Remote Connection Viewer** at the command prompt, specify the **DartRemoteViewer.exe** command and use the following parameters:

Parameter	Description
-ticket=<*ticketnumber*>	Where <*ticketnumber*> is the ticket number, including the dashes, that is generated by Remote Connection.
-ipaddress=<*ipaddress*>	Where <*ipaddress*> is the IP address that is generated by Remote Connection.
-port=<*port*>	Where <*port*> is the port that corresponds to the specified IP address.

📝 **Note**
> The variables for these parameters are created on the end-user computer and must be provided by the end user.

- If all three parameters are specified and the data is valid, a connection is immediately tried when the program starts. If any parameter is not valid, the program starts as if there were no parameters specified.

Diagnosing System Failures with Crash Analyzer

The **Crash Analyzer** in Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0 lets you debug a memory dump file on a Windows-based computer and then diagnose any related computer errors. The **Crash Analyzer** uses the Microsoft Debugging Tools for Windows to examine a memory dump file for the driver that caused the computer to fail. You can run the Crash Analyzer on an end-user computer or in stand-alone mode on a computer other than an end-user computer.

Run the Crash Analyzer on an end-user-computer

Typically, you run **Crash Analyzer** from the **Diagnostics and Recovery Toolset** window on an end-user computer that is experiencing the problem. The **Crash Analyzer** tries to locate the Debugging Tools for Windows on the problem computer. If the directory path dialog box is empty, you must enter the location, or browse to the location of the Debugging Tools for Windows (you can download the files from Microsoft). You must also provide a path to where the symbol files are located.

If you included the Microsoft Debugging Tools for Windows and the symbol files when you created the DaRT 8.0 recovery image, the Tools and symbol files should be available when you run the **Crash Analyzer** on the problem computer. If you did not include them in the DaRT recovery image, or if disk size or network connectivity problems are preventing you from obtaining them, you can alternatively run the Crash Analyzer in stand-alone mode on a computer other than the end user's computer, as described in the following section.

[How to Run the Crash Analyzer on an End-user Computer](#)

Run the Crash Analyzer in stand-alone mode on a computer other than an end user's computer

Although you typically run **Crash Analyzer** on the end-user computer that is experiencing the problem, you can also run the Crash Analyzer in stand-alone mode, on a computer other than an end-user computer. You might choose this option if you did not include the Windows Debugging Tools in the DaRT recovery image, or if disk size or network connectivity problems are preventing you from obtaining the Debugging Tools. In this case, you can copy the dump file from the problem computer and analyze it on a computer that has the stand-alone version of **Crash Analyzer** installed, such as on a help desk agent's computer.

[How to Run the Crash Analyzer in Stand-alone Mode on a Computer Other than an End-user Computer](#)

How to ensure that Crash Analyzer can access symbol files

To debug applications that have stopped responding, you need access to the symbol file, which is separate from the program. Although symbol files are automatically downloaded when you run Crash Analyzer, there might be times when the problem computer does not have access to the Internet. There are several ways to ensure that you have guaranteed access to symbol files.

[How to Ensure that Crash Analyzer Can Access Symbol Files](#)

How to Run the Crash Analyzer on an End-user Computer

To run **Crash Analyzer** from the **Diagnostics and Recovery Toolset** window on an end-user computer that is experiencing problems, you must have the Microsoft Debugging Tools for Windows and the symbol files installed. To download the Windows Debugging Tools, see [Debugging Tools for Windows](#).

▶ **To run the Crash Analyzer on an end-user computer**

1. On the **Diagnostics and Recovery Toolset** window on an end-user computer, click **Crash Analyzer**.
2. Provide the required information for the Microsoft Debugging Tools for Windows.
3. Provide the required information for the symbol files. For more information about symbol files, see [How to Ensure that Crash Analyzer Can Access Symbol Files](#).

4. Provide the required information for a memory dump file. To determine the location of the memory dump file:
   a. Open the **System Properties** window.
   b. Click **Start**, type **sysdm.cpl**, and then press **Enter**.
   c. Click the **Advanced** tab.
   d. In the **Startup and Recovery** area, click **Settings**.

      If you do not have access to the **System Properties** window, you can search for

dump files on the end-user computer by using the **Search** tool in Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0.

The **Crash Analyzer** scans the memory dump file and reports a probable cause of the problem. You can view more information about the failure, such as the specific memory dump message and description, the drivers loaded at the time of the failure, and the full output of the analysis.

5. Identify the appropriate strategy to resolve the problem. The strategy may require disabling or updating the device driver that caused the failure by using the **Services and Drivers** node of the **Computer Management** tool in DaRT 8.0.

How to Run the Crash Analyzer in Stand-alone Mode on a Computer Other than an End-user Computer

If you cannot access the Microsoft Debugging Tools for Windows or the symbol files on the end-user computer, you can copy the dump file from the problem computer and analyze it on a computer that has the stand-alone version of Crash Analyzer installed, such as a help desk computer that contains Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0.

To run Crash Analyzer in stand-alone mode, you copy the memory dump file from the problem computer and analyze it on another computer, such as a help desk computer, that has the **Crash Analyzer** installed.

▶**To run the Crash Analyzer in stand-alone mode**

1. On a computer that has DaRT 8.0 installed, click **Start**, type **Crash Analyzer**, and then click **Crash Analyzer**.
2. Follow the steps in the wizard, as described in How to Run the Crash Analyzer on an End-user Computer.

How to Ensure that Crash Analyzer Can Access Symbol Files

Typically, debugging information is stored in a symbol file that is separate from the program. You must have access to the symbol information when you debug an application that has stopped responding.

Symbol files are automatically downloaded when you run **Crash Analyzer**. If the computer does not have an Internet connection or the network requires the computer to access an HTTP proxy server, the symbol files cannot be downloaded.

▶**To ensure that Crash Analyzer can access symbol files**

*   **Copy the dump file to another computer.** If the symbols cannot be downloaded because of a lack of an Internet connection, copy the memory dump file to a computer that does have an Internet connection and run the stand-alone **Crash Analyzer Wizard** on that computer.

- **Access the symbol files from another computer.** If the symbols cannot be downloaded because of a lack of an Internet connection, you can download the symbols from a computer that does have an Internet connection and then copy them to the computer that does not have an Internet connection, or you can map a network drive to a location where the symbols are available on the local network. If you run the **Crash Analyzer** in a Windows Recovery Environment (Windows RE), you can include the symbol files on the Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0 recovery image.

- **Access symbol files through an HTTP proxy server.** If the symbols cannot be downloaded because an HTTP proxy server must be accessed, use the following steps to access an HTTP proxy server. In DaRT 8.0, the **Crash Analyzer Wizard** has a setting available on the **Specify Symbol Files Location** dialog page, marked with the label **Proxy server (optional, using the format "server:port")**. You can use this text box to specify a proxy server. Enter the proxy address in the form **<hostname>:<port>**, where the <**hostname**> is a DNS name or IP address, and the <**port**> is a TCP port number, usually 80. There are two modes in which the **Crash Analyzer** can be run. Following is how you use the proxy setting in each of these modes:

  - **Online mode:** In this mode, if the proxy server field is left blank, the wizard uses the proxy settings from Internet Options in Control Panel. If you enter a proxy address in the text box which is provided, that address will be used, and it will override the setting in the Internet Options.

  - Windows Recovery Environment (Windows RE): When you run **Crash Analyzer** from the **Diagnostics and Recovery Toolset** window, there is no default proxy address. If the computer is directly connected to the Internet, a proxy address is not required. Therefore, you can leave this field blank in the wizard setting. If the computer is not directly connected to the Internet, and it is in a network environment that has a proxy server, you must set the proxy field in the wizard to access the symbol store. The proxy address can be obtained from the network administrator. Setting the proxy server is important only when the public symbol store is connected to the Internet. If the symbols are already on the DaRT recovery image, or if they are available locally, setting the proxy server is not required.

Security and Privacy for DaRT 8.0

Use the following information to help you plan for security and privacy considerations in Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0.

Security considerations for DaRT 8.0

There are several security-related considerations that you should plan for when deploying and using DaRT in your environment. The information in this section provides a brief overview about the security-related considerations for DaRT.

Security Considerations for DaRT 8.0

Privacy considerations for DaRT 8.0

The information in this section explains many of the data collection and use practices of DaRT.

DaRT 8.0 Privacy Statement

Security Considerations for DaRT 8.0

This topic contains a brief overview about the accounts and groups, log files, and other security-related considerations for Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0. For more information, follow the links within this article.

General security considerations

Understand the security risks. DaRT 8.0 includes functionality that lets an administrator or a help desk worker run the DaRT tools remotely to resolve problems on an end-user computer. In addition, you can save the International Organization for Standardization (ISO) image to a USB flash drive or put the ISO image on a network to include its contents as a recovery partition on a computer's hard disk. These capabilities provide flexibility, but also create potential security risks that you should consider when configuring DaRT.

Physically secure your computers. When administrators and help desk workers are not physically at their computers, they should lock their computers and use a secured screen saver.

Apply the most recent security updates to all computers. Stay informed about new updates for operating systems by subscribing to the Security Notification service (http://go.microsoft.com/fwlink/?LinkId=28819).

Limit end-user access to DaRT tools

When you are creating the DaRT recovery image, you can select the tools that you want to include. For security reasons, you might want to restrict end-user access to the more powerful DaRT tools, such as Disk Wipe and Locksmith. In DaRT 8.0, you can disable certain tools during configuration and still make them available to help desk workers when the end user starts the Remote Connection feature.

You can even configure the DaRT image so that the option to start a remote connection session is the only tool available to an end user.

> 💠 **Important**
>
> After the remote connection is established, all the tools that you included in the recovery image, including those unavailable to the end user, will become available to any help desk worker who is working on the end–user computer.

For more information about including tools in the DaRT recovery image, see Overview of the Tools in DaRT 8.0.

Secure the DaRT recovery image

If you deploy the DaRT recovery image by saving it to a USB flash drive or by creating a remote partition or a recovery partition, you might want to include your company's preferred method of drive encryption on the ISO. Encrypting the ISO helps to ensure that end users cannot use DaRT

functionality if they were to gain access to the recovery image, and it ensures that unauthorized users cannot boot into DaRT on computers that belong to someone else. If you use an encryption method, be sure to deploy and enable it in all computers.

Note

DaRT 8.0 supports BitLocker natively.

To include drive encryption, add the encryption solution files when you create the recovery image. Your encryption solution must be able to run on WinPE. End users who boot from the ISO are then able to access that encryption solution and unblock the drive.

Maintain security between two computers when you use Remote Connection

By default, the communication between two computers that have established a **Remote Connection** session may not be encrypted. Therefore, to help maintain security between the two computers, we recommend that both computers are a part of the same network.

DaRT 8.0 Privacy Statement

For the DaRT 8.0 Privacy Statement, see http://go.microsoft.com/fwlink/?LinkId=272927 on TechNet.

Administering DaRT 8.0 Using PowerShell

Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0 lets you use PowerShell commands to complete various DaRT 8.0 administrative tasks or to create the DaRT recovery image.

Perform DaRT tasks by using PowerShell commands

DaRT 8.0 provides four PowerShell commands that let you do the following:

- Burn an ISO to a CD, DVD, or USB drive.
- Allow the source WIM file, which contains a DaRT image, to be converted into an ISO file.
- Create a DaRT configuration object that is needed to apply a DaRT toolset to a Windows Image.
- Apply a DartConfiguration object to a mounted Windows Image.

How to Perform DaRT Tasks by Using PowerShell Commands

Use a PowerShell script to create the recovery image

Rather than use the DaRT Recovery Image wizard to create the recovery image, you can use a PowerShell script and specify the parameters you want.

How to Use a PowerShell Script to Create the Recovery Image

How to Perform DaRT Tasks by Using PowerShell Commands

Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0 provides the following listed set of Windows PowerShell cmdlets. Administrators can use these PowerShell cmdlets to perform various DaRT 8.0 server tasks from the command prompt rather than from the DaRT Recovery Image wizard.

To administer DaRT by using PowerShell commands

Use the PowerShell cmdlets described here to administer DaRT.

Name	Description
Copy-DartImage	Burns an ISO to a CD, DVD, or USB drive.
Export-DartImage	Allows the source WIM file, which contains a DaRT image, to be converted into an ISO file.
New-DartConfiguration	Creates a DaRT configuration object that is needed to apply a DaRT toolset to a Windows Image.
Set-DartImage	Applies a DartConfiguration object to a mounted Windows Image. This includes adding all files, configuration, and package dependencies.

How to Use a PowerShell Script to Create the Recovery Image

To create the DaRT recovery image by using a PowerShell script

You can create the Microsoft Diagnostics and Recovery Toolset (DaRT) 8.0 recovery image by using a PowerShell script instead of using the DaRT 8.0 Recovery Image wizard. See the following example script.

```
This script was auto generated by the Microsoft DaRT Recovery Image Wizard.
###
This script uses the DISM and DaRT PowerShell commands to create a bootable DaRT image.
###Both a WIM and ISO file are produced.
###
### Examples of how to burn/copy the DaRT ISO to DVD/USB are available at the end of this
script.
###
$ErrorActionPreference = "Stop";
### This variable tells PowerShell to stop if an error occurs.
```

```
###
### Import the modules necessary for DaRT Image creation.
###
Import-Module "Dism"
mport-Module "Microsoft.Dart"

###
### Specifies where the Windows 8 media is located and where the ISO and WIM files will
be saved.
### These can be changed as necessary.
###
$Win8MediaPath = "D:\";
### This is the path of the Windows 8 media.
$DestinationWimPath = "C:\Users\Administrator\Desktop\DaRT8\x64\boot.wim";
### Specify where the WIM file will be saved.
$DestinationIsoPath = "C:\Users\Administrator\Desktop\DaRT8\x64\DaRT8.iso";
### Specify where the ISO will be saved.

###
### These variables are used to specify temporary and output directories based on the
paths above.
###
$WimParentPath = (Split-Path -Path "$destinationWimPath" -Parent);
### Specify the directory where the DaRT WIM file will be saved.
$IsoParentPath = (Split-Path -Path "$destinationIsoPath" -Parent);
### This is the directory where the DaRT ISO file will be saved.
$TempMountPath = "$env:temp\DaRT8Mount_$(Get-Random)";
### Specify the temporary directory used to mount the Windows image.

###
### Prepare the windows image.
###
### Guarantee the output directories exists.
New-Item -Path $WimParentPath -Type Directory -Force
New-Item -Path $IsoParentPath -Type Directory -Force
New-Item -Path $TempMountPath -Type Directory -Force

### Create a copy of the WIM and remove the read-only attribute.
### The WIM file will be the resulting dart image.
Copy-Item "$Win8MediaPath\sources\boot.wim" $DestinationWimPath -Force
Set-ItemProperty $DestinationWimPath -Name IsReadOnly -Value $false

### Mount the bootable image within the WIM file (normally index 2).
Mount-WindowsImage -ImagePath $DestinationWimPath -Path $TempMountPath -Index 2
```

```
###
### Add additional drivers to the image.
###
###
### Installs the specified driver(s) into the image.
###
Add-WindowsDriver -Path $TempMountPath -Driver
"C:\Windows\System32\DriverStore\FileRepository
\xusb22.inf_amd64_89c20c625f14f923\xusb22.inf" -ForceUnsigned
###
### Add additional drivers to the image.
###
###
### Installs the specified WinPE package(s) into the image.
###
Add-WindowsPackage -Path $TempMountPath -PackagePath "C:\Program Files (x86)\Windows
Kits\8.0\Assessment and Deployment Kit\Windows Preinstallation
Environment\amd64\WinPE_OCs\WinPE-Scripting.cab"
Add-WindowsPackage -Path $TempMountPath -PackagePath "C:\Program Files (x86)\Windows
Kits\8.0\Assessment and Deployment Kit\Windows Preinstallation
Environment\amd64\WinPE_OCs\WinPE-FMAPI.cab"
Add-WindowsPackage -Path $TempMountPath -PackagePath "C:\Program Files (x86)\Windows
Kits\8.0\Assessment and Deployment Kit\Windows Preinstallation
Environment\amd64\WinPE_OCs\en-us\WinPE-Scripting_en-us.cab"
Add-WindowsPackage -Path $TempMountPath -PackagePath "C:\Program Files (x86)\Windows
Kits\8.0\Assessment and Deployment Kit\Windows Preinstallation
Environment\amd64\WinPE_OCs\WinPE-HTA.cab"
Add-WindowsPackage -Path $TempMountPath -PackagePath "C:\Program Files (x86)\Windows
Kits\8.0\Assessment and Deployment Kit\Windows Preinstallation
Environment\amd64\WinPE_OCs\en-us\WinPE-HTA_en-us.cab"
###
### Add the DaRT tools to the image.
### The New-DartConfiguration cmdlet is used to specify how the DaRT image is configured.
### Modify this statement to configure how the DaRT tools will be applied to the image.
###
$config = New-DartConfiguration -AddComputerManagement -AddCrashAnalyzer -AddDefender -
AddDiskCommander -AddExplorer -AddFileRestore -AddFileSearch -AddHotfixUninstall -
AddRegistryEditor -AddRemoteConnection -AddSfcScan -AddSolutionWizard -AddTcpConfig -
RemoteMessage "Test welcome message" -RemotePort 3388 -ScratchSpace 512 -UpdateDefender
$config | Set-DartImage -Path $TempMountPath
```

```
###
### Perform any manual user-specific customizations here.
###
# Read-Host -Prompt "Script is paused for any manual customization. Press ENTER to
continue"
### Save the changes to the WIM file by dismounting the image.
Dismount-WindowsImage -Path $TempMountPath -Save

### Create a bootable DaRT ISO.
Export-DartImage -IsoPath $DestinationIsoPath -WimPath $DestinationWimPath

### The following is an example of how to burn the ISO to a writeable CD/DVD.
### Specify the correct drive letter and uncomment the statement to burn an ISO.
# Copy-DartImage -IsoPath $DestinationIsoPath -Drive "G:" -Type DVD

### Removes all temporary files.
Remove-Item $TempMountPath -Force -Recurse
```

Troubleshooting DaRT 8.0

Troubleshooting content is not included in the Administrator's Guide for this product. Instead, you can find troubleshooting information for this product on the TechNet Wiki.

How to find troubleshooting content

You can use the following information to find troubleshooting or additional technical content for this product.

Search the MDOP documentation

The first step to find help content in the Administrator's Guide is to search the MDOP documentation on TechNet.

After you search the MDOP documentation, your next step would be to search the troubleshooting information for the product in the TechNet Wiki.

▶ **To search the MDOP product documentation**

1. Use a web browser to navigate to the MDOP Information Experience TechNet home page.
2. Enter applicable search terms in the **Search TechNet with Bing** search box at the top of the MDOP Information Experience home page.
3. Review the search results for assistance.

▶ **To search the TechNet wiki**

1. Use a web browser to navigate to the TechNet Wiki home page.
2. Enter applicable search terms in the **Search TechNet Wiki** search box on the TechNet

Wiki home page.

3. Review the search results for assistance.

How to create a troubleshooting article

If you have a troubleshooting tip or a best practice to share that is not already included in the MDOP OnlineHelp or TechNet Wiki, you can create your own TechNet Wiki articles.

▶**To create a TechNet Wiki troubleshooting or best practices article**

1. Use a web browser to navigate to the TechNet Wiki home page.
2. Log in with your Windows Live ID.
3. Review the **Getting Started** section to learn the basics of the TechNet Wiki and its articles.
4. Select **Post an article >>** at the bottom of the **Getting Started** section.
5. On the Wiki article **Add Page** page, select **Insert Template** from the toolbar, select the troubleshooting article template (**Troubleshooting.html**), and then click **Insert**.
6. Be sure to give the article a descriptive title and then overwrite the template information as needed to create your troubleshooting or best practice article.
7. After you review your article, be sure to include a tag that is named **Troubleshooting** and another for the product name. This helps others to find your content.
8. Click **Save** to publish the article to the TechNet Wiki.