Role description

Windows Deployment Services (WDS) is a server role that enables you to remotely deploy Windows operating systems. You can use it to set up new computers by using a network-based installation. This means that you do not have to install each operating system directly from a CD, USB drive or DVD. To use Windows Deployment Services, you should have a working knowledge of common desktop deployment technologies and networking components, including Dynamic Host Configuration Protocol (DHCP), Domain Name System (DNS), and Active Directory Domain Services (AD DS). It is also helpful to understand the Preboot eXecution Environment (also known as Pre-Execution Environment).

ARM Architecture and support

WDS can now deploy images to ARM clients, which is a CPU architecture that is specially engineered for low-cost, low-power consumption devices such as tablets, cell phones, GPS units, portable game consoles, network routers, and media players.

What value does this change add?

The ability to deploy images to ARM clients in addition to x86 and x64 architectures means a broader range of devices will be capable of running Windows.

What works differently?

- Provides support for Windows on ARM machines as deployment clients.
- Provides support for all existing deployment features on Windows on ARM clients, most notably multicast.

Note
PXE boot is not currently supported by the network drivers on ARM clients.

WDS infrastructure for custom deployments

What value does this change add?

New features that offer the ability to control all aspects of the deployment process.

What works differently?

The improvements include a variety of configuration options that allow administrators to more tightly control the deployment payload (such as images and driver packages) that is sent to client computers. These improvements include the following:

- Install image filters, which are similar to the set of driver group filters.
- Support for boot and install image priority to influence the ordering of these images as they appear in Boot Manager and WDS client image selection menus.
- The Expected Deployment Results Wizard, which allows administrators to view deployment information such as the set of matching driver groups that would be sent to a prestaged device.
- Ability to control which clients are able to boot from the PXE server.
- Control over the boot parameters of PXE clients including boot program, prompt policy, and boot.wim instance.
- Ability to control the WIM and VHD images that are deployed to the client.
- More control over the drivers that are deployed to the client.
- Control over the unattend file(s) that are used to customize the setup experience for the client.
- Lower-level WDSUTIL commands that allow administrators to set custom metadata tags and values on deployment payload and prestaged devices that get matched to directly influence the deployment process.

WDS Management Console

What value does this change add?

Extensions to the management console provide users with more convenient features to configure deployment options for their client computers.

What works differently?

The following set of features were added:

- **Create Client Unattend** dialog to make it easy for administrators to author client unattend files.
- Approve Pending Device Wizard, which simplifies and extends the functionality of the previous approve option.

- Built-in support for prestaged devices that supersede the **Remote Install** tab of the **Active Directory Users & Computers** snap-in.

WDSclient.exe

What value does this change add?

WDSclient.exe is a new standalone client that can perform Dynamic Driver Provisioning (DDP) queries, direct VHD application, and metadata queries.

What works differently?

The WDSclient tool supports the above functionality for use in custom deployment scripts.

Standalone server mode

What value does this change add?

Standalone server mode removes the dependency on Active Directory.

What works differently?

Starting in Windows Server 2012, Windows Deployment Services can be installed in a Standalone server mode. This removes the dependency on Active Directory. You still require DHCP, DNS and sufficient permissions to install and configure Windows Deployment Services. In this scenario, a local store is used to retain information about pre-staged devices.

DDP enhancements

What value does this change add?

DDP enhancements provide more control over provisioning drivers to client computers.

What works differently?

DDP enhancements include:

- Support for hardware model.
- Support for image IDs and custom device groups.
- Duplicate driver package avoidance to prevent the same package from being added multiple times to the driver store.

Expected Deployment Results Wizard

What value does this change add?

The Expected Deployment Results Wizard enables administrators to model the process of deploying a computer and seeing what boot images, install images, driver groups the computer will be offered from the server.

What works differently?

Expected Deployment Results Wizard is designed to help administrators efficiently test configuration changes to their servers and see how they impact deployments to all or specific (prestaged) computers. The tool is especially valuable when used to test some of the advanced configuration options afforded by the WDS infrastructure for custom deployments.

TFTP enhancements

What value does this change add?

Trivial File Transfer Protocol (TFTP) enhancements result in improved performance.

What works differently?

TFTP (Trivial File Transfer Protocol) has been enhanced and delivers improved results in performance.

You use the Windows Deployment Services Trivial File Transfer Protocol (TFTP) server to download the files that are needed to do a network boot using the Pre-Boot Execution Environment (PXE). PXE technology is a standard created by Intel that establishes a common and consistent set of pre-boot services within the boot firmware. The end goal is to enable a client to do a network boot and receive a network boot program (NBP) from a network boot server.

TFTP enhancements include:

- **Scalable buffer management** Provides support for a shared client buffer; allows buffering an entire file instead of a fixed size buffer for each client. Scalable TFTP buffer feature allows maintaining a single buffer per file in the server. When the server is buffering a file in shared mode, different sessions can read from the same shared buffer.

- **Scalable port management** Ability to use a dynamic or a fixed range of UDP ports to service clients with shared UDP port allocation. Sharing the same server port among different TFTP sessions improves scalability because there are sufficient ports when more clients are actively using the server.

- **Variable-size transmission window** Allows the client and server to determine the largest workable window size, resulting in improved TFTP performance. Provides the ability to dynamically determine the optimal window size.

- **Maximum TFTP block size** Previously implemented as a registry setting, this is now exposed to users through WDSUTIL and the WDS MMC snap-in.

Troubleshooting enhancements

What value does this change add?

Expanded tracing for troubleshooting issues with minimal impact to system performance.

What works differently?

Tracing has moved from plain text files to ETW logging, which enables efficient logging that works well even when diagnosing potential race conditions.

Boot Image and Install Image Priorities

What value does this change add?

When you have multiple boot or install images available to client computers, clients will be presented with a boot and an install menu that displays the selection of images to choose from.

What works differently?

Windows Deployment Services now allows you to set priorities to control the order that both boot and install image listings are presented to clients. This ability is integrated directly into the Windows Deployment Services user interface.