



# A Windows Administrator's Guide to Deploying DisplayLink's MSI Installer

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## Document Analysis

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## 2 Introduction

This document is intended to give a Windows Administrator a brief overview of Deploying DisplayLink's Corporate Installer across a Windows Active Directory Domain.

The DisplayLink MSI installer is for the DisplayLink graphics functionality only. If the USB device has other functionalities that require other drivers to be installed (e.g. Ethernet driver for a USB dock station), please refer to section 5.

## 3 Target Audience

Any IT Professional who is familiar with Windows Server, Group Policy, and deploying software company-wide via Group Policy Software Installation (GPSI).

## 4 Deploying the DisplayLink Software

### 4.1 Considerations

Due to the nature of our Software, you'll receive a Zip file with two MSIs inside; *DisplayLinkCore.msi* and *Setup.msi*

#### 4.1.1 DisplayLinkCore.msi

The DisplayLink Core software provides core DisplayLink functionality. It installs the Virtual Graphics Card Driver, as well as the basic DisplayLink GUI.

#### 4.1.2 Setup.msi

The Setup file provides additional functionality, such as the ability to recognise hardware button presses on Docking Stations. Think of it like installing software on a freshly-installed laptop that enables the Function key buttons.

#### 4.1.3 Installation requirements

**Both files are required** for proper functionality of the DisplayLink software, and must be installed in a specific order; **Core first, then Setup**.

To achieve this, add the Core Software to GPSI first, and then add the Setup.msi afterwards. As GPSI installs MSIs based on Timestamp, it should install the MSIs in the correct order.

Installing just the Core software is not supported by DisplayLink and may cause undesirable behaviour on an end-user's PC.

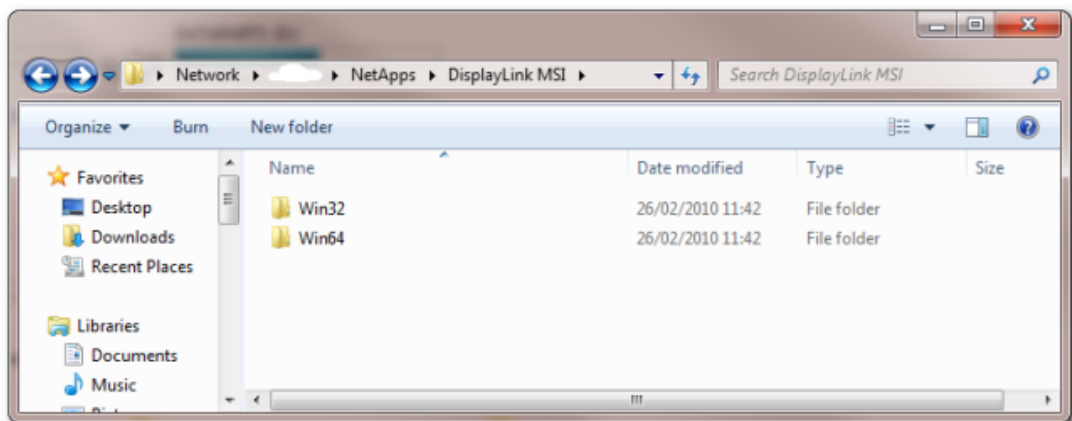
## 4.2 Setting up the GPOs and File Shares

At the time of writing, our MSIs are available in two flavours: 32-bit and 64-bit. If you have both 32-bit and 64-bit Operating Systems in your organisation, you'll need to create two GPOs; one for 32-bit and one for 64-bit. For reference, the 32-bit installer will not install on a 64-bit OS.

As this guide assumes knowledge of Group Policy, this section will be brief.

### 4.2.1 Setting up the File Shares

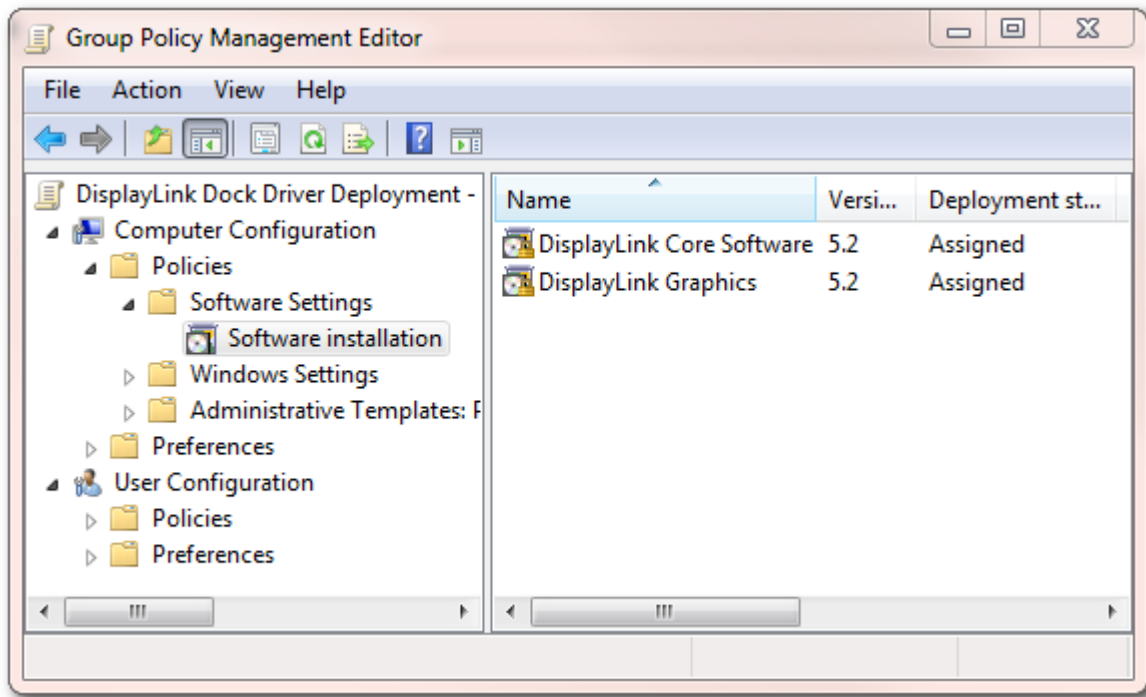
1. Download the DisplayLink Corporate install files from here:  
<http://www.displaylink.com/corporateinstall/>
2. Create or use an existing file share for deploying software and drivers. The share must be accessible by the System user in order for GPSI to install the software on the target PCs
3. Extract the .zip that was downloaded into a DisplayLink MSI directory on your network file share.
  - a. Your extracted files should look like this:



### 4.2.2 Creating the 32-bit GPO

1. Create a new Group Policy Object (GPO) in the Group Policy Management Console (GPMC)
  - a. In this guide, we'll be calling it *DisplayLink Device Driver Deployment - 32-bit*.
  - b. You may wish to call it something else, particularly if you're only interested in deploying the DisplayLink driver, and not extra drivers, such as Ethernet.
2. Put the 32-bit *DisplayLinkCore.msi* and *Setup.msi* onto a network file share.

3. Edit the GPO you just created, and go to:  
Computer Configuration > Policies > Software Settings > Software installation

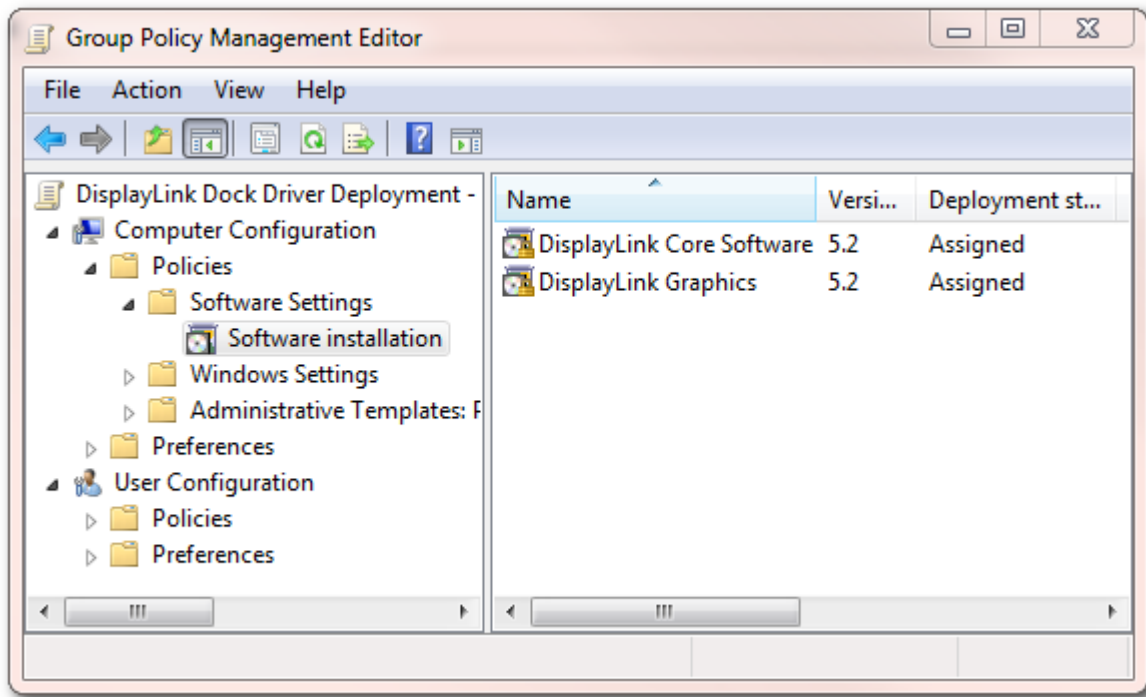


4. Right click > New > Package...
  - a. Add and Assign *DisplayLinkCore.msi*
  - b. Add and Assign *Setup.msi*

### 4.2.3 Creating the 64-bit GPO

1. Create a new Group Policy Object (GPO) in the Group Policy Management Console (GPMC)
  - a. In this guide, we'll be calling it *DisplayLink Device Driver Deployment - 64-bit*.
  - b. You may wish to call it something else, particularly if you're only interested in deploying the DisplayLink driver, and not extra drivers, such as Ethernet.
2. Put the 64-bit *DisplayLinkCore.msi* and *Setup.msi* onto a network file share.

3. Edit the GPO you just created, and go to:  
Computer Configuration > Policies > Software Settings > Software installation



4. Right click > New > Package...
  - a. Add and Assign *DisplayLinkCore.msi*
  - b. Add and Assign *Setup.msi*

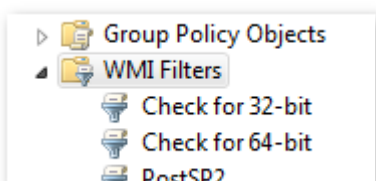
## 4.3 Targeting 32-bit and 64-bit Operating Systems

To ensure that only the correct MSI is installed on the correct architecture, it's necessary to utilise Group Policy's WMI Filtering to target the correct OS architecture.

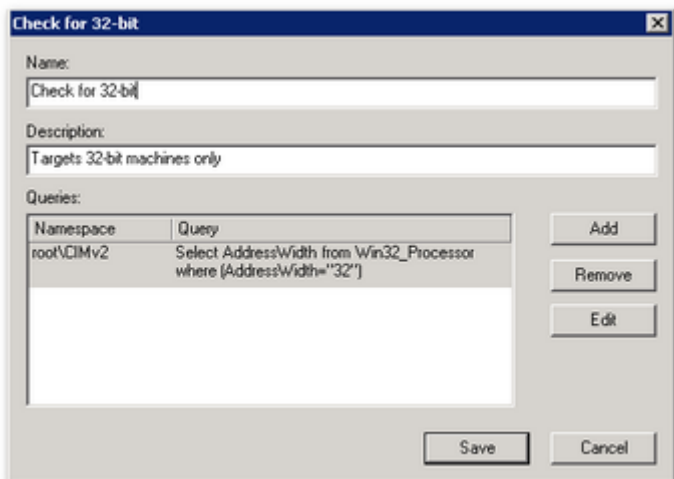
### 4.3.1 Targeting only 32-bit Operating Systems

#### 4.3.1.1 Setting up the WMI Filter

- Open up the Group Policy Management Console (GPMC)
- Locate *WMI Filters* in the left panel



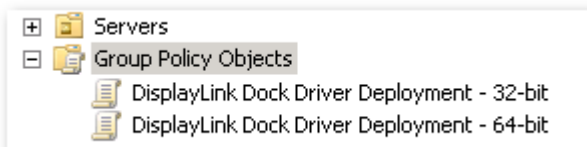
- Right click on WMI Filters and choose “New...”
- Give the WMI Filter an appropriate name and description. For example, “Check for 32-bit”
- Click Add, to add a new query
- Add the following Query:  
*Select AddressWidth from Win32\_Processor where (AddressWidth="32")*



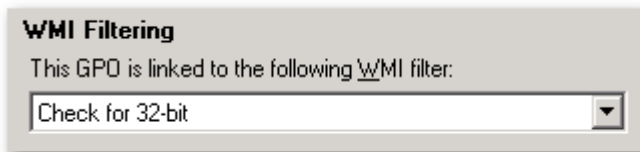
- Click OK, then Save

### 4.3.1.2 Applying the WMI Filter to the Group Policy Object

- Locate your 32-bit GPO in GPMC and click on it



- You should now see the GPO appear in the Right-hand pane
- Under the Scope Tab, click on the Dropdown box underneath “WMI Filtering” and choose the 32-bit WMI filter



- This GPO will now only be applied to 32-bit Operating Systems

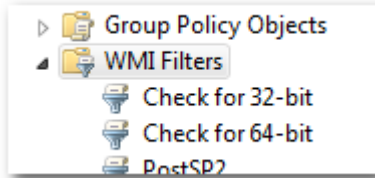
### 4.3.2 Targeting only 64-bit Operating Systems

#### 4.3.2.1 Setting up the WMI Filter

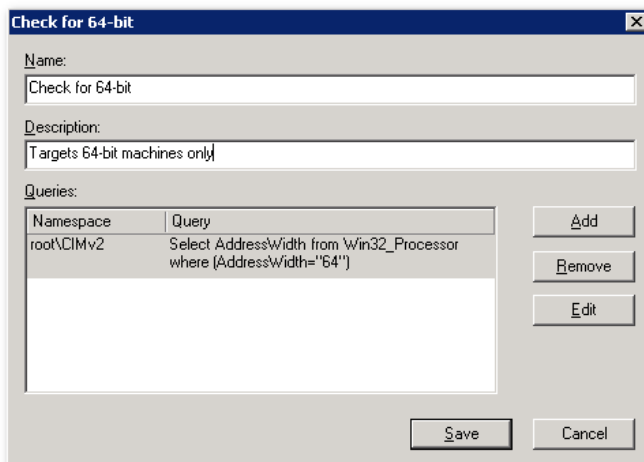
- Open up the Group Policy Management Console (GPMC)



- Locate *WMI Filters*



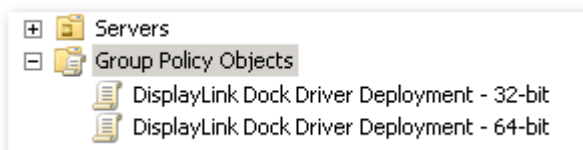
- Right click on *WMI Filters* and choose "New..."
- Give the WMI Filter an appropriate name and description. For example, "Check for 64-bit"
- Click Add, to add a new query
- Add the following Query:  
Select AddressWidth from Win32\_Processor where (AddressWidth="64")



- Click OK, then Save

### 4.3.2.2 Applying the WMI Filter to the Group Policy Object

- Locate your 64-bit GPO in GPMC and click on it



- You should now see the GPO appear in the Right-hand pane
- Under the Scope Tab, click on the Dropdown box underneath "WMI Filtering" and choose the 64-bit WMI filter



- This GPO will now only be applied to 64-bit Operating Systems

## 5 Deploying other drivers for your device

When deploying a DisplayLink-enabled device (e.g. a USB Docking Station) into your corporate environment, you may need to roll out extra drivers, in order for important components of the device to work (e.g. Ethernet). Today, the DisplayLink driver only supports the video output (USB graphics functionality) of the device. However there is a rough guide to deploying Ethernet drivers below. Using this method, it's also possible to deploy other drivers in addition to Ethernet, such as the USB-to-Serial Drivers.

### 5.1 Scope

This sub-guide will take you through the steps required to mass-deploy Ethernet drivers for DisplayLink enabled devices.

### 5.2 Target Audience

This guide is targeted at Windows Administrators who are comfortable with the following concepts and acronyms: Group Policy, GPOs, OUs, creating Windows File Shares. It also assumes knowledge of DPinst, and what it does.

### 5.3 Setting up the DPinst share

1. Install the WinDDK.
  - a. You can download it from here:  
<http://www.microsoft.com/whdc/devtools/wdk/wdkpkg.msp>
2. Create a network share on your deployment or GPSI server, that's accessible by the System user.
  - a. For example <\\server\CorporateDrivers>
3. Copy the 64-bit DPinst.exe to the network share:
  - a. Get it from C:\WinDDK\7600.16385.0\redist\DIFx\dpinst\MultiLin\amd64\  
b. Paste it into <\\server\CorporateDrivers>  
c. Rename it to dpinst\_x64.exe
4. Copy the 32-bit DPinst.exe to the network share:
  - a. Get it from C:\WinDDK\7600.16385.0\redist\DIFx\dpinst\MultiLin\x86\  
b. Paste it into <\\server\CorporateDrivers>  
c. Rename it to dpinst\_x86.exe

### 5.4 Controlling DPinst

1. Create an XML file in the CorporateDrivers directory called dpinst.xml
2. Edit the XML file and add the following to it:

```
<?xml version="1.0" ?>
<!-- DisplayLink Corporate Drivers Install Guide -->
<dpinst>

<search>
```

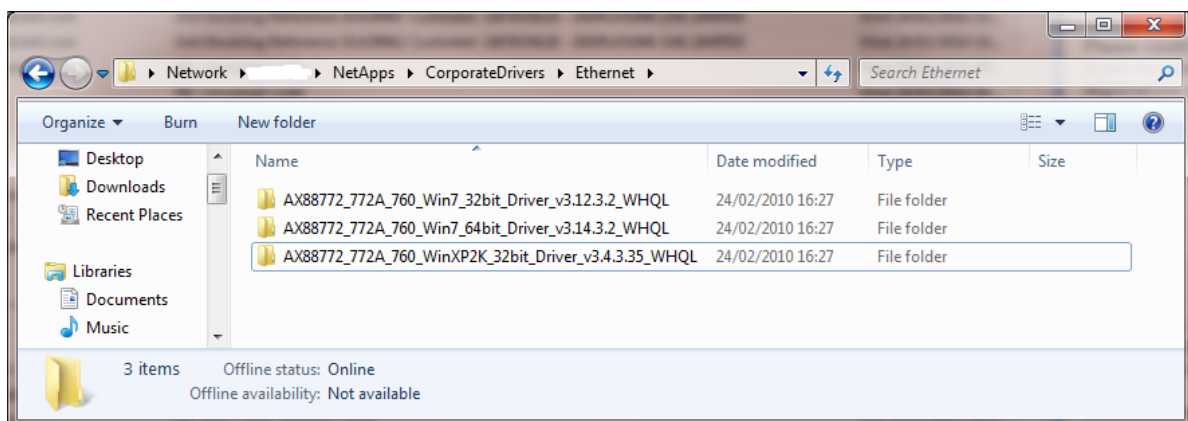
```
<subDirectory>*</subDirectory>
</search>
<enableNotListedLanguages/>
<suppressEulaPage/>
<quietInstall/>

</dpinst>
```

3. Save the file and Exit.

## 5.5 Adding Drivers to be installed

1. The XML file is set up to tell Dpinst.exe to install any drivers it finds in any subfolders.
2. Create a subdirectory in CorporateDrivers called 'Ethernet'.
3. Download the appropriate Ethernet driver according to this DisplayLink article: <http://kb.displaylink.com/299>
4. Once downloaded, extract the contents of the Driver package to `\\server\CorporateDrivers\Ethernet`
5. Your Ethernet directory should look something like this, with a subdirectory for each driver Architecture.



## 5.6 Deploying the Drivers

### 5.6.1 To target 32-Bit Machines

1. Using the GPO that you've already setup (DisplayLink Device Driver Deployment - 32-bit)
2. Edit the GPO so that it opens in GPME, and go here:
  - a. Computer Configuration > Policies > Windows Settings > Scripts
  - b. Double-click on 'Startup'
  - c. Click Add...
  - d. Point the script name to: `\\server\CorporateDrivers\dpinst_x86.exe`

## 5.6.2 To target 64-Bit Machines

1. Using the GPO that you've already setup (DisplayLink Device Driver Deployment - 64-bit)
2. Edit the GPO so that it opens in GPME, and go here:
  - a. Computer Configuration > Policies > Windows Settings > Scripts
  - b. Double-click on 'Startup'
  - c. Click Add...
  - d. Point the script name to to: [\\server\CorporateDrivers\dpinst\\_x64.exe](\\server\CorporateDrivers\dpinst_x64.exe)

## 6 Rolling out the Drivers

### 6.1 Testing

It's best to test the GPO works before rolling it out company-wide:

1. Make a Test OU and put a few Test or Lab PCs in the OU. Call it something like "DPinst Test Computers"
2. Apply the DPinst GPO to the Test Computer OU
3. If your AD DC infrastructure is large, you may need to wait a while for the new GPO to propagate around.
4. On the test computers, add a domain user as a Limited Account on the Test PCs
5. Run: gpupdate on the Test PCs
6. Reboot the Test PCs
7. Log in as the limited user and plug in the DisplayLink device. If the Drivers install successfully, everything went OK. If the drivers didn't install, wait a while and reboot again. It may be that Group Policy wasn't refreshed properly on the Test PC, or the GPO hasn't propagated fully yet. It can sometimes take two or three reboots to pick up the new Group Policy settings.
8. Once everything works as expected, it should then be safe to deploy the solution onto the corporate network.

### 6.2 Rolling out the Driver

To roll out the driver, simply link the GPO to which Computer OU you want to deploy the driver to.

### 6.3 After installation

In order for the DisplayLink-enabled hardware to function properly, a subsequent reboot may be required after GPSI has installed the DisplayLink software on the end-users machine. This is normal, as installing a graphics driver under Windows usually requires a reboot, post-installation.