

IBM Data Collection

Installation Instructions

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General Information

All of the IBM Data Collection manuals are included on the CD.

- Most of the manuals can be reached through a single index page.
 - Open \dconn\help\index.htm on the CD drive to view the HTML manuals.
- The other two manuals are stored in Microsoft Word format
 - Open \dconn\help\DCLibUG.doc for the Transaction Library for Oracle EnterpriseOne manual
 - Open \dconn\help\DCBridgeUG.doc for the XML Bridge for Oracle EnterpriseOne manual

Only a single copy of the IBM Data Collection CD is shipped.

- If your customer contract entitles you to additional copies, you are allowed to make those copies.
- You are entitled to make a single copy of the CD for backup purposes.

After the installation steps, there is a section containing things to look out for if IBM Data Collection is being installed on a 64-bit Windows operating system.

Important Information


This installation is NOT designed to update an installation of DCCONNECT that was done using a version 2.x CD or earlier.

If working on a server with a version 2.x or earlier DCCONNECT you might want to either:


- 1) **Use the older CD and/or the separate Fixpack 2.3.0 that worked with the older CD, or**
- 2) **Install using this CD, installing to a different folder than was used on the old version. But first use the DCCONNECT Backup/Restore Utility to backup the current DCCONNECT configuration so that it can be restored to the new installation folder after the new CD is installed..**

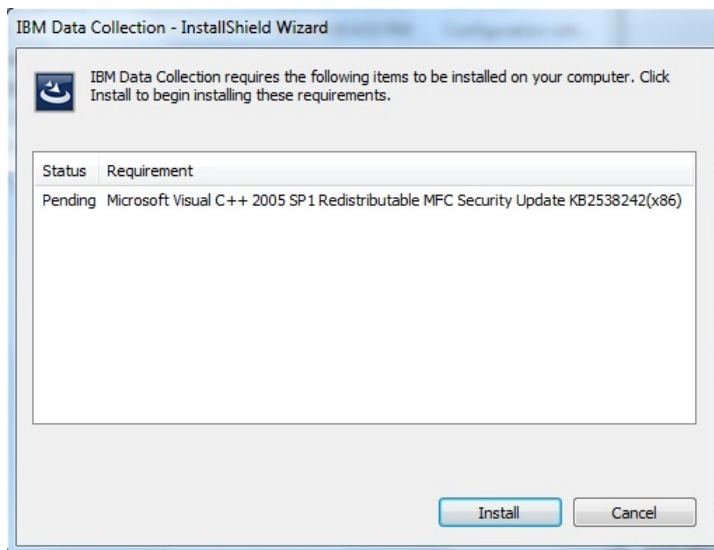
Note that this new install WILL change the DCTPB, TC2, DCCONN, and CS2 environment variables that were used by the older installation so that they point to the new installation folder.

Quick start instructions

1. Insert compact disk into the CD-ROM drive.
2. Installation may auto-start. If it does, cancel the installation so that you can explicitly tell it to run "As Administrator".
3. Use Windows Explorer to open the CD-ROM drive.
4. Find **Setup.exe**, (the icon will look like ) and then right click on it and choose the option to "Run as administrator". This is necessary in order for certain installation operations to complete successfully.
5. Follow the instructions on the dialog boxes to install the data collection features.

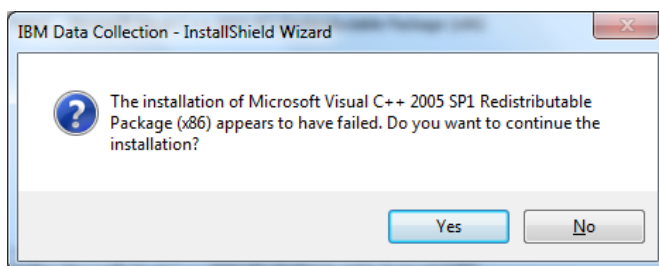
Detailed instructions

- 1) Insert compact disk into the CD-ROM drive.
- 2) Installation may auto-start. If it does, cancel the installation so that you can explicitly tell it to run “As Administrator”.
- 3) Use Windows Explorer to open the CD-ROM drive.
- 4) Find **Setup.exe**, (the icon will look like ) and then right click on it and choose the option to “Run as administrator”. This is necessary in order for certain installation operations to complete successfully.
- 5) With the version 3.0.9 CD and later, a Microsoft Visual C++ package will be installed as part of the DCCconnect installation – if that package is not already installed. This is an imbedded installation and occurs first in the CD installation process – even if the current CD has already been installed. If the Microsoft package is not already installed you will see the following as the first screen:



- 6) You must choose **Install** on the screen above even if you don't really need this package (for LDAP support in Transaction Connection) because choosing **Cancel** will cancel the entire installation. This is an idiosyncrasy of how InstallShield imbeds the Microsoft package installation into the main installation.

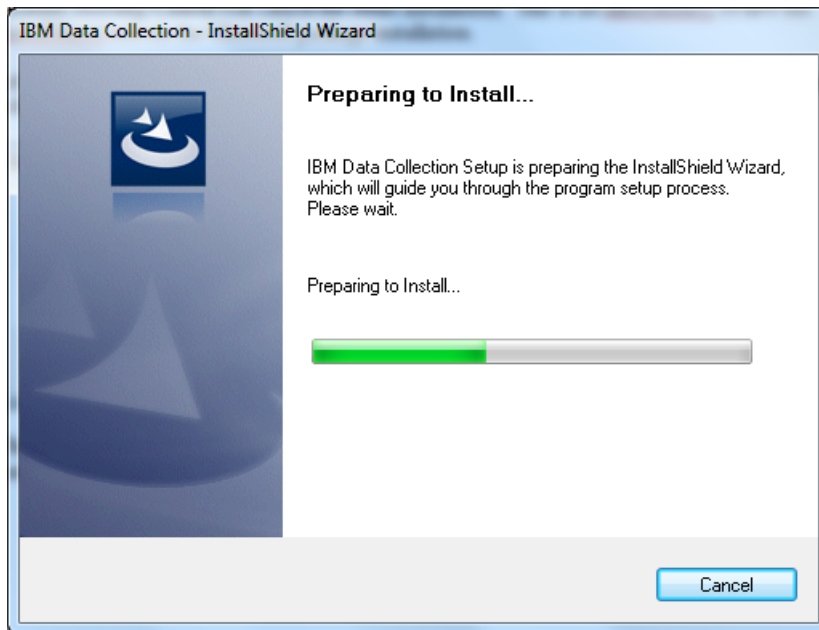
After pressing Install the Microsoft package installation will take place. You may see the following message shortly after the install begins, indicating that the package installation failed:



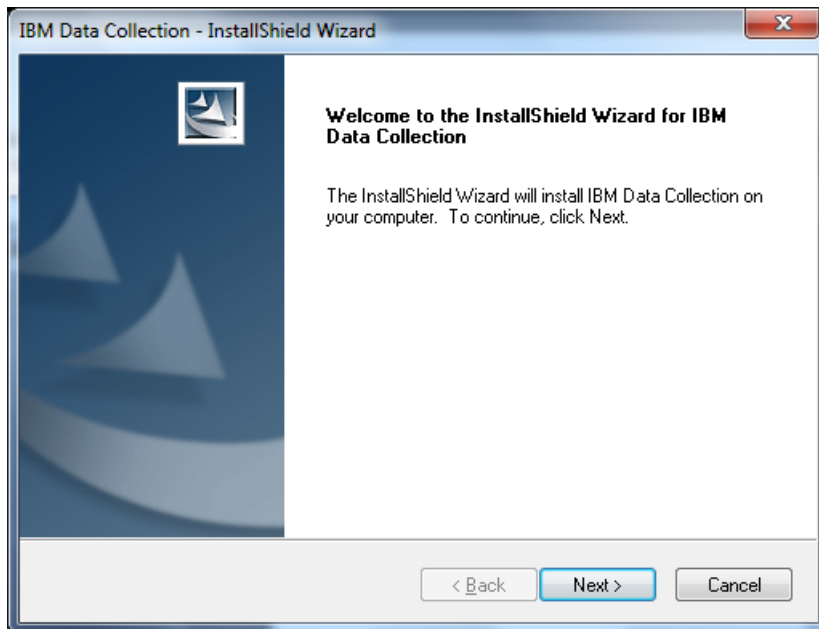
This message is mostly likely incorrect. What actually happens is that the Microsoft package installation is performed asynchronously and can take several minutes to complete.

- 7) Always choose Yes on the above popup so that the rest of the installation can continue; pressing No will cancel the entire installation. After the rest of the DCCconnect installation completes, you can verify whether the Microsoft package installation did succeed by looking at the list of installed programs in Windows. More specifics about what to look for will follow the remaining installation steps below.

After choosing Yes to continue the installation, the following window shows briefly during preparation of the main installation.



- 8) When the preparation completes, the following Welcome screen is shown:



Click **Next>** to proceed to the next page.

- 9) Enter your name and company and then press Next

DCCConnect - InstallShield Wizard

Customer Information
Please enter your information.

Please enter your name and the name of the company for which you work.

User Name:
Neal Horner

Company Name:
IBM

InstallShield

< Back Next > Cancel

- 10) It is recommended to use the Custom install so that you can choose the installation folder:

DCCConnect - InstallShield Wizard

Setup Type
Select the setup type to install.

Please select a setup type.

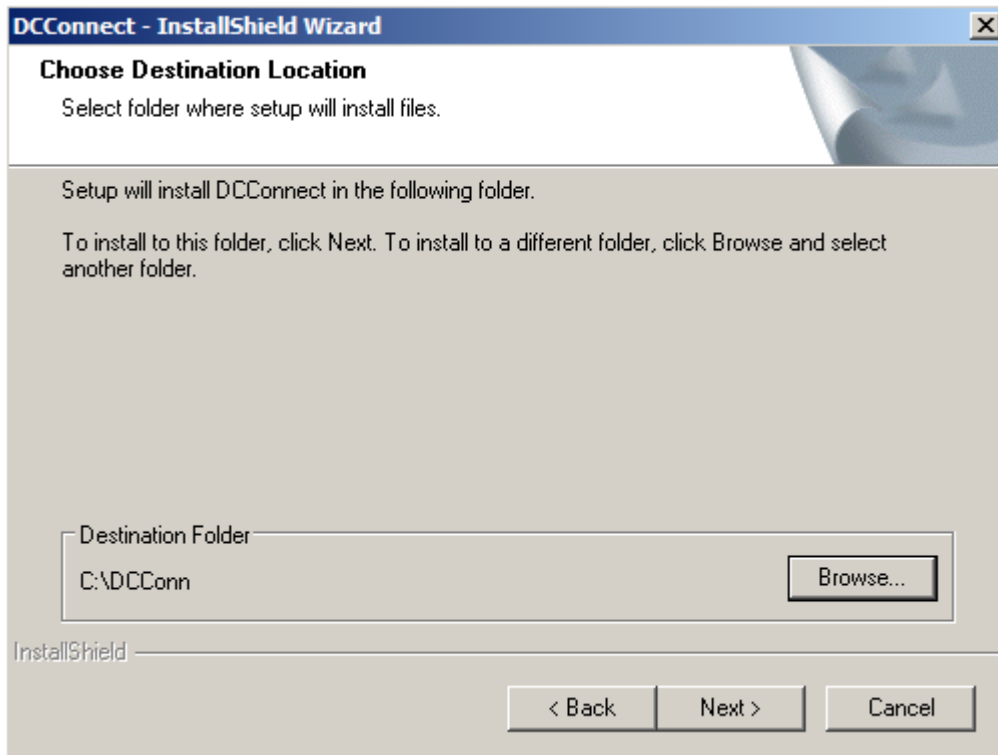
Complete
All program features will be installed. (Requires the most disk space.)

Custom
Select which program features you want installed. Recommended for advanced users.

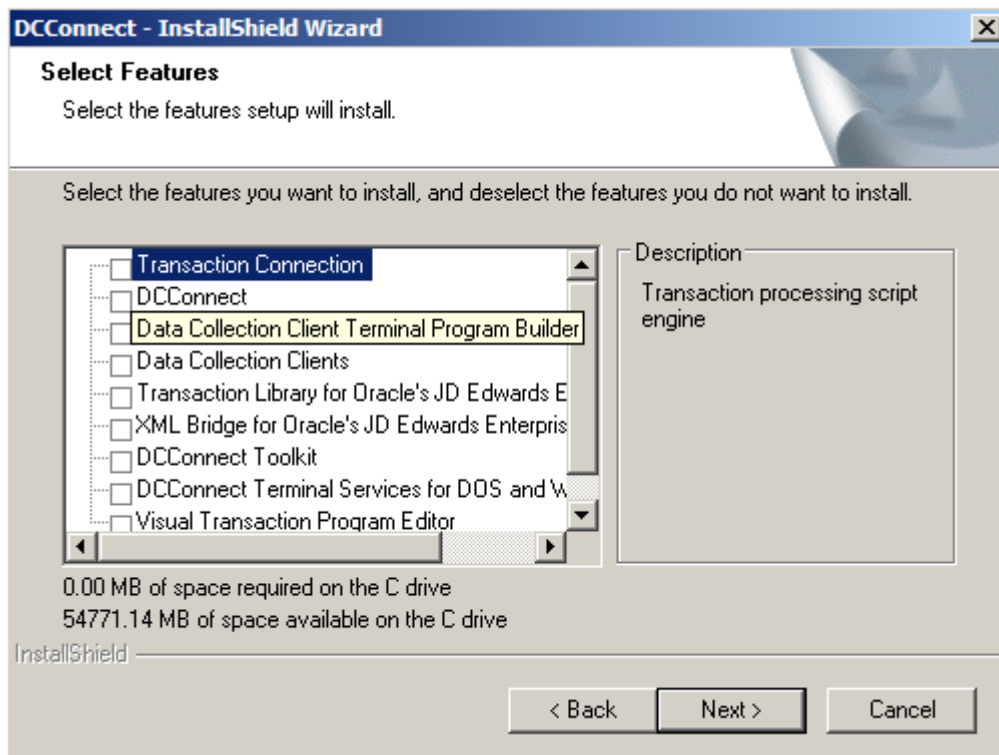
InstallShield

< Back Next > Cancel

- 11) Select the base installation folder. Use the 'Browse' button to select an alternate location.



- 12) Next the feature selection screen appears. Note: If you are not sure whether a particular feature should be installed now, you can re-run this installation at a later time to add additional programs, or uninstall ones that were installed in prior runs.

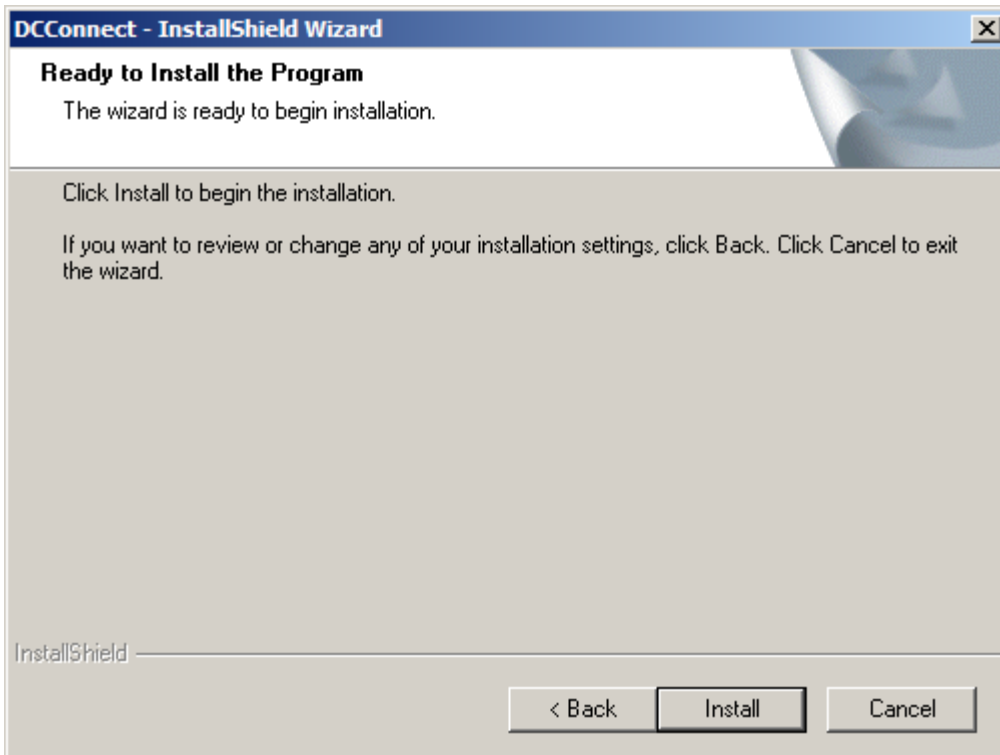


Select the features that are to be installed and click **Next**> to proceed to the next page.

Feature	Description
DConnect Server	DConnect Server manages a network of data collection terminals and maintains the collected transactions for distribution to application for processing. If any data collection terminals are to be used at this site, DConnect Server must be installed. The DConnect User Interface is also part of this feature.
Transaction Connection	Transaction Connection (TC) processes transactions sent from data collection terminals and can update a local database, a remote database, a flat file, a host based 5250 or 3270 screen, perform LDAP lookups or exchange XML messages or make / process web service calls. TC should almost always be installed. The only exception is when 'XML Bridge for Oracle EnterpriseOne' is installed on a remote machine from the Data Collection PC. In this case, TC is not needed on the remote machine.
Transaction Library for JDEdwards EnterpriseOne	Provides a data collection solution for Oracle's JD Edwards EnterpriseOne ERP package. It uses DConnect and Transaction Connection to gather data from data collection terminals and updates EnterpriseOne through the 'XML Bridge for Oracle EnterpriseOne' feature.
XML Bridge for JDEdwards EnterpriseOne	The XML Bridge for Oracle's JD Edwards EnterpriseOne is the communication mechanism between Transaction Connection and EnterpriseOne. It requires a Oracle EnterpriseOne Client to be properly installed and configured on the computer. If the 'Transaction Library for Oracle EnterpriseOne' is in use, there must be at least one instance of the 'XML Bridge for Oracle EnterpriseOne' installed.
DConnect Toolkit	This feature integrates with the DConnect Server to provide a graphically assisted method for editing the transaction programs that are run by early versions of the DConnect Client and legacy IBM 752x data collection terminals. (Deprecated)
Data Collection Transaction Program Building Tool (DCTPB)	DCTPB is a command line tool for compiling text files into the format used by the DConnect Client and legacy IBM 752x data collection terminals. This tool is suggested for compiling the programs supplied with the 'Transaction Library for Oracle EnterpriseOne' feature, or your own more elaborate applications. Note: This tool is not required if you will be using the new 3.0.9 feature to download the text files directly to the DConnect Client; but its documentation still applies. See the DCTPB and DConnect Client documentation for more details.
Visual Transaction Program Editor	A visual tool designed to edit a subset of the transaction programs provided in the 'Transaction Library for Oracle EnterpriseOne' feature. Simple editing such as changing the text of a prompt, removing prompts, and changing the order of prompts can be accomplished easily using this tool. For more significant logic changes, use the 'Data Collection Transaction Program Building Tool'. DCTPB is also a prerequisite for the 'Visual Transaction program Editor.'
DConnect Client	Every data collection terminal requires either the DConnect Client or DConnect Terminal Services for DOS and Windows to communicate with the DConnect Server. This feature can also be installed on a Windows computer to allow that machine to function like a data collection terminal (this is especially useful during code development as all of the features can be installed on a single computer.) Unlike the other features, the DConnect Client is licensed for each data collection device, so it should only be deployed to as many clients as are licensed. The DConnect Client runs on a number of platforms (e.g. DOS, Windows 95/NT, Windows CE, Pocket PC, Windows Mobile, ...) and a number of 3 rd party terminals. It makes these terminals appear to the DConnect Server as if they were one of the IBM 752x data collection terminals; the Client accepts downloads of and runs the transaction programs and related files that are created with and referenced by the DConnect User Interface. Please see the DConnect Client User's Guide for

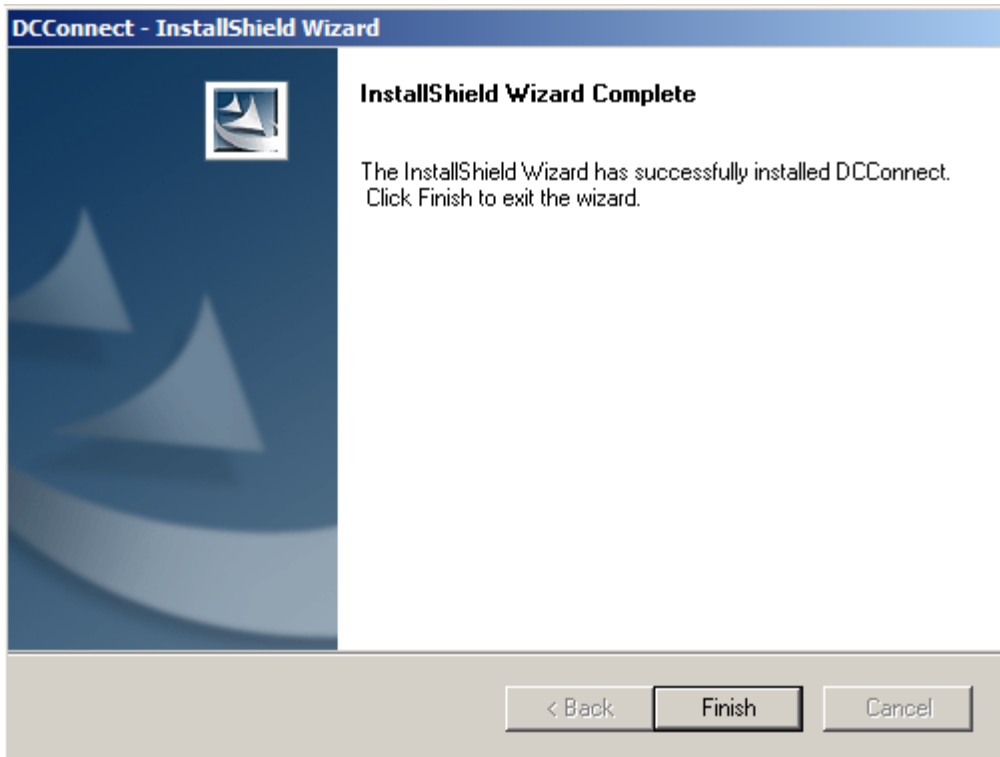
	information about what terminals and platforms are supported and what additional requirements might exist for a specific terminal.
DCCConnect Terminal Services for DOS and Windows	<p>Every data collection terminal requires either the DCCConnect Client or DCCConnect Terminal Services for DOS and Windows (a.k.a. DWTS) to communicate with DCCConnect. This feature can also be installed on a Windows computer to allow that machine to function like a data collection terminal (this is especially useful during code development as all of the features can be installed on a single computer.) Unlike the other features, DWTS is licensed for each data collection device, so it should only be deployed to as many terminals as are licensed.</p> <p>While both DWTS and the DCCConnect Client allow a terminal to communicate with the DCCConnect Server, DWTS is simply a set of APIs that are linked to a customer written application (usually written in Visual Basic or C). These APIs give the application the ability to send transactions, validation requests, and data requests to the DCCConnect Server and the ability to set and get user variables as well as get the DCCConnect Server time. Automatic buffering of transactions to non-volatile storage can also be enabled within the API.</p>

13) Click Install to proceed

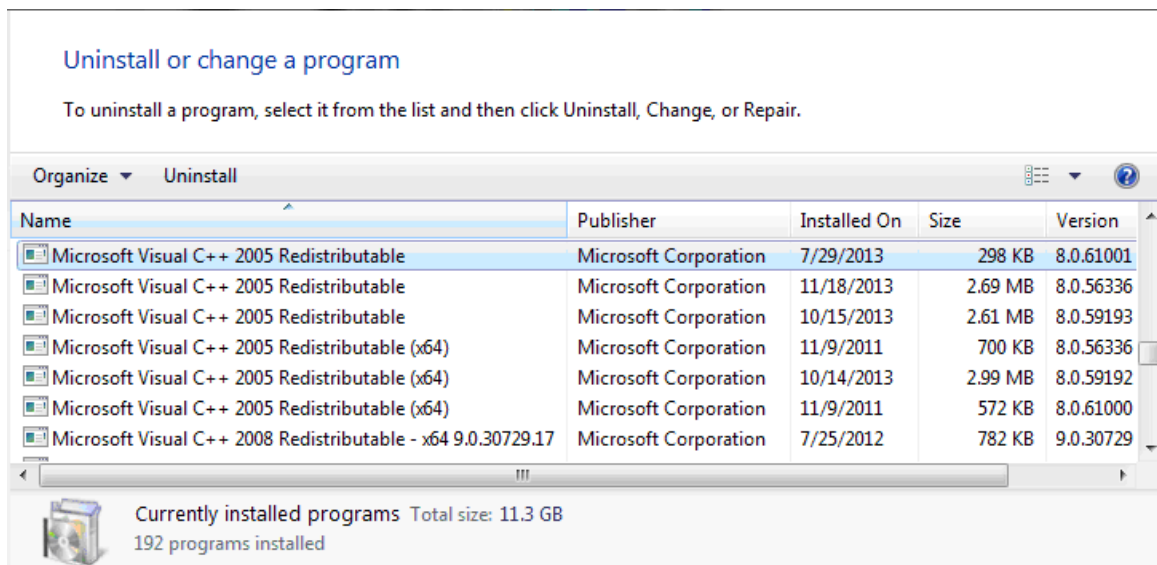


It will likely take several minutes to copy all of the files and make the necessary customizations.

14) Click Finish



15) In the initial steps of the installation above it was discussed that the imbedded installation of the Microsoft redistributable package runs asynchronously and may take several minutes to complete. In order to verify that that package did install correctly, take a look at the installed programs on your system (e.g. on Windows 7 select Start, Control Panel, Programs and Features) and make sure that version 8.0.61001 of the Microsoft Visual C++ 2005 Redistributable package is listed as illustrated below:

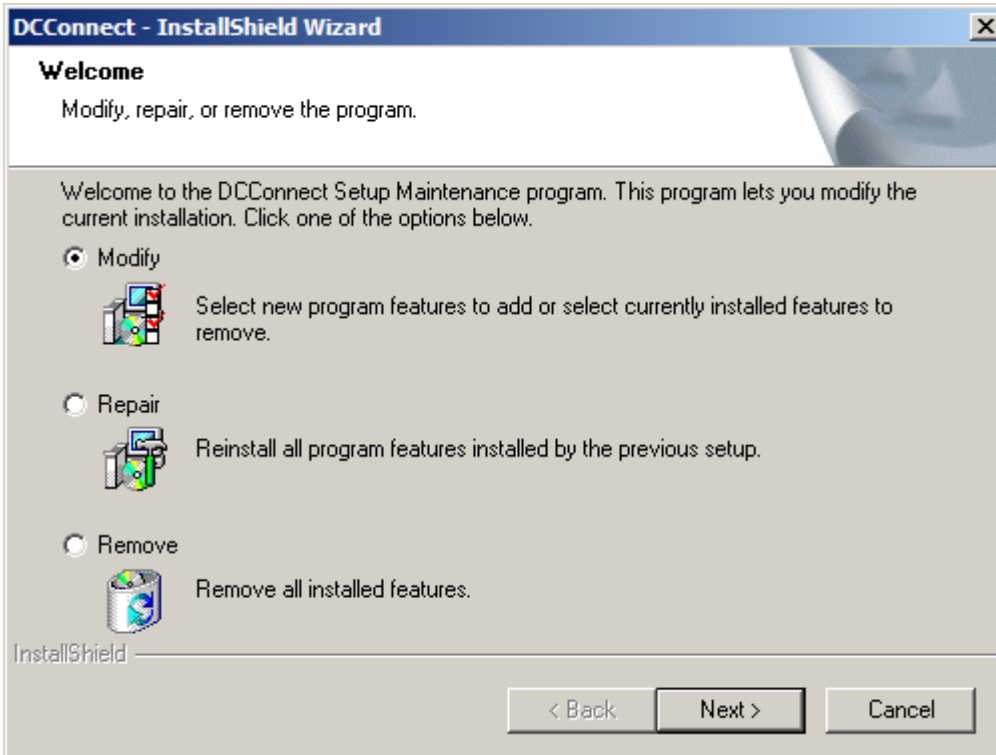


Note that this is the 32-bit version of that redistributable package, not the 64-bit version. It is the 32-

bit version of the package that is required (by Transaction Connection), even on a 64-bit operating system, because Transaction Connection is built as a 32-bit application. This package is only required if you will be using any of the LDAP_XXXX function in Transaction Connection scripts.

If you do not see that the package is installed, it is still possible that it is but it may be necessary to reboot your system before it shows up.

Note: you can re-run the setup.exe program from the CD in order to add or uninstall DCCconnect programs



On a reinstall, you will also be shown the dialog about installing the Microsoft redistributable package and you must always go through the same steps to do that installation as was discussed in the first few steps of the installation procedure above.

Tips for 64-bit Operating Systems

If IBM Data Collection is installed on a 64-bit operating system such as Windows 7 or Windows Server 2008 or later, there are several things to look out for:

1. After installation, it may be necessary to set up the DCCconnect User Interface to run as Administrator

It has not always been the case, but in certain environments it may be necessary to specify that the DCCconnect User Interface be 'run as Administrator' in order for it to start properly. If you find that the User Interface hangs or gives an exception error, then try setting it to run as Administrator. This can be done by bringing up the properties for the shortcut for the User Interface that you use to start it and the choosing the Advanced button, and then checking the Run as administrator check box on the subsequent Advanced Properties window, as shown in the images below:

- 2. User Account Control should be set to the lowest level - unless the customer security policies prevent that**

When programs are set up to run as Administrator, by default Windows prompts for an administrator password whenever those programs are started. This behavior is governed by the User Account Control setting in Windows (Control Panel -> User Accounts -> Change User Account Control settings). All of the password prompting can become very tiresome; so we and most of our customers that are using these later versions of Windows OS have set the notification level to "Never notify" as shown below:

3. 32-bit vs 64-bit ODBC Data Sources

By default, when you open Data Sources (ODBC) in Windows: Administrative Tools -> Data Sources (ODBC), what you see are the 64-bit ODBC connections that are defined. However, because the database programs on the IBM Data Collection CD that might use ODBC connections (e.g. JDE adapter, Transaction Connection, LoadODBC) are 32-bit programs, they require 32-bit ODBC definitions to be created for them; they won't see or use any 64-bit ODBC connections.

The Windows program that runs when you choose Data Sources (ODBC) is `c:\Windows\System32\odbcad32.exe`. Confusing as it is, even though there are two references to 32 in this path, this is the 64-bit version of that configuration program. I believe Microsoft wanted to maintain compatibility with previous versions of Windows, so even their 64-bit versions of Windows still use the System32 directory name. And they probably wanted to keep the same `odbcad32.exe` name for backwards compatibility as well.

For many of the 64-bit versions of system programs there are 32-bit equivalents that are found in `C:\Windows\SysWOW64` instead of `C:\Windows\System32`. This reference to 64

increases the confusion because it would seem 64-bit programs are contained in this folder. But in fact WOW64 stands for "Windows-on-Windows64" - meaning these are programs from other versions of Windows that are running on 64-bit Windows. So hopefully all that explains why the 32-bit version of Data Sources (ODBC) is actually:

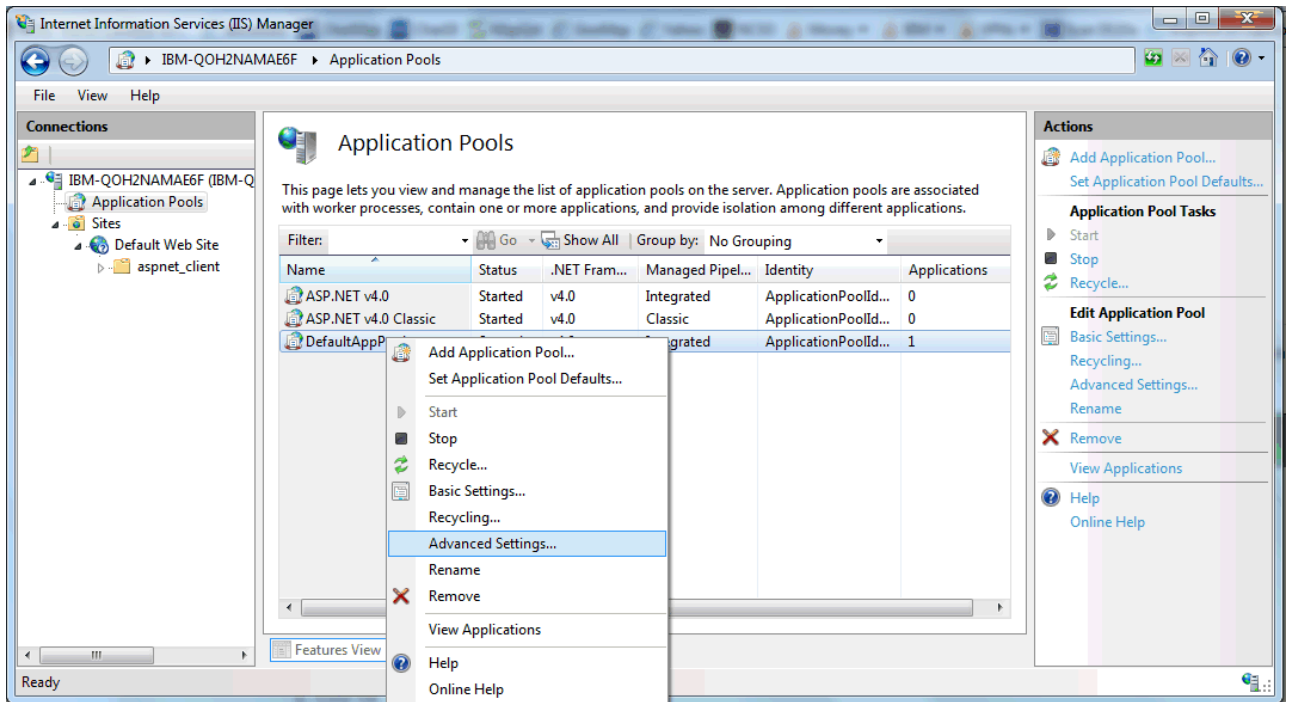
C:\Windows\SysWOW64\odbcad32.exe

You must use this in order to define any ODBC connections that are to be used by the JDE adapter, Transaction Connection and LoadODBC.

To avoid confusion, we recommend renaming the original Windows shortcut from "Data Sources (ODBC)" to "64-bit Data Sources (ODBC)" and then copy that short cut to a new short cut, call the new one "32-bit Data Sources (ODBC) and change it so that it references C:\Windows\SysWOW64\odbcad32.exe.

4. **Enabling IIS 7 to work with 32-bit Applications**

On Windows 7 and Windows Server 2008, version 7 is now the default version of IIS. In this version of IIS, it may be necessary to enable the flag that lets it work with 32-bit applications and use 32-bit ODBC connections for web pages. By default this flag is set to False. To set it to True, start IIS (Administrative Tools -> Internet Information Services (IIS) Manager) and show the Application Pools and then right click on the application pool which the application will be using (typically the DefaultAppPool) and choose Advanced Settings:



On the resulting screen, the Enable 32-Bit Applications setting is the second one from the top:

Note also, if you get errors when the web pages try to access the database that indicate a problem with the user ID not having the necessary permissions, it may be necessary to set the **Identity** value under **Process Model** to **LocalSystem**.

5.64-bit vs 32-bit Windows Apps, Command Prompt and System32 / SysWOW64 / SysNative Directories

I ran into a problem trying to run a Windows program MSG.EXE (shows a popup message) from a TC System command - when the script was running on a 64-bit Windows system - either Windows 7 or Windows Server 2008. It failed to run on those systems even though it worked perfectly fine on Windows XP systems.

I found out that 64-bit Windows systems actually have two different versions of the command prompt environment - one for 32-bit applications and one for 64-bit applications. We've seen this before for the ODBC configuration as well. The 64-bit version of the command prompt is:

C:\Windows\System32\cmd.exe

and the 32-bit version is:

C:\Windows\SysWOW64\cmd.exe

The 32 and 64 in these directory names would make you think the opposite is true. But the WOW64 means something like "Windows-on-Windows 64-bit", meaning another version of Windows is being simulated on Windows 64-bit.

The MSG.EXE program I mentioned initially exists in the 64-bit directory, C:\Windows\System32, but it does not exist in the 32-bit directory, C:\Windows\SysWOW64.

When TC issues the System command it specifies that the command should run in c:\windows\system32\cmd.exe, but because TC is a 32-bit application, Windows 7 / Server 2008 actually start the 32-bit version of cmd.exe, the one in C:\Windows\SysWOW64\cmd.exe. Furthermore within that 32-bit cmd.exe all references to C:\Windows\System32.exe are actually mapped to C:\Windows\SysWOW64.exe. So if you try to do a directory of c:\windows\system32\msg.exe, it is not found.

To get around this, Windows allows you to specify the path 'SysNative' if you want a 32-bit application (e.g. TC or 32-bit cmd.exe) to access the true 64-bit directory c:\Windows\system32 rather than the 32-bit directory c:\windows\SysWOW64.

So in TC 3.0.8L, I changed the system command to detect whether it is running on a 64-bit environment, and if so it will force the load of the 64-bit cmd.exe by specifying c:\Windows\SysNative\cmd.exe. After doing this, TC was able to launch the MSG.EXE program that I was having problems with.

The following Microsoft website gives some more information about this redirection of System32 references and the SysNative override:

[http://msdn.microsoft.com/en-us/library/aa384187\(VS.85\).aspx](http://msdn.microsoft.com/en-us/library/aa384187(VS.85).aspx)

Note TC actually uses %windir% rather than the explicit C:\Windows in case windows is installed elsewhere - even though it rarely is; %WinDir% typically does resolve to C:\Windows.

6.DCConnect Client, if running on the Win 7 / Win Svr 2008 box must be set up to Run as Administrator

The DCConnect Client running on these OS's will show the following when the server tries to sync the time for this Client:

This is a permissions issue - having to do with the Client trying to update the time on the PC as received from the DCConnect Server (there is an AdjustTokenPrivileges Windows API call that must be made before the time is set).

If you start the Client specifying it to "run as Administrator", that will resolve it. To do this on a permanent basis: if you go to the properties for etspt.exe, then the "Run this program as an administrator" option is on the Compatibility tab as in the first screen shot:

But if you have a shortcut for the DCConnect Client and go to its Properties, then you go to the Shortcut tab, press the Advanced button on the bottom right and then check the "Run as administrator" box on the subsequent pop-up.

7. Disabling popup that is shown when application has an exception - on Windows 7 and Windows 2008 Server

Hopefully there are no applications that are causing exceptions. But in the event an exception does occur and it causes a popup to be shown which must be manually cleared, the following registry setting can be used to disable the showing of the popup and prevent the need for manual intervention - letting watchdog or other automatic restart mechanisms to restart the failing program:

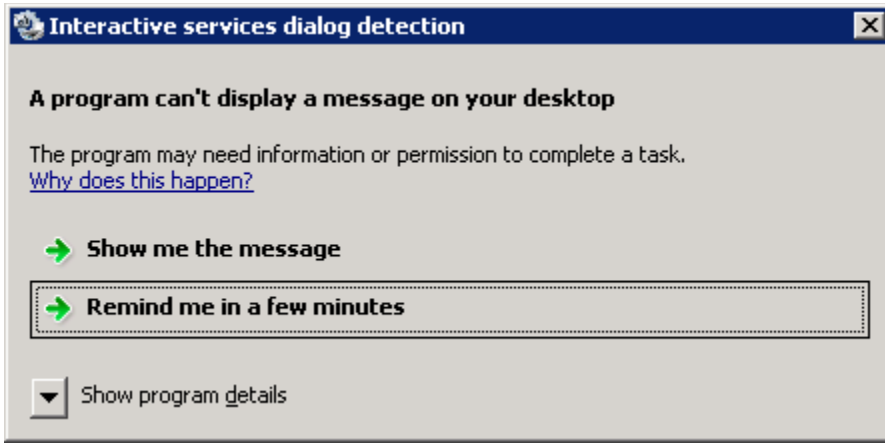
HKEY_CURRENT_USER\Software\Microsoft\Windows\Windows Error Reporting

set **DontShowUI** to 1 instead of 0.

8. Viewing screens of Data Collection components that are running as Services

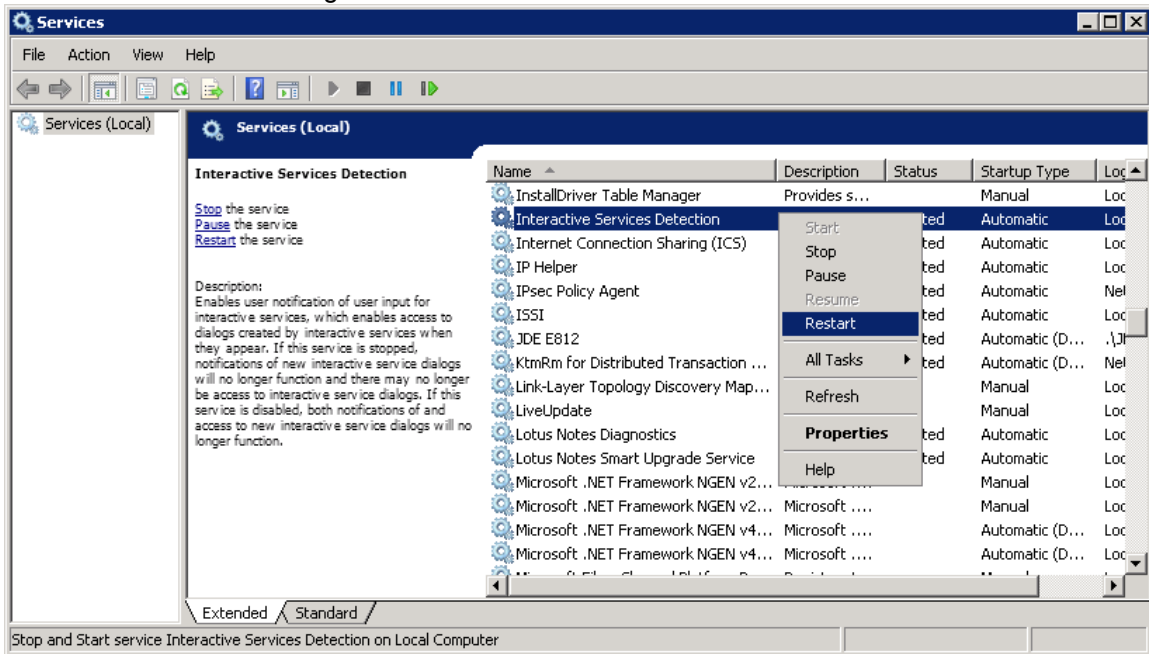
a. In Windows 7, 2008 Server and beyond the screen output of programs that are running as services are isolated in their own view environment. Windows has a service called Interactive Services Detection.

When any program running as a service updates the screen, the following dialog becomes available to allow you to view those screen updates. You simply click on "Show me the message" in order to toggle over to that services view. It may take several seconds before that view is shown; we've even seen it take as long as 20 or 30 seconds.

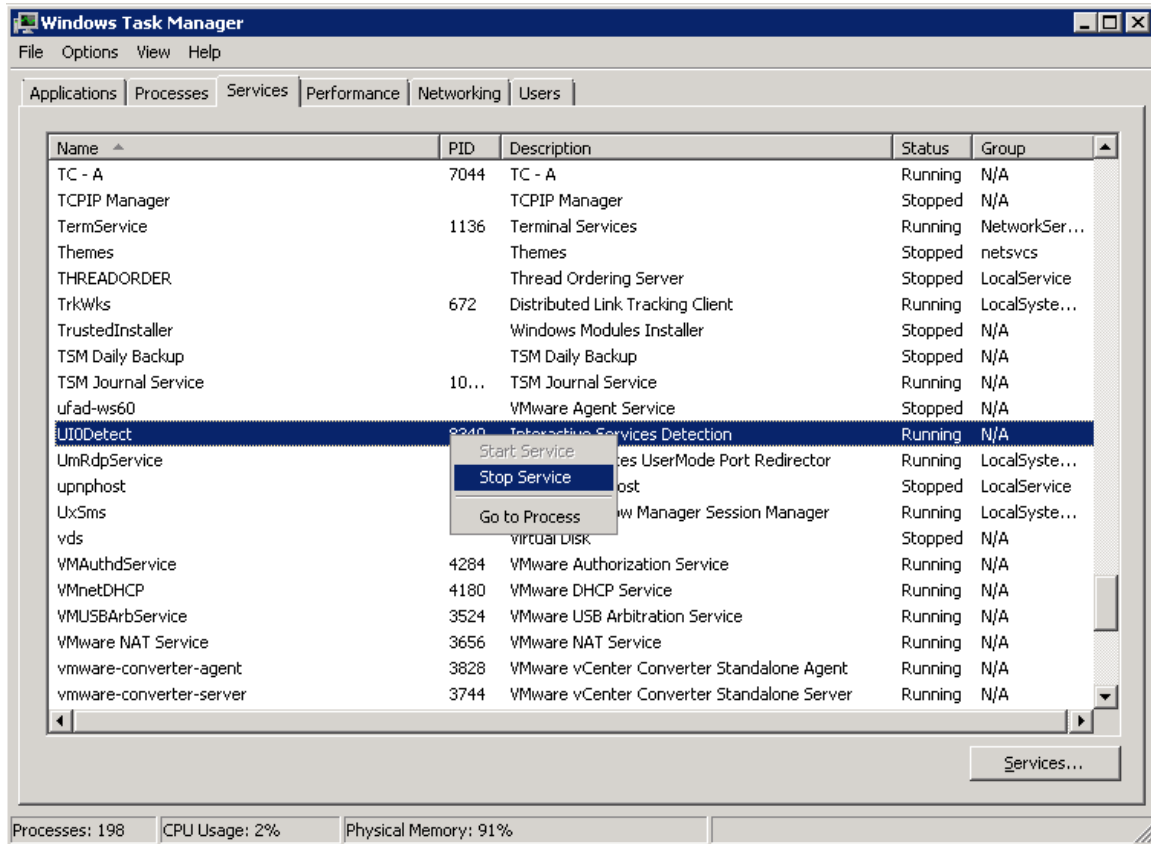


Sometimes you do not see the dialog that allows you to toggle to the services view. This can happen especially when multiple users can access the server because only one user can see the services side at a time.

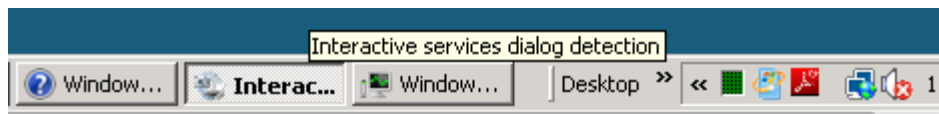
To get it to show, the Interactive Services Detection service needs to be restarted. You can do this from the Services dialog as illustrated below:



Or from the Services tab of the Windows Task Manager, you should stop and then start the service named UIODetect, as a illustrated below:



After the Interactive Services Detection service restarts, you should see in your task bar the button for bringing up the ISD dialog:



b. On Windows Server 2012, we found that the following registry key value must be changed to 0 in order for Interactive Services Detection to run:

HKLM\SYSTEM\CurrentControlSet\Control\Windows\NoInteractiveServices

On Windows 8 and Windows Server 2012, this is set to 1 by default. A reboot may be required after this change is made.

c. You may find that the Session 0 environment is a bit cumbersome to use because there is no task bar and windows cannot be minimized. So it can be a challenge to find a particular window when there are a lot of them. On Windows 7 and Windows 2008 if you run explorer.exe in the services environment and that will provide a pseudo-desktop with a task bar. But one thing that is different from the actual desktop is when you click on it, it moves to the foreground in front of all other windows. But because there is a task bar, you can easily go to any specific window that you need to.

Since explorer.exe is not service-aware, it would need to be started from a service-aware program – or from a command prompt that was already running as a service. See the next section for information about how to do that.

9. Running the DCCConnect User Interface or a command prompt as a service.

These instructions apply to 32-bit Windows OS's; they are not unique to 64-bit OS's.

If SRVANY.EXE and its companion installation tool, INSTSRV.EXE, have been used by in the past as a surrogate that enables a non-service-aware program such as CMD.EXE or the DCCConnect GUI to run in the services environment, their use should be discontinued.

SRVANY.EXE and INSTSRV.EXE are 3rd party programs (originating from Microsoft) and therefore there may be licensing issues when using them. IBM no longer distributes these programs on the IBM Data Collection CD.

The DCCConnect Server, TC and the Adapter are all service-aware (meaning they will respond to Windows requests to stop / start themselves and provide status when running as a service). So these can easily be set up to run as services. But in order for the DCCConnect GUI, or a command line program such as linetrac.exe or reltx32.exe, all of which are not service-aware, to be able to interact with programs that are running as a service, a service-aware, surrogate program must start the non-service-aware program.

Because the DCCConnect Server, TC and the Adapter are all service-aware, when they are started, any program they start also runs in the services environment. So one way to run a non-service-aware program as a service is to add a TC service which runs a very simple script similar to the following (this one starts cmd.exe as a service):

```
Silent
Close_When_Complete

StartLogon ()
    Declare (RC)
    System (RC, "start c:\windows\system32\cmd.exe")
    End_TC()
EndLogon ()
```

This script will end after starting CMD.EXE and leave CMD.EXE running as a service. The same thing works for the DCCConnect GUI: (typically c:\dconn\bin\dconn.exe).

So TC takes the place of SRVANY. And to install the service, rather than using INSTSRV.EXE, there is a program that comes with Windows for managing services, SC.EXE (short for Service Controller) that can be used to do everything you might need to do with a service from creating, configuring and starting them - to stopping and deleting them.

The following is an example of a command line statement to create service called "CMD via TC" that starts a TC session that runs the above script (stored in c:\dconn\tc\systemcmd.scr). The service is set up to interact with the desktop and it is set up to auto start (default is manual if not specified). The optional DisplayName= is also shown here (This should all be entered on a single line):

```
sc create "CMDViaTC" binPath= "C:\DCCONN\TC\TC2.exe c:\dconn\tc\systemcmd.scr /CNTLR=A
Service" type= "interact" type= own Start= auto DisplayName= "CMD via TC"
```

Note that because the child program (e.g. cmd.exe, dconn.exe) is started asynchronously via the start command and TC itself shuts down after it spawns the child, Windows status of the service will show it is not running shortly after you start it. But the child program will continue to be running in the services environment. This also means that you can't stop the child program using the Stop option of the service; you must go to the service environment and end the program from the program window itself.

10.7526 Communications Issues May Be Caused by "TCP/UDP Checksum Offload" Setting of the Network Adapter

We have had two customer that had communications problems with 7526 terminals on new servers. Running linetrac you would see some responses but then other commands would get no response. We found there is a setting for certain network adapters called "TCP/UDP Checksum Offload" which is supposed to improve network performance but which doesn't work when communicating with older hardware.

Here is an excerpt from an email describe how this was resolved:

"If you go to the properties for the Local Area Connection (or #2) and right click -> Properties -> Configure button for the adapter itself -> Advanced tab you'll see a number of properties, including:

TCP/UDP Checksum Offload (IPv4)

There is also one for IPv6. Both were set to 'Rx and Tx Enabled'. We found that setting this value for IPv4 to either 'Disabled' or 'Rx Enabled' allowed the download to work without any errors. But anything that includes 'Tx Enabled' failed. Interestingly, on a test laptop this was set to Rx and Tx Enabled and it works just fine. But that laptop had a Realtek PCIe FE Family adapter. We think there are a number of the parameters that work together and certain combinations don't work right."

11. Where is the Startup folder in Windows 8, Server 2012 and beyond?

For versions of windows through Windows 7 and Windows Server 2008, there has been a **Startup** folder under **Start -> Programs / All Programs**. However, you can no longer get to the Startup folder via the Start button. Instead what you can do on both old and new operation versions is the following:

- a. Open the **Run** dialog. On Win 7 and Win Server 2008 and before, use Start -> Run (if this option is not available, change the Taskbar properties, checking the "Run command" from the Customize options button on the Start Menu tab). For Windows 8 or Win Server 2012 and beyond, right click on the start button and choose Run.
- b. In the run dialog run the following command (without any spaces): **shell:startup**
- c. This will bring up Windows Explorer for the startup folder allowing you to copy and paste short cuts for applications that should run when Windows starts up under the current user ID.
- d. This folder is dependent on the user that is logged in. For example, for the user dcjde, it might be:

C:\Users\dcjde\AppData\Roaming\Microsoft\Windows\Start Menu\Programs\Startup

12. Updating the arp table using "netsh interface ipv4 add neighbors..." instead of "arp -a ..."

For some installations where 7526 terminals are in use, the terminals' the **Accept Broadcasts** setting must be set to No to avoid a degradation in scanning performance due to excessive broadcasts on the network – which can occur with certain printing drivers / software. When not accepting broadcasts, the terminal is not able to respond to ARP (address resolution protocol) requests which are used to determine the mapping between and IP address and the hardware MAC address of a device. Instead the server on which the DCCConnect Server is running must be told what these mappings are. In the past this was done using the ARP command with the syntax:

```
arp -s <ip_address> <mac_address>
```

On Windows Server 2012 it was found that this method could result in permissions errors for some subnets while other subnets had no issue. To get around this, the **arp** command had to be replaced with a **netsh** command:

```
netsh interface ipv4 add neighbors <interface_name> <ip_address> <mac_address>
```