Introduction

Autodesk Vault Manufacturing (hence forth referred to as Vault Manufacturing) bridges the gap between tracking CAD design tools and ERP (Engineering Resource Procurement) systems with its ability to integrate with Microsoft Dynamics GP 10.0 (GP 10) without the use of custom programming or third-party integration tools.

This white paper discusses the installation, configuration, testing, and basic use of GP 10 and Vault Manufacturing.

Configurations

The key to integrating GP 10 with Vault Manufacturing is to set up communication between the GP 10 server and the Vault Manufacturing server. This is done using Microsoft Message Queuing (MSMQ). This document describes two tested configurations for using Vault Manufacturing and GP 10.

The first configuration requires two different servers, one server for Vault Manufacturing and a second server for GP 10. The second configuration uses the same server for both Vault Manufacturing and GP 10. If Vault Manufacturing and GP 10 are configured on the same server they should both have a separate SQL instance installed. The proceeding steps will describe how to install, configure, and test a separate Vault Manufacturing Server and a Separate GP 10 Server. If installing and configuring GP 10 and Vault Manufacturing on the same server, disregard the indicated steps.

Note: It is highly recommend to use separate servers for Vault Manufacturing and GP 10.

The following components should be installed and configured in the order shown.

- Installation
  - o Vault Manufacturing Server
    - ▪ Vault Manufacturing Server Application
    - ▪ Microsoft Message Queuing
  - o Microsoft Dynamics GP 10.0 Server
    - ▪ Microsoft Dynamics GP 10.0 Server Application
    - ▪ AEDMDwfWrapper
    - ▪ Microsoft Message Queuing
    - ▪ Dynamic Messaging Service (DMS)
- Configuring
  - o GP 10 Server
    - ▪ Changing Service User Accounts
    - ▪ Adding Queues to MSMQ
  - o Vault Manufacturing Server
    - ▪ Add GP 10 Queues to Vault Manufacturing
    - ▪ Add Multiple ERP Systems to Vault Manufacturing
    - ▪ Setting the Default ERP System
- Testing the Connection
- Vault Manufacturing Importing and Exporting

Installation

The first step in enabling the bridge between CAD design tools and ERP systems is to establish item sharing between a GP 10 server and the Vault Manufacturing server. This section describes how to install the components necessary to successfully integrate GP 10 and Vault Manufacturing.

Vault Manufacturing Server

The Vault Manufacturing server should be installed before installing or configuring the GP 10 server. Perform the following tasks in the order presented to ensure a successful installation.
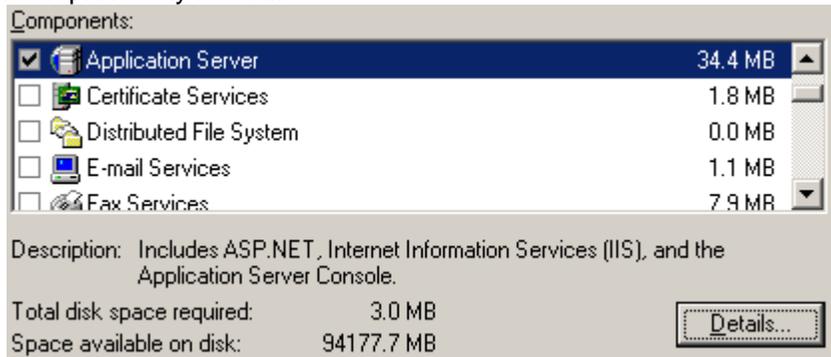
Vault Manufacturing Server Application

The Vault Manufacturing server application should be installed first on the server. For more information on installing the Vault Manufacturing Server see the *Autodesk Vault 2010 Implementation Guide.*
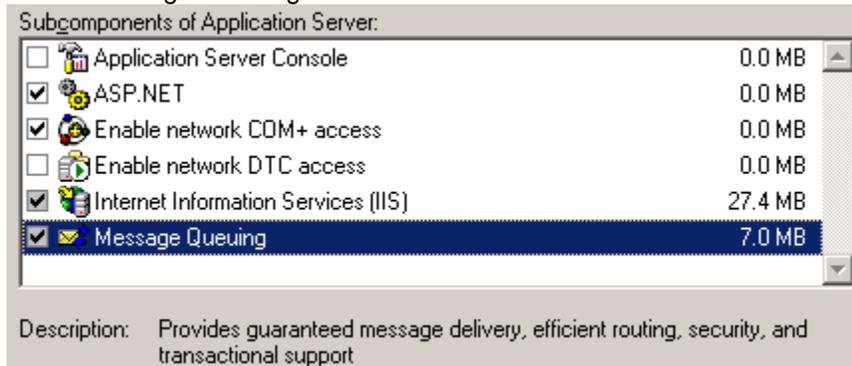
Microsoft Message Queuing

Follow the steps in this section to install MSMQ. In a two server configuration MSMQ has to be installed on the Vault Manufacturing server and requires no configuration.

1. From the Windows Start Menu select Settings > Control Panel.
2. From the Control Panel double-click Add or Remove Programs.
3. Select Add/Remove Windows Components.
4. Select Application Server and click Details.
   Note: This item may already be checked if other Application Server options have been previously loaded.

5. Check Message Queuing.
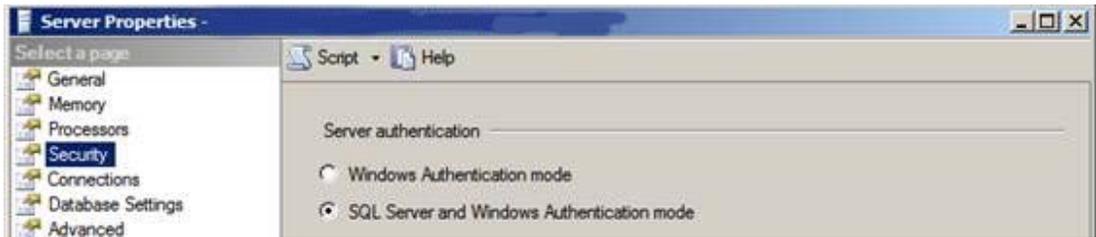

6. Click OK.
7. Click Next.

Microsoft Dynamics GP 10.0 Server

Use the following steps to install or configure an existing GP 10 server to share information with Vault Manufacturing.

Microsoft Dynamics GP 10.0 Server Application

Confirm that GP 10.0 service pack 1 or higher is installed. If installing GP 10.0 for the first time, make the following configuration changes during the installation. If the GP 10.0 SP1 or higher is already installed, modify the existing configuration with the following changes.

1. Set GP 10.0 to use SQL Server and Windows Authentication mode.

2. Install the Manufacturing feature and ensure that your company is registered with those modules.
   Note: After installing and registering the GP 10 Manufacturing modules, run GP 10 at least once to ensure the Manufacturing modules have been activated.

AEDMDwfWrapper

If setting up a single server configuration, you can skip this section because installing the Vault Manufacturing server already installed the correct AEDMDwfWrapper. If setting up a two server configuration, use the following steps to install the AEDMDwfWrapper on the GP 10 server.

1. Download *AEDMDwfWrapper-Installer.zip* from http://usa.autodesk.com/getdoc/id=DL5078224
2. Extract *AEDMDwfWrapper-Installer.exe* from *AEDMDwfWrapper-Installer.zip* and copy it to the GP 10 server.
3. Double click *AEDMDwfWrapper-Installer.exe* and accept all of the defaults by selecting next on all the installation screens.
4. Use Windows Explorer on the Vault Manufacturing Server to locate the file *AEDMDwfWrapper.dll* under
   installation folder\Server\Components on the Vault server
   For example:
   C:\Program Files\Autodesk\ADMS Manufacturing 2010\Server\Components
5. Use Windows Explorer on the GP 10 server to locate *AEDMDwfWrapper.dll* under
   C:\Program Files\Common Files\Autodesk Shared
6. Copy the *AEDMDwfWrapper.dll* from the Vault Manufacturing Server and overwrite the *AEDMDwfWrapper.dll* on the GP 10 server.

Microsoft Message Queuing

If configuring GP 10 and Vault Manufacturing on the same server, this step has previously been completed. For step by step instructions on installing MSMQ on the GP 10 server see the previous steps under Microsoft Message Queuing.

Note: MSMQ will be configured after DMS is installed.

Dynamic Messaging Service (DMS)

If MSMQ is installed, use the GP 10 media to install Dynamic Messaging Service (DMS) on the GP 10 Server. The DMS install can be found under *[GP10 Media]:\AdProd\DMS*. The following steps describe how to install and configure DMS.

1. Run the *Setup.exe*.
2. Select Everyone when prompted to identify who will use this application.

3. Enter the following application parameters:
    a. Server Name – Enter the name of the Great Plains SQL server and SQL instance name.
    b. Authentication Method - Select 'Use a specific user name and password'
    c. User name – Enter the database SA name that can log into the Great Plains SQL server.
    d. Password – Enter the database SA password for the user name previously entered.

Application Parameters

Database Connection Parameters

Specify the following to connect to Dynamics SQL database

Server name: (local)\SomeGP10SQLInstance
Database name: DYNAMICS

○ Use Windows NT Integrated security
◉ Use a specific user name and password
    User name: DomainName\UserName
    Password: *************

[Test Connection]   [Cancel]   [< Back]   [Next >]

4. Click the Test Connection button.
5. If the connection test passes click Next. If the test connection failed and all the information provide in the dialog box, is correct, try launching GP 10 and rerunning the test.
6. Change the queue names. Keep in mind queue names are case sensitive.
    a. Incoming queue name – adsk_incoming
    b. Outgoing queue name – adsk_outgoing
    c. Dead-letter queue name – adsk_dead-letter

Application Parameters

Message Queue Parameters

Specify the following to create the message queues

Incoming queue name:
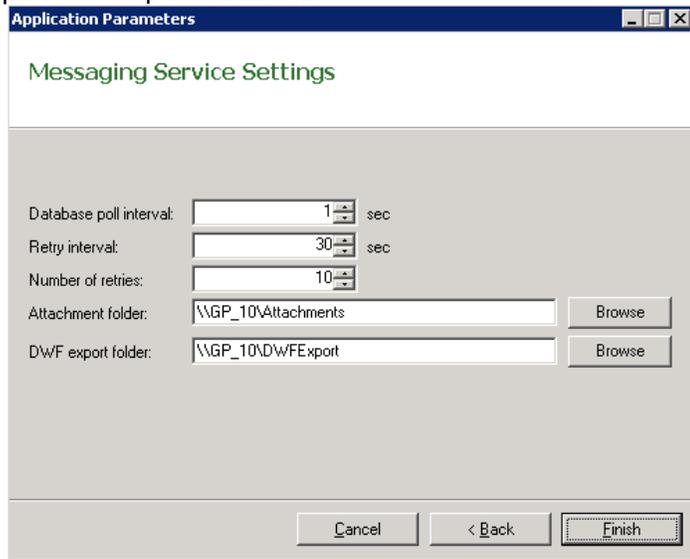adsk_incoming

Outgoing queue name:
adsk_outgoing

Dead-letter queue name:
adsk_dead-letter

[Cancel]   [< Back]   [Next >]

7. Click Next

8. Enter the domain account name and password for the user account under which the service will run.
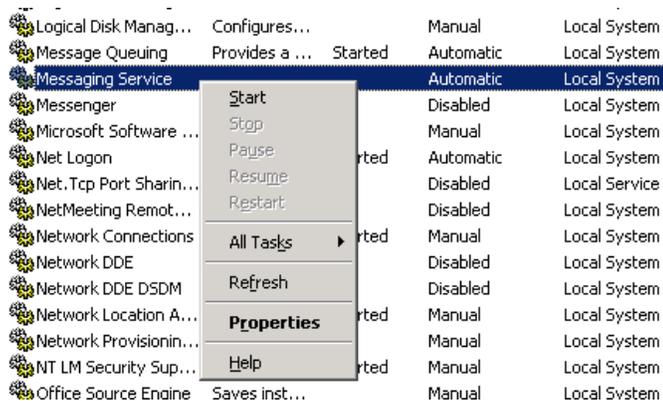
   Note: The user account entered in this step can be a temporary account. This user can be changed to match the MSMQ service's LogOn account after installation.

9. Click Next.
10. Enter the UNC paths for both the items exported from GP 10 and their associated items. These locations should be shared paths to which the user account from the previous step has access.

   Note: It is highly recommended that both these folders are placed on the GP 10 server. The user accounts for the MSSQL$GP10 instance service, as well as the DMS and MSMQ services all need Full access to these folders.

11. Click Finish.
12. From the Start Menu, select Control Panel > Administrative Tools > Services.
13. Scroll down to Messaging Service.
14. If Messaging Service is not started, right-click Messaging Service and select Start.

   Note: The Message Queuing and Message Service need to run under the same user account. For instruction on how to change the service user account see Changing Service User Accounts.

Configuration

After completing the installation of all the components on each server there are some configurations that will need to be done before Vault Manufacturing and GP 10 can import and export items.
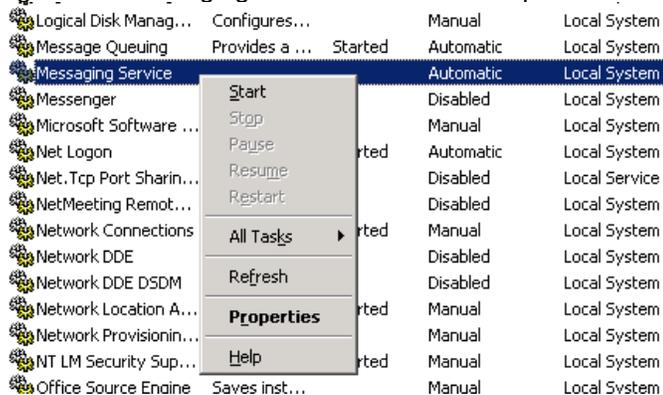
GP 10 Server

The following section will describe how to configure the queues for MSMQ. Also included in this section are steps to quickly change the user account for MSMQ and DMS.
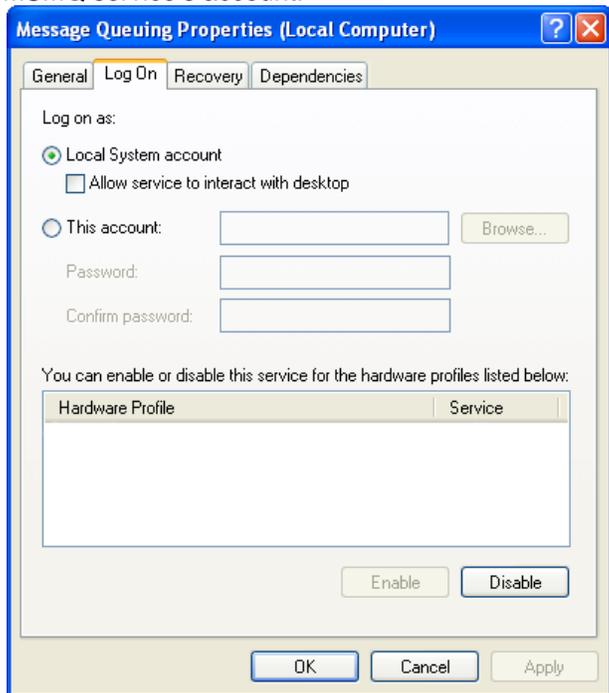
Changing Service User Accounts

Use the following steps to change the user account for the DMS service to match the MSMQ service's RunAs account.

1. From the Start Menu, select Control Panel > Administrative Tools > Services.
2. Scroll down to Messaging Service.
3. Right-click Messaging Service and select Properties.

4. Click the Log On tab and enter the same NT account name and password as the MSMQ service's account.
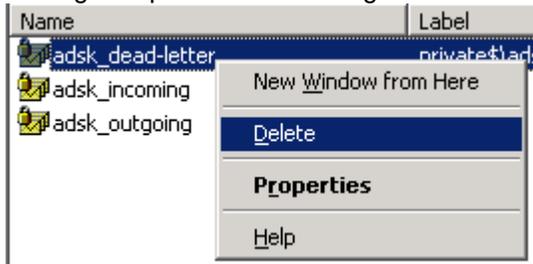
Adding Queues to MSMQ

GP 10 uses queues configured in MSMQ. The following steps describe the process to create and configure the proper queues.

Note: No additional configuration is required for the MSMQ on the Vault Manufacturing Server..

1. From the Start Menu, select Control Panel > Administrative Tools > Computer Management.
2. Expand the branch Services and Applications.
3. Expand the branch Message Queuing.
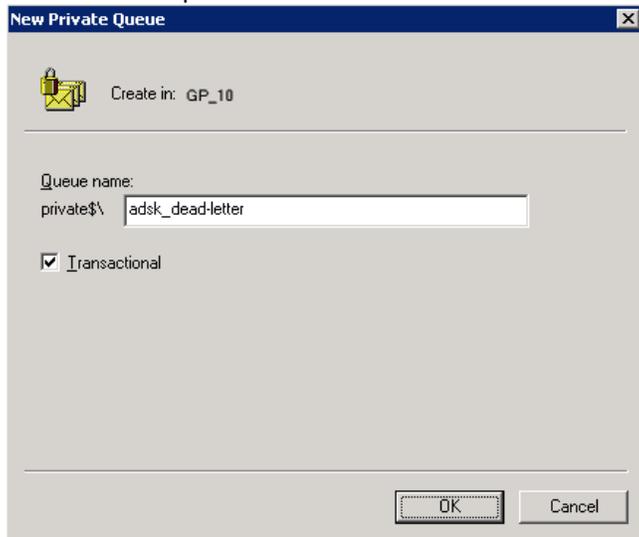4. Select Private Queues.

5. DMS automatically creates an outgoing queue named adsk_outgoing. If the other two queues adsk_dead-letter and adsk_incoming were created, delete them by right-clicking the queue and selecting Delete.
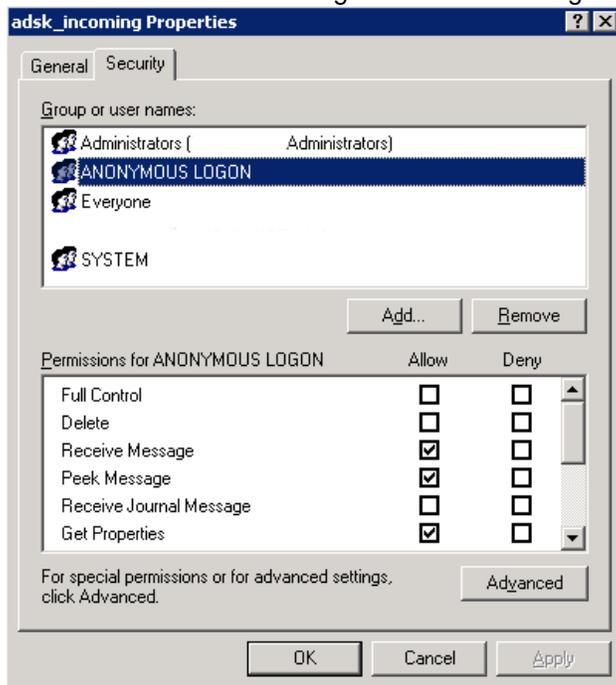

6. Right-click Private Queues and select New > Private Queue.
7. Enter the same dead-letter queue name used in step 6 from the previous Installation section Dynamic Messaging Service (DMS); the default name is adsk_dead-letter

   Note: Queue names are case sensitive.

8. When creating the adsk_incoming and adsk_dead-letter queues check the Transactional option.

9. Right click adsk_dead-letter and select Properties.
10. Select the Security tab.
11. Select ANONYMOUS LOGON.
12. Check Receive Message; this should automatically check Peek Message.
13. Ensure both Receive Message and Peek Message are checked and click OK.

14. Repeat steps 8 – 13 for the adsk_incoming queue.
15. If installing GP 10 and Vault Manufacturing on the same server, skip steps 16-19.
16. From the Windows Start Menu select Run.
17. Enter *regedit* and click OK.
18. Go to
    `My Computer\HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\MSMQ`
    `\Parameters\Security`

19. Enter a new DWORD name `NewRemoteReadServerAllowNoneSecurityClient` and set its value to 1.

    For more information on this registry change refer to the Microsoft article http://technet2.microsoft.com/windowsserver/en/library/97efae9f-8657-43fa-89de-e299b45dc7501033.mspx

Vault Manufacturing Server

The Vault Manufacturing server can be configured to use one or more ERP systems. The following sections show the preferred ways to configure Vault Manufacturing for either one or multiple ERP systems.

Add GP 10 Queues to Vault Manufacturing

Use the following steps to edit the Web.config for Vault Manufacturing server.

1. Locate the Web.config file under *installation folder\Server\Web\Services*
2. Open the Web.config using Windows Notepad.
3. From the Edit pull down menu select Find.
4. Enter **MSMQ DWF** and click Find Next. This action finds the MSMQ Settings element.
5. Enter the server name of the GP 10 server and queue names used in step 5 of "Installing Dynamic Messaging Service (DMS)

6. Save and exit the Web.config.

Add Multiple ERP Systems to Vault Manufacturing

Use the following steps to create multiple ERP systems

1. Locate the Web.config file under *installation folder\Server\Web\Services*
2. Open the Web.config using Windows Notepad.
3. From the Edit pull down menu select Find.
4. Enter **MSMQ DWF** and click Find Next. This should bring you to the MSMQ Settings element.
5. Highlight the lines starting with *<system name = "MSMQ DWF" ……*. Including the line *</system>*.

6. Copy the selected lines and paste the new copies below the selected existing lines as shown.

7. Change the system name to match the name you would like to see in the Vault Manufacturing Item Export Wizard.
   Note: All system names should be unique.

```
<system name=_____ type="MSMQ" schemaVersion="1.0">
    <MSMQSettings url="AutodeskERP" physicalDir="" machineName="localhost" outgoing
    </MSMQSettings>
</system>

<system name="MS Great Plains 10" type="MSMQ" schemaVersion="1.0">
    <MSMQSettings url="AutodeskERP" physicalDir="" machineName="localhost" outgoing
    </MSMQSettings>
</system>

<system name="Other" type="OTHER" schemaVersion="1.0" />
</systems>
```

8. Change the machine name to the server name that the new ERP server.

```
<system name="MSMQ/DWF" type="MSMQ" schema
    <MSMQSettings url="AutodeskERP" physicalDir="" machineName="localhost" outgoingQueue=
    </MSMQSettings>
</system>

<system name="MS Great Plains 10" type="MSMQ" schemaVersion="1.0">
    <MSMQSettings url="AutodeskERP" physicalDir="" machineName="GP_10" outgoingQueue="Outgo
    </MSMQSettings>
</system>

<system name="o" schemaVersion="1.0" />
```

9. Change the queue names to match the queue names configured in step 5 of the installation section [Dynamic Messaging Service (DMS)](#).

```
outgoingQueue="adsk_outgoing" incomingQueue="adsk_incoming" deadQueue="adsk_dead-letter"
```

10. Repeat steps 5 -9 to add additional ERP systems.
11. Save the Web.config file and exit Notepad.

Setting the Default ERP System

Use the following steps to change the default Item Export option in the Web.config.

1. Locate the Web.config file under *installation folder\Server\Web\Services*
2. Open the Web.config using Windows Notepad.
3. From the Edit pull down menu select Find.
4. Enter **MSMQ DWF** and click Find Next. This should bring you to the MSMQ Settings element.
5. Locate the line marked *<defaultsystem name = …..*

```
<system name="Other" type="OTHER" schemaVersion="1.0" />
</systems>
<defaultsystem name="Other" autoExport="False" />
<!-- Highlights and selects default from above systems (name must match). -->
<export includeAttachments="true" />
</connectivity.productstream.package>
```

6. Change the name to match the name of the intended default system.

```
</system>

<system name="MS Great Plains 10" type="MSMQ" schemaVersion="1.0">
    <MSMQSettings url="AutodeskERP" physicalDir="" machineName="GP_10" outgoingQueue="
    </MSMQSettings>
</system>

<system name="Other" type="OTHER" schemaVersion="1.0" />
</systems>
<defaultsystem name="MS Great Plains 10" autoExport="False" />
<!-- Highlights and selects default from above systems (name must match). -->
<export includeAttachments="true" />
</connectivity.productstream.package>
<!
```

7. Save the Web.config file and exit Notepad.

Testing the Connection

In the Vault Manufacturing client, the connection between an ERP system and Vault Manufacturing can be tested by providing the proper Machine Name and clicking the Test Queue button.

The queues to be tested are defined in the Web.Config file. The following logic is used to determine which queues will be tested in combination with the Machine Name entered in the dialog box. If the conditions of a step are not met, the test will continue to the next step.

1. If the default system name matches a configured system name and that system is an MSMQ type, then the queue names listed in this system's configuration will be tested in combination with the Machine Name from the ERP Administration dialog box.

2. If a system name matches the out of the box system name "MSMQ DWF" and that system is an MSMQ system, then the queue names listed in this system's configuration will be tested in combination with the Machine Name from the ERP Administration dialog box.

```
                    Contains the setting needed
<connectivity.productstream.package>
  <erpFileStore value="C:\Documents and Settings\All Users
  <systems>
    <system name="MSMQ DWF" type="MSMQ" schemaVersion="1.
      <MSMQSettings url="AutodeskERP" physicalDir="" machi
      </MSMQSettings>
    </system>

    <system name="MS Great Plains 10" type="MSMQ" schemav
      <MSMQSettings url="AutodeskERP" physicalDir="" machi
      </MSMQSettings>
    </system>

    <system name="Other" type="OTHER" schemaVersion="1.0"
  </systems>
  <defaultsystem name="MS Great Plains 10" autoExport="Fals
  <!-- Highlights and selects default from above systems (
  <export includeAttachments="true" />
</connectivity.productstream.package>
<!--
```
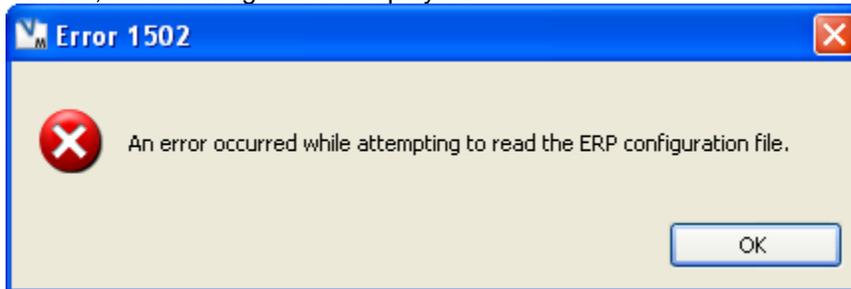
3. All the systems defined in the Web.config are checked in the order they are listed. The queue names of the first MSMQ system that is found will be tested in combination with the Machine Name from the ERP Administration dialog box.

```
  <erpFileStore            C:\Documents and Settings\All Users\Application
    <systems>

      <system name="ERP_System1" type="other" schemaVersion="1.0">
        <MSMQSettings url="AutodeskERP" physicalDir="" machineName="local
        </MSMQSettings>
      </system>

      <system name="ERP_System2" type="other" schemaVersion="1.0">
        <MSMQSettings url="AutodeskERP" physicalDir="" machineName="localh
        </MSMQSettings>
      </system>

First MSMQ       <system name="ERP_System3" type="MSMQ" schemaVersion="1.0">
system found  →    <MSMQSettings url="AutodeskERP" physicalDir="" machineName="localh
        </MSMQSettings>
      </system>

      <system name="MSMQ_DWF" type="MSMQ" schemaVersion="1.0">
        <MSMQSettings url="AutodeskERP" physicalDir="" machineName="localho
        </MSMQSettings>
      </system>

      <system name="MS Great Plains 10" type="MSMQ" schemaVersion="1.0">
        <MSMQSettings url="AutodeskERP" physicalDir="" machineName="GP_10"
        </MSMQSettings>
```

4. When attempting to launch the ERP Adminstration dialog box and no MSMQ system is found, the following error is displayed.

Error 1502

An error occurred while attempting to read the ERP configuration file.

OK

Vault Manufacturing Importing and Exporting

Once the Vault Manufacturing integration for GP 10 has been installed and configured you can use the Vault Manufacturing client to export and import items to and from GP 10.

Exporting From Vault Manufacturing

1. In the Navigation pane, select Item Master.

2. In the item master, select the released or obsolete items to export.

3. From the File menu, select Export Items or right-click a selected item and then select Export Items.

   The selected item and any children are listed with their respective revision IDs in the Export Wizard.
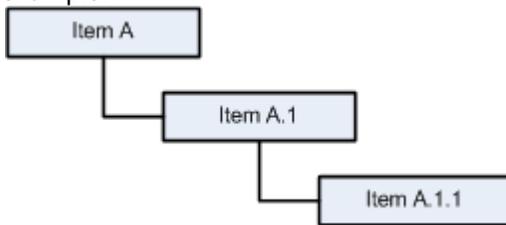   **Note**: Only items that are in a non-WIP state can be exported (i.e., released or obsolete).
   Items that are checked are exported. If you do not want to export an item that is checked, turn off the check box next to that item.

4. Click Next.

6. In the Specify Target screen, select the MSMQ DWF system
   Note: If you have more than one GP 10 system configured, select the appropriate system name.

7. Click Export.

8. The View Results displays the result, including those items that were successfully exported and those that were not.

   o Click Print to print the results.

   o Click Send to send the summary information by e-mail.

9. Click Finish.

Note: GP 10 does not allow item numbers longer than 30 characters.

When exporting a child item (i.e. item with no sub-items) from Vault Manufacturing, in order for GP10 to consider it for import, you must export its parent item instead. See the following example.

In order to import Item A.1.1 into GP10, Vault Manufacturing must export Item A.1 and Item A.1.1. It is not necessary to export Item A when exporting Item A.1 from Vault Manufacturing as the child item A.1.1 will be exported and thus Item A.1 would qualify for GP10 import considerations.

When exporting items from Vault Manufacturing, all item information and associated attachments are saved into one DWF file. If this DWF file is larger the 4MB, use one of the following work arounds to allow GP_10 to successfully import the DWFs.

Set Vault Manufacturing to not include attachments.

1. Locate the Web.config file under *installation folder\Server\Web\Services*
2. Open the Web.config using Windows Notepad.
3. From the Edit pull down menu select Find.
4. Enter "**export includeAttachments**"and click Find Next.
5. Change the value from true to false.

Change GP 10's maximum allowable DWF size. The size is set to 4MB by default.

1. From the start menu select Run
2. Enter regedit and click OK
3. Find the key *HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft Dynamics GP\Messaging Service\General\MaxDwfSize*

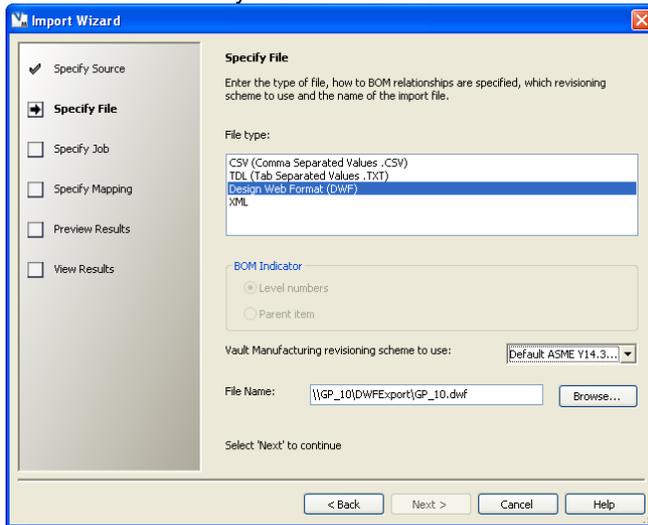   **Note**: This file size should be specified in bytes.

Importing into Vault Manufacturing

Follow the steps in this section to import items exported from GP 10 into Vault Manufacturing.

1. From the File pull down menu select "Import Items…"
2. In the Import Wizard select "Other" as the source for importing items.

   Note: Due to a limitation in the Microsoft GP 10 DMS, GP 10 item exports are not exported to MSMQ in a manner which can be imported by selecting an MSMQ job. For more information reguarding this topic contact Microdoft Dynamics Great Plains support.

3. Click Next.
4. Select "Design Web Format (DWF).
5. Select the necessary revision scheme.

6. Browse to the folder where the GP 10 exported DWF was saved and select the DWF to import.

   Note: This folder is the DWF export folder which was set up in step 10 of Dynamic Messaging Service (DMS).
7. Click Next.
8. Review the list of items for conflicts and select Import.

Note: Vault Manufacturing cannot import GP 10 items marked "Inactive" or have a GP 10 revision of "-".

For more information see Importing Items in the Vault Manufacturing Help.

Conclusion

Integrating Vault Manufacturing with a company's ERP system allows design departments to manage bills of material promoting earlier collaboration with outside departments. By performing the steps in this document you can configure MSMQ and Vault Manufacturing to share data with an out of the box Microsoft Dynamics GP 10.0 implementation.

Autodesk