How to detect and correct MicroStation VBA projects that fail to load that reference Microsoft Visual BASIC 5.0 and 6.0 ActiveX controls

SUMMARY

When attempting to load a MicroStation VBA project you may receive one of the errors listed in the ERRORS section below where the VBA project fails to load.

DETAILS

Cases that contribute to this behavior are:

- A missing a network mapped drive the user requires for loading a project, reference library, or ActiveX control
- A Microsoft ActiveX kill bit has been issued for a known legacy ActiveX control; considered to be unsafe or a threat
- A cached copy of a legacy ActiveX control is being located instead of a properly patched Microsoft VB 6.0 SP6 ActiveX control

You may notice that your MicroStation VBA macros no longer work after one of the following conditions has (un)knowingly have occurred:

- Microsoft Windows (service pack or security) update; having been downloaded and installed by Microsoft
- Microsoft Windows (service pack or security) update, or group policy; having been installed by your local IT group
- Microsoft Office (a new version, service pack, or security update) or individual Office program having been installed

ERRORS

| KB 932349 / MS08-070 | "Object library invalid or contains references to object definitions that could not be found" or "Element not found"
| KB 318597 | "You do not have a license to use this control"
| N/A - See Work-around 2 | "Compile error: Can't find project or library" (Microsoft Visual Basic - Dialog Box)

RESOLUTION

Microsoft has created update patches for the most commonly used Visual BASIC 6 ActiveX controls. The updated controls register with new GUIDs that are considered to be safe. A number of legacy ActiveX controls are considered by Microsoft to be unsafe and blocked from loading through the use of ActiveX kill bits. To avoid problems related to and blocked loading of legacy ActiveX controls a developer will need to apply the recommendations listed in KB 957924. A link to this KB article and additional background on this topic was posted by the Microsoft Visual Studio Office Developers (VSOD) team in the link below. A developer or administrator should be familiar with and may also need to consider implementing Work-around #1 as needed; if the VB/VBA application code cannot be updated by a developer per the steps listed in KB 957924.

Visual Basic 6 Controls stop working after Security Advisory 960715(How developers can address the issue) [http://blogs.msdn.com/b/usod/archive/2009/06/05/visual-basic-6-controls-stop-working-after-security-advisory-960715.aspx](http://blogs.msdn.com/b/usod/archive/2009/06/05/visual-basic-6-controls-stop-working-after-security-advisory-960715.aspx)

Description of the cumulative update rollup for the Visual Basic 6.0 Service Pack 6 Runtime Extended Files (What controls have been updated - and assigned new GUIDs) [http://support.microsoft.com/kb/957924](http://support.microsoft.com/kb/957924)
WORKAROUNDS

The following work-around(s) may be necessary if you encounter the errors listed in the ERRORS section of this article when a developer cannot address the steps provided in the RESOLUTION section of this article.

Work-around 1

At times you may need to delete legacy cached copies of ActiveX controls on a client machine related to errors listed for KB 932349. To correct these issues you can execute the following steps:

1. Close your MicroStation based product(s)
2. Open a DOS command shell
   Type: cd %USERPROFILE%
3. List and backup (or move if needed) the list of cached ActiveX controls to be affected
   Type: dir /S /A:H /A:-H *.EXD
4. Command to remove all cached ActiveX controls:
   Type: del /S /A:H /A:-H *.EXD
5. Restart your MicroStation based product(s) and verify if you can load and run your VBA macro project

Work-around 2

If your project can load but cannot run without error at times it may be convenient to modify client VBA object references directly. This can provide a quick fix for some situations.

1. Open your VB/VBA project and verify that all controls referenced can be resolved.
2. Detach a control then re-attach it and verify each to attempt to resolved the issue.
3. If the reference shows "Missing Reference: ..." and no suitable replacement can be found, simply uncheck the reference from being used then attempt to run the project or code.

Work-around 3

At times you may need to identify and allow loading of unsafe legacy ActiveX controls identified and blocked by Microsoft ActiveX kill bits.

Due to the nature of how Microsoft and 3rd party ActiveX controls are identified and registered you may need to identify with precision; which legacy control by the controls GUID and being blocked by ActiveX kill bit(s).

The process requires you to do the following:

1. Capture and analyze a Microsoft Process Monitor (procmon) log for a legacy ActiveX control blocked by Microsoft
2. You to interactively back up and delete any identified registry key(s)
3. Optionally make a deployable registry file or policy to unblock specific ActiveX control(s) you identify in this process

Capture a Microsoft Process Monitor log

1. Download Microsoft Process Monitor (procmon)
2. Start Procmon logging (the magnifying glass icon is a toggle to start/stop logging)
3. Start MicroStation and reproduce the problem - the error loading VBA project.
4. Stop Procmon logging once the error has occurred.
5. Save the Procmon log as a .PML file and “All Events”

Analyze the Microsoft Process Monitor log for any ActiveX kill bit(s) activity

1. In the Procmon log by filtering for "ActiveX Compatibility" in the "Path" field, and “Data: 1024” in the "Details" field. This will allow you to identify what controls has been blocked from loading.
2. Carefully note the GUID and registry path listed.
3. Interactively backup and delete each compatibility key with a blocked entry and required for use in your VBA code.
NOTES:
1. Microsoft or IT policies, Window or Office product upgrades, service packs or security patches may update the ActiveX kill bit and require these steps to be executed again.
2. The best course of action is to have the developer of the code update the version of ActiveX control referenced in the code as described in the RESOLUTION section of this article.

KNOWN AFFECTED CONTROLS:

Microsoft VB6 blocked legacy controls:

<table>
<thead>
<tr>
<th>File Name</th>
<th>Control Name</th>
<th>Class Identifier (CLSID)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Comct232.ocx</td>
<td>Windows Common Controls (5.0)</td>
<td>{1E216240-187D-11CF-9D53-00AA003C5CB6}</td>
<td></td>
</tr>
<tr>
<td>Mschart20.ocx</td>
<td>Chart Control (OLEDB)</td>
<td>{3A2B370C-BADA-11d1-B137-0000F8753F5D}</td>
<td></td>
</tr>
<tr>
<td>Mscomct2.ocx</td>
<td>Windows Common Controls-2 (6.0)</td>
<td>{B09DE715-87C1-11d1-8BE3-0000F8754DA1}</td>
<td></td>
</tr>
<tr>
<td>Msdatgrd.ocx</td>
<td>DataGrid Control 6.0 (OLEDB)</td>
<td>{cede5a43-8b86-11d0-b3c6-00a0c90a82}</td>
<td></td>
</tr>
<tr>
<td>Msflxgrd.ocx</td>
<td>FlexGrid Control 6.0</td>
<td>{6262d3a0-531b-11f6-c2863c385e30}</td>
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<tr>
<td>Msflxgd.ocx</td>
<td>Hierarchical FlexGrid Control</td>
<td>{OECD9B64-23AA-11d0-B351-0000F8754DA1}</td>
<td></td>
</tr>
<tr>
<td>Msmask32.ocx</td>
<td>Masked Edit Control</td>
<td>{C932B8A5-4374-101B-A56C-00AA003668DC}</td>
<td></td>
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<tr>
<td>MSwinsck.ocx</td>
<td>Winsock Control 6.0</td>
<td>{248dd9c-6-bb45-11cf-9abc-0080c7e7b78d}</td>
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</tr>
</tbody>
</table>

Additional Microsoft controls

<table>
<thead>
<tr>
<th>File Name</th>
<th>Control Name</th>
<th>Class Identifier (CLSID)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ProgressBar</td>
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<tr>
<td>CAPICOM</td>
<td></td>
<td>{03ACC284-B757-4B8F-9951-86E600D2C0D6}</td>
<td></td>
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<tr>
<td>msddsc.dll</td>
<td>Microsoft digital dashboard</td>
<td>{62CEC9E0-3811-4C36-A94E-4F7565D5CD3F}</td>
<td>Reference</td>
</tr>
<tr>
<td>msddsc.cab</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>mscomctl1.ocx</td>
<td>Microsoft ListView Control</td>
<td>{B0D1F04B-858B-11D1-B16A-00C0F0283628}</td>
<td></td>
</tr>
</tbody>
</table>

SAMPLE LOCATION

Provided as a sample, below is a location for a blocked Microsoft common control (mscomct2.ocx). Both the location for a 32-bit and 64-bit operating system respectively:

HKLM\SOFTWARE\Microsoft\Internet Explorer\ActiveX Compatibility\{B09DE715-87C1-11d1-8BE3-0000F8754DA1}\Compatibility Flags 32-bit control location

HKLM\SOFTWARE\Wow6432Node\Microsoft\Internet Explorer\ActiveX Compatibility\{B09DE715-87C1-11d1-8BE3-0000F8754DA1}\Compatibility Flags 64-bit control location

Some sample values you may expect to see for ActiveX Control states are shown. KB 240797 provides additional states/values:

COMPAT_EVIl_DONT_LOAD = 0x000000400 // On 1024- Don’t load (kill bit)
COMPAT_SAFEFOR_LOADING = 0x00000000 // On 388608 - Allow load
REFERENCES

The links below are provided to help provide details of the most recent security changes that may be affecting your users VBA or COM applications that reference legacy (black-listed) ActiveX Controls and Updated (white-listed) Microsoft ActiveX Controls.

Microsoft Security Bulletin MS12-027 – Critical

Microsoft’s Fix It Tool - KB 2703186 article
http://support.microsoft.com/kb/2703186

Description of the cumulative update rollup for the Visual Basic 6.0 Service Pack 6 Runtime Extended Files
http://support.microsoft.com/kb/957924

The links below are provide to help provide a better understanding and how to mitigate effects when dealing with legacy Microsoft ActiveX controls, Microsoft Internet Explorer ActiveX kill bits, Microsoft Office 2010 COM kill bits (i.e. black-listed controls), and the Microsoft Office Phoenix bit (i.e. white-listed controls):

MS12-027: Enhanced protections regarding ActiveX controls in Microsoft Office documents

Plan security settings for ActiveX controls for Office 2010

The links below are reference articles that can provide additional background and understanding of ActiveX killbits theory and implementation details.

Visual Basic 6 Controls stop working after Security Advisory 960715(VSOD Support Team posting)

Microsoft Security Advisory (960715) - Update Rollup for ActiveX Kill Bits

Certain VB controls no longer display on web pages after installing KB960715

MS08-070: Vulnerabilities in Visual Basic 6.0 Runtime Extended Files (ActiveX Controls) could allow remote code execution
http://support.microsoft.com/kb/932349

Description of the cumulative update rollup for the Visual Basic 6.0 Service Pack 6 Runtime Extended Files (How developers can address the issue)
http://support.microsoft.com/kb/957924

How to stop an ActiveX control from running in Internet Explorer (ActiveX control Killbits links)
http://support.microsoft.com/kb/240797

You receive an error message “You do not have a license to use this control” when you use Visual Basic 6.0 controls in Visual Studio 2005 or in Visual Studio .NET
http://support.microsoft.com/kb/318597

COMPAT Enumerated Type (Various ActiveX kill bit states and values)