How to Troubleshoot App-V 5

(like a ninja)

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About Me

- Application packaging consultant

- Contractor working with add3

- Windows Installer since 2003

- App-V since 2009

- App-V MVP since 2 days ago!

About Me

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App-V User Group UK 2014

Written by Dan Gough on. Posted in App-V v4.x, App-V v5.x

App-V User Group UK 2014

Friday 3rd October 2014
Microsoft, Cardinal Place, London

sponsored by add3

I have been a regular attendee to the European App-V User Group (appvug.com) for the last few years and have found it a great place to learn and share information about App-V, meet various bloggers and MVPs and network with fellow professionals – as well as being a fun day out of course!

It appears that there is plenty of demand over here in the UK for a similar event, so it is with great pleasure that I, along with Danny Clarke, Nathan Sperry, Thamim Karim and Nicke Källén present the first App-V User Group UK, sponsored by add3. It will be held on Friday 3rd October at Microsoft's London office at Cardinal Place.

We are still finalising the agenda, so watch this space for further details. Expect a star studded roster of App-V bloggers and MVPs to be presenting! In the meantime, get over to appvuguk.eventbrite.com and register as soon as you can, as availability is limited.

Stay up to date by checking back here, or on Twitter with #APPVUGUK

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Troubleshooting: App-V 5.0 vs 4.6

- Logs now in Event Viewer
- Powershell instead of sfttray
- No more PKG files
- UAC Compatible
- VCRedists now handled

- PVAD selection important
- Global vs User publishing
- Permissions issues
- Completely rewritten
- Completely new bugs!

Beginner Training

Breaking into the Bubble

- Allow App-V PowerShell cmdlets to run:
  - `Set-ExecutionPolicy RemoteSigned` *(or Unrestricted)*

- Use Start-AppvVirtualProcess command, e.g:
  - `Start-AppvVirtualProcess -AppvClientObject (Get-AppvClientPackage *APPNAME*) cmd`

Breaking into the Bubble

- Tools:
    - App-V Manage by Tim Mangan - tinyurl.com/appvmanage
    - ACDC 2.0 by Login Consultants - tinyurl.com/loginacdc
    - App-V Launcher by Andrew Morgan - tinyurl.com/appvlauncher
    - App-V 5 VE Launcher by Immidio - tinyurl.com/immidioappv

Breaking into the Bubble

- Warning!

  - Virtual process will inherit rights from parent process

  - Unintentionally running applications as admin can affect behaviour

  - Make sure PowerShell and tools are not running elevated

  - App-V Manage always requests admin rights if available. Workaround is to open command prompt, type `SET __COMPAT_LAYER=RunAsInvoker`, then launch the tool from the same window

Viewing User Changes

- Base registry:
    - HKLM\SOFTWARE\Microsoft\AppV\Client\Packages\<PackageId>\Versions\<VersionId>\REGISTRY
    - HKCU\Software\Classes\AppV\Client\Packages\<PackageId>\Versions\<VersionId>\REGISTRY

- User changes:
    - HKCU\Software\Microsoft\AppV\Client\Packages\<PackageId>\REGISTRY
    - HKCU\Software\Classes\AppV\Client\Packages\<PackageId>\REGISTRY
    - HKLM\SOFTWARE\Microsoft\AppV\Client\Packages\<PackageId>\REGISTRY *(elevated only)*

- Replace **Packages\PackageId** with **PackageGroups\GroupId** for Connection Groups!

Viewing User Changes

- Base files:
  - %PROGRAMDATA%\App-V\<PackageId>\<VersionId>\Root

- User changes:
  - %APPDATA%\Microsoft\AppV\Client\VFS\<PackageId> *(roaming)*
  - %LOCALAPPDATA%\Microsoft\AppV\Client\VFS\<PackageId> *(non-roaming)*
  - Folders under here ending in S denote changes made by elevated users

- Connection groups store data under the same location but use the GroupId

Viewing User Changes

- Apps have a different view of the virtual environment if they are launched as admin!

- Registry
  - Admin cannot see user changes but user can see admin changes

- PVAD / VFS (Write Enabled)
  - Admin cannot see user changes and vice versa

- VFS (Write Disabled)
  - User unable to make changes but can see admin changes

Event Viewer

- Run eventvwr to launch

- To show debug logs:

  View ->
  Show Analytic and Debug Logs
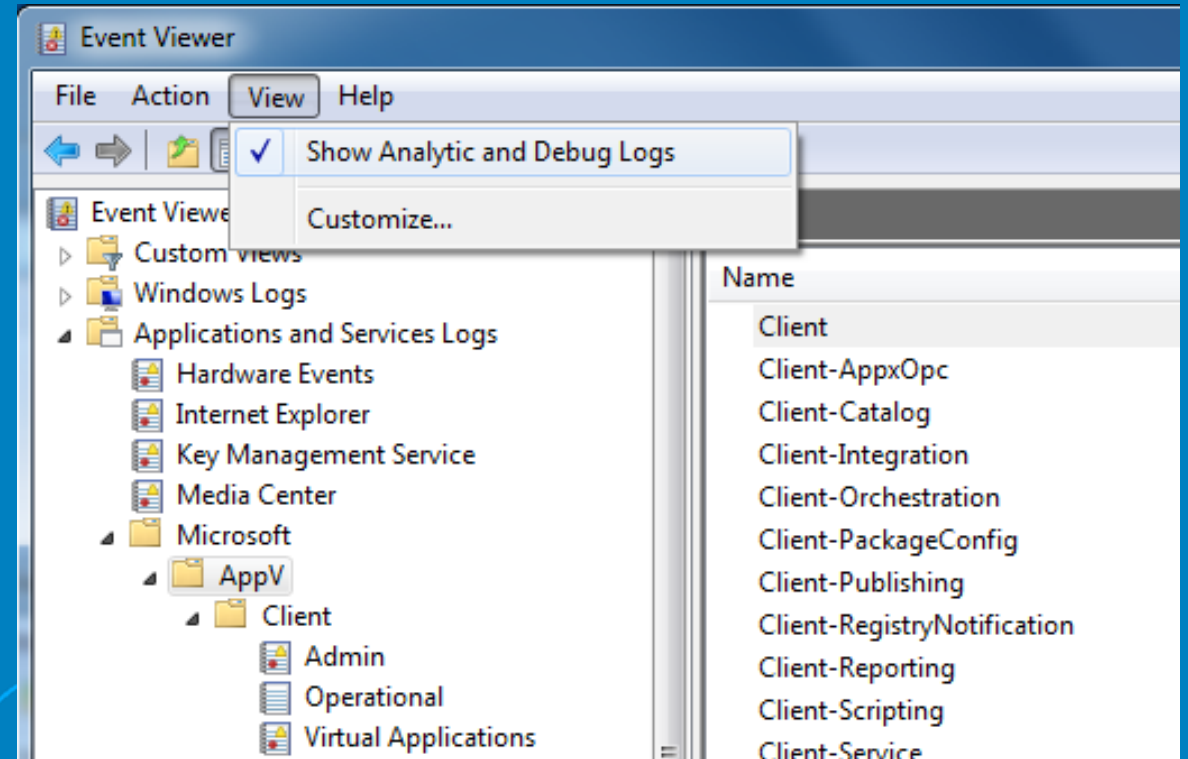
Event Viewer

- Expand to show debug logs

- Right-click to enable individual logs

- PowerShell script from Nicke Källén to enable all debug logs: tinyurl.com/enableappvlogs

- App-V Manage can also be used to enable debug logs
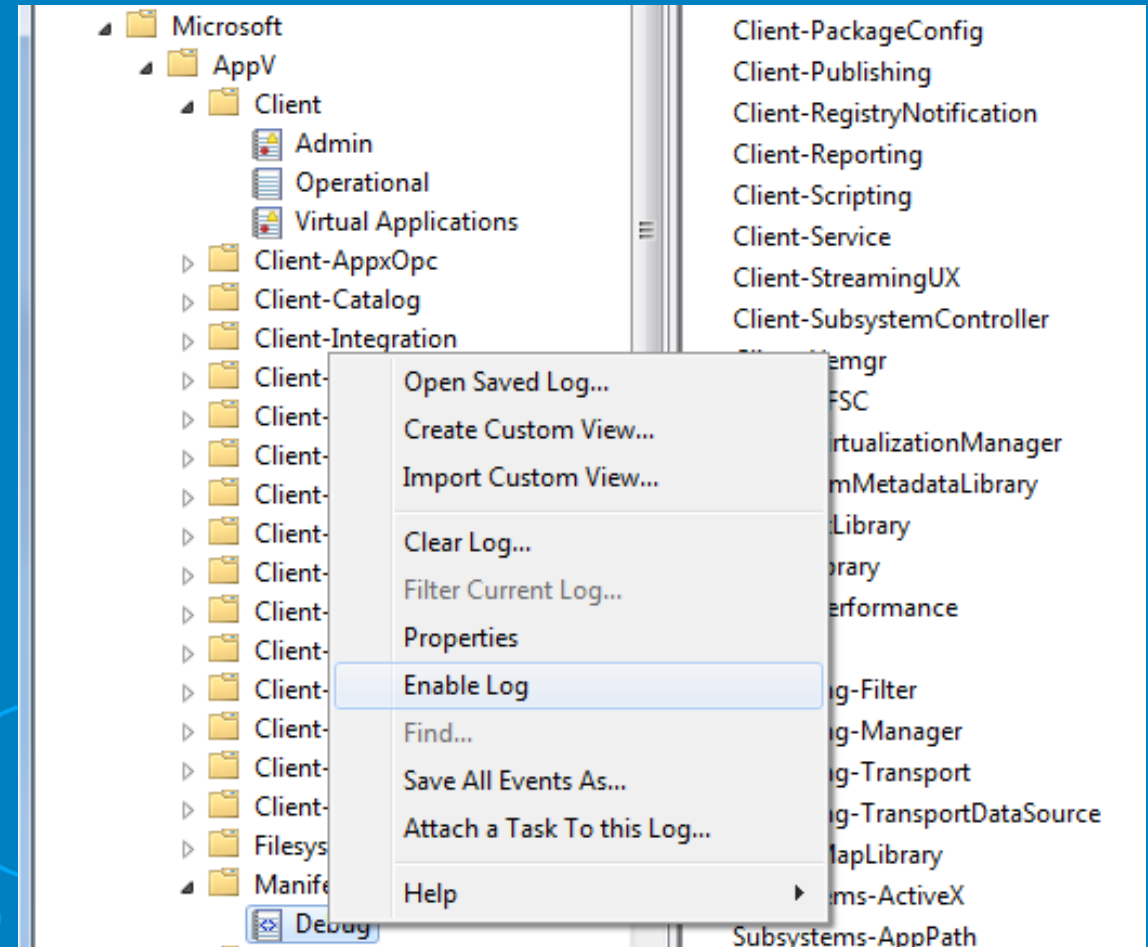
Error Codes

- Many error codes are standard Windows error codes:

```
PS C:\Windows\system32> Get-AppvClientPackage *java* | Mount-AppvClientPackage
Mount-AppvClientPackage : Application Virtualization Service failed to complete
Operation attempted: Mount Package.
Windows Error: 0x80070003 — The system cannot find the path specified
Error module: Streaming Manager. Internal error detail: 74F02C2C8007003.
Please consult AppV Client Event Log for more details.
```

- Look them up here: tinyurl.com/systemerrorcodes

ERROR_PATH_NOT_FOUND

3 (0x3)

The system cannot find the path specified.

Error Codes

- If application launches then exits immediately, two ways to find an error code are:

  - Using ProcMon, find the Process Exit event and look up the Exit Status

  - Open cmd in the bubble and run the application from there. Output may be shown, also you can view the exit code by typing:

    ```
    echo %ERRORLEVEL%
    ```

Troubleshooting Steps

- Examine Report.xml!

- This will list any issues picked up by the sequencer, such as device drivers, DCOM etc.

- It will also list any excluded files (e.g. local appdata)

- UNCOMFIRMED – I have heard from Rory that the sequencer does not always report these issues, they can vary depending on whether or not you chose to install to the PVAD!

Troubleshooting Steps

- Expand package to local system on sequencer and re-test
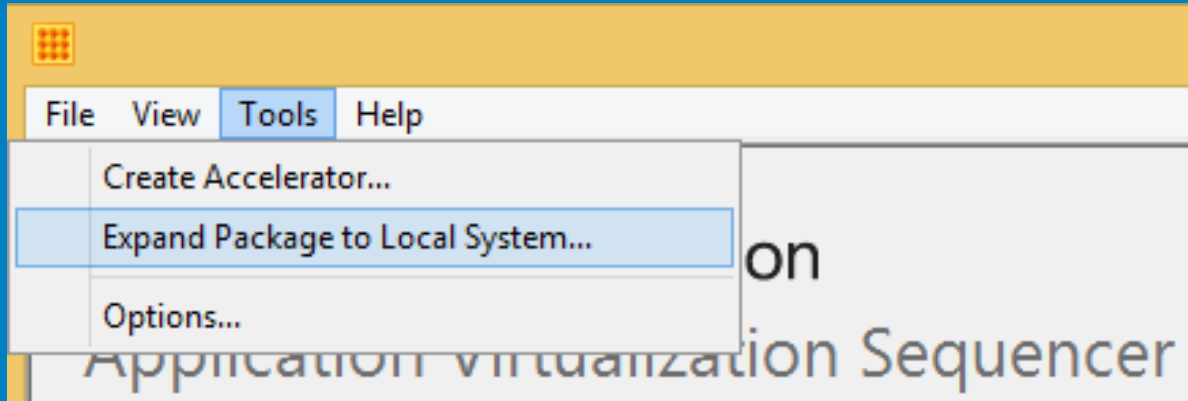
- This will rule out the App-V client from the equation and verify the package contains all required resources

Troubleshooting Steps

- Install the application natively on the App-V client then re-test

- Use `Repair-AppvClientPackage –Extensions` command to re-assign shortcuts and file type associations back to the App-V package

- If application starts working, check for:

  - DCOM/COM+ - tinyurl.com/appvcomplus for guidance

  - Drivers - C:\Windows\System32\DriverStore\FileRepository, sort by date

Expert Training

Permissions

- Application behaving strangely? Try launching as administrator!

- VFS Write option solves most permissions issues

- Procmon does not report ACCESS_DENIED for failed VFS writes

- If you are using a version prior to v5.0 SP2 Hotfix 4, I have a script to adjust permissions: tinyurl.com/appvpermissions

- Even if you have write access, you cannot write certain file types: tinyurl.com/appvcow

Virtual Environment Issues

- PVAD folder is hidden, but contents are still accessible

- Batch files and reg files run outside the bubble

- If app fails to find dlls in SysWOW64 folder, copy them to app folder

Changing the PVAD

- ArcGIS does not work when sequenced to a dummy PVAD:
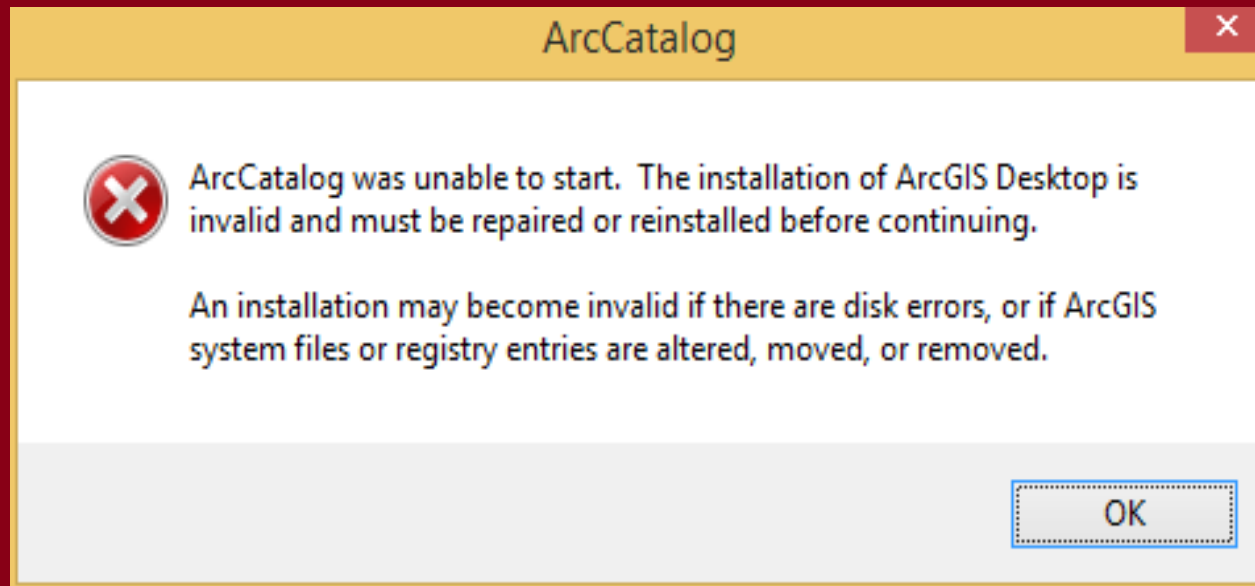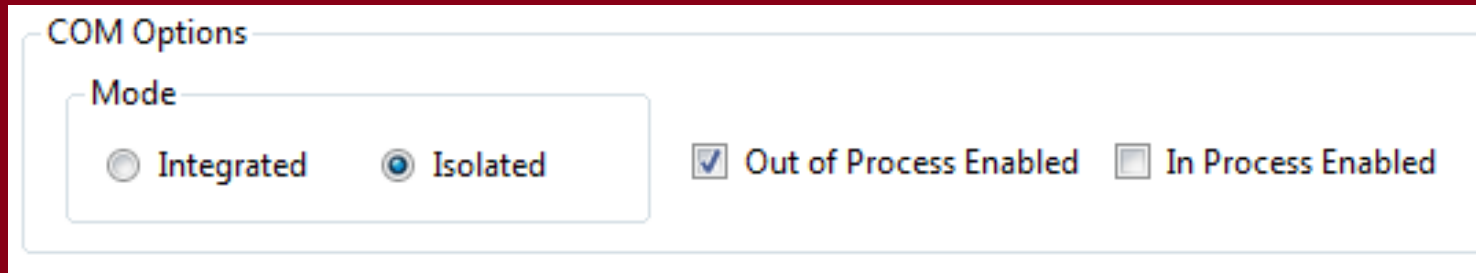
Connection Groups

- If using client version prior to 5.0 SP2 Hotfix 5, all apps in a group must be published the same way (either global or per-user)

- PVAD contents do not merge together

- Creating a shortcut in one package pointing to an exe in another does not work!

  - Workaround 1 – Mirror client paths on sequencer

  - Workaround 2 – Launch using a script or cmd.exe as a middleman

  - Blog post coming soon!

COM Integration

- Try changing COM settings using ACE to modify the config file:

- Then apply config by either:

  - `Set-AppvClientPackage *APPNAME* -DynamicDeploymentConfiguration <PATH>`

  - `Get-AppvClientPackage *APPNAME* | Publish-AppvClientPackage -DynamicUserConfigurationPath <PATH>`

Applying Shims
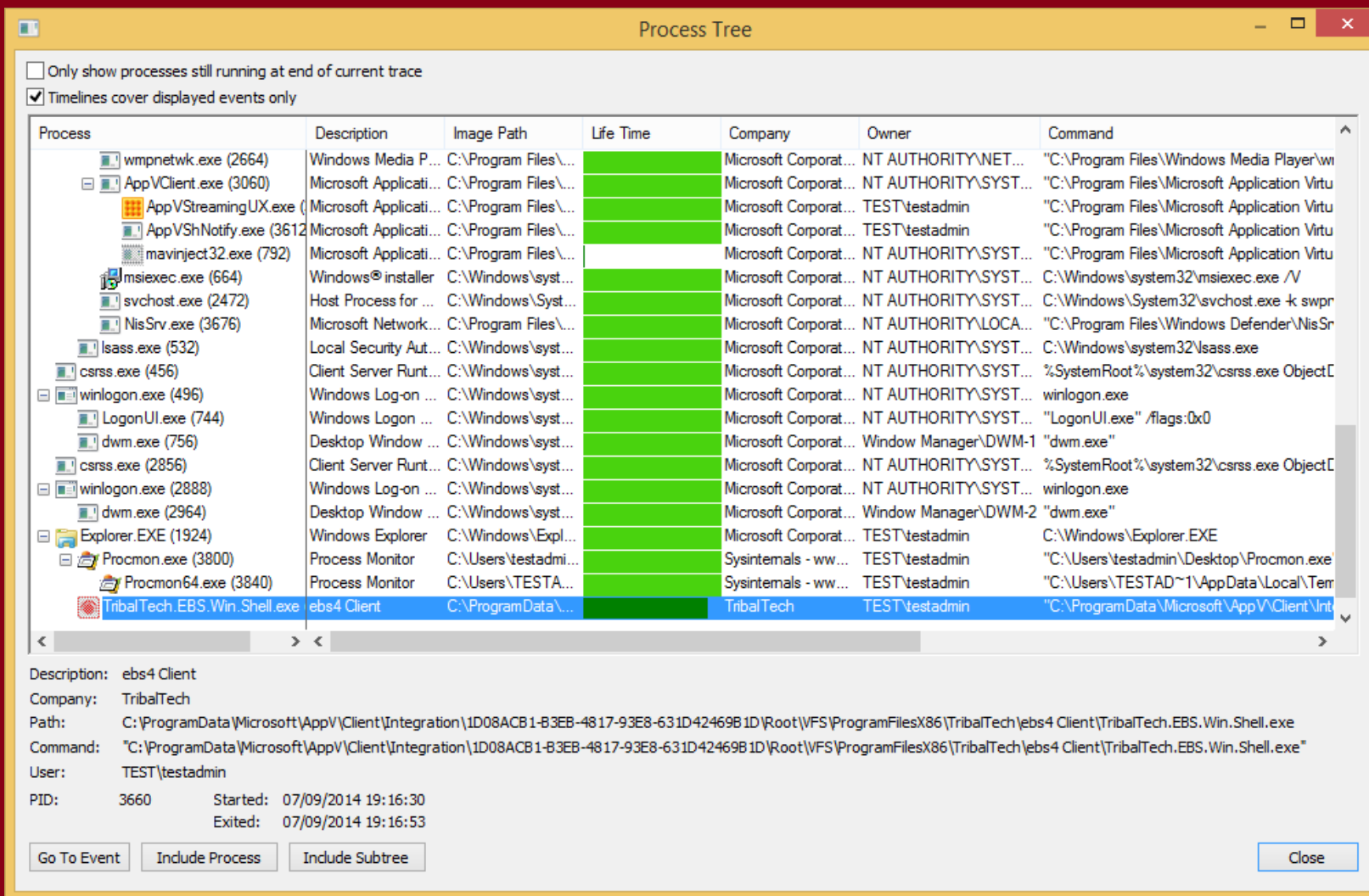
- Many basic shims such as WINXPSP3 can be applied via registry:
  - HKCU\Software\Microsoft\Windows NT\CurrentVersion\AppCompatFlags\Layers
- Microsoft Application Compatibility Toolkit (ACT)
  - go.microsoft.com/fwlink/p/?linkid=205020
- How to apply ACT shim database .sdb files:
  - tinyurl.com/appvact1
  - tinyurl.com/appvact2
- Alternatively by setting __COMPAT_LAYER environment variable. This can be done inside the package: tinyurl.com/compatlayer

Using Process Monitor

- Launch from anywhere without having to download: \\live.sysinternals.com\Tools\Procmon.exe

- Use the Process Tree view to see a timeline of launched processes

Using Process Monitor

Using Process Monitor

- Use the Tree View to set filter to show application and all child processes

- Use the timeline to see any if any other processes are launched at runtime

- Highlight all lines with result of NAME NOT FOUND, PATH NOT FOUND and ACCESS DENIED

- Be aware that the system looks for files in multiple locations before reporting SUCCESS, so not all NOT FOUND results are important

- When searching for COM objects in the registry the system will look and fail under HKCU\Software\Classes before searching HKLM\Software\Classes

Spy Studio

- Download from: nektra.com/products/spystudio-api-monitor

- Similar to ProcMon in nature but with some unique features:

  - Runs in user mode and hooks the application directly, resulting in less noise

  - Visual tree views of loaded/modified files and registry keys

  - Ability to compare traces between natively installed and virtualised apps

  - Can be used to package applications in ThinApp or Symantec Workspace Virtualization when you no longer have the source installer

Special Moves!

How to Fix a Crashing Sequencer

- If you see either of these errors when sequencing:
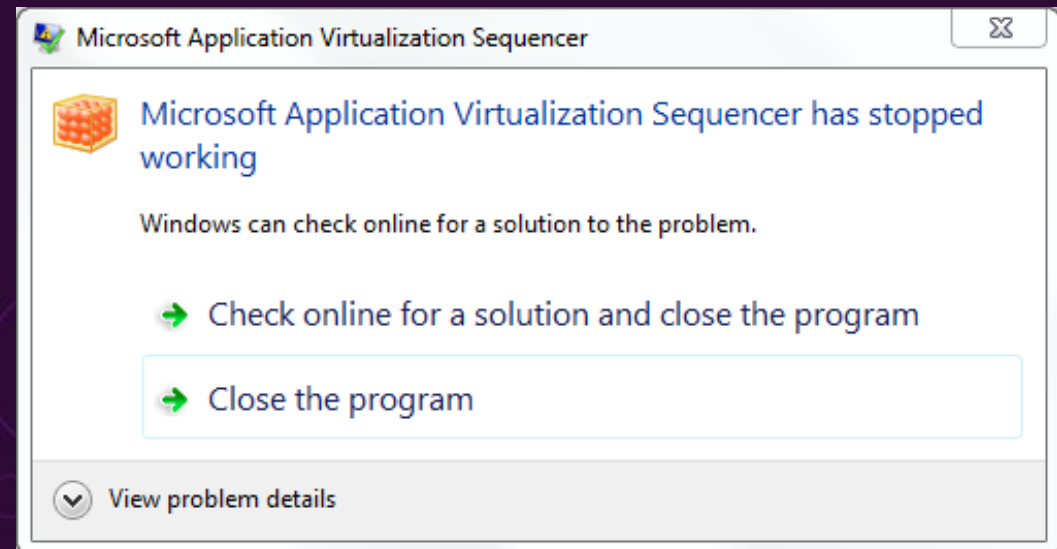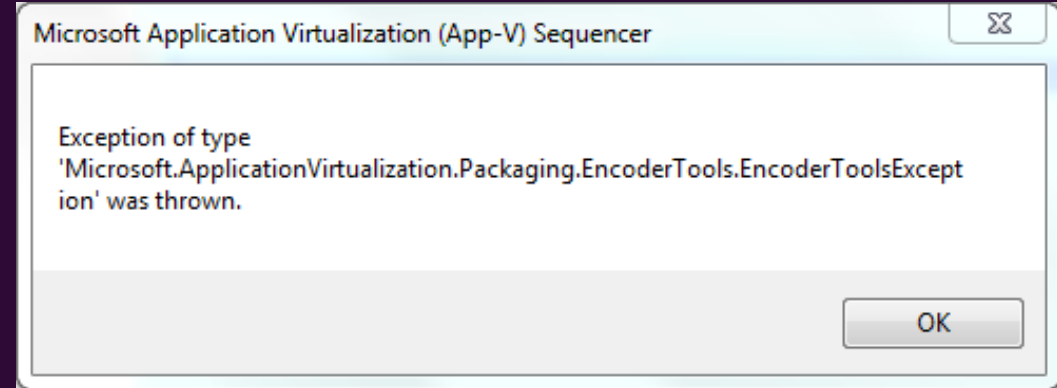
How to Fix a Crashing Sequencer
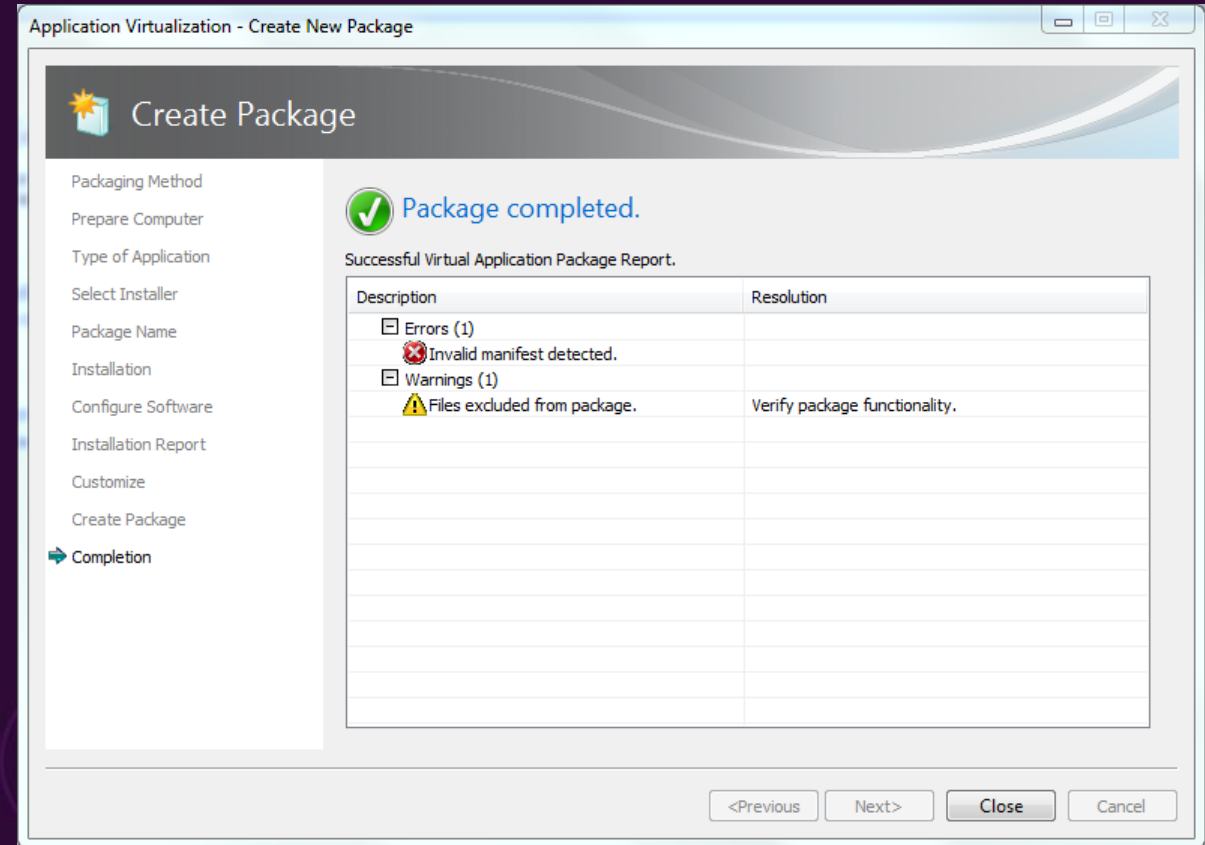
- Start again, do not launch the application in the streaming phase, and select to save the package immediately without editing.

- You should see "Invalid manifest detected":

How to Fix a Crashing Sequencer

- Enable ManifestLibrary debug log
- Import to App-V client and get an error:

```
Add-AppvClientPackage : Package manifest is invalid. Validation of elements in AppV namespace failed.
Operation attempted: Retrieve Package and Version IDs From Package URL.
AppV Error Code: 1400000007.
Please consult AppV Client Event Log for more details.
```

- Looking up error code 7!!!

ERROR_ARENA_TRASHED

7 (0x7)

The storage control blocks were destroyed.

How to Fix a Crashing Sequencer

- Run Event Viewer, open ManifestLibrary debug log:

A manifest document failed validation against the schema(s).
DOM Error: 0xC00CE012
Reason: Content for element '{http://schemas.microsoft.com/appv/2014/manifest}ProgId' is incomplete according to the DTD/Schema.

- Application found to use non-standard way of populating file type associations in the registry

- Full solution here: tinyurl.com/crashingsequencer

App-V Resources

- Blogs:
  - applepie.se
  - ittechlog.wordpress.com
  - kirxblog.wordpress.com
  - packageology.com
  - rorymon.com
  - www.softgridblog.com
  - stealthpuppy.com
  - t3chn1ck.wordpress.com
  - tmurgent.com/tmblog
  - trentent.blogspot.co.uk
  - vroom.cc

- Microsoft Blogs:
  - blogs.msdn.com/b/sgern
  - blogs.technet.com/b/appv
  - blogs.technet.com/b/gladiatormsft
  - madvirtualizer.wordpress.com
  - virtualvibes.co.uk

- Forums:
  - tinyurl.com/appvforum
  - tinyurl.com/appvrecipes
  - appvirtguru.com

Any Questions?