Package Aware

- White Paper -

Service Operation / Engineering Group

Service and Support Division

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Version	Date
1.0	July 3, 2014

Revision History

Version	Date	Modified Contents	Editor
0.5	Apr/17/2014	Initial version	T. Kotlarski
1.0	Jul/3/2014	Added Cover page and standard KMI White paper formatting Revised all contents	M.Morisse

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1. Products

General printer driver technology

2. Information

From Windows Vista and Windows Server 2008 onwards, Microsoft introduced a new Driver functionality called "Package Aware" that is used during Point & Print or Plug & Play driver installation, in combination with also newly introduced User Access Control, or UAC.

Previous operating System, up to Windows XP and Windows Server 2003 did not support UAC, therefore first issue was that any User was able and had the rights to install drivers, even if the driver packages were not installed on the client machine. Second issue was that many drivers were depending on some system files and resources (such as Microsoft Uni-driver files), which would create problems in case of missing, updated files. Or one newer driver updating files also in use by other drivers.

Package Aware was established to solve both issues. Not only, it allows standard (non-Admin) Users to install drivers when User Access Control is enabled, but it also ensures that or files and resources are correctly "packaged" within each driver.

If a driver supports the Package Aware functionality, the ".inf" and ".cat" file with all their corresponding files are put into one package and will be stored in Windows Driver Store of the client OS.

3. Further Information

3.1. Identifying a Package Aware driver

It is really simple to check if a driver supports the "Package Aware" function. You just need to have a look for the "Package Aware" keyword in the drivers .inf file. If it is included, then the driver is supporting it.

```
38   L
39   [KOAYTJ__.C364Series.NTamd64.6.0]
40     CopyFiles=KOAYT_COPY,PRINT_MONITOR,IMG_PP_FILES,IMG_DATA_FILES
41     PrintProcessor="KOAYTJ_P,KOAYTJ_P.dll"
42     DataSection=KOAYT_DATA
43     LanguageMonitor="C364SeriesPCL Language Monitor,KOAYTJ_L.DLL"
44     HelpFile=KOAYTJ__.CHM
45
46   [PrinterPackageInstallation.amd64]
47     PackageAware=TRUE
48
49   [KOAYT_COPY]
50     KOAYTJ_B.DLL
51     KOAYTJ_C.DLL
52     KOAYTJ_D.DLL
53     KOAYTJ_E.DLL
```

Figure 3-1-1 **Package Aware in INF**

3.2. Windows Driver Store

In order to understand Package Aware function completely, it is also necessary to understand the whole driver installation procedure and especially why the drivers needs to be packaged.

With Windows Vista onwards, Microsoft introduced a "Driver Store". This Driver Store includes all Windows built in drivers (inbox drivers) which are pre-installed by Microsoft. All these included drivers are signed and can be installed by a client without admin rights.
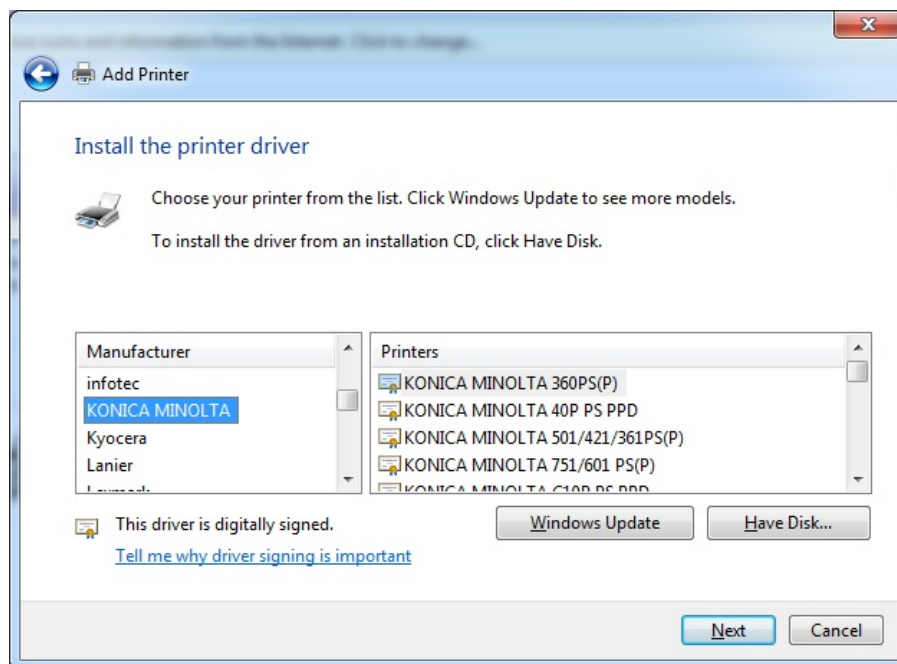

Figure 3-2-1 Microsoft Inbox Drivers

In the Screenshot above, you can see the Microsoft inbox drivers which are already available in the Driver Store.

If the driver supports the Package Aware functionality it is guaranteed that only these files belong together and that files are not shared with other drivers. Therefore, the client OS puts this driver into its Driver Store. If a User connects this product to his computer (via USB or network), he will be able to install it even if he has no administrator rights.

3.3. PnP Utility

Together with Driver Store and Package Aware functionality, Microsoft also introduced a new tool to manage the Driver Store, called PnP Utility, or PNPUTIL.

PNPUTIL allows Administrators to list, add or remove drivers from the Driver Store. It requires Administrator rights and can be invoked from the Command Line or cmd.exe.

Detailed usage information can be shown with **pnputil.exe -?**:

```
C:\Windows\system32>pnputil -?
Microsoft PnP Utility
Usage:
------
pnputil.exe [-f | -i] [ -? | -a | -d | -e ] <INF name>
Examples:
pnputil.exe -a a:\usbcam\USBCAM.INF      -> Add package specified by USBCAM.INF
pnputil.exe -a c:\drivers\*.inf          -> Add all packages in c:\drivers\
pnputil.exe -i -a a:\usbcam\USBCAM.INF   -> Add and install driver package
pnputil.exe -e                           -> Enumerate all 3rd party packages
pnputil.exe -d oem0.inf                  -> Delete package oem0.inf
pnputil.exe -f -d oem0.inf               -> Force delete package oem0.inf
pnputil.exe -?                           -> This usage screen
```

Figure 3-3-1 PnP Utility usage

Example of PnP Utility usage:

```
C:\Windows\system32>pnputil -e
Microsoft PnP Utility

Published name :          oem96.inf
Driver package provider : KONICA MINOLTA
Class :                   Printers
Driver date and version : 06/07/2013 3.1.1.01
Signer name :             Microsoft Windows Hardware Compatibility Publisher

C:\Windows\system32>
```

Figure 3-3-2 PnP Utility example

4.   Updates

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https://www.konicaminolta.eu/dlark