



B&R Windows Embedded Standard 2009 Guide

Range of Functions / WES2009 Pack / Target Designer Export Files

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I Version information

Version	Date	Comment	Author
1.0	22-Nov-09	First edition	ROG
1.12	21-Mar-11	Supplement to PP500, various changes made	ROG
1.20	24-Nov-11	Additions of "ACPI Multiprocessor PC" and "ACPI PC", plus various changes	ROG
1.21	06-Aug-12	APC910 added to "ACPI Multiprocessor PC"	ROG

Table 1: Version information

II Organization of safety notices

Safety notices in this document are organized as follows:

Safety notice	Description
Danger!	Disregarding safety regulations and notices can be life-threatening.
Warning!	Disregarding safety regulations and notices can result in severe injury or substantial damage to equipment.
Caution!	Disregarding safety guidelines and notices can result in injury or damage to equipment.
Information:	Important information for preventing errors.

Table 2: Organization of safety notices

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1 Introduction

Windows Embedded Standard 2009, referred to in the following as WES2009, is based on Windows XP Pro SP3.

Compared with Windows XP Embedded, it has some additional Embedded features, and is also characterized by a longer lifetime cycle as compared to XP Embedded.

This document provides an overview of the range of functions offered by B&R WES2009 standard images and should serve as an aid to using B&R WES2009 Packs and Target Designer export files to generate your own WES2009 images for B&R automation devices.

1.1 Assignment of B&R WES2009 standard image / B&R WES2009 Pack

The following overview illustrates how the B&R WES2009 standard images available at the time this document was written are assigned to the B&R WES2009 Pack to be used when generating the image:

Model number	Name	Revision	WES2009 Pack
5SWWXP.0712-ENG	WES2009 APC620 855GME ETX	C0	V01.00
5SWWXP.0713-ENG	WES2009 APC620 855GME XTX	C0	V01.00
5SWWXP.0715-ENG	WES2009 PPC700 855GME ETX	C0	V01.00
5SWWXP.0716-ENG	WES2009 PPC700 855GME XTX	C0	V01.00
5SWWXP.0721-ENG	WES2009 PP300 LX800	D0	V01.20
5SWWXP.0722-ENG	WES2009 PP400 LX800	C0	V01.20
5SWWXP.0723-ENG	WES2009 PPC300 LX800	D0	V01.20
5SWWXP.0726-ENG	WES2009 APC810 945GME	D0	V01.20
5SWWXP.0727-ENG	WES2009 PPC800 945GME	D0	V01.20
5SWWXP.0728-ENG	WES2009 APC820 945GME	D0	V01.20
5SWWXP.0729-ENG	WES2009 PPC700 945GME XTX	D0	V01.20
5SWWXP.0730-ENG	WES2009 APC620 945GME XTX	D0	V01.20
5SWWXP.0733-ENG	WES2009 APC810 GM45	D0	V01.20
5SWWXP.0734-ENG	WES2009 PPC800 GM45	D0	V01.20
5SWWXP.0736-ENG	WES2009 PP500 US15W	E0	V01.20
5SWWXP.0737-ENG	WES2009 APC510 US15W	C0	V01.20
5SWWXP.0738-ENG	WES2009 APC511 US15W	C0	V01.20
5SWWXP.0740-ENG	WES2009 APC910 QM77/HM76	C0	V01.21

Table 3: B&R WES2009 standard image assignment to B&R WES2009 IPC Pack

Note:

This assignment can also be used together with "2 Range of functions / Version history" on page 11 to determine the range of functions for the individual image.

The assignment of older B&R standard image revisions can be viewed for the respective B&R WES2009 Pack in section "2 Range of functions / Version history" on page 11.

1.2 Important new changes to B&R standard images in B&R WES2009 Pack V1.12

B&R standard images generated with B&R WES2009 Pack V1.12 or later contain the following important changes:

- The Enhanced Write Filter is now operated in "RAM-REG" mode instead of in RAM mode as before.

- o Therefore, a hidden partition is no longer required on the mass memory for the configuration of the Enhanced Write Filter. This makes it much easier to clone and create backups.
- Internet Explorer 8 is now used as the standard browser instead of Internet Explorer 7.

1.2.1 EWF RAM-REG vs. EWF RAM Mode

In B&R standard images which have been generated with B&R WES2009 Pack V01.12 or higher, the mode EWF RAM-REG is used for the Enhanced Write Filter instead of the mode EWF RAM. The difference between the two modes is the additional partition needed for the EWF RAM mode, but not for the EWF RAM-REG mode.

This partition makes it considerably more difficult to clone images in EWF RAM mode. The partition is particularly prone to cloning errors in cases where the device contains several storage media.

The EWF RAM mode stores its control commands for the EWF on this partition.

The EWF RAM-REG mode, however, stores the control commands for the EWF in the registry.

The advantage is that the additional partition is no longer needed when working with the EWF RAM-REG mode, which makes the cloning of images much easier and more stable.

Note:

In EWF RAM-REG mode, the control commands for the EWF are stored in the registry, which is protected by the EWF! Switching off the EWF with the command line tool ewfmgr.exe now requires the following extra parameters to disable the EWF:

"ewfmgr.exe -commitanddisable"

A "ewfmgr.exe -disable" command no longer works in EWF RAM-REG mode!

If you use the EWF Manager in the Control Panel, it automatically generates the correct command for the current mode so you don't have to.

Other than this distinction, the EWF RAM-REG and EWF RAM modes are used identically.

1.3 Important new changes to B&R standard images in B&R WES2009 Pack V1.20

B&R standard images in B&R WES2009 Pack V1.20 or higher are generated in a fundamentally different way than B&R standard images with an older B&R WES2009 Pack.

B&R WES2009 Pack V1.20 only contains the following 2 basis images, which cover all B&R device families:

- B&R ACPI multiprocessor PC devices
This image supports the following devices:
 - o APC810_PPC800_945GME
 - o APC810_PPC800_GM45
 - o PP500
 - o APC511
 - o APC510
 - o APC620_PPC700_945GME
 - o APC820_945GME
- B&R ACPI PC devices
This image supports the following devices:
 - o APC620_PPC700_X855
 - o APC620_PPC700_E855
 - o PP300/400
 - o PPC300

With the Target Designer only one basis image is now generated without hardware-specific drivers, which then runs through the FBA on one device.

After successfully completing the FBA, the image is then prepared with special "Sysprep" options so that all hardware device specific drivers, including the Automation Device Interface and touch screen driver,

will be installed on the respective device in the device group "ACPI Multiprocessor PC" or "ACPI PC" during the next startup.

This makes it easier to keep images up to date in regard to their functions and QFE.

It is also now relatively easy to update to newer versions of device-specific drivers including Automation Device Interface and touch screen driver, without having to regenerate the image using the Target Designer. It is only necessary to create a new generation of the image using the Target Designer when adding security updates to the basis image, changing the functions on the basis image or adding support for a new device on the basis image.

These changes are then valid for all of the devices in a device family, and no longer need to be regenerated individually for each device, as was required in the past.

Note

ACPI multiprocessor PC images do not run on ACPI PC devices and vice-versa!

1.4 B&R standard images in B&R WES2009 Pack V1.21

Starting with B&R WES2009 Pack V1.21, the 2 basis images support the following B&R device families:

- B&R ACPI multiprocessor PC devices
This image supports the following devices:
 - o APC810_PPC800_945GME
 - o APC810_PPC800_GM45
 - o PP500
 - o APC511
 - o APC510
 - o APC620_PPC700_945GME
 - o APC820_945GME
 - o APC910_QM77
 - o APC910_HM76
- B&R ACPI PC devices
This image supports the following devices:
 - o APC620_PPC700_X855
 - o APC620_PPC700_E855
 - o PP300/400
 - o PPC300

Note

".Net Framework 4.0 Client Profile" is automatically installed on the APC910 because ".Net Framework" is required for the APC910 graphic card drivers.

Just as before, .Net Framework will not be automatically installed on any of the other platforms mentioned above.

All important changes to the B&R WES2009 Packs prior to V01.21 are still included.

2 Range of functions / Version history

2.1 B&R WES2009 Pack V01.21

The following B&R standard images for WES2009 are based on B&R WES2009 Pack V01.21:

Model number	Name	Revision	Target Designer export file
5SWWXP.0740-ENG	WES2009 APC910 QM77/HM76	C0	ACPI_MultiprocessorPC_V01_21

Table 4: B&R WES2009 standard images based on B&R WES2009 Pack V01.21

2.1.1 Range of functions

Function	Present
Enhanced Write Filter (EWF) RAM-REG mode	√
File Base Write Filter (FBWF)	√
Page file	Configurable
Administrator account	√
User account	Configurable
Explorer shell	√
Registry filter	√
Internet Explorer 8.0	√
Internet Information Services (IIS)	-
Terminal service	√
Windows Firewall	√
MSN Explorer	-
Outlook Express	-
Administrative Tools	√
Remote Desktop	√
Remote Assistance	-
.Net Framework	√ ¹
ASP.NET	-
Local Network Bridge	√
Codepages/User Locale/Keyboard	√
Disk Management Service	√
Windows Installer Services	√
Class Installer	√
CoDevice Installer	√
Media Player 6.4	√
DirectX 9.0C	√
Accessories	√
Number of fonts	116
Control Panel functionality	√
B&R Automation Device Interface	√
Touch screen driver	Device-dependent

Table 5: Range of functions for B&R standard images generated with B&R WES2009 Pack V01.21

¹ ".Net Framework 4.0 Client Profile" is only automatically installed on the APC910.

2.1.2 Changes - Version 01.21 / 06.08.2012 / ROG

This template requires Windows Embedded Standard 2009

- The following Microsoft QFEs must be installed:
 - +December 2009 Windows XP Embedded and Windows Embedded Standard 2009 Security Updates - Product Download
 - +January 2011 Windows XP Embedded and Windows Embedded Standard Security Updates - Product Download
 - +August 2011 Windows XP Embedded and Windows Embedded Standard Security Updates - Product Download
 - +February 2010 Windows Embedded Standard 2009 Feature Update - Product Download
 - +Windows Internet Explorer 8 for Windows Embedded Standard 2009 - Product Download
 - +November 2010 Windows XP Embedded and Windows Embedded Standard Optional Update - Product Download
 - +January 2011 Windows XP Embedded and Windows Embedded Standard Optional Update - Product Download
 - +February 2011 Feature Update for Windows Embedded Standard 2009 - Product Download
 - +May 2011 Windows XP Embedded and Windows Embedded Standard Optional Update - Product Download
 - +Windows Embedded Standard 2009 May 2011 Feature Update - Product Download
 - +July 2011 Windows XP Embedded and Windows Embedded Standard Optional Update - Product Download
 - +December 2011 Windows XP Embedded and Windows Embedded Standard Security Updates - Product Download
 - +June 2012 Windows XP Embedded and Windows Embedded Standard Security Updates - Product Download

New components:

- +Sysprep Driver Network i82567LM_i82573L_i82574L_i82579LM V17.1 V1.0,R5
- +Sysprep Driver Audio RealtekHighDefinitonAudio V5.10.0.6526 V1.0,R8
- +Sysprep Driver Chipset QM77 V9.3.0.1011 V1.0,R3
- +Sysprep Driver GraphicsQM77 V6.14.10.5415 V1.0,R5
 - needed for ".Net Framework 4.0 Client Profile"
- +3rd Gen Core processor DRAM Controller - 0154 V9.3.0.1011,R8
- +Intel(R) 7 Series/C216 Chipset Family 2 port Serial ATA Storage Controller - 1E09 V9.3.0.1008,R8
- +Intel(R) 7 Series/C216 Chipset Family 4 port Serial ATA Storage Controller - 1E01 V9.3.0.1008,R8
- +Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 1 - 1E10 V9.3.0.1020,R8
- +Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 4 - 1E16 V9.3.0.1020,R8
- +Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 5 - 1E18 V9.3.0.1020,R8
- +Intel(R) 7 Series/C216 Chipset Family SMBus Host Controller - 1E22 V9.3.0.1011,R8
- +Intel(R) 7 Series/C216 Chipset Family Universal Serial Bus (USB) Controller - 1E31 V9.3.0.1018,R8
- +Intel(R) 7 Series/C216 Chipset Family USB Enhanced Host Controller - 1E26 V9.3.0.1011,R8
- +Intel(R) 7 Series/C216 Chipset Family USB Enhanced Host Controller - 1E2D V9.3.0.1011,R8
- +Intel(R) QM77 Express Chipset LPC Controller - 1E55 V9.3.0.1020,R8
- +Intel(R) 7 Series Chipset Family SATA AHCI Controller V11.1.0.1006,R5
- +Intel(R) Mobile Express Chipset SATA RAID Controller V11.1.0.1006,R5

Removed components:

None

Changed components:

- +B&R XPE Configuration Tool V1.51,R89
 - CopyFilesDuringFBA.cmd added
- +B&R Evaluation Image Components V2.1,R103
 - Dependency to "Windows Imaging Component (WIC)" added

Required for ".Net Framework 4.0 Client Profile" Installation
on the APC910

- +B&R ACPI PC Devices V1.0,R12
 - Dependency to "B&R Evaluation Image Components" added
- +B&R ACPI Multiprocessor PC Devices V1.1,R39
 - Dependency to "B&R Evaluation Image Components" added
 - APC910 support with additional ACHI support
- +B&R SysprepScripts V1.10,R13
 - Addition of APC910 support
- +B&R SysprepSetups V01.10 V1.0,R13
 - Addition of ADI_APC910_WinXP_Win7.exe (V0.6)
 - Addition of TouchDriverSetup.exe (V1.3)
 - Addition of ADI_PP500_APC51x_WinXP_Win7.exe (V2.2)
 - Addition of ADI_APC810_PPC800_WinXP_Win7.exe (V1.60.1)
 - Addition of dotNetFx40_Client_x86.exe
 - ".Net Framework 4.0 Client Profile" is
 installed on the APC910
- +B&R Devices V1.1,R16
 - Addition of new dummy driver for new B&R devices

2.2 B&R WES2009 Pack V01.20

The following B&R standard images for WES2009 are based on B&R WES2009 Pack V01.20:

Model number	Name	Revision	Target Designer export file
5SWWXP.0721-ENG	WES2009 PP300 LX800	D0	ACPI_PC_V01_20
5SWWXP.0722-ENG	WES2009 PP400 LX800	C0	ACPI_PC_V01_20
5SWWXP.0723-ENG	WES2009 PPC300 LX800	D0	ACPI_PC_V01_20
5SWWXP.0726-ENG	WES2009 APC810 945GME	D0	ACPI_MultiprocessorPC_V01_20
5SWWXP.0727-ENG	WES2009 PPC800 945GME	D0	ACPI_MultiprocessorPC_V01_20
5SWWXP.0728-ENG	WES2009 APC820 945GME	D0	ACPI_MultiprocessorPC_V01_20
5SWWXP.0729-ENG	WES2009 PPC700 945GME XTX	D0	ACPI_MultiprocessorPC_V01_20
5SWWXP.0729-ENG	WES2009 APC620 945GME XTX	D0	ACPI_MultiprocessorPC_V01_20
5SWWXP.0733-ENG	WES2009 APC810 GM45	D0	ACPI_MultiprocessorPC_V01_20
5SWWXP.0734-ENG	WES2009 PPC800 GM45	D0	ACPI_MultiprocessorPC_V01_20
5SWWXP.0737-ENG	WES2009 APC510 US15W	C0	ACPI_MultiprocessorPC_V01_20
5SWWXP.0738-ENG	WES2009 APC511 US15W	C0	ACPI_MultiprocessorPC_V01_20

Table 6: B&R WES2009 standard images based on B&R WES2009 Pack V01.20

2.2.1 Range of functions

Function	Present
Enhanced Write Filter (EWF) RAM-REG mode	√
File Base Write Filter (FBWF)	√
Page file	Configurable
Administrator account	√
User account	Configurable
Explorer shell	√
Registry filter	√
Internet Explorer 8.0	√
Internet Information Services (IIS)	-
Terminal service	√
Windows Firewall	√
MSN Explorer	-
Outlook Express	-
Administrative Tools	√
Remote Desktop	√
Remote Assistance	-
.Net Framework	-
ASP.NET	-
Local Network Bridge	√
Codepages/User Locale/Keyboard	√
Disk Management Service	√
Windows Installer Services	√
Class Installer	√
CoDevice Installer	√
Media Player 6.4	√
DirectX 9.0C	√

Function	Present
Accessories	√
Number of fonts	116
Control Panel functionality	√
B&R Automation Device Interface	√
Touch screen driver	Device-dependent

Table 7: Range of functions for B&R standard images generated with B&R WES2009 Pack V01.20

2.2.1.1 Touch screen driver

The touch screen driver must be manually installed in order to operate Automation Panel 800 or Automation Panel 900 touch screen devices. The driver can be downloaded from the download area on the B&R homepage (www.br-automation.com).

Be sure to check whether the "Enhanced Write Filter (EWF)" is enabled.

Information:

Required drivers can only be downloaded from the B&R homepage, not from manufacturers' pages.

On all of the other following devices, the right touch screen driver for the respective device type is automatically installed from the WES2009 Image during the initial startup and does not have to be manually installed later:

2.2.1.1.1 Elo touch driver Serial Setup V4.2

- PPC700
- PPC800
- PPC300
- PP400/400

2.2.1.1.2 B&R Windows32/64-bit touch driver V1.2

- PP500

2.2.2 Changes - Version 01.20 / 08.11.2011 / ROG

This template requires Windows Embedded Standard 2009

- The following Microsoft QFEs must be installed:
 - +December 2009 Windows XP Embedded and Windows Embedded Standard 2009 Security Updates - Product Download
 - +January 2011 Windows XP Embedded and Windows Embedded Standard Security Updates - Product Download
 - +August 2011 Windows XP Embedded and Windows Embedded Standard Security Updates - Product Download
 - +February 2010 Windows Embedded Standard 2009 Feature Update - Product Download
 - +Windows Internet Explorer 8 for Windows Embedded Standard 2009 - Product Download
 - +November 2010 Windows XP Embedded and Windows Embedded Standard Optional Update - Product Download
 - +January 2011 Windows XP Embedded and Windows Embedded Standard Optional Update - Product Download
 - +February 2011 Feature Update for Windows Embedded Standard 2009 - Product Download
 - +May 2011 Windows XP Embedded and Windows Embedded Standard Optional Update - Product Download
 - +Windows Embedded Standard 2009 May 2011 Feature Update - Product Download
 - +July 2011 Windows XP Embedded and Windows Embedded Standard Optional Update - Product Download

New components:

- +B&R ACPI Multiprocessor PC Devices V1.0,R29
- +B&R ACPI PC Devices V1.0,R10
- +B&R Fonts V1.0,R10
 - List of default fonts in the image expanded to include the following fonts:
 - lucida Fonts
 - Courier Fonts
 - Arial Fonts
 - times_new_romans Fonts
 - verdana Fonts
- +B&R SysprepSetups V01.00 V1.0,R19
- +B&R SysprepScripts V1.0,R24
- +Sysprep Driver SATA Sil3531 V1.5.18.6 V1.0,R4
- +Sysprep Driver SATA Sil3512 V1.0.65.1 V1.0,R4
- +Sysprep Driver Network Realtek 8111B V5.720.0327.2009 V1.0,R4
- +Sysprep Driver Network i82574L V10.3.49.400 V1.0,R4
- +Sysprep Driver Network i82573L V9.12.36.0 V1.0,R4
- +Sysprep Driver Network i82567LM V9.52.20.0 V1.0,R4
- +Sysprep Driver GraphicsUS15W V6.14.11.1018 V1.0,R4
- +Sysprep Driver GraphicsBM45 V6.14.10.5132 V1.0,R4
- +Sysprep Driver Graphics945 V6.14.10.4926 V1.0,R4
- +Sysprep Driver Chipset GM45 V9.0.0.1008 V1.0,R4
- +Sysprep Driver Chipset 945GME V8.3.1.1009 V1.0,R4
- +Sysprep Driver Audio RealtekHighDefinitonAudio V5.10.0.5943 V1.0,R4
- +Sysprep Driver Audio RealtekAC97 V5.10.00.6270 V1.0,R5
- +Sysprep Driver Audio kb888111xpsp2 V1.0,R4
- +Sysprep Driver Network iPRO100VE V8.0.47.0 V1.0,R3
- +Sysprep Driver GraphicsPP300,PP400,PPC300 V3.03.02.01 V1.0,R5
- +Sysprep Driver Graphics855GME V6.14.10.4497 V1.0,R4
- +Sysprep Driver Chipset 855GME V6.0.1.1002 V1.0,R3

Removed components:

None

Changed components:

- +B&R Basic Template APC620/PPC700 (945GME XTX) with Network V1.0,R12
 - Disable default dependency to B&R APC620e chipset
- +B&R Basic Template APC820 (945GME) with Network V1.0,R16
 - Disable default dependency to B&R APC820 chipset
- +B&R Basic Template APC620/PPC700 (855GME) with Network V1.1,R35
 - Disable default dependency to B&R APC620e chipset
- +B&R Evaluation Image Components V2.0,R99
 - Dependency to "B&R Devices" added
 - Dependency to "B&R Fonts" added
 - Dependency to "Enhanced Write Filter Management Tool" added
 - Dependency to "File Based Write Filter Management Tool" added
- +B&R Devices V1.0,R14
 - No change
- +B&R XPE Configuration Tool V1.5,R82
 - Expansion to cloning options
 - Expansion to possible command line arguments
- +B&R Automation Device Interface PP500 V2.1,R13
 - Update to new version V2.1
- +B&R Automation Device Interface APC810/PPC800 V1.52,R19
 - Update to new version V1.52
- +B&R Automation Device Interface APC820 V2.0,R11
 - Update to new version V2.0
- +B&R Automation Device Interface APC620/PPC700 V2.0,R57
 - Update to new version V2.0
- +B&R TouchDriver V1.2,R17
 - Update to new version V1.2

2.3 B&R WES2009 Pack V01.12

The following B&R standard images for WES2009 are based on B&R WES2009 Pack V01.12:

Model number	Name	Revision	Target Designer export file
5SWWXP.0736-ENG	WES2009 PP500 US15W	C0	PP500_US15W_V01_10

Table 8: B&R WES2009 standard images based on B&R WES2009 Pack V01.12

2.3.1 Range of functions

Function	Present
Enhanced Write Filter (EWF) RAM-REG mode	√
File Base Write Filter (FBWF)	√
Page file	Configurable
Administrator account	√
User account	Configurable
Explorer shell	√
Registry filter	√
Internet Explorer 8.0	√
Internet Information Services (IIS)	-
Terminal service	√
Windows Firewall	√
MSN Explorer	-
Outlook Express	-
Administrative Tools	√
Remote Desktop	√
Remote Assistance	-
.Net Framework	-
ASP.NET	-
Local Network Bridge	√
Codepages/User Locale/Keyboard	√
Disk Management Service	√
Windows Installer Services	√
Class Installer	√
CoDevice Installer	√
Media Player 6.4	√
DirectX 9.0C	√
Accessories	√
Number of fonts	100
Control Panel functionality	√
B&R Automation Device Interface	√

Table 9: Range of functions for B&R standard images generated with B&R WES2009 Pack V01.12

2.3.2 Changes - Version 01.12 / 25.03.2011 / ROG

- This template requires Windows Embedded Standard 2009
- The following Microsoft QFEs must be installed:
 - +December 2009 Windows XP Embedded and Windows Embedded Standard 2009 Security Updates - Product Download
 - +February 2010 Windows Embedded Standard 2009 Feature Update - Product Download

- +Windows Internet Explorer 8 for Windows Embedded Standard 2009 - Product Download
- +January 2011 Windows XP Embedded and Windows Embedded Standard Security Updates - Product Download
- +January 2011 Windows XP Embedded and Windows Embedded Standard Optional Update - Product Download

New components:

- +B&R PP500 Basic Template with Network V1.0, R9
- +B&R PP500 Evaluation Image V1.0,R4
- +B&R Devices V1.0,R10
- +Intel(R) Graphics Media Accelerator 500 V6.14.11.1018,R5
- +Mobile Intel(R) 945 Express Chipset Family V6.14.10.4926,R9
- +B&R SMBPatch KB971657SP3GDR V1.0,R8
- +B&R Automation Device Interface PP500 V1.3.1,R13
- +B&R TouchDriver V1.1, R14

Removed components:

- +Mobile Intel(R) 945 Express Chipset Family V6.14.10.4906,R5
- +B&R EWF Manager V1.10,R12

Changed components:

- +B&R Basic Template PPC800 (GM45) with Network V1.0 R7
 - Adding Standard Dual Channel PCI IDE Controller
- +B&R Basic Template APC810 (945GME) with Network V1.0,R31
 - Adding Standard Dual Channel PCI IDE Controller
- +B&R Basic Template APC820 (945GME) with Network V1.0,R13
 - Adding Standard Dual Channel PCI IDE Controller
- +B&R Basic Template PPC800 (945GME) with Network V1.0,R92
 - Adding Standard Dual Channel PCI IDE Controller
- +B&R Basic Template APC810 (GM45) with Network V1.0,R151
 - Adding Standard Dual Channel PCI IDE Controller
- +B&R Evaluation Image Components V2.0,R94
 - Adding B&R SMBPatch KB971657SP3GDR
 - Adding OpenGL Support
 - Adding Internet Explorer 8 - Security Update KB2416400
- +B&R Language Support V1.0,R12
 - Default dependency to Hebrew removed
- +B&R XPE Configuration Tool V1.4.4,R73
 - Expansion to command line arguments
 - Var. improvements
- +B&R EWF Manager V1.11,R14
 - New message window for RAM-REG "disable"

2.4 B&R WES2009 Pack V01.00

The following B&R standard images for WES2009 are based on B&R WES2009 Pack V01.00:

Model number	Name	Revision	Target Designer export file
5SWWXP.0712-ENG	WES2009 APC620 855GME ETX	C0	APC620_855GME_WES2009_V01_00
5SWWXP.0713-ENG	WES2009 APC620 855GME XTX	C0	APC620_855GME_WES2009_V01_00
5SWWXP.0715-ENG	WES2009 PPC700 855GME ETX	C0	PPC700_855GME_WES2009_V01_00
5SWWXP.0716-ENG	WES2009 PPC700 855GME XTX	C0	PPC700_855GME_WES2009_V01_00
5SWWXP.0721-ENG	WES2009 PP300 LX800	C0	PP300,400_WES2009_V01_00
5SWWXP.0722-ENG	WES2009 PP400 LX800	C0	PP300,400_WES2009_V01_00
5SWWXP.0723-ENG	WES2009 PPC300 LX800	C0	PPC300_WES2009_V01_00
5SWWXP.0726-ENG	WES2009 APC810 945GME	C0	APC810_B945GME_WES2009_V01_00
5SWWXP.0727-ENG	WES2009 PPC800 945GME	C0	PPC800_B945GME_WES2009_V01_00
5SWWXP.0728-ENG	WES2009 APC820 945GME	C0	APC820_B945GME_WES2009_V01_00
5SWWXP.0729-ENG	WES2009 PPC700 945GME XTX	C0	PPC700_945GME_XTX_WES2009_V01_00
5SWWXP.0730-ENG	WES2009 APC620 945GME XTX	C0	APC620_945GME_XTX_WES2009_V01_00
5SWWXP.0733-ENG	WES2009 APC810 GM45	C0	APC810_GM45_WES2009_V01_00
5SWWXP.0734-ENG	WES2009 PPC800 GM45	C0	PPC800_GM45_WES2009_V01_00

Table 10: B&R WES2009 standard images based on B&R WES2009 Pack V01.00

2.4.1 Range of functions

Function	Present
Enhanced Write Filter (EWF) RAM mode	√
File Base Write Filter (FBWF)	√
Page file	Configurable
Administrator account	√
User account	Configurable
Explorer shell	√
Registry filter	√
Internet Explorer 7.0	√
Internet Information Services (IIS)	-
Terminal service	√
Windows Firewall	√
MSN Explorer	-
Outlook Express	-
Administrative Tools	√
Remote Desktop	√
Remote Assistance	-
.Net Framework	-
ASP.NET	-
Local Network Bridge	√
Codepages/User Locale/Keyboard	√
Disk Management Service	√
Windows Installer Services	√
Class Installer	√
CoDevice Installer	√

Function	Present
Media Player 6.4	√
DirectX 9.0C	√
Accessories	√
Number of fonts	99
Control Panel functionality	√
B&R Automation Device Interface	√

Table 11: Range of functions for B&R standard images generated with B&R WES2009 Pack V01.00

2.4.2 Changes - Version 01.00 / 22.12.2009 / ROG

- This template requires Windows Embedded Standard 2009
- The following Microsoft QFEs must be installed:
 - +November 2009 Windows XP Embedded and Windows Embedded Standard 2009 Security Updates - Product Download
- New components:
 - +B&R NetworkPatch KB951830 V1.0, R4
 - +B&R Fbreseal V1.0,R4
 - +B&R Basic Template APC810 (GM45) with Network V1.0,R146
 - +Intel(R) 82567LM Gigabit Network Connection V9.52.20.0,R4
 - +Mobile Intel(R) 4 Series Express Chipset Family V6.14.10.5132, R7
 - +Intel(R) ICH9 Family PCI Express Root Port 1 - 2940 V8.6.1.1002,R4
 - +Intel(R) ICH9 Family PCI Express Root Port 5 - 2948 V8.6.1.1002,R4
 - +Intel(R) ICH9M-E LPC Interface Controller - 2917 V8.6.1.1002,R4
 - +Intel(R) ICH9 Family USB Universal Host Controller - 2934 V8.3.0.1011,R4
 - +Intel(R) ICH9 Family USB Universal Host Controller - 2935 V8.3.0.1011,R4
 - +Intel(R) ICH9 Family USB Universal Host Controller - 2936 V8.3.0.1011,R4
 - +Intel(R) ICH9 Family USB Universal Host Controller - 2937 V8.3.0.1011,R4
 - +Intel(R) ICH9 Family USB2 Enhanced Host Controller - 293A V8.3.0.1011,R4
 - +Intel(R) ICH9 Family USB2 Enhanced Host Controller - 293C V8.3.0.1011,R4
 - +Intel(R) ICH9M/M-E port Serial ATA Storage Controller 1 - 2928 V8.3.0.1016,R4
 - +Intel(R) ICH9M/M-E port Serial ATA Storage Controller 2 - 292D V8.3.0.1016,R4
 - +Intel(R) ICH9 Family SMBus controller - 2930 V8.3.0.1008,R4
 - +Mobile Intel(R) 45 Express chipset Series Processor to DRAM Controller - 2A40 V8.7.0.1007,R4
 - +Fonts: Bitstream Vera V1.0, R10
 - +B&R Automation Device Interface APC810/PPC800 V1.31, R16
 - +B&R APC810 (GM45) Evaluation Image V1.0 R4
- Removed components:
 - +B&R Automation Device Interface APC810/PPC800 V1.30, R13
 - +B&R UsbPatch KB918005 V1.0, R3
- Changed components:
 - +XPeConfig V1.30,R63
 - xpeconfigreg.reg -> new IE70 registry key RunOnceHasShown and RunOnceComplete after sysprep is completed.
 - DisableSelectiveSuspend is set. (Microsoft Article ID: 817900 and 902274)
 - +B&R Evaluation Image Components V2.0,R89
 - Internet Explorer 7.0
 - Local Network Bridge
 - Windows Media Player 6.4
 - Direct X 9.0c
 - Fonts: Bitstream Vera
 - Message Queuing (MSMQ) Performance Diagnostics
 - +B&R APC820 Chipset V1.1,R10
 - Optimization for AR010
 - +B&R APC620e Chipset V1.2,R11
 - Optimization for AR010
 - +B&R Basic Template APC620/PPC700 (945GME XTX) with Network V1.0,R9
 - Dependency added for B&R APC620e Chipset
 - +B&R Automation Device Interface APC820 V1.01,R8
 - B&R Automation Device component name changed
 - Interface AP820
 - +B&R PPC300 Basic Template with Network V1.0, R7
 - Dependency for B&R UsbPatch KB918005 V1.0, R3 removed
 - +B&R PP300/400 Basic Template with Network V1.0, R15

- Dependency for B&R UsbPatch KB918005 V1.0, R3 removed
- +B&R Basic Template APC620/PPC700 (855GME) with Network V1.1, R32
 - Dependency for B&R UsbPatch KB918005 V1.0, R3 removed
- +B&R Basic Template APC820 (945GME) with Network V1.0, R10
 - Dependency for B&R UsbPatch KB918005 V1.0, R3 removed
- +B&R Basic Template APC810 (945GME) with Network V1.0, R18
 - Dependency for B&R UsbPatch KB918005 V1.0, R3 removed

3 B&R WES2009 Pack

3.1 Basic requirements

The Embedded developer should be familiar with working in the WES2009 development environment. Windows Embedded Standard Studio 2009 is required as a development environment.

B&R-A provides a "B&R WES2009 Pack" for WES2009.

This pack can be obtained from the B&R homepage (www.br-automation.com) or from the HMI Drivers & Utilities DVD 5SWHMI.0000-00.

Information:

The "B&R WES2009 Pack" includes all components that are required to create an image on a B&R IPC5000C/IPC5600C, APC680, APC620, PPC700, PP100/200, MP100/200, PP300/400, PPC300, APC810, APC820, PPC800, PP500, APC511, APC510 or APC910 without additional ISA or PCI cards.

The following description refers to the B&R WES2009 Pack V1.21.

In order for the package to be used, it must first be imported with the "Component Database Manager".

The following components are then available:



Figure 1: B&R WES2009 Pack component overview Part 1

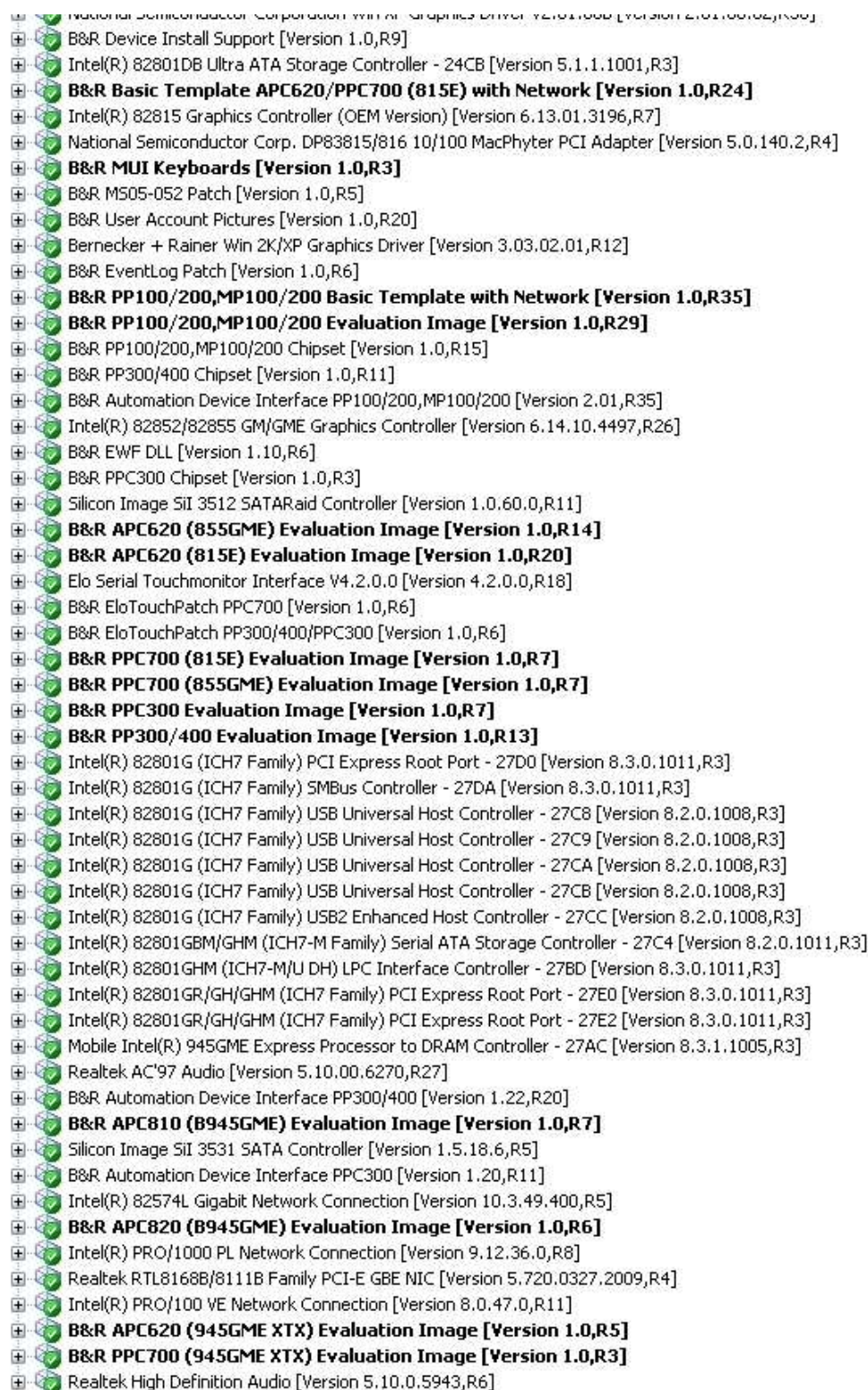


Figure 2: B&R WES2009 Pack component overview Part 2

- +  Microsoft UAA Bus Driver for High Definition Audio [Version 5.10.00.5010,R6]
- +  Microsoft UAA Function Driver for High Definition Audio - Adi 1983 [Version 5.10.00.5010,R5]
- +  Microsoft UAA Function Driver for High Definition Audio - Adi 1986 [Version 5.10.00.5010,R5]
- +  Microsoft UAA Function Driver for High Definition Audio - CMedia 9880 [Version 5.10.00.5010,R5]
- +  Microsoft UAA Function Driver for High Definition Audio - Conexant Waikiki [Version 5.10.00.5010,R5]
- +  Microsoft UAA Function Driver for High Definition Audio - DDKCodec [Version 5.10.00.5010,R5]
- +  Microsoft UAA Function Driver for High Definition Audio - Realtek 260 [Version 5.10.00.5010,R5]
- +  Microsoft UAA Function Driver for High Definition Audio - Realtek 261 [Version 5.10.00.5010,R5]
- +  Microsoft UAA Function Driver for High Definition Audio - Realtek 280 [Version 5.10.00.5010,R5]
- +  Microsoft UAA Function Driver for High Definition Audio - Realtek 880/860 [Version 5.10.00.5010,R5]
- +  Microsoft UAA Function Driver for High Definition Audio - Sigmatel 9770 [Version 5.10.00.5010,R5]
- +  Microsoft UAA Function Driver for High Definition Audio - Sigmatel 9772 [Version 5.10.00.5010,R5]
- +  B&R EloTouchPatch PPC800 [Version 1.0,R4]
- +  **B&R PPC800 (945GME) Evaluation Image [Version 1.0,R6]**
- +  B&R NetworkPatch KB951830 [Version 1.0,R4]
- +  B&R Fbreseal [Version 1.0,R4]
- +  Intel(R) 82567LM Gigabit Network Connection [Version 9.52.20.0,R4]
- +  Mobile Intel(R) 4 Series Express Chipset Family [Version 6.14.10.5132,R7]
- +  Mobile Intel(R) 4 Series Express Chipset Family [Version 6.14.10.5132,R7]
- +  Intel(R) ICH9 Family PCI Express Root Port 1 - 2940 [Version 8.6.1.1002,R4]
- +  Intel(R) ICH9 Family PCI Express Root Port 5 - 2948 [Version 8.6.1.1002,R4]
- +  Intel(R) ICH9M-E LPC Interface Controller - 2917 [Version 8.6.1.1002,R4]
- +  Intel(R) ICH9 Family USB Universal Host Controller - 2934 [Version 8.3.0.1011,R4]
- +  Intel(R) ICH9 Family USB Universal Host Controller - 2935 [Version 8.3.0.1011,R4]
- +  Intel(R) ICH9 Family USB Universal Host Controller - 2936 [Version 8.3.0.1011,R4]
- +  Intel(R) ICH9 Family USB Universal Host Controller - 2937 [Version 8.3.0.1011,R4]
- +  Intel(R) ICH9 Family USB2 Enhanced Host Controller - 293A [Version 8.3.0.1011,R4]
- +  Intel(R) ICH9 Family USB2 Enhanced Host Controller - 293C [Version 8.3.0.1011,R4]
- +  Intel(R) ICH9M/M-E 2 port Serial ATA Storage Controller 1 - 2928 [Version 8.3.0.1016,R4]
- +  Intel(R) ICH9M/M-E 2 port Serial ATA Storage Controller 2 - 292D [Version 8.3.0.1016,R4]
- +  Intel(R) ICH9 Family SMBus Controller - 2930 [Version 8.3.0.1008,R4]
- +  Mobile Intel(R) 45 Express Chipset Series Processor to DRAM Controller - 2A40 [Version 8.7.0.1007,R4]
- +  B&R APC820 Chipset [Version 1.1,R10]
- +  B&R APC620e Chipset [Version 1.2,R11]
- +  Fonts: Bitstream Vera [Version 1.0,R5]
- +  **B&R APC810 (GM45) Evaluation Image [Version 1.0,R4]**
- +  **B&R PPC300 Basic Template with Network [Version 1.0,R7]**
- +  **B&R PP300/400 Basic Template with Network [Version 1.0,R15]**
- +  **B&R PPC800 (GM45) Evaluation Image [Version 1.0,R4]**
- +  **B&R Basic Template PPC800 (GM45) with Network [Version 1.0,R7]**
- +  **B&R Basic Template APC810 (945GME) with Network [Version 1.0,R21]**
- +  **B&R Basic Template PPC800 (945GME) with Network [Version 1.0,R92]**
- +  **B&R Basic Template APC810 (GM45) with Network [Version 1.0,R151]**
- +  Mobile Intel(R) 945 Express Chipset Family [Version 6.14.10.4926,R9]
- +  Mobile Intel(R) 945 Express Chipset Family [Version 6.14.10.4926,R9]
- +  Intel(R) Graphics Media Accelerator 500 [Version 6.14.11.1018,R5]
- +  Intel(R) Graphics Media Accelerator 500 [Version 6.14.11.1018,R5]
- +  **B&R Language Support [Version 1.0,R12]**
- +  B&R SMBPatch KB971657SP3GDR [Version 1.0,R8]
- +  **B&R PP500 Evaluation Image [Version 1.0,R4]**
- +  **B&R PP500 Basic Template with Network [Version 1.0,R9]**
- +  Sysprep Driver SATA Sil3531 V1.5.18.6 [Version 1.0,R4]
- +  Sysprep Driver SATA Sil3512 V1.0.65.1 [Version 1.0,R4]
- +  Sysprep Driver Network Realtek 8111R V5.720.0327.2009 [Version 1.0,R4]

Figure 3: B&R WES2009 Pack component overview Part 3



Figure 4: B&R WES2009 Pack component overview Part 4

Information:

B&R reserves the right to make changes to these components at any time.

3.2 Graphic adapter components

3.2.1 Chips and technologies

Components are provided for the following Chips and Technologies graphics adapters:

- Chips and Technologies 65548
- Chips and Technologies 65550
- Chips and Technologies 65554
- Chips and Technologies 68555
- Chips and Technologies 69000
- Chips and Technologies 69030

IPC5000Cs and IPC5600Cs exclusively use 69000 and 69030 graphics adapter chips.

The Windows driver V2.47.4.0 (CHIPSXPM.SYS) serves as the basis for these components.

3.2.1.1 Intel 8281X

Embedded Studio component updates to driver version 6.13.01.3196 are available for the following Intel 8281X graphics adapters:

- Intel 82810
- Intel 82810DC100
- Intel 82810E
- Intel 82815

The following components are also available for these graphic adapters:

- Intel AIM External Flat Panel Driver 0 Component
- Intel AIM External Flat Panel Driver 1 Component
- Intel AIM External Flat Panel Driver 2 Component
- Intel AIM External Flat Panel Driver 3 Component
- Intel AIM External Flat Panel Driver 4 Component
- Intel AIM External Flat Panel Driver 5 Component
- Intel AIM External Flat Panel Driver 6 Component
- Intel AIM External Flat Panel Driver 7 Component
- Intel AIM External Flat Panel Driver 8 Component
- Intel AIM External TV Encoder Driver 1 Component
- Intel AIM External TV Encoder Driver 2 Component
- Intel AIM External TV Encoder Driver 3 Component
- Intel AIM External TV Encoder Driver 4 Component
- Intel AIM External TV Encoder Driver 5 Component

The Windows XP driver 6.13.01.3196 serves as the basis for these components.

3.2.2 National Semiconductor Corporation Windows XP Graphics Driver V2.01.08b

This graphics driver component is able to run on the devices PP100/200 and MP100/200.

The "National Semiconductor Corporation Windows XP Graphics Driver" component is based on the National driver version V2.01.08 and has been expanded by B&R to include the following functionalities:

- Display times handled by BIOS
- ¼ VGA support (320x240 with 8 and 16 bpp) implemented

- Tray icon program "SetScreenResolution.exe" to set the desired screen resolution, including ¼ VGA. This program is stored in the Windows directory and can be started with Start -> Run -> SetScreenResolution.exe.
Beginning with R38 of the component, it's also possible to set up the screen resolution directly from the command line using „SetScreenResolution.exe /R:[hres]x[vres]x[bpp]“:
Example: "SetScreenResolution.exe /R:1024x768x16".

3.2.3 Bernecker + Rainer Win 2k/XP Graphics Driver (V3.03.02.01)

This graphics driver component is able to run on the device PP300/400
The "Bernecker + Rainer Win 2k/XP Graphics Driver" component is based on the AMD driver version V3.03.02 and has been expanded by B&R to include the following functionalities:

- Display times handled by BIOS
- ¼ VGA support (320x240 with 8, 16 and 32 bpp) implemented
- Tray icon program "SetScreenResolution.exe" to set the desired screen resolution, including ¼ VGA. This program is stored in the Windows directory and can be started with Start -> Run -> SetScreenResolution.exe.
The resolution can be called up directly using "SetScreenResolution.exe /R:[hres]x[vres]x[bpp]" via command line argument:
Example: "SetScreenResolution.exe /R:1024x768x32".

3.2.4 ATI RANGE Mobility AGP (B&R)

Driver component for the ATI RANGE Mobility AGP graphics card.
This component is based on the XP Professional driver with version 6.13.10.5803.

3.2.5 Intel(R) 82815 Graphics Controller (OEM Version) V6.13.01.3196,R7

Driver component for the Intel(R) 82815 graphics controller for the APC620/PPC700 with the 815E chipset.
This component is based on the XP Professional driver with version V6.13.01.3196, which has been expanded to include special APC620 / PPC700 (815E) features.

3.2.6 Intel(R) 82852/82855 GM/GME Graphics Controller

Driver components for the Intel(R) 82852/82855 GM/GME graphics controller.
This component is based on the Windows XP driver V6.14.10.4497.

Note:

When using this graphics driver, it is necessary that 855GME BIOS upgrade V1.13 or higher has been made on the target system!

3.2.7 Mobile Intel(R) 945 Express Chipset Family

Graphics adapter component for the Mobile Intel(R) 945 Express Chipset Family.
This component is based on the Windows XP driver V6.14.10.4926.

3.2.8 Mobile Intel(R) 945 Express Chipset Family

Graphics adapter component for the Mobile Intel(R) 945 Express Chipset Family.
This component is based on the Windows XP driver V6.14.10.4926.

3.2.9 Mobile Intel(R) 4 Series Express Chipset Family

Graphics adapter component for the Mobile Intel(R) 4 Series Express Chipset Family (GM45).

This component is based on the Windows XP driver V6.14.10.5132.

3.2.10 Mobile Intel(R) 4 Series Express Chipset Family

Graphics adapter component for the Mobile Intel(R) 4 Series Express Chipset Family (GM45).
This component is based on the Windows XP driver V6.14.10.5132.

3.2.11 +Intel(R) Graphics Media Accelerator 500

Graphic adapter components for the Intel(R) Graphics Media Accelerator 500 (PP500).
This component is based on the Windows XP driver V6.14.11.1018.

3.3 Network components

3.3.1 Intel® 8255x ER Fast Ethernet Controller

Network driver component for the Intel 82551ER and also the 82559ER network card chip.
Version of the E100ENT.sys driver: V1.0.0.1

Note:

This driver does not support bridging!

3.3.2 National Semiconductor Corp. DP83815/816 10/100 MacPhyter PCI Adapter

Network driver components for the National Semiconductor Corp. DP83815/816 10/100 MacPhyter PCI Adapter (PP100/200,MP100/200)
This component is based on the XP Professional driver with version V5.0.140.2.

3.3.3 Intel(R) 82562 based Fast Ethernet Connection

Driver component for the Intel(R) 82562 based Fast Ethernet Connection network card.
This component is based on the Windows XP driver V7.0.28.

3.3.4 Intel(R) PRO/100 VE Network Connection

Driver component for the Intel(R) PRO/100 VE Network Connection network card.
This component is based on the Windows XP driver V8.0.47.0. Intel(R) PRO/100 VE Network

3.3.5 Intel(R) PRO/1000 PL Network Connection

Network component for the Intel(R) PRO/1000 PL Network Connection.
This component is based on the Windows XP driver V9.12.36.0.

3.3.6 Realtek RTL8168B/8111B PCI-E GBE NIC

Network components for the Realtek RTL8168B/8111B PCI-E GBE NIC.
This component is based on the Windows XP driver V5.720.0327.2009.

3.3.7 Intel(R) 82574L Gigabit Network Connection

Network component for the Intel(R) 82574L Gigabit Network Connection.
This component is based on the Windows XP driver V10.3.49.400.

3.3.8 Intel(R) 82567LM Gigabit Network Connection

Network component for the Intel(R) 82567LM Gigabit Network Connection.
This component is based on the Windows XP driver V9.52.20.0.

3.4 Touch screen components

3.4.1 Elo serial touch monitor interface

The Windows XP drivers V3.3.0.0 (MMStub.sys) and V3.3.0.0 (MonMouse.sys) serve as the basis for this component.

In addition, this component contains a program to switch to the right-mouse button.

3.4.2 Tshark touch driver components

The following components belong to the Tshark touch driver components:

- TSHARC Control Driver
- TSHARC SERIAL COM1
- TSHARC SERIAL COM2

The Windows XP driver V6.10 serves as the basis for this component.

Note:

Only a TSHARC SERIAL COMx may be present in the image depending on which COM port the touch screen is connected to.

While the function block is being called, a keyboard or mouse may not be connected to the target device when using these components. Otherwise, the "tsharc.sys" driver causes a blue screen in this phase.

3.4.2.1 Command line calibration option: "hwincal.exe -qx"

The Hampshire TSHARC Control Panel supports a command line option that can be used to immediately and directly switch to calibration mode. (fast calibration mode)

This feature allows the user to immediately start with the calibration without having to open the TSHARC Control Panel.

When "fast calibration mode" is completed, the data is accepted for the calibration and the Control Panel is automatically closed.

To activate "fast calibration mode", the command line argument "-q[x]" is added to "hwincal.exe":

X can have the values 3, 4, 7 or 20.

The "hwincal.exe" program can be found in the "Program Files\Tsharc" folder.

Example:

"Hwincal.exe -q4" starts 4 point calibration.

Note:

With "fast calibration mode", a ¼ VGA device can also be easily calibrated.

3.4.3 Elo Serial Touchmonitor Interface V4.2.0.0

The Windows XP driver V4.2 serves as the basis for this component.

Tests have proven that using these components may cause the serial interfaces to not be available for a brief (approx 1 second) interval after starting the desktop and cannot be used by the touch driver.

If this problem does occur, simply start the access to the serial interface with a delay or reopen the serial interface.

Because this might not be possible in all cases, the following 2 patch components were created for B&R images which contain the touch driver by default:

- B&R EloTouchPatch PPC700
- B&R EloTouchPatch PP300/400/PPC300

For all other images, we recommend manually installing the touch driver because this will prevent the problem from occurring.

3.4.4 B&R TouchDriver V1.2

The Windows XP driver V1.2 serves as the basis for this component.

The "B&R TouchDriver" component can be used as an alternative to the "Elo Serial Touchmonitor Interface V4.2.0.0" component.

Advantages:

- Automatic detection of the COM interface with the touch controller and no extra configuration required in the Target Designer.
- Recalibration is generally no longer required due to factory hardware calibration.
- Up to 9 calibration points can be configured

Disadvantages:

- "Extended Desktop" mode not supported.

Note:

We recommend only using the B&R touch driver for the PP500!

3.5 B&R Automation Device Interface components

3.5.1 B&R Automation Device Interface PP100/200,MP100/200 (V2.01)

This component implements the Automation Device Interface "ADI" into the WES2009 image. This now enables key support on the PP100/200 and MP100/200. In addition, various device parameters can be read or written. This component is based on the Windows XP driver V 2.01. More information can be found in the Automation Device Interface description.

3.5.2 B&R Automation Device Interface PP300/400 (V1.22)

This component implements the Automation Device Interface "ADI" into the WES2009 image. Various device parameters can be read or written. This component is based on the Windows XP driver V1.22. More information can be found in the Automation Device Interface description.

3.5.3 B&R Automation Device Interface PPC300 (V1.20)

This component implements the Automation Device Interface "ADI" into the WES2009 image. Various device parameters can be read or written. This component is based on the Windows XP driver V1.20. More information can be found in the Automation Device Interface description.

3.5.4 B&R Automation Device Interface APC620/PPC700 (V2.0)

This component implements the Automation Device Interface "ADI" into the WES2009 image. Various device parameters can be read or written. This component is based on the Windows XP driver V2.0. More information can be found in the Automation Device Interface description.

3.5.5 B&R Automation Device Interface APC810/PPC800 (V1.52)

This component implements the Automation Device Interface "ADI" into the WES2009 image. Various device parameters can be read or written. This component is based on the Windows XP driver V1.52. More information can be found in the Automation Device Interface description.

3.5.6 B&R Automation Device Interface APC820 (V2.0)

This component implements the Automation Device Interface "ADI" into the WES2009 image. Various device parameters can be read or written. This component is based on the Windows XP driver V2.0. More information can be found in the Automation Device Interface description.

3.5.7 B&R Automation Device Interface PP500 (V2.1)

This component implements the Automation Device Interface "ADI" into the WES2009 image. Various device parameters can be read or written. This component is based on the Windows XP driver V2.1. More information can be found in the Automation Device Interface description.

3.6 Chipset components

3.6.1 Intel(R) 82801/DBM SMBus Controller - 24C3

Chipset component for the Intel(R) 82801/DBM SMBus Controller - 24C3.
This component is based on the Windows XP driver V4.00.1001.

3.6.2 Intel(R) 82852/82855 GM/GME/PM/GMV to Processor I/O Controller - 3580

Chipset component for the Intel(R) 82852/82855 GM/GME/PM/GMV to Processor I/O Controller - 3580.
This component is based on the Windows XP driver V5.1.0.1006.

3.6.3 Intel(R) 82852/82855 GM/GME/PM/GMV to Processor I/O Controller - 3584

Chipset component for the Intel(R) 82852/82855 GM/GME/PM/GMV to Processor I/O Controller - 3584.
This component is based on the Windows XP driver V5.1.0.1006.

3.6.4 Intel(R) 82852/82855 GM/GME/PM/GMV to Processor I/O Controller - 3585

Chipset component for the Intel(R) 82852/82855 GM/GME/PM/GMV to Processor I/O Controller - 3585.
This component is based on the Windows XP driver V5.1.0.1006.

3.6.5 Intel(R) 82801DB Ultra ATA Storage Controller - 24CB

Chipset component for the Intel(R) 82801DB Ultra ATA Storage Controller - 24CB.
This component is based on the Windows XP driver V5.1.1.1001.

3.6.6 Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0

Chipset component for the Intel(R) 82801G (ICH7 Family) PCI Express Root Port - 27D0.
This component is based on the Windows XP driver V8.3.0.1011.

3.6.7 Intel(R) 82801G (ICH7 Family) SMBus Controller - 27DA

Chipset component for the Intel(R) 82801G (ICH7 Family) SMBus Controller - 27DA.
This component is based on the Windows XP driver V8.3.0.1011.

3.6.8 Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C8

Chipset component for the Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C8.
This component is based on the Windows XP driver V8.2.0.1008.

3.6.9 Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C9

Chipset component for the Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27C9.
This component is based on the Windows XP driver V8.2.0.1008.

3.6.10 Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CA

Chipset component for the Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CA.
This component is based on the Windows XP driver V8.2.0.1008.

3.6.11 Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CB

Chipset component for the Intel(R) 82801G (ICH7 Family) USB Universal Host Controller - 27CB.
This component is based on the Windows XP driver V8.2.0.1008.

3.6.12 Intel(R) 82801G (ICH7 Family) USB2 Enhanced Host Controller - 27CC

Chipset component for the Intel(R) 82801G (ICH7 Family) USB2 Enhanced Host Controller - 27CC.
This component is based on the Windows XP driver V8.2.0.1008.

3.6.13 Intel(R) 82801GBM (ICH7-M) Serial ATA Storage Controller - 27C4

Chipset component for the Intel(R) 82801GBM (ICH7-M) Serial ATA Storage Controller - 27C4.
This component is based on the Windows XP driver V8.2.0.1008.

3.6.14 Intel(R) 82801GHM (ICH7-M/U DH) LPC Interface Controller - 27BD

Chipset component for the Intel(R) 82801GHM (ICH7-M/U DH) LPC Interface Controller - 27BD.
This component is based on the Windows XP driver V8.3.0.1011.

3.6.15 Intel(R) 82801GR/GH/GHM (ICH7 Family) PCI Express Root Port - 27E0

Chipset component for the Intel(R) 82801GR/GH/GHM (ICH7 Family) PCI Express Root Port - 27E0.
This component is based on the Windows XP driver V8.3.0.1011.

3.6.16 Intel(R) 82801GR/GH/GHM (ICH7 Family) PCI Express Root Port - 27E2

Chipset component for the Intel(R) 82801GR/GH/GHM (ICH7 Family) PCI Express Root Port - 27E2.
This component is based on the Windows XP driver V8.3.0.1011.

3.6.17 Intel(R) ICH9 Family PCI Express Root Port 1 - 2940 V8.6.1.1002

Chipset component for the Intel(R) ICH9 Family PCI Express Root Port 1 – 2940.
This component is based on Windows XP V8.6.1.1002.

3.6.18 Intel(R) ICH9 Family PCI Express Root Port 5 - 2948

Chipset component for the Intel(R) ICH9 Family PCI Express Root Port 5 - 2948.
This component is based on the Windows XP driver V8.6.1.1002.

3.6.19 Intel(R) ICH9M-E LPC Interface Controller - 2917

Chipset component for the Intel(R) ICH9M-E LPC Interface Controller – 2917.
This component is based on the Windows XP driver V8.6.1.1002.

3.6.20 Intel(R) ICH9 Family USB Universal Host Controller - 2934

Chipset component for the Intel(R) ICH9 Family USB Universal Host Controller - 2934.
This component is based on the Windows XP driver V8.3.0.1011.

3.6.21 Intel(R) ICH9 Family USB Universal Host Controller - 2935

Chipset component for the Intel(R) ICH9 Family USB Universal Host Controller – 2935.
This component is based on the Windows XP driver V8.3.0.1011.

3.6.22 Intel(R) ICH9 Family USB Universal Host Controller - 2936 V8.3.0.1011

Chipset component for the Intel(R) ICH9 Family USB Universal Host Controller – 2936.
This component is based on the Windows XP driver V8.3.0.1011.

3.6.23 Intel(R) ICH9 Family USB Universal Host Controller - 2937

Chipset component for the Intel(R) ICH9 Family USB Universal Host Controller – 2937.
This component is based on the Windows XP driver V8.3.0.1011.

3.6.24 Intel(R) ICH9 Family USB2 Enhanced Host Controller - 293A

Chipset component for the Intel(R) ICH9 Family USB2 Enhanced Host Controller - 293A.
This component is based on the Windows XP driver V8.3.0.1011.

3.6.25 Intel(R) ICH9 Family USB2 Enhanced Host Controller - 293C

Chipset component for the Intel(R) ICH9 Family USB2 Enhanced Host Controller - 293C.
This component is based on the Windows XP driver V8.3.0.1011.

3.6.26 Intel(R) ICH9M/M-E port Serial ATA Storage Controller 1 - 2928

Chipset component for the Intel(R) ICH9M/M-E port Serial ATA Storage Controller 1 – 2928.
This component is based on the Windows XP driver V8.3.0.1016.

3.6.27 Intel(R) ICH9M/M-E port Serial ATA Storage Controller 2 - 292D

Chipset component for the Intel(R) ICH9M/M-E port Serial ATA Storage Controller 2 - 292D.
This component is based on Windows XP V8.3.0.1016,R4.

3.6.28 Intel(R) ICH9 Family SMBus Controller - 2930

Chipset component for the Intel(R) ICH9 Family SMBus controller – 2930.
This component is based on Windows XP V8.3.0.1008.

3.6.29 Mobile Intel(R) 945GME Express Processor to DRAM Controller - 27AC

Chipset component for the Mobile Intel(R) 945GME Express Processor to DRAM Controller - 27AC.
This component is based on the Windows XP driver V8.3.1.1005.

3.6.30 Mobile Intel(R) 45 Express Chipset Series Processor to DRAM Controller – 2A40

Chipset components for the Mobile Intel(R) 45 Express Chipset Series Processor to DRAM Controller – 2A40.
This component is based on the Windows XP driver V8.7.0.1007.

3.6.31 3rd Gen Core processor DRAM Controller - 0154

Chipset component for 3rd Gen Core processor DRAM controller.
This component is based on the Windows XP driver V9.3.0.1011.

3.6.32 Intel(R) 7 Series/C216 Chipset Family 2 port Serial ATA Storage Controller - 1E09

Chipset component for Intel(R) 7 Series/C216 Chipset Family 2 port Serial ATA Storage controller - 1E09.
This component is based on the Windows XP driver V9.3.0.1008.

3.6.33 Intel(R) 7 Series/C216 Chipset Family 4 port Serial ATA Storage Controller - 1E01.

Chipset component for Intel(R) 7 Series/C216 Chipset Family 4 port Serial ATA Storage controller - 1E01.
This component is based on the Windows XP driver V9.3.0.1008.

3.6.34 Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 1 - 1E10

Chipset component for Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 1 - 1E10.
This component is based on the Windows XP driver V9.3.0.1020.

3.6.35 Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 4 - 1E16

Chipset component for Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 4 - 1E16.
This component is based on the Windows XP driver V9.3.0.1020.

3.6.36 Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 5 - 1E18

Chipset component for Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 5 - 1E18.
This component is based on the Windows XP driver V9.3.0.1020.

3.6.37 Intel(R) 7 Series/C216 Chipset Family SMBus Host Controller - 1E22

Chipset component for Intel(R) 7 Series/C216 Chipset Family SMBus Host Controller - 1E22.
This component is based on the Windows XP driver V9.3.0.1011.

3.6.38 Intel(R) 7 Series/C216 Chipset Family Universal Serial Bus(USB) Controller - 1E31

Chipset component for Intel(R) 7 Series/C216 Chipset Family Universal Serial Bus(USB) Controller - 1E31.
This component is based on the Windows XP driver V9.3.0.1018.

3.6.39 Intel(R) 7 Series/C216 Chipset Family USB Enhanced Host Controller - 1E26

Chipset component for Intel(R) 7 Series/C216 Chipset Family USB Enhanced Host Controller - 1E26.
This component is based on the Windows XP driver V9.3.0.1011.

3.6.40 Intel(R) 7 Series/C216 Chipset Family USB Enhanced Host Controller - 1E2D

Chipset component for Intel(R) 7 Series/C216 Chipset Family USB Enhanced Host Controller - 1E2D.
This component is based on the Windows XP driver V9.3.0.1011.

3.6.41 Intel(R) QM77 Express Chipset LPC Controller - 1E55

Chipset component for Intel(R) QM77 Express Chipset LPC Controller - 1E55.
This component is based on the Windows XP driver V9.3.0.1020.

3.6.42 Intel(R) 7 Series Chipset Family SATA AHCI Controller

Chipset component for Intel(R) 7 Series Chipset Family SATA AHCI Controller.
This component is based on the Windows XP driver V11.1.0.1006.

3.6.43 Intel(R) Mobile Express Chipset SATA RAID Controller

Chipset component for Intel(R) Mobile Express Chipset SATA RAID Controller.
This component is based on the Windows XP driver V11.1.0.1006.

3.7 Audio components

3.7.1 Realtek AC'97 Audio

Audio driver component for the AC97 controller installed on the APC620 / PPC700 / APC810.
This component is based on the Windows XP driver V5.10.00.6270.

3.7.2 Realtek High Definition Audio

Audio driver component for the audio controller used on the PPC800
This component is based on the Windows XP driver V5.10.0.5943

3.7.3 Microsoft UAA Bus Driver for High Definition Audio

Audio driver for High Definition Audio support in Windows XP
This component is based on the Windows XP driver V 5.10.00.5010

3.7.4 Microsoft UAA Function Driver for High Definition Audio – Adi 1983

Audio driver for High Definition Audio support in Windows XP
This component is based on the Windows XP driver V 5.10.00.5010

3.7.5 Microsoft UAA Function Driver for High Definition Audio – Adi 1986

Audio driver for High Definition Audio support in Windows XP
This component is based on the Windows XP driver V 5.10.00.5010

3.7.6 Microsoft UAA Function Driver for High Definition Audio – Cmedia 9880

Audio driver for High Definition Audio support in Windows XP
This component is based on the Windows XP driver V 5.10.00.5010

3.7.7 Microsoft UAA Function Driver for High Definition Audio – Conexant Waikki

Audio driver for High Definition Audio support in Windows XP
This component is based on the Windows XP driver V 5.10.00.5010

3.7.8 Microsoft UAA Function Driver for High Definition Audio – DDKCodec

Audio driver for High Definition Audio support in Windows XP
This component is based on the Windows XP driver V 5.10.00.5010

3.7.9 Microsoft UAA Function Driver for High Definition Audio – Realtek 280

Audio driver for High Definition Audio support in Windows XP
This component is based on the Windows XP driver V 5.10.00.5010

3.7.10 Microsoft UAA Function Driver for High Definition Audio – Realtek 880/860

Audio driver for High Definition Audio support in Windows XP
This component is based on the Windows XP driver V 5.10.00.5010

3.7.11 Microsoft UAA Function Driver for High Definition Audio – Sigmatel 9770

Audio driver for High Definition Audio support in Windows XP
This component is based on the Windows XP driver V 5.10.00.5010

3.8 B&R device components

3.8.1 B&R PP100/200, MP100/200 chipset

Inf file components for the PP100/200 and MP100/200.

3.8.2 B&R PP300/400 chipset

Inf file component for the B&R PP300/400.

3.8.3 B&R PPC300 chipset

Inf file component for the B&R PPC300.

3.8.4 B&R APC620e chipset (V1.2)

Inf file component for the B&R APC620e (EPL, CAN and X2X).
The following system units are supported:

- 5PC600.SE00-00 - SDL - 512 KB SRAM
- 5PC600.SE00-01 - CRT 512 Kb SRAM
- 5PC600.SE00-02 - SDL 1 MB SRAM

3.8.5 B&R APC820 chipset (V1.1)

Inf file component for the B&R APC820 (System Timer, EPL and CAN).

3.8.6 B&R Devices V1.1

Inf file component for B&R PP500, B&R APC510 ,B&R APC620e and B&R APC820.

- APC620e interface (EPL,X2X,CAN,SRAM)
- APC620e interface (EPL,X2X,CAN,SRAM)
- APC620e interface (EPL,X2X,CAN,SRAM)
- APC820 interface card (System-Timer,EPL,CAN)
- PP500 IF POWERLINK MN 2-port SRAM
- PP500 IF CAN master SRAM
- PP500 IF X2X master SRAM
- PP500 IO SDL HDA USB RS232/422/485
- PP500 IF netX ProfiNet controller SRAM
- PP500 IF netX PROFIBUS DP master SRAM
- Hilscher netX cards
- PP500 IF X2X master CAN master SRAM
- APC510 IO SDL HDD HDA 2USB RS232/422/485
- PP500 IF CAN SJA1000

Note:

This component also includes all of the devices included in the components B&R APC620e Chipset and B&R APC820 Chipset, and replaces them in B&R WES2009 Pack V1.20 and higher.

3.9 Various components

3.9.1 Silicon Image Sil 3512 SATARaid Controller

The driver component for the Silicon image Sil 3512 SATARaid Controller based on the XP Professional driver 1.0.60.0.

3.9.2 Silicon Image Sil 3531 SATA Controller

Driver component for the Silicon Image Sil 3531 SATA controller based on the XP Professional driver V1.5.18.6.

3.9.3 Serial interface component for B&R interface card 5A5000.XX

The following components are available for serial interfaces on the B&R interface card 5A5000.XX:

- B&R COMC
- B&R COMD

3.9.4 Fonts: Bitstream Vera

Component for Bitstream Vera Fonts

3.10 B&R Internal Components for Evaluation Images

The following internal components for evaluation images are in the IPC pack:

- B&R IME Prototype
- B&R USB Support
- B&R Device Install Support
- B&R MUI Keyboards
- B&R MS05-052 Patch
- B&R EventLog Patch
- B&R User Account Pictures
- B&R UsbPatch KB918005
- B&R Language Support
- B&R EloTouchPatch PPC700
- B&R EloTouchPatch PP300/400/PPC300
- B&R EloTouchPatch PPC800
- B&R Fbreseal
- B&R SMBPatch KB971657SP3GDR
- B&R Fonts

3.11 B&R Evaluation Image Components

This macro component provides the software functionality for B&R evaluation images.

It is integrated in the following B&R evaluation components:

- B&R IPC5000C/IPC5600C Evaluation Image
- B&R IPC5000C/IPC5600C ATI Evaluation Image
- B&R APC680 Evaluation Image
- B&R PP100/200,MP100/200 Evaluation Image
- B&R PP300/400 Evaluation Image
- B&R PPC300 Evaluation Image
- B&R APC620 (815E) Evaluation Image
- B&R APC620 (855GME) Evaluation Image
- B&R PPC700 (815E) Evaluation Image
- B&R PPC700 (855GME) Evaluation Image
- B&R APC810 (945GME) Evaluation Image
- B&R APC820 (945GME) Evaluation Image
- B&R APC620 (945GME XTX) Evaluation Image
- B&R PPC700 (945GME XTX) Evaluation Image
- B&R PPC800 (945GME) Evaluation Image
- B&R PPC800 (GM45) Evaluation Image
- B&R APC810 (GM45) Evaluation Image
- B&R PP500 Evaluation Image
- B&R ACPI multiprocessor PC devices
- B&R ACPI PC devices

One advantage of this is that every evaluation image has identical software functionality.

Among other things, the image contains the following software functionalities:

- Explorer shell
- TCP/IP with file sharing and client for MS networks
- Near complete Control Panel functionality
- Support for most USB devices
- Improved support of driver installations for additional hardware on the target system
- MUI Keyboards
- Enhanced write filter
- File Based Write Filter
- Registry filter
- Internet Explorer 8
- DirectX 9.0c
- OpenGL support
- Windows Media Player 6.4
- :

3.11.1 B&R Basic Template IPC5000C/IPC5600C without Network

Complete hardware support of IPC5000C/IPC5600C without network adapter components.

3.11.2 B&R Basic Template IPC5000C/IPC5600C with Network

Complete hardware support of IPC5000C/IPC5600C with network adapter components.

The "B&R Basic Template IPC5000C/IPC5600C Without Network" component is used as the basis component. This has been expanded to include network adapter components.

3.11.3 B&R IPC5000C/IPC5600C Evaluation Image

The "B&R Basic Template IPC5000C/IPC5600C With Network" and "B&R Evaluation Image Components" components are used as the basis components.

Information:

The final uncompressed image requires approximately 490 MB of mass memory, and at least 256 MB of RAM main memory.

3.11.4 B&R Basic Template IPC5000C/IPC5600C ATI with Network

This component contains the complete hardware support for the IPC5000C/IPC5600C with ATI graphics controller, including the network adapter.

3.11.5 B&R IPC5000C/IPC5600C ATI Evaluation Image

The "B&R Basic Template IPC5000C/IPC5600C ATI with Network" and "B&R Evaluation Image Components" components are used as the basis components.

Information:

The final uncompressed image requires approximately 490 MB of mass memory, and at least 256 MB of RAM main memory.

3.11.6 B&R Basic Template APC680 with Network

This component contains the complete hardware support for the APC680, including the network adapter.

3.11.7 B&R APC680 Evaluation Image

The "B&R Basic Template APC680 with Network" and "B&R Evaluation Image Components" are used as the basis components.

Information:

The final uncompressed image requires approximately 490 MB of mass memory, and at least 256 MB of RAM main memory.

3.11.8 B&R Basic Template PP100/200, MP100/200 with Network

This component contains the complete hardware support for the PP100/200, MP100/200, including the network adapter and touch support.

3.11.9 B&R PP100/200,MP100/200 Evaluation Image

The "B&R Basic Template PP100/200, MP100/200 With Network" and "B&R Evaluation Image Components" components are used as the basis components.
In addition, "B&R Automation Device Interface PP100/200, MP100/200" (display keys) are implemented here.

Information:

The final uncompressed image requires approximately 490 MB of mass memory, and at least 256 MB of RAM main memory.

3.11.10 B&R Basic Template PP300/400 with Network

This component contains the complete hardware support for the PP300/400, including the network adapter and touch support.

3.11.11 B&R PP300/400 Evaluation Image

The "B&R Basic Template PP300/400 With Network" and "B&R Evaluation Image Components" components are used as the basis components.

In addition, "B&R Automation Device Interface PP300/400" (display keys) are implemented here.

Information:

The final uncompressed image requires approximately 490 MB of mass memory, and at least 256 MB of RAM main memory.

3.11.12 B&R Basic Template PPC300 with Network

This component contains the complete hardware support for the PP300, including the network adapter and touch support.

3.11.13 B&R PPC300 Evaluation Image

The "B&R Basic Template PPC300 With Network" and "B&R Evaluation Image Components" components are used as the basis components.

In addition, "B&R Automation Device Interface PP300" (display keys) are implemented here.

Information:

The final uncompressed image requires approximately 490 MB of mass memory, and at least 256 MB of RAM main memory.

3.11.14 B&R Basic Template APC620/PPC700 (815E) with Network

This component contains the complete hardware support for the APC620/PPC700 (815E), including the network adapter.

3.11.15 B&R APC620 (815E) Evaluation Image

The "B&R Basic Template APC620/PPC700 (815E) With Network" and "B&R Evaluation Image Components" components are used as the basis components.

Information:

The final uncompressed image requires approximately 490 MB of mass memory, and at least 256 MB of RAM main memory.

3.11.16 B&R PPC700 (815E) Evaluation Image

The components "B&R APC620 (815E) Evaluation Image" and the Elo Serial Touch monitor Interface V4.2.0.0 were used as the basis components.

Information:

The final uncompressed image requires approximately 490 MB of mass memory, and at least 256 MB of RAM main memory.

3.11.17 B&R Basic Template APC620/PPC700 (855GME) with Network

This component contains the complete hardware support for the APC620/PPC700 (855GME), including the network adapter.

3.11.18 B&R APC620 (855GME) Evaluation Image

The "B&R Basic Template APC620/PPC700 (855GME) With Network" and "B&R Evaluation Image Components" components are used as the basis components.

Information:

The final uncompressed image requires approximately 490 MB of mass memory, and at least 256 MB of RAM main memory.

3.11.19 B&R PPC700 (855GME) Evaluation Image

The components "B&R APC620 (855GME) Evaluation Image" and the Elo Serial Touch monitor Interface V4.2.0.0 were used as the basis components.

Information:

The final uncompressed image requires approximately 490 MB of mass memory, and at least 256 MB of RAM main memory.

3.11.20 B&R Basic Template APC810 (B945GME) with Network

This component contains the complete hardware support for the APC810 (B945GME), including the network adapter.

3.11.21 B&R APC810 (B945GME) Evaluation Image

The "B&R Basic Template APC810 (B945GME) with Network" and "B&R Evaluation Image Components" are used as the basis components.

Information:

The final uncompressed image requires approximately 490 MB of mass memory, and at least 256 MB of RAM main memory.

3.11.22 B&R Basic Template APC820 (B945GME) with Network

This component contains the complete hardware support for the APC820 (B945GME), including the network adapter.

3.11.23 B&R APC820 (B945GME) Evaluation Image

The "B&R Basic Template APC820 (B945GME) with Network" and "B&R Evaluation Image Components" are used as the basis components.

Information:

The final uncompressed image requires approximately 490 MB of mass memory, and at least 256 MB of RAM main memory.

3.11.24 B&R Basic Template APC620/PPC700 (945GME XTX) with Network

This component contains the complete hardware support for the APC620/PPC700 (945GME XTX), including the network adapter.

3.11.25 B&R APC620 (945GME XTX) Evaluation Image

The "B&R Basic Template APC620/PPC700 (945GME XTX) With Network" and "B&R Evaluation Image Components" components are used as the basis components.

Information:

The final uncompressed image requires approximately 490 MB of mass memory, and at least 256 MB of RAM main memory.

3.11.26 B&R PPC700 (945GME XTX) Evaluation Image

The "B&R APC620 (945GME XTX) Evaluation Image" and the Elo Serial Touch Screen Monitor Interface V4.2.0.0 are used as the basis components.

Information:

The final uncompressed image requires approximately 490 MB of mass memory, and at least 256 MB of RAM main memory.

3.11.27 B&R Basic Template PPC800 (945GME) with Network

This component contains the complete hardware support for the PPC800 (945GME), including the network adapter.

3.11.28 B&R PPC800 (945GME) Evaluation Image

The "B&R Basic Template PPC800 (945GME) with Network" "B&R Evaluation Image Components" and the Elo Serial Touch Screen Monitor Interface V4.2.0.0 are used as the basis components.

Information:

The final uncompressed image requires approximately 490 MB of mass memory, and at least 256 MB of RAM main memory.

3.11.29 B&R Basic Template APC810 (GM45) with Network

This component contains the complete hardware support for the APC810 (GM45), including the network adapter.

3.11.30 B&R APC810 (GM45) Evaluation Image

The "B&R Basic Template APC810 (GM45) with Network" and "B&R Evaluation Image Components" are used as the basis components.

Information:

The final uncompressed image requires approximately 490 MB of mass memory, and at least 256 MB of RAM main memory.

3.11.31 B&R Basic Template PPC800 (GM45) with Network

This component contains the complete hardware support for the APC810 (GM45), including the network adapter.

3.11.32 B&R PPC800 (GM45) Evaluation Image

The "B&R Basic Template APC810 (GM45) with Network" "B&R Evaluation Image Components" and the Elo Serial Touch Screen Monitor Interface V4.2.0.0 are used as the basis components.

Information:

The final uncompressed image requires approximately 510 MB of mass memory, and at least 256 MB of RAM main memory.

3.11.33 B&R PP500 Basic Template with Network

This component contains the complete hardware support for the PP500, including the network adapter.

3.11.34 B&R PP500 Evaluation Image

The "B&R PP500 Basic Template with Network", "B&R Evaluation Image Components", "B&R Touch-Driver" and "B&R Automation Device Interface PP500" are used as basis components.

Information:

The final uncompressed image requires approximately 510 MB of mass memory, and at least 256 MB of RAM main memory.

3.11.35 B&R ACPI multiprocessor PC devices

This component contains all dependencies to other components needed to generate images for the following B&R ACPI multiprocessor PC devices:

- APC810_PPC800_945GME
- APC810_PPC800_GM45
- PP500
- APC511
- APC510
- APC620_PPC700_945GME
- APC820_945GME
- APC910_QM77

If the component is integrated in the Target Designer, then a basis image is generated for the devices above without hardware-specific drivers.

After successfully completing the FBA the image is then prepared with special "Sysprep" options so that all hardware device-specific drivers, including the Automation Device Interface and touch screen driver, will be installed on the respective device during the next system startup after an automatic reboot.

Note:

If these special "Sysprep" options should not be performed automatically, simply delete the file "C:\SetupFiles\XPE\Setup\ XpeConfigSysprepRebootAdvanced.cmd" from the target data carrier before the image runs through its FBA on the target device.

This can be helpful if you intend to use newer ADI drivers or newer touch screen drivers at a later point, without having to run through the FBA again. (Saves time)

Please refer to the notice in the components in section 3.12.1 B&R SysprepScripts on page 48.

Information:

The final uncompressed image requires approximately 770 MB of mass memory, and at least 256 MB of RAM main memory.

A 2GB partition is required on devices with ".Net Framework 4.0 Client Profile" installed (APC910) in order to run the First Boot Agent (FBA). All other devices require a 1GB partition for this.

3.11.36 B&R ACPI PC devices

This component contains all dependencies to other components needed to generate images for the following B&R ACPI PC devices:

- APC620_PPC700_X855
- APC620_PPC700_E855
- PP300/400
- PPC300

If the component is integrated in the Target Designer, then a basis image is generated for the devices above without hardware-specific drivers.

After successfully completing the FBA the image is then prepared with special "Sysprep" options so that all hardware device-specific drivers, including the Automation Device Interface and touch screen driver, will be installed on the respective device during the next system startup after an automatic reboot.

Note:

If these special "Sysprep" options should not be performed automatically, simply delete the file "C:\SetupFiles\XPE\Setup\ XpeConfigSysprepRebootAdvanced.cmd" from the target data carrier before the image runs through its FBA on the target device.

This can be helpful if you intend to use newer ADI drivers or newer touch screen drivers at a later point, without having to run through the FBA again. (Saves time)

Please refer to the notice in the components in section 3.12.1 B&R SysprepScripts on page 48.

Information:

The final uncompressed image requires approximately 510 MB of mass memory, and at least 256 MB of RAM main memory.

A 1GB partition is required for running the First Boot Agent (FBA).

3.12 B&R sysprep-specific components for evaluation images

3.12.1 B&R SysprepScripts

The component B&R SysprepScript is required for all images that also contain the components "B&R ACPI Multiprocessor PC Devices" or "B&R ACPI PC Devices".

The component itself contains all scripts needed to install all hardware-specific drivers including the Automation Device Interface and touch screen driver on the respective target device after successfully completing the FBA on an image.

Note:

If automatic execution of the setup script after the FBA has been prevented by deleting the file "C:\SetupFiles\XPE\Setup\XpeConfigSysprepRebootAdvanced.cmd", then the setup script can be manually executed the next time the image is started by executing the file "C:\SetupFiles\XPE\Setup\XpeConfigSysprepShutdownAdvanced.cmd".

The computer is shut down after "XpeConfigSysprepShutdownAdvanced.cmd" is executed.

This is a good time to backup the image using Windows Explorer or a recovery tool.

This would allow components, such as those listed in 3.12.2 B&R SysprepSetups V01.00 (ADI, touch screen driver), to be updated in this image without having to generate a new image using the Target Designer or re-running a FBA. (Saves time)

The saved image can then be used on all devices supported by "B&R ACPI Multiprocessor PC Devices" or "B&R ACPI PC Devices".

Note:

ACPI multiprocessor PC images do not run on ACPI PC devices and vice-versa!

The image backup created using Windows Explorer or with a recovery tool now corresponds with the image that you created earlier using the device-specific Target Designer image.

After running on the final target device, the image is ready for setups of customer-specific software or customer-specific adaptations. (e.g. AR010, visualization, etc.)

Note:

The cloning procedure for this customized image can then be executed as usual using the "B&R XPE Configuration Tool" ("XpeConfig.exe").

An image cloned this way is then device-specific like before and will only run on the respective device!

3.12.2 B&R SysprepSetups V01.00

This component contains the following setups as executables, which are installed according to device:

- ADI_APC620_PPC700_WinXP_Win7.exe:
ADI Driver (APC620/PPC700) Setup V2.0
- ADI_APC810_PPC800_WinXP_Win7.exe:
ADI Driver (APC810/PPC800) Setup V1.60.1.
- ADI_APC820_WinXP_Win7.exe:
ADI Driver (APC820) Setup V2.0.
- ADI_PP300_400_WinXP.exe:
ADI Driver (PP300/400) Setup V1.22.
- ADI_PP500_APC51x_WinXP_Win7.exe:
ADI Driver (PP500/APC51x) Setup V2.2.

- ADI_PPC300_WinXP.exe:
ADI Driver (PP300/400) Setup V1.20.
- EloSetup42Silent.exe:
Elo touch driver Serial Setup V4.2
- TouchDriverSetup.exe:
B&R Windows32/64-bit touch driver V1.3
- dotNetFx40_Client_x86.exe:
".Net Framework 4.0 Client Profile" is required for the graphics card driver on the APC910.

3.12.2.1 Elo touch driver Serial Setup V4.2

EloSetup42Silent.exe is used on the following devices:

- PPC700
- PPC800
- PPC300
- PP400/400

3.12.2.2 B&R Windows32/64-bit touch driver V1.2

TouchDriverSetup.exe is used on the following devices:

- PP500

3.12.2.3 Update to the B&R SysprepSetup files in the image

Newer versions of the ADI drivers or touch screen drivers that are available on the B&R homepage can be easily exchanged with the existing drivers in the final image without having to regenerate the image using the Target Designer.

The file can be replaced in the directory "C:\SetupFiles\XPE\Setup".

Make sure to give the setup file the same name as the one stored in the setup directory in the image. (e.g. ADI for PP500/APC51x: Rename the Setup.exe file from the ADI installation package to ADI_PP500_APC51x_WinXP_Win7.exe)

We recommend using the English setup for ADI files.

3.12.3 Sysprep driver - SATA Sil3531 V1.5.18.6

Sysprep driver components for the driver SATA Sil3531.

This component is based on the Windows XP driver V1.5.18.6.

3.12.4 Sysprep driver - SATA Sil3512 V1.0.65.1

Sysprep driver components for the driver SATA Sil3512.

This component is based on the Windows XP driver V1.0.65.1.

3.12.5 Sysprep driver - Network Realtek 8111B V5.720.0327.2009

Sysprep driver component for the driver, Network Realtek 8111B.

This component is based on the Windows XP driver V5.720.0327.2009.

3.12.6 Sysprep driver - Network i82574L V10.3.49.400

Sysprep driver component for the driver, Network i82574L.

This component is based on the Windows XP driver V10.3.49.400.

3.12.7 Sysprep driver - Network i82573L V9.12.36.0

Sysprep driver component for the driver, Network i82573L.

This component is based on the Windows XP driver V9.12.36.0.

3.12.8 Sysprep driver - Network i82567LM V9.52.20.0

Sysprep driver component for the driver, Network i82567LM.
This component is based on the Windows XP driver V9.52.20.0.

3.12.9 Sysprep driver - GraphicsUS15W V6.14.11.1018

Sysprep driver component for the driver, GraphicsUS15W.
This component is based on the Windows XP driver V6.14.11.1018.

3.12.10 Sysprep driver - GraphicsBM45 V6.14.10.5132

Sysprep driver component for the driver, GraphicsBM45.
This component is based on the Windows XP driver V6.14.10.5132.

3.12.11 Sysprep driver - Graphics945 V6.14.10.4926

Sysprep driver component for the driver, Graphics945.
This component is based on the Windows XP driver V6.14.10.4926.

3.12.12 Sysprep driver - Chipset GM45 V9.0.0.1008

Sysprep driver component for the driver, Chipset GM45.
This component is based on the Windows XP driver V9.0.0.1008.

3.12.13 Sysprep driver - Chipset 945GME V8.3.1.1009

Sysprep driver component for the driver, Chipset 945GME.
This component is based on the Windows XP driver V8.3.1.1009.

3.12.14 Sysprep driver - Audio RealtekHighDefinitonAudio V5.10.0.5943

Sysprep driver component for the driver, Audio RealtekHighDefinitonAudio.
This component is based on the Windows XP driver V5.10.0.5943.

3.12.15 Sysprep driver - Audio RealtekAC97 V5.10.00.6270

Sysprep driver component for the driver, Audio RealtekAC97.
This component is based on the Windows XP driver V5.10.00.6270.

3.12.16 Sysprep driver - Audio kb888111xpsp2

Sysprep driver component for the driver, Audio kb888111xpsp2.
This component is based on the Windows XP driver kb888111xpsp2.

3.12.17 Sysprep driver - Network iPRO100VE V8.0.47.0

Sysprep driver component for the driver, Network iPRO100VE.
This component is based on the Windows XP driver V8.0.47.0.

3.12.18 Sysprep driver - GraphicsPP300,PP400,PPC300 V3.03.02.01

Sysprep driver component for the driver, GraphicsPP300,PP400,PPC300.
This component is based on the Windows XP driver V3.03.02.01.

3.12.19 Sysprep driver - Graphics855GME V6.14.10.4497

Sysprep driver component for the driver, Graphics855GME.
This component is based on the Windows XP driver V6.14.10.4497.

3.12.20 Sysprep driver - Chipset 855GME V6.0.1.1002

Sysprep driver component for the driver, Chipset 855GME.
This component is based on the Windows XP driver V6.0.1.1002.

3.12.21 Sysprep Driver Network i82567LM_i82573L_i82574L_i82579LM V17.1

Sysprep drive component for the drive, Network i82567LM_i82573L_i82574L_i82579LM.
This component is based on the Windows XP driver V17.1.

3.12.22 Sysprep Driver Audio RealtekHighDefinitonAudio V5.10.0.6526

Sysprep driver component for the driver, Audio RealtekHighDefinitonAudio.
This component is based on the Windows XP driver V5.10.0.6526.

3.12.23 Sysprep Driver Chipset QM77 V9.3.0.1011

Sysprep driver component for the driver, Chipset QM77.
This component is based on the Windows XP driver V9.3.0.1011.

3.12.24 Sysprep Driver GraphicsQM77 V6.14.10.5415

Sysprep driver component for the driver, GGraphics QM77/HM76.
This component is based on the Windows XP driver V6.14.10.5415.

Note:

".Net Framework 4.0 Client Profile" is required for this driver.

3.13 B&R XPE Configuration Tool

This component provides help functions which are needed for cloning images with the enhanced write filter.

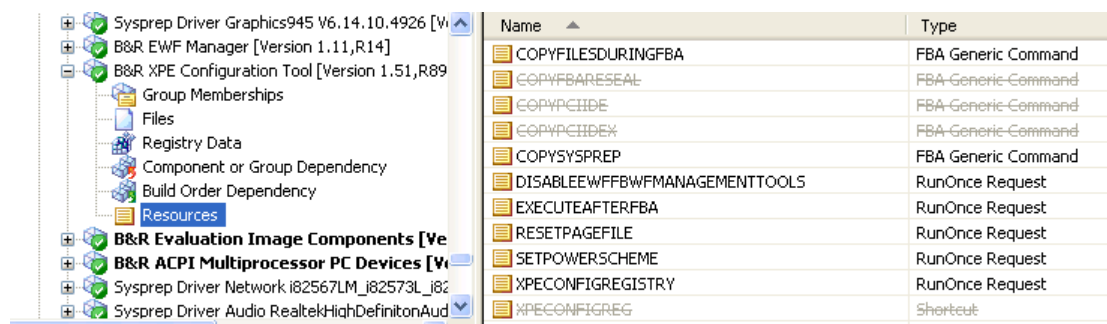
If this component is integrated, then (among other things) the following XPE components are also automatically included in the dependency list:

- B&R Fbreseal
- Enhanced Write Filter
- EWF Manager Console Application
- Sysprep (Windows System Preparation)
- Windows script engines
- WMI scripting
- Misc. Command Line Tools

3.13.1 Resources in B&R XPE Configuration Tool V1.51 and higher

The following functions are available beginning with B&R WES2009 Pack V01.21:

- COPYFILESDURINGFBA
- COPYSYSPREP
- DISABLEEWFMBWFMANAGEMENTTOOLS
- EXECUTEAFTERFBA
- RESETPAGEFILE
- SETPOWERScheme
- XPECONFIGREGISTRY



Name	Type
COPYFILESDURINGFBA	FBA Generic Command
COPYFBARESEAL	FBA Generic Command
COPYPCIDE	FBA Generic Command
COPYPCIDEX	FBA Generic Command
COPYSYSPREP	FBA Generic Command
DISABLEEWFMBWFMANAGEMENTTOOLS	RunOnce Request
EXECUTEAFTERFBA	RunOnce Request
RESETPAGEFILE	RunOnce Request
SETPOWERScheme	RunOnce Request
XPECONFIGREGISTRY	RunOnce Request
XPECONFIGREG	Shortcut

Figure 5: B&R XPE Configuration Tool resources

3.13.1.1 COPYFILESDURINGFBA

Files required when cloning are saved to the folder Windows\i386 during the FBA.

3.13.1.2 COPYSYSPREP

During the FBA, the Sysprep files (Windows System Preparation) are saved because they are deleted each time Sysprep is executed. This resource should remain in the image no matter what.

3.13.1.3 DISABLEEWFMBWFMANAGEMENTTOOLS

B&R WES2009 Pack V1.20 adds two newly available Microsoft management tools for Enhanced Write Filter (EWFMgr.exe) and file-based Write Filter (FBWFMgmt.exe) to the standard image. After adding the components to the Target Designer via the dependency check, these programs are then automatically

started in the system tray each time the system is started. To prevent this from happening, "DISABLEEWFMBWFMANAGERMENTTOOLS" was implemented as a RunOnce Request.

In order to allow the original behavior, the tools can be manually started at any time or added to the auto-start menu.

The tools "EWFMgr.exe" and "FBWFMgmt.exe" are located in the directory C:\Windows\System32.

It is also possible to control the start behavior of the two components "Enhanced Write Filter Management Tool" and "File Base Write Filter Management Tool" in the Target Designer.

To do this, simply disable the resource "DISABLEEWFMBWFMANAGERMENTTOOLS" in the component "B&R XPE Configuration Tool" in the Target Designer configure the desired start behavior in the settings under "Enhanced Write Filter Management Tool" and "Filebased Write Filter Management Tool".

Note:

The "B&R EWF Manager" is also still available in the Control Panel for operating the Enhanced Write Filter.

3.13.2 EXECUTEAFTERFBA

The Visual Basic script ExecuteAfterFBA.vbs is executed after the FBA.

3.13.2.1 RESETPAGEFILE

This resource deletes a possible page file after the FBA process.

This function is needed since systems with only 128 MB RAM can no longer run through the FBA process without errors beginning with XP Embedded SP2.

For these systems, a page file must be configured in the Target Designer. After the FBA process, this function automatically deletes this file.

If a page file is not defined, then this resource doesn't have a function.

If a page file is needed after the FBA process, then this resource must be disabled in the Target Designer.

3.13.2.2 SETPOWERSCHHEME

This resource switches the "Power scheme" to "Always on" and "Turn off monitor" to "Never" under "Power Options".

This guarantees that systems that have a Pentium M processor always run to their full performance potential.

This function has no effect on other systems.

If these automatic settings are not desired, then this resource can be disabled in the Target Designer under "Resources".

3.13.2.3 XPECONFIGREG

This resource configures the registry values for the following functions:

- Windows Explorer -> Folder options:
 - o "Show hidden files and folders" selected.
 - o "Hide extensions for known file types" deselected.
 - o "Hide protected operation system files" deselected.
- Control Panel "forced" to classic view.
- Windows Explorer view set to "Details".
- Warning message for resolutions less than 800x600 disabled. (A manual reboot is required for this.)
- Zone ID for the local Internet zone patched with the correct value.
- Registry value "NtfsDisableLastAccessUpdate" set to 1 as recommended by Microsoft for systems with write filters.

- Auto-check enabled for all partitions.
- Zone ID for the local Internet zone patched with the correct value.
- Control Panel "forced" to classic view.
- Registry value "NtfsDisableLastAccessUpdate" set to 1 as recommended by Microsoft for systems with write filters.
- Auto-check enabled for all partitions.
- Disable "Start_NotifyNewApps".
- SNMP Service is disabled.
- IE80 RunOnceHasShown is set.
- IE80 RunOnceComplete is set.
- DisableSelectiveSuspend for USB is set (improves detection of USB devices)

If these automatic settings are not desired, then this resource can be disabled in the Target Designer under "Resources".

Note:

The exact registry values can be found in the XpeConfigReg.reg file in the Repository directory of the "B&R XPE Configuration Tool" or on your target system in the "C:\BrAutomation\XPE\Setup" directory.

3.13.3 Necessary preparations in the Enhanced Write Filter component

The checkbox under "Start EWF Enabled" must be deselected in the settings for the component "Enhanced Write Filter" and the checkbox "Enable Hibernate-Once-Resume-Many Mode (HORM)" must be selected:

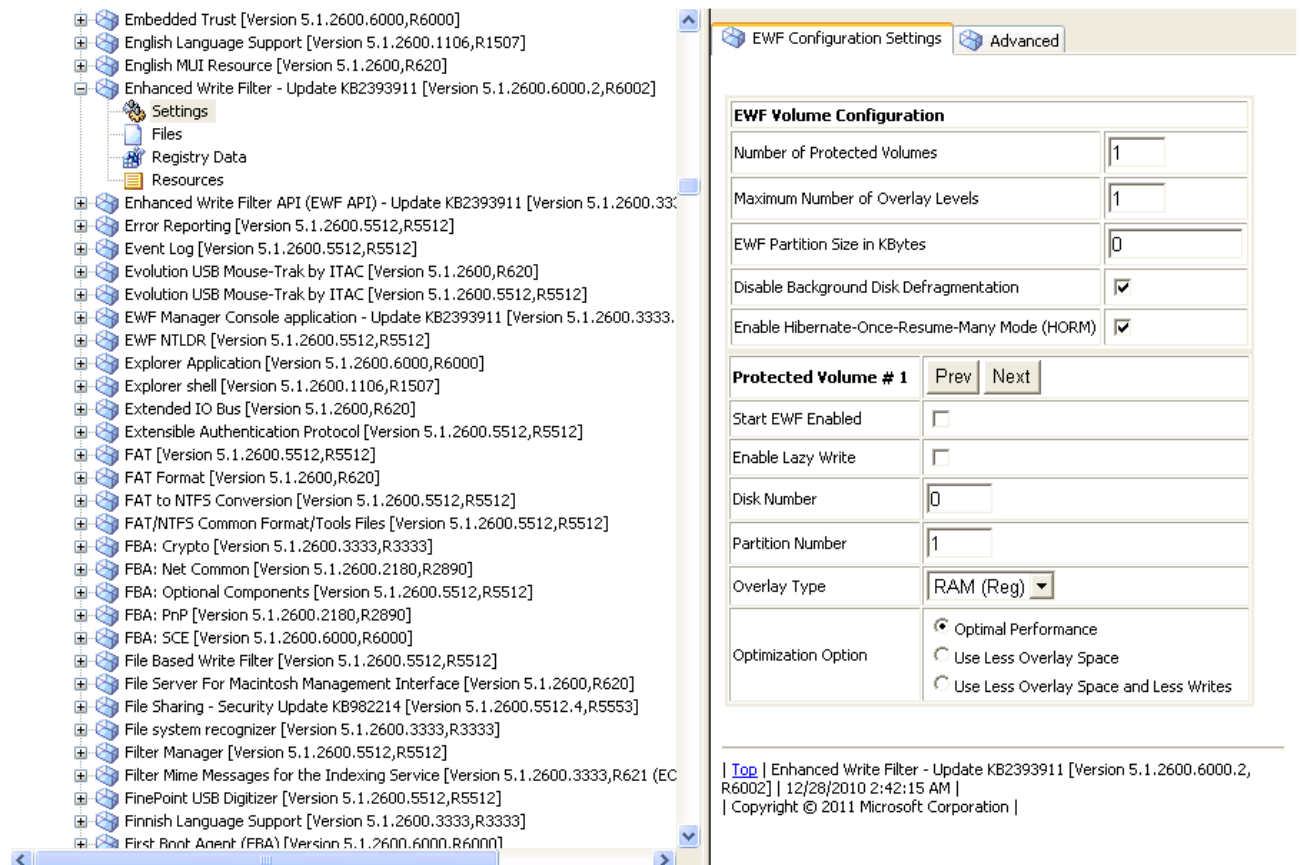


Figure 6: Enhanced Write Filter Settings

The values shown above should be defined if there are any deviations.

3.13.4 Necessary preparations in the File Base Write Filter component

The "Enable FBWF" checkbox must be deselected in the settings for the component "File Base Write Filter":

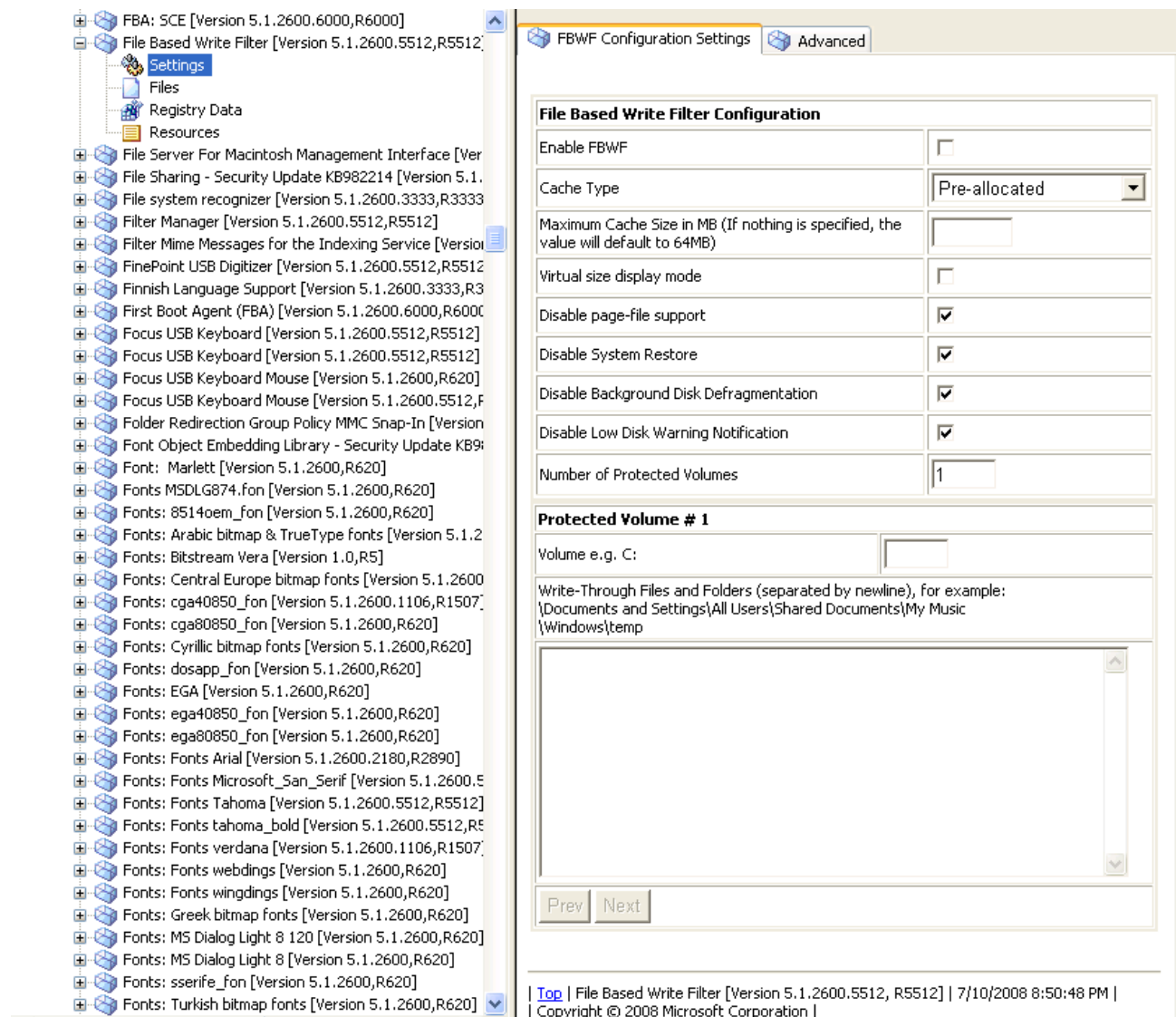


Figure 7: File Based Write Filter Settings

"Disable Page-file support" must be disabled for PP100/200_MP100/200 systems with 128MB RAM, otherwise the First Boot Agent cannot run properly.

3.13.5 Using the B&R XPE Configuration Tool component

3.13.5.1 Enhanced Write Filter RAM Mode

When using the "Enhanced Write Filter" and "Fbreseal" in XP Embedded, pay attention to the following points:

1. The write filter may not be active while a new SID is being assigned by Fbreseal. Otherwise the assignment of the security ID will end in an endless reboot.
2. At least 1 MB of unpartitioned memory must be available on the data medium for the write filter to work. The write filter driver creates its boot command partition in this area. However, this causes the problem that clone programs such as "Powerquest Partition Magic" or "Norton Ghost" cannot clone drives if the boot command partition is located on the data medium. Therefore, the boot command partition has to be deleted before cloning. (e.g. Deleting a "non-DOS partition" with the MS-DOS tool Fdisk.exe)
3. The boot command partition should be regenerated automatically after the cloning takes place. (It can be assumed that newer versions of recovery programs also support cloning with a boot command partition. In this case, the boot command partition does not have to be recreated.)

3.13.5.2 Enhanced Write Filter RAM-Reg Mode

When using the "Enhanced Write Filter" and "Fbreseal" in XP Embedded, pay attention to the following points:

Note

The write filter may not be active while a new SID is being assigned by Fbreseal. Otherwise the assignment of the security ID will end in an endless reboot.

EFW RAM-Reg mode does not require unpartitioned free memory space because the boot command partition is no longer needed.

3.13.5.3 Solution for EWF RAM mode when cloning

- Point 1 has been fulfilled by preparing the image in the Target Designer.
- B&R provides a function in the XpeConfig.exe utility for deleting the boot command partition.
- For Point 3, B&R provides a function in the XpeConfig.exe utility.

3.13.5.4 EWF RAM-REG mode when cloning

If the Enhanced Write Filter is configured in RAM-REG mode, then a hidden boot command partition is not required on the mass memory. This eliminates the need for taking extra measures when cloning, such as those in EWF RAM mode, and also makes it easier to create backups.

3.13.6 Starting XpeConfig.exe

This program can be executed by running "XpeConfig.exe". (e.g. Start->Run->XpeConfig.exe or starting in Explorer, etc.)

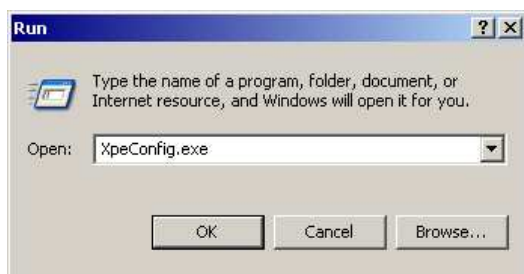


Figure 8: Starting XpeConfig.exe from Start -> Run

XpeConfig.exe is stored in the Windows directory.

3.13.7 Functions of XpeConfig.exe

The following configuration box appears after XpeConfig.exe has been started:

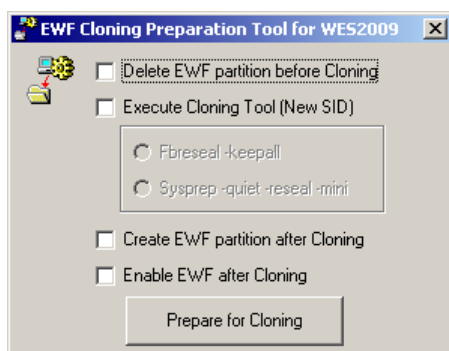


Figure 9: XpeConfig.exe configuration box in EWF RAM mode

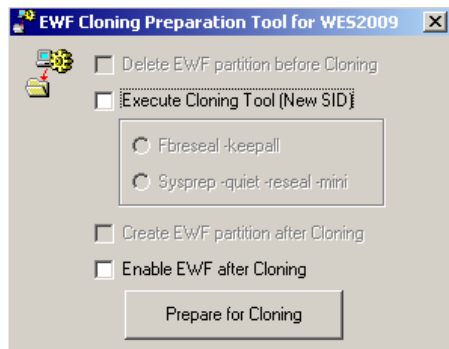


Figure 10: XpeConfig.exe configuration box in EWF RAM-Reg mode

3.13.7.1 Delete EWF partition before cloning

Selecting this function deletes the EWF partition before the cloning takes place. This function is necessary if the cloning programs aren't able to generate an image with the existing EWF partition. Booting from a DOS boot disk and having to delete the EWF partition before the cloning are then no longer necessary.

Note:

This function is only necessary and available in EWF-RAM mode.

3.13.7.2 Execute Cloning Tool (New SID)

If this function is used, then the development image is prepared so that a new security ID (SID) is generated the next time the system is started. With Windows Embedded Standard, it's possible to use 2 different cloning tools:

3.13.7.2.1 Call Fbreseal

Fbreseal is the cloning tool already used in XP Embedded FP2007 to create a new Security ID (SID). When calling this tool, all manual network settings remain intact.

Note:

We recommend using this cloning method.

3.13.7.2.2 Call Sysprep

WES2009 provides the Sysprep tool for cloning images known from XP Pro, which is called using the following options:

Sysprep.exe -quit -reseal -mini -noreboot.

This tool has the advantage of running a mini setup, which reinstalls and enumerates the network controller. (e.g. E855 and X855 boards)

Note:

However, the disadvantage is that all manual settings for the network controller are lost!

3.13.7.3 Create EWF partition after cloning

If "Create EWF partition after cloning" is selected, then a new boot command partition will be created during the next reboot.

Two automatic reboots are needed for this.

3.13.7.4 Enable EWF after Cloning

Selecting "Enable Ewf after cloning" specifies that the write filter will be enabled for all configured write filter drives after cloning when the boot command partition is created. An additional 3rd automatic reboot is necessary for this.

Note:

This function is only necessary and available in EWF-RAM mode.

3.13.7.5 Prepare for cloning

Clicking on "Prepare for Cloning" enacts the cloning preparations selected above. If clone preparation is carried out successfully, then the following message appears after about ten seconds:

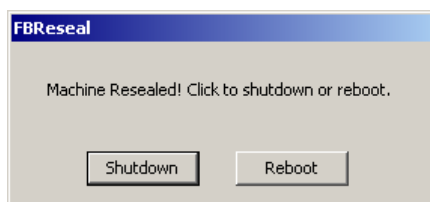


Figure 11: Display on the screen with Fbreseal cloning option

Otherwise, an error message appears.

Information:

The drive is then ready to be duplicated with a cloning program!

3.13.8 Manually creating the write filter command partition

It is only necessary to execute this command if configured in EWF-RAM mode. The command line program "xpeconfig/create_ewf" can be used to generate the write filter command partition manually.

Note:

Beginning with B&R WES2009 Pack V01.00, you can also create the write filter command partition with the Control Panel applet "EWF Manager" using the "Configure EWF" menu command. Detailed information can be found in Section 3.14 B&R EWF Manager on Page 63.

3.13.9 Enhanced write filter hibernation support

There are two ways to activate hibernation mode:

- In the Target Designer, select "Enable hibernation support" in Settings -> Power Management Settings under the "Standard PC" or "Advanced Configuration and Power Interface" component.
- On the target system, select "Enable hibernate" under Control Panel -> Power Options -> Hibernate.

Important:

As is described in the Embedded Studio Help under "Design Consideration for Using EWF with Hibernation", all fixed volumes must be provided with the write filter.

If a non-write-protected data partition is needed, follow the instructions contained in the following article from Microsoft.

<http://msdn.microsoft.com/embedded/usingwinemb/xp/techsrcxp/techarticles/default.aspx?pull=/library/en-us/dnxpesp2/html/HORMDismountingVolumesInHibernateOnceResumeManyConfiguration.asp>

(Dismounting Volumes in a Hibernate Once/Resume Many Configuration)

Important:

Volumes cannot be dismounted if an application has a file open on a non-write-protected partition.

If all conditions are met, the tool XPE_HORM.EXE (XP Embedded Hibernate Once / Resume Many tool), available from B&R, can perform a Lock-Dismount-Hibernate-Unlock.

Danger:

Failure to follow the instructions in the above article can lead to the destruction of data on non-write-protected partitions!

In order for HORM to be activated in the image, activation of HORM must first be allowed.

This can be done in two ways:

- Using the command line tool Ewfmgr.exe and the option "--activehorm" for activation or the option "--deactivatehorm" for deactivation.
- Using the control panel applet "EWF Manager" with the menu items "HORM Cmds" activate and deactivate

3.13.9.1 XP Embedded Hibernate Once / Resume Many Tool

XPE_HORM.EXE can be opened with the following options:

```
XPE_HORM.EXE <</L=<drive letter:>> | </H>> | </F>
L= .. LockDismountHibernateUnlock the Drives
H= .. Hibernate the System
F= .. Force Hibernate
```

Example:

The operating system partition on drive C is protected by EWF. Data partitions D and E are not write protected. Therefore, they must be locked and dismounted before hibernation.

```
XPE_HORM.EXE /L=D:E:      .. Drives D and E are locked and dismounted, and the system
                           enters hibernate mode. Drives D and E are unlocked again the
                           next time the system is rebooted. The hibernate function SetSystem-
PowerState                is called with FORCE=FALSE.
XPE_HORM.EXE /L=D:E: /F   .. Drives D and E are locked and dismounted, and the system
                           enters hibernate mode. Drives D and E are unlocked again the
                           next time the system is rebooted. The hibernate function SetSystem-
PowerState                is called with FORCE=TRUE.
XPE_HORM.EXE /H           .. The hibernate function SetSystemPowerState is called with
FORCE=FALSE
XPE_HORM.EXE /H /F       .. The hibernate function SetSystemPowerState is called with
FORCE=TRUE
                           .
```

Return value:

XPE_HORM.EXE returns the value "0" if an error occurs and <> 0 if there are no errors.

Important:

Removable device drives (e.g.: USB flash drive) do not have to be and are not able to be transferred as a drive letter!

3.14 B&R EWF Manager

Since operating the command line tool "ewfmgr.exe" isn't very convenient, B&R provides a graphical "EWF Manager" to cover the most important functions.

It can be run by selecting the "EWF Manager" from the Control Panel.

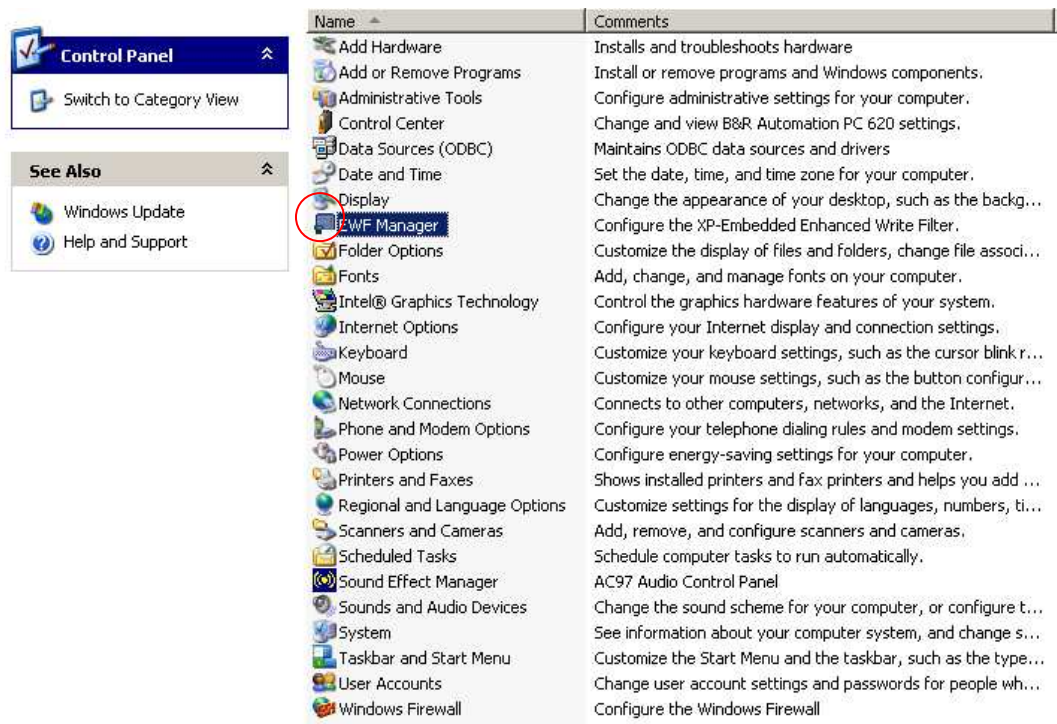


Figure 12: Starting the B&R EWF Manager from the Control Panel

The following window is shown after the EWF Manager is started:

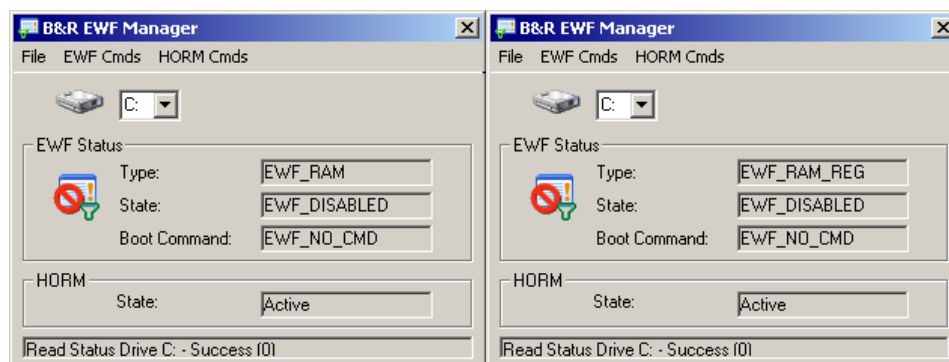


Figure 13: Comparison of B&R EWF Manager in RAM / RAM-REG mode

The current status can be called up with the combo box for all drives for which write filters have been configured.

The current status of the write filter for the selected drive is shown in the EWF Status frame as follows:

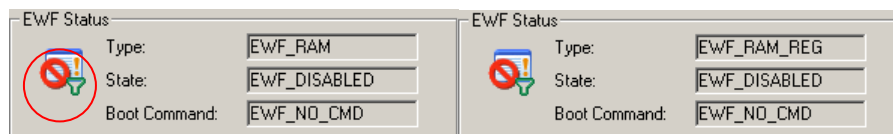


Figure 14: Disabled write filter for the selected drive

The circle with a line through it identifies a disabled write filter.

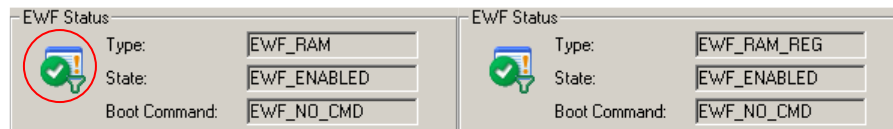


Figure 15: Enabled write filter for the selected drive

The circle with a line through it identifies an enabled write filter.

After the B&R EWF Managers is started, the following icon appears in the system tray:



Figure 16: System tray icon for B&R EWF Manager

The tray icon changes appearance depending on whether the write filter is enabled or disabled. If the write filter is not enabled for all configured drives, then the icon is shown as disabled.

If the mouse pointer is placed over the tray icon, information about all the configured write filter drives is displayed:



Figure 17: Status message for disabled write filter



Figure 18: Status message for enabled write filter

The tray icon is displayed each time Windows is started if the "Start with Windows" option is enabled.

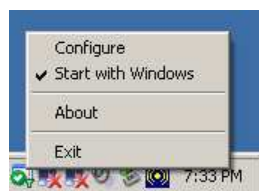


Figure 19: B&R EWF Manager tray icon menu

This menu can be opened by right-clicking on the tray icon.

Note:

In this case, the B&R EWF Manager starts in system tray overview mode. This allows the status of all configured write filters to be determined without having to do anything extra.

The configuration interface can be started from the system tray overview mode by selecting the "Configure" menu item.

The following commands are then available:

3.14.1 "File" menu



Figure 20: B&R EWF Manager "File" menu

3.14.1.1 "Configure" menu item

Starts the configuration interface.

3.14.1.2 "Start with Windows" menu item

Starts the B&R EWF Manager automatically in system tray overview mode.

3.14.1.3 "About" menu item

Selecting the "About" menu item opens up the following "About" dialog box.



Figure 21: B&R EWF Manager "About" dialog box

3.14.1.4 "Exit" menu item

Selecting the "Exit" menu item closes the program.

Note:

The program can only be closed using the "Exit" menu item.
All other attempts (e.g. Alt+F4 or pressing the "Close" button) simply returns the B&R EWF Manager back to system tray overview mode.

3.14.2 EWF Cmds menu

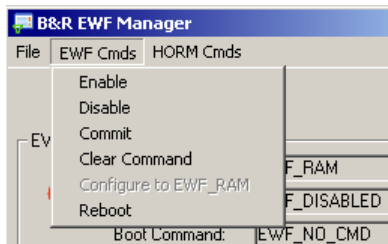


Figure 22: Menu - EWF Commands in RAM mode

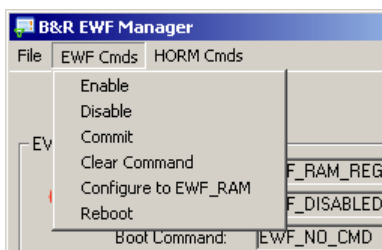


Figure 23: Menu - EWF Commands in RAM-Reg mode

3.14.2.1 "Enable" menu item

Enables the write filter for the selected drive.

The desired command is shown in the field next to "Boot Command:".
Once executed successfully, the user gets the following message box:

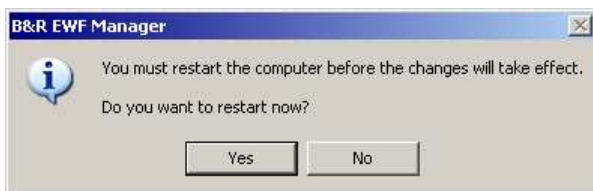


Figure 24: "Enable" menu item message box

If you don't want to make any changes to other configured EWF drives, click "Yes"; otherwise, click "No".

3.14.2.2 "Disable" menu item

Disables the write filter for the selected drive.

The desired command is shown in the field next to "Boot Command:".
Once executed successfully, the user gets the following message box:

If the Enhanced Write Filter is configured in RAM-Reg mode, then the following request confirmation will also appear:

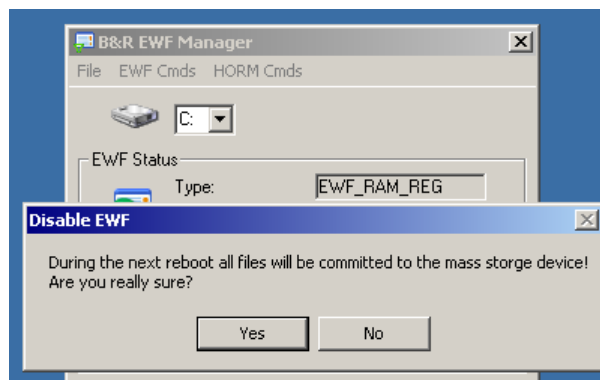


Figure 25: Request confirmation - Disable EWF in RAM-Reg mode



Figure 26: Confirmation window for Disable option in RAM mode and RAM-Reg mode

If you don't want to make any changes to other configured EWF drives, click "Yes"; otherwise, click "No".

Note:

If the Enhanced Write Filter is disabled when in RAM-Reg mode, then all of the data redirected to the RAM since the computer was started will be written to the mass memory. However, the data will be lost if this is done in EWF RAM mode!

3.14.2.3 "Commit" menu item

When the write filter is enabled for the selected drive, this command writes data to the mass memory device after the next proper shutdown or restart. Turning off the write filter for writing to the mass memory device no longer becomes necessary.

The desired command is shown in the field next to "Boot Command:". Once executed successfully, the user gets the following message box:



Figure 27: "Commit" menu item message box

If you don't want to make any changes to other configured EWF drives, click "Yes"; otherwise, click "No".

Note:

If the write filter is not enabled for the selected drive, then the commit is not carried out, and an error message is displayed in the status bar of the configuration dialog box.

Note:

Using the B&R EWF Manager and ARwin.

If the B&R Write Filter Manager (EWF/WFM) is used, then the ARwin must be exited before a "Commit" command is triggered.

3.14.2.4 "Clear Command" menu item

Deletes the last command that should be carried out during the next boot for the selected drive.

"EWF_NO_CMD" is displayed next to the "Boot Command:" field again.

3.14.2.5 "Configure EWF" menu item

This menu item is not available in "EWF_RAM" mode.

If the write filter boot partition is not available on the system, this information will be displayed in the EWF status window in the display field next to Type: EWF_RAM_REG. This menu item allows the write filter boot partition to be created.

Once executed successfully, the user gets the following message box:



Figure 28: Configure EWF menu item message box

If you don't want to make any changes to other configured EWF drives, click "Yes"; otherwise, click "No".

Note:

Starting with XP Embedded SP2, it is no longer absolutely necessary to create the write filter boot partition.

The enhanced write filter can also be operated in EWF_RAM_REG mode.

In this case, the write filter boot partition doesn't need to be created with the "Configure EWF" command.

3.14.2.6 "Reboot" menu item

Selecting the Reboot menu item opens up the following message box:



Figure 29: "Reboot" menu item message box

Selecting "Yes" causes the system to reboot.

3.14.3 HORM Cmds menu



Figure 30: HORM Commands menu

3.14.3.1 "Activate" menu item

The Hibernate Once Resume Many Mode (HORM) is available by selecting the "Activate" menu item.

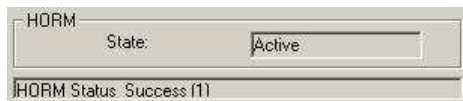


Figure 31: HORM Status Active

3.14.3.2 "Deactivate" menu item

The Hibernate Once Resume Many Mode (HORM) is not available if the "Deactivate" menu item is selected.

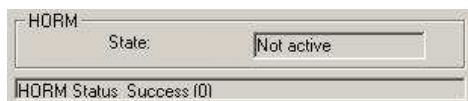


Figure 32: HORM Status Not active

3.15 B&R EWF DLL

This component is an auxiliary component for the B&R XPE Configuration Tool and B&R EWF Manager components.

3.16 WES2009 Features

The following additional features are implemented in WES2009 images:

- File Based Write Filter
- File Based Writer Filter Management Tool "FBWFMgmt.exe"
- Enhanced Write Filter Management Tool "EWFMMgmt.exe"
- Registry filter
- B&R Language Support

3.16.1 File Based Write Filter (FBWF)

WES2009 Images provides a "File Based Write Filter" in addition to the sector-based "Enhanced Write Filter".

This makes it possible to write directories or files to a protected partition without it having to be explicitly "committed".

This feature was included in the B&R standard images but not activated.

3.16.1.1 Command line tool "fbwfmgr.exe"

However, the command line tool "fbwfmgr.exe" allows the user to easily configure and active this feature on the target system.

Important:

Do not configure the "File Based Write Filter" on a partition which has been configured for the "Enhanced Write Filter" and vice versa!

3.16.1.1.1 Application example for the File Based Write Filter Manager

FBWF – commands	Description
fbwfmgr	Show FBWF status
fbwfmgr /enable	Enable FBWF
fbwfmgr /disable	disable FBWF)
fbwfmgr /addvolume c:	Add drive for FBWF
fbwfmgr /addexclusion c: \File.txt	Add file for exclusion
fbwfmgr /addexclusion c: \DirectoryName	Add directory for exclusion
fbwfmgr /removeexclusion c: \File.txt	Remove file from exclusion
fbwfmgr /removeexclusion c: \DirectoryName	Remove directory from exclusion
fbwfmgr /commit c: \File.txt	Commit a protected file

Table 12: Important FBWF commands

The following important notes must be taken into consideration when using the FBWF:

- The following syntax is important when specifying paths:
<drive letter>:, Space relative Pfad der Datei/Verzeichnis angefangen mit einem „\“.
- "Commit" only works for individual files, directory cannot be "committed".
- Presently, newly created files cannot be "committed" (i.e. the file must exist before the FBWF is enabled).
- Presently, files cannot be deleted.
- Changes for direct write access are only applied after restarting.
- The following sequence must be adhered to when adding exclusions for files/folders which do not yet exist:
 - o Add exclusion
 - o Restart
 - o Create file/folder

Further information can be found at msdn.microsoft.com under the keyword "File Based Write Filter".

3.16.2 File Based Writer Filter Management Tool "FBWFMgmt.exe"

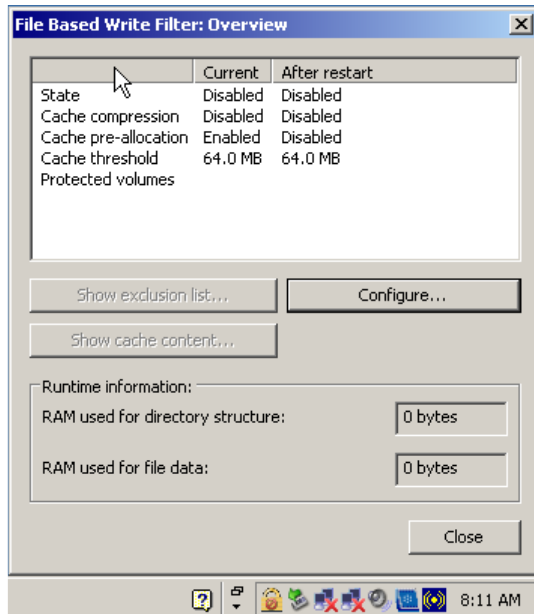


Figure 33: File Based Write Filter Management Tool

A graphical File Based Write Filter Management tool "FBWFMgmt.exe" from Microsoft has been provided in the directory "C:\Windows\System32" since B&R WES2009 Pack V1.20.

3.16.3 Enhanced Write Filter Management Tool "EWFMgmt.exe"

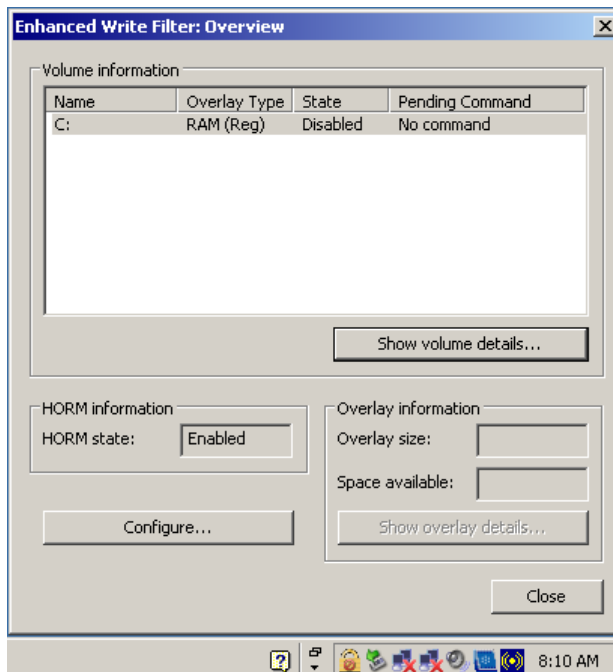


Figure 34: Enhanced Write Filter Management Tool

A graphical Enhanced Write Filter Management tool "EWFMgmt.exe" from Microsoft has been provided in the directory "C:\Windows\System32" since B&R WES2009 Pack V1.20.

Note:

The "B&R EWF Manager" is also still available in the Control Panel for operating the Enhanced Write Filter.

3.16.4 Registry filter

In WES2009 images, the registry filter is implemented in the B&R standard images.

This makes it possible to write registry keys even when the write filter is enabled without having to set a commit for the write filter.

All default registry branches were disabled in the B&R standard image so that the filter is disabled by default.

However, the user can re-enable them in the registry at any time as follows:

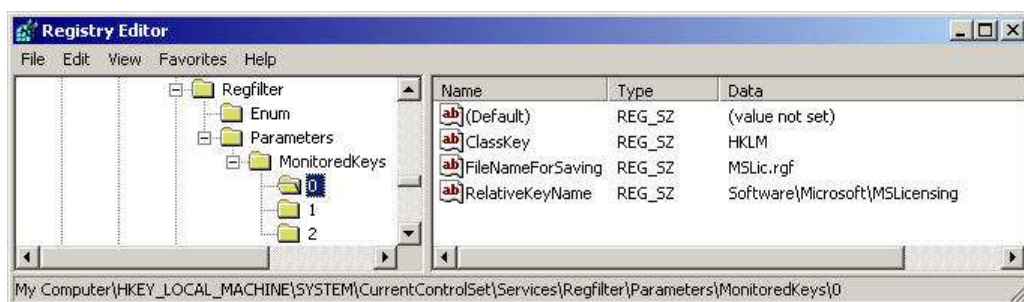


Figure 35: Registry Filter Monitored Keys 0

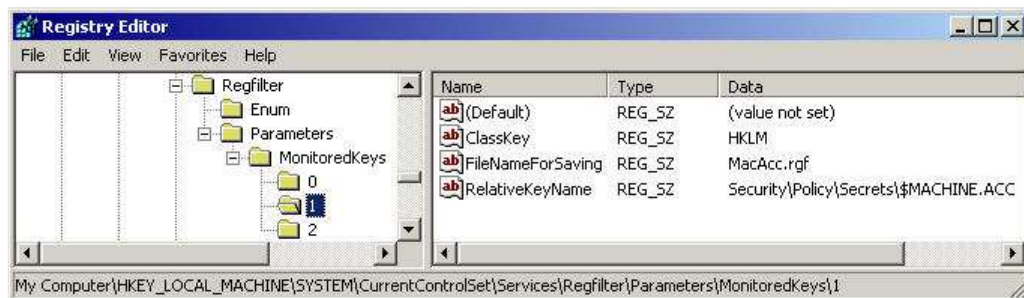


Figure 36: Registry Filter Monitored Keys 1

However, it is also possible to monitor separate registry branches, which are then also protected when the "Enhanced Write Filter" is enabled, as shown in the following image:

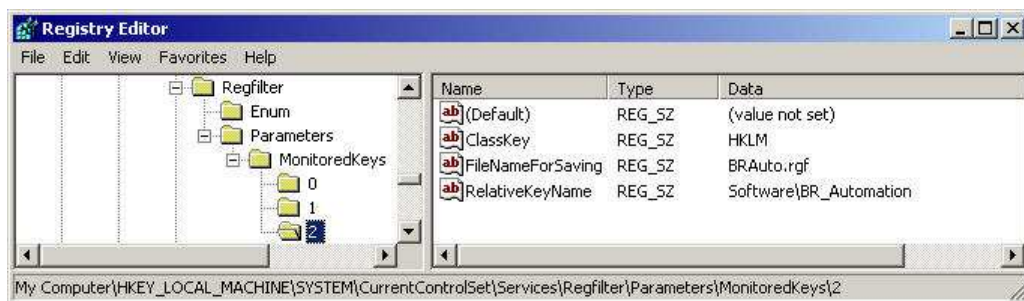


Figure 37: Registry Filter user-defined key

Note:

Enter the name of a key for RelativeKeyName.

Names of values do not function here!

Important:

The system partition can no longer be checked by "chkdsk" upon system start if the Registry Filter is enabled. This causes the following error message when starting: "Cannot open volume for direct access".

The following changes must first be made in the registry editor if you wish for "chkdsk" to check the system partition upon system startup when Writefilter is enabled:

"HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Service\Regfilter"

Change the "Start" value from "1" to "4".

Reset the value from "4" to "1" after the "chkdsk" has been performed.

Note:

If the MonitoredKeys 0 and/or MonitoredKeys 1 are not required, then user-defined Keys can also be monitored and protected without this.

Important:

If you use "compressed NTFS" as file system, the file "RegfData" must be in the root directory "uncompressed" so that the registry filter functions properly!

3.16.5 B&R Language Support

For WES2009 images, it is possible to install the Multi Languages support from XP Professional SP3 Multilingual User Interface CDs in B&R WES2009 standard images for the following languages:

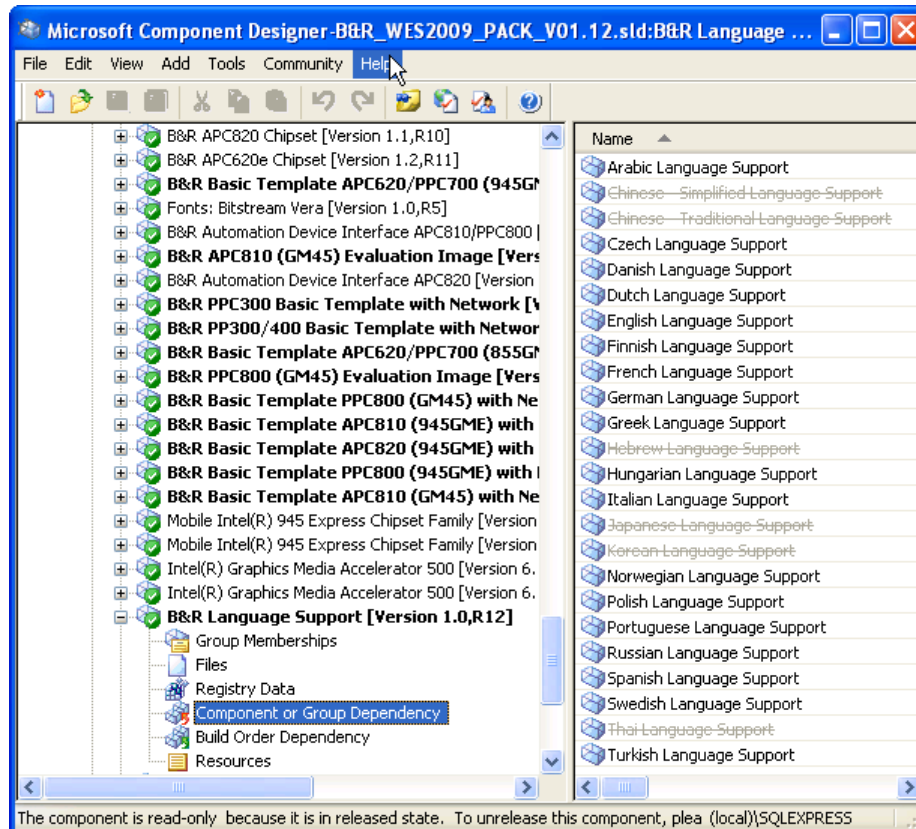


Figure 38: B&R Language Support

This means that the languages files for the languages listed above can now be installed from XP-Professional SP3 Multilingual User Interface CDs. (all languages that are not crossed out)
This option was implemented so that language resources can be installed for languages (no Asian languages) even without target designer. However, this increases the size of the image by approximately 90MB per language.

The image size is only increased by approximately 30-40 MB if the language resources were included in the Target Designer.

This is because all of the resource DLLs were installed with the XP Pro CD installation, including those for resources which are not even included on the standard image.

Therefore, this option should only be used when Target Designer is not available for implementing the language resources in the image, or when this is not possible due to time constraints.

Important:

Please be aware that 4 error messages appear per language when installing using the XP Pro Multilingual CD's:



Figure 39: MUI installation error message 1



Figure 40: MUI installation error message 2



Figure 41: MUI installation error message 3

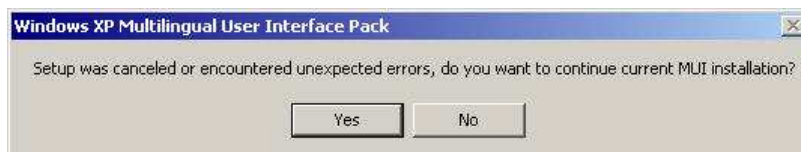


Figure 42: MUI installation error message 4

Confirm error messages 1,2 and 3 by clicking OK, and error message 4 by clicking Yes.

3.16.5.1 Setting up the language resource files in the Target Designer

If the language resource files that are selected for B&R Language Support were imported in the component database, then they are automatically included in the image.

If these language resource files are not needed in the image (each language requires approx. 30MB), this must be explicitly deselected for each language:

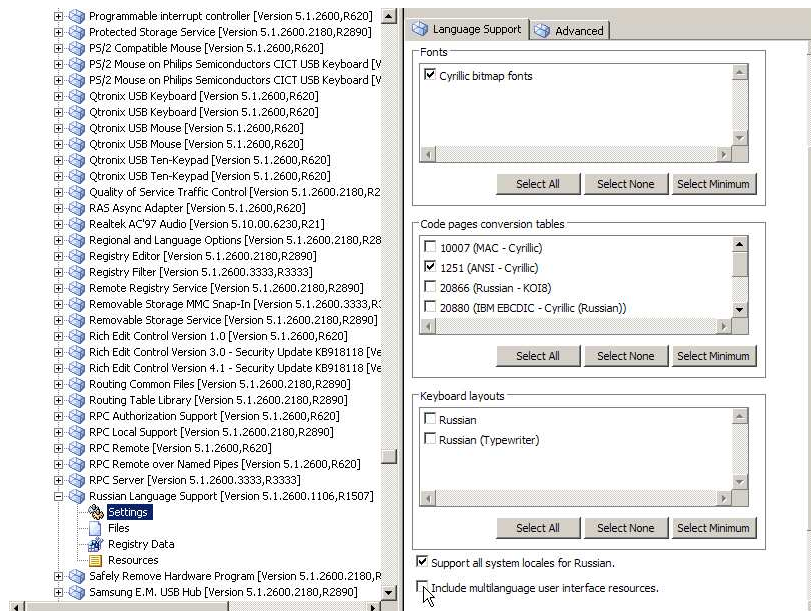


Figure 43: Deselecting the language resource files

Note:

If the checkbox "Include multilanguage user interface resources" is not shown for a certain language even though the language resource files have been imported in the component database, then you have to remove the language components "<LANGUAGE> Language Support" from the Target Designer and add them again in order to deselect the language resource files. Then the corresponding checkbox to deselect the language resource files should be available.

4 B&R Target Designer Export Files for WES2009

B&R provides "Target Designer export files" for the following B&R devices:

- Target Designer Export File for APC620 855GME
- Target Designer Export File for APC620 945GME
- Target Designer Export File for PP300/400
- Target Designer Export File for PPC300
- Target Designer Export File for PPC700 855GME
- Target Designer Export File for PPC700 945GME
- Target Designer Export File for APC810 945GME
- Target Designer Export File for APC810 GM45
- Target Designer Export File for APC820 945GME
- Target Designer Export File for PPC800 945GME
- Target Designer Export File for PPC800 GM45
- Target Designer Export File for PPC500
- Target Designer Export File for B&R ACPI Multiprocessor PC Devices
- Target Designer Export File for B&R ACPI PC Devices

Before these Target Designer export files can be used in the Target Designer, all necessary Microsoft QFEs and the accompanying B&R WES2009 Pack must be installed.
Specifications for the necessary files can be found in the Readme.txt file in the B&R WES2009 Pack.

If an image is generated from this export file without any additional changes, it will run without limitations for 90 days.

Note:

If an image is needed which should run indefinitely, a valid product ID (PID) must be entered in the "Global Settings" in the Target Designer under "Product Identification Key (PID)" before the "Build" procedure.

By default, Target Designer export files are configured for primary partitions of max. 1,024 MB with an NTFS file system.

If larger boot partitions are needed, "Boot Partition Size" must be adjusted under "Target Device Settings" in the Target Designer's "Global Settings".

If you are sure that the NTFS boot partition for the image is less than 1024, then the exact partition size can be set. Reduction of the value from 1024 to e.g.: 512, reduces the image size under NTFS by about 10 MB.

4.1 Target Designer Export File for B&R ACPI Multiprocessor PC Devices

Images generated using the Target Designer export file above will support the following devices:

- APC810_PPC800_945GME
- APC810_PPC800_GM45
- PP500
- APC511
- APC510
- APC620_PPC700_945GME
- APC820_945GME
- APC910_QM77

- APC910_HM76

Note:

In order to use the WES2009 Image generated with the Target Designer export file above, please follow the information provided in "1.4 B&R standard images in B&R WES2009 Pack V1.21 on page 10" and "3.11.35 B&R ACPI multiprocessor PC devices on page 46"

4.2 Target Designer Export File for B&R ACPI PC Devices

Images generated using the Target Designer export file above will support the following devices:

- APC620_PPC700_X855
- APC620_PPC700_E855
- PP300/400
- PPC300

Note:

In order to use the WES2009 Image generated with the Target Designer export file above, please follow the information provided in "1.4 B&R standard images in B&R WES2009 Pack V1.21 on page 10" and "3.11.36 B&R ACPI PC devices on page 47"

4.3 Possible adjustments in the "B&R Fbreasal" component

In the B&R export files, the following settings were made in the registry for the component "B&R Fbreasal":

- GenerateComputerName -> 0
- RemoveAutoLogon -> 0
- RemoveMountedDevices -> 0
- RemoveNetworkSettings -> 0
- RemoveUserSetting -> 0
- UnjoinNetorkDomain ->0

For example, if you want to generate an automatic computer name according to "Fbreseal", you would set GenerateComputerName to "1".

4.4 Checking the Enhanced Write Filter on the target system

Once the image has been transferred to the target disk, the write filter should be checked as follows after the FBK call has been carried out:

4.4.1 EWF RAM mode

Start -> Run... -> Cmd -> Enter

Then type in "ewfmgr c:" at the DOS prompt. This should display the following:

```
C:\WINDOWS\system32\cmd.exe
C:\Documents and Settings\Administrator>ewfmgr c:
Protected Volume Configuration
Type                RAM
State               DISABLED
Boot Command        NO_CMD
Param1              0
Param2              0
Persistent Data     ""
Volume ID           DD CC BB AA 00 7E 00 00 00 00 00 00 00 00 00
Device Name         "\\Device\HarddiskVolume1" [C:]
Max Levels          1
Clump Size           512
Current Level       N/A

Memory used for data 0 bytes
Memory used for mapping 0 bytes
```

Figure 44: Checking the EWF in RAM mode on the target system

Note:

If the EWF is configured in RAM mode, but the type is shown as RAM (REG) and the state as EN-ABLED after starting the computer, then the user forgot to leave 1MB of free memory for the Write Filter command partition on the target disk.

If a general error message occurs when running "ewfmgr c:", then you can try to create the write filter command partition manually as follows:

Start -> Run -> Cmd and press Enter. Then type in "xpeconfig /create_ewf" and press Enter. Reboot the system after you receive the message "EWF Partition created!"

The write filter should then be checked to make sure it is working properly using the method described above.

Note:

With the B&R WES2009 Pack, you can also control the write filter with the B&R EWF Manager. If the write filter command partition does not exist, it can be created using the Control Panel Tool "EWF Manager" -> "Configure EWF" menu item.

4.4.2 EWF RAM Reg mode

Start -> Run... -> Cmd -> Enter

Then type in "ewfmgr c:" at the DOS prompt. This should display the following:

```
C:\WINDOWS\system32\cmd.exe
C:\Documents and Settings\Administrator>ewfmgr c:
Protected Volume Configuration
Type                RAM (REG)
State               DISABLED
Boot Command        NO_CMD
Param1              0
Param2              0
Persistent Data     ""
Volume ID           DD CC BB AA 00 7E 00 00 00 00 00 00 00 00 00
Device Name         "\\Device\HarddiskVolume1" [C:]
Max Levels          1
Clump Size           512
Current Level       N/A

Memory used for data 0 bytes
Memory used for mapping 0 bytes
```

Figure 45: Checking the EWF in RAM-Reg mode on the target system

4.4.3 Command line options in Ewfmgr.exe

The following command line options are provided by the EWF command line tool ewfmgr.exe:



```
C:\WINDOWS\system32\cmd.exe
C:\Documents and Settings\Administrator>ewfmgmr /?
Usage: ewfmgmr [<volume-paths>] [options]
Displays information about the Ewfmgr volume or the specified protected
volume, and allows commands to be issued to a protected volume that
will be processed on the next restart of the computer.
<The default behavior is to display information about the Ewfmgr Volume
configuration, if no <volume-path> is specified.>

Ewfmgr volume options:
-gauge[=x] Displays a percent full gauge for the Ewfmgr volume.
Where x is a number from 1 to 100 and indicates the gauge
stepping value. <The default stepping is 1.>

Protected volume options:
-all Performs a specified command on all protected volumes.
<default command is to display protected volume information>
-disable Disable the overlay on the specified protected volume
-enable Enable the overlay on the specified protected volume.
-commit Commit all current level data in the overlay to the protected
volume, and reset the current overlay level to 1.
-commitanddisable [-live]
Commit all current level data in the overlay to the protected
volume, and disable the overlay. If -live is specified, the
operation is completed immediately. The -live option is only
supported on RAM protected volumes.
-setlevel=[-]<lvl>
Sets the current overlay level to the specified level
Legal values for <lvl>: <where lvl = current overlay level>
<lvl+1> starts a new overlay level
<0> - <lvl> sets the level discarding all data above the
specified level
If -<lvl> is specified then all the data in the specified level
and beyond is deleted.
-restore Restores to the prior overlay level. Same as setlevel=<lvl-1>
-checkpoint Starts a new overlay level. Same as setlevel=<lvl+1>
-description="<descriptive text>"
Use with -setlevel=<lvl+1> or -checkpoint to add a description
for the overlay level that is being ended.
-persist="<persistent data>"
Set the persistent data to the specified string
-nocmd Clear the current pending command.
-activatehorm Activates HORM
-deactivatehorm Deactivates HORM

Example: ewfmgmr c:
C:\Documents and Settings\Administrator>
```

Figure 46: Command line options in ewfmgmr.exe

Note:

In EWF RAM-Reg mode, the write filter can be disabled with the `-commitanddisable` command.

4.5 Image update on B&R ACPI Multiprocessor PC devices/ B&R ACPI PC devices

The following section describes the update process for converting a customized device-specific WES2009 image (APC810, PP500, etc.) to a globally applicable "B&R ACPI Multiprocessor PC Devices" or "B&R ACPI PC Devices WES2009" image.

1. Install all of the necessary QFEs from the WES2009 Pack in the component database.
2. Import the B&R WES2009 Pack to the component database.
3. Open your customized Target Designer export file and select the menu item Configuration->Upgrade Configuration.
4. If not already set, change the Overlay Type from "RAM" to "RAM(Reg)" in the "Enhanced Write Filter" component settings
5. Now run a Dependency Check (menu item Configuration-> Check Dependencies F5). (Auto-resolve dependencies should be enabled under the menu item Tools->Options->Dependency Check)
6. Add the component "B&R ACPI Multiprocessor PC Devices" or "B&R ACPI PC Devices" to your image, according to the respective device type. The components are located under "Design Templates".

7. Run another Dependency Check (menu item Configuration-> Check Dependencies F5). (Auto-resolve dependencies should be enabled under the menu item Tools->Options->Dependency Check).
8. Disable all of the component conflicts in your image revealed by the Dependency Check under Task:

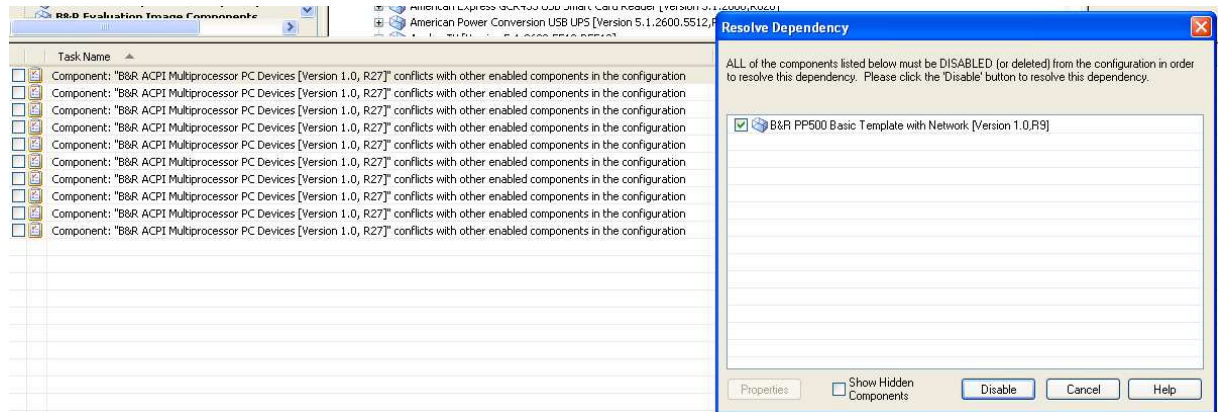


Figure 47: Example - Component conflict when updating on B&R ACPI Multiprocessor PC Devices

9. You can now generate your image as usual. (menu item -> Configuration Build Target Image... F7)
10. Create your WES2009 disk. To do this, please follow the information in "1.3 Important new changes to B&R standard images in B&R WES2009 **Pack V1.20** on page 9" and "3.11.35 B&R ACPI multiprocessor PC devices on page 46" and "3.11.36 B&R ACPI PC devices on page 47".

You now have a customized basis image that should run on all devices in the respective device group (e.g.: APC810, PPC800, PP500, APC511, etc.)

This provides the advantage of being able to make modifications for the customer in the Target Designer first by simply using a device that corresponds to the customer's device type instead of actually needing their device. (e.g. an image generated on the AP810 can also be used on the APC511)

Important:

Before sending this sort of image to the customer, make absolutely sure that the image has been tested on the respective target hardware being used by the customer!

5 Backup/Restore of XP Embedded images

5.1 Transferring the master boot record to the target data carrier

For an XP embedded master boot record to be transferred to the target data carrier, it needs to have at least one **primary active partition**.

If this requirement is met, it depends on the file system selected as to how the master boot record can be transferred to the target data carrier.

Note:

If the Enhanced Write Filter is configured in RAM mode in the source image, then at least 2MB must remain unpartitioned on the mass memory. This normally requires a new mass memory to be repartitioned.

If possible, partition your target device mass memory on the primary IDE controller, and don't forget to activate this partition!

To do this, create a bootable MS-DOS diskette containing fdisk.exe and format.com.

5.1.1 Limitations of CompactFlash cards in card readers

In a standard PC with a card reader, CompactFlash (CF) cards are recognized as normal removable media. Removable media have the following limitations in Windows XP and therefore also in Windows XP Embedded:

- No partitions can be created.
- Only the first partition can be formatted.
- Only FAT16 and FAT32 formatting is possible.
- Read and write access is only possible for the contents of the first partition.
- The Windows XP Embedded master boot record cannot be transferred to the CF.

For this reason, the CompactFlash card must be operated on an IDE controller in order to transfer the XP Embedded master boot record to a CompactFlash card.

5.1.2 Transferring the master boot record to a data carrier

5.1.3 FAT16 file system

Format the **primary active partition** with a DOS boot diskette, and then write the master boot record to the target data carrier with the Bootprep.exe tool.

The Bootprep.exe tool can be found in the "Windows Embedded\Utilities" installation directory.

1. Connect your mass memory to the primary IDE controller as master. Remove all other mass media from your system or deactivate them in BIOS. In principle, the mass memory can be operated as master or slave on any IDE controller. However in this case, a different mass memory should never be used on the system!
2. Before using the Bootprep.exe tool, make sure that the primary partition on your target data carrier is "active".
3. Then boot your system with your boot diskette and start "bootprep.exe /d<drive designation>", e.g.: command for drive C: "bootprep.exe /dC".
4. The respective confirmation message must be answered with "Y"!
5. The mass memory is now ready to boot XP Embedded.

A detailed description of Bootprep.exe can be found on the web using the following link:

<http://msdn.microsoft.com/library/default.asp?url=/library/en-us/xpehelp/html/xetbsconfiguringcompactflashdevice.asp>

5.1.3.1.1 Converting from FAT16 to NTFS

If the NTFS file system is desired, this can be done with the XP Embedded image itself at a later time:

Start->Run->cmd:

Then make the following entry in the command line:

```
convert c: /FS:NTFS
```

5.1.3.2 NTFS file system

Boot the CompactFlash on the IDE interface with an XP Professional or XP Embedded computer.

If the primary active partition is present on the target data carrier (as described above), simply format with the NTFS file system.

Once the format is complete, the master boot record is on the target data carrier.

5.1.3.3 Compressed NTFS as file system

Boot the CompactFlash on the IDE interface with an XP Professional or XP Embedded computer.

If the primary active partition is present on the target data carrier (as described above), simply format with the "compressed NTFS" file system.

Once the format is complete, the master boot record is on the target data carrier.

5.1.3.4 Summary

Note:

The master boot record remains unchanged on the data carrier until the system partition is reformatted or its size is changed.

Deleting files on the data carrier does not cause the master boot record to be changed.

This behavior can be used for updating the image without transferring the master boot record.

5.2 Backing up the XP Embedded image from the XP Embedded data carrier

Important:

If you receive your XP Embedded image from B&R, we generally recommend that you make a backup copy of the XP Embedded image before editing it or installing your applications. If a problem occurs, you can copy the backup of the XP Embedded images to your target data carrier at any time.

You can, of course, make a backup of your edited XP Embedded image in the same way!

The XP Embedded image files can simply be copied from the XP Embedded data carrier to a backup data carrier using the Windows Explorer or another file manager.

Note:

It is not necessary/possible to backup the "System Volume Information" directory.

When backing up the XP Embedded files from a CompactFlash, it can be operated via an IDE port, a card reader or a PCMCIA controller.

Note:

Before you start copying, the following settings must be made in Windows Explorer :

Windows Explorer-> Tools-> Folder Options ...-> View:

1. Select "Show hidden files and folders" under "Hidden files and folders".
2. Deselect "Hide protected operating system files (recommended)".

Before removing the source data carrier from the card reader or PCMCIA controller after copying, make sure that you have selected "Safely Remove Hardware" for the corresponding drive:



Figure 48: Safely Remove Hardware

Important:

CompactFlash cards that are operated on an IDE port are only permitted to be removed after the computer is switched off!

5.3 Transferring the XP Embedded image to target data carriers

The XP Embedded image files can simply be copied to the target data carrier using the Windows Explorer or another file manager.

When transferring the XP Embedded files to a CompactFlash, it can be operated via an IDE port, a card reader or a PCMCIA controller.

Note:

Before you start copying, the following settings must be made in Windows Explorer :

Windows Explorer-> Tools-> Folder Options ...-> View:

1. Select "Show hidden files and folders" under "Hidden files and folders".
2. Deselect "Hide protected operating system files (recommended)".

Information about compressed NTFS:

In order for the target disk to then also boot with compressed NTFS, the "ntldr" file in the target's root directory must be decompressed. (Windows Explorer -> select "ntldr" file -> Properties -> Advanced... -> unmark "Compress contents..." option.)

Before removing the target data carrier from the card reader or PCMCIA controller after copying, make sure that you have selected "Safely Remove Hardware" for the corresponding drive:



Figure 49: Safely Remove Hardware

Important:

CompactFlash cards that are operated on an IDE port are only permitted to be removed after the computer is switched off!

5.4 B&R eMbedded OS Installer

From version V2.21 and later, the B&R eMbedded OS Installer also supports the installation of XP-Embedded images with the FAT16 file system on B&R Compact Flashes.

Note:

A significant benefit is that the B&R eMbedded OS Installer makes it possible for Compact Flashes to also be made bootable in the PCMCIA adapter or with USB readers.

Note:

The B&R eMbedded OS Installer can be downloaded from the B&R homepage www.br-automation.com.

Further information about the B&R eMbedded OS Installer can be found in the online help.

5.4.1 Converting from FAT16 to NTFS

If NTFS is the desired file system, then the conversion can be made after installing the XP-Embedded image with the B&R eMbedded OS Installer as shown in the following:

Start->Run->cmd:

Then make the following entry in the command line:

```
convert <drive letter>: /FS:NTFS
```

5.4.2 Converting from NTFS to compressed NTFS

The CompactFlash can normally not be booted after formatting with "Compressed NTFS" in PCMCIA adapters and USB readers.

Therefore, the data carrier in the PCMCIA adapter or USB reader must be converted to compressed NTFS as follows:

- Open Windows Explorer, right-click on the drive you wish to compress, and open the properties dialog box.
- Under the "General" tab, select the checkbox "Compress drive to save space" and confirm your selection with OK or Accept. Leave the option "Apply changes to subfolders and files" selected.
- Then decompress the "ntldr" file in the root directory. (deselect the checkbox under File Properties -> Advanced button -> "Compress contents to save space")
- The CompactFlash should now boot with compressed NTFS.

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