

Windows XP Embedded - Change and Commit Procedure

This document contains EdgeTech's recommended procedure for making permanent changes to EdgeTech's CompactFLASH based Windows XP Embedded operating systems.

All instructions in this document are intended to be performed on a Windows XP Professional host computer ("Host") using a Remote Desktop Connection to the Windows XP Embedded target system ("XPE Target").

Follow this procedure strictly to achieve the desired results.

Disclaimer

EdgeTech cannot provide full support for field modified CompactFLASH based Windows XP Embedded configurations, and thus advise against it.

EdgeTech can only supply replacement CompactFLASH devices with original Windows XP Embedded configurations – they do not include field changes.

EdgeTech staff always provide customer support based on original Windows XP Embedded configurations – this customer support might not apply to, and/or not be compatible with, field modified Windows XPE configurations.

Note 1: User interaction with the Target system's Windows XP Embedded operating system should be restricted to an absolute minimum when planning to permanently commit the resulting Windows configuration to CompactFLASH. The reason for this advisory is that Windows keeps track of user activity and generates a legion of junk files in the form of Recent Documents and History links that needlessly take up precious CompactFLASH space. Repeated failure to comply with this advisory will cause performance degradation and could cause Windows to run out of disk space.

Note 2: Windows XP and newer versions of Windows have built-in Remote Desktop Client software, but earlier versions of Windows do not. Host computers running older versions of Windows can also be used, but only if it has Microsoft's Remote Desktop Client software installed. Microsoft makes Remote Desktop Client software available for free download and installation on their website.

1. Change and Commit Procedure

Power Cycle the XPE Target system to boot into a fresh and clean Windows XPE configuration.

Remote Desktop Connection

All EdgeTech Host computers are shipped with a desktop shortcut to the Remote Desktop Client software. Click this desktop shortcut and establish a Remote Desktop connection to the XPE Target system.

Note: Make sure the IP address is correct. Logon as "Administrator", password is "admin".

Make Changes

Stop and exit all obvious running software applications on the XPE Target system, such as EdgeTech's Sonar software, Navigation software, etc.

Using an absolute minimum of user interaction, make only the necessary changes to the Windows XP Embedded configuration.

Note: Minimum Windows interaction reduces the amount of space wasting files Windows will generate.

Cleanup Waste

Cleanup wasted space by deleting all files and subfolders in the following folders (except desktop.ini):

WINXPE (C:)
 WINDOWS \ Temp
 Documents and Settings \ Administrator \ Local Settings
 \ History \ Today
 \ Temp
 \ Temporary Internet Files
 \ My Recent Documents

Commit Changes

Open the Windows Command Shell:

On Windows Start menu, click "**Run...**", then type "**cmd**" and hit "**Enter**"

Instruct Windows XP Embedded EWF manager to commit changes on next warm restart:

At the Command Shell prompt, type: "**ewfmgr c: -commit**"

Exit the Windows Command Shell:

At the Command Shell prompt, type: "**exit**"

Note: The changes are not permanent yet. Windows has simply been notified to make the changes permanent on the next warm restart. For detailed information, see "Windows XPE Enhanced Write Filter".

"Warm" Restart

Restart the XPE Target system without powering it down:

On Windows **Start** menu, click "**Windows Security**", then click "**Restart**"

Note: The Remote Desktop connection is lost as result of the restart.

Note: During the "warm" restart all changes are permanently committed to CompactFLASH.

2. Microsoft Remote Desktop Client

Note: This section is for informational use only and contains no additional procedural instructions.

A Remote Desktop connection can be used to log onto and manage a target device remotely. The Remote Desktop Client software is contained in Windows XP's Terminal Services component.

For older Windows platforms (Windows 95/98/NT4/2000), Microsoft released Remote Desktop Client software which can be downloaded and installed from their website:

<http://www.microsoft.com/windowsxp/downloads/tools/rdclientdl.msp>

EdgeTech Sonar systems running Windows XP Embedded operating system on the Target system, have Microsoft Windows' Remote Desktop Client software pre-installed and configured on the Topside/Host computers to remotely connect to the XPE Target system. The physical link for the connection is a TCP/IP Ethernet connection via wired or wireless LAN for hull mounted Target systems, or via the towcable for towed XPE Target systems.

A Remote Desktop connection to the XPE Target system is initiated from a Desktop shortcut on the Topside/Host computer.



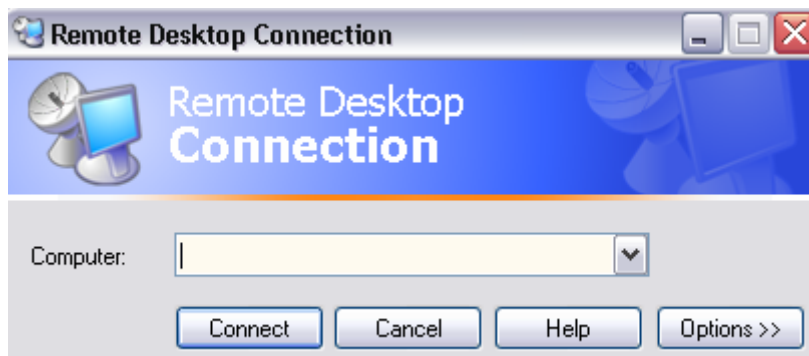
The Topside/Host's Remote Desktop connection is configured for automatic logon to the XPE Target system, and to mount all local Topside/Host drives onto the XPE Target system for the duration of the remote session.

Note: While the XPE Target system is being managed remotely, the XPE Target allows remote access only and locks out all local access for the duration of the remote connection. This is normal Windows behavior.

How to create a new Remote Desktop connection

To create a new Remote Desktop connection, click:

Start Menu → All Programs → Accessories → Communications → Remote Desktop Connection



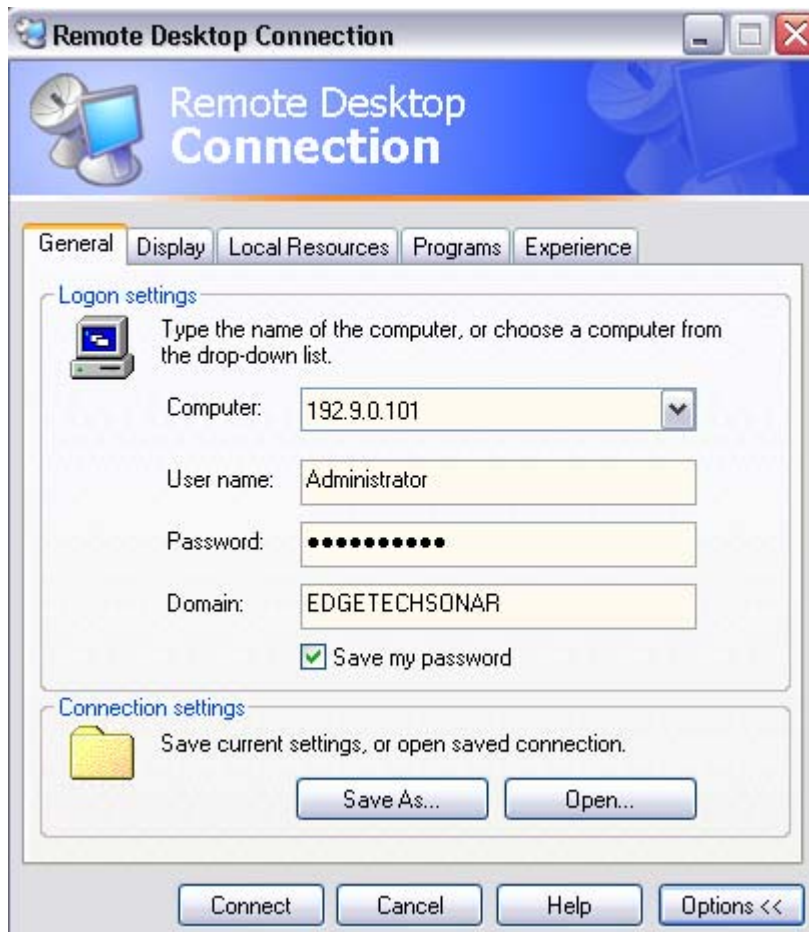
To configure the Remote Desktop Connection, click the **Options >>** button in the lower right corner of the Remote Desktop Connection window.

Remote Desktop Connection → General

Computer : 192.9.0.101 (this is the EdgeTech default XPE Target system IP Address)
User name : Administrator
Password : admin
Domain : EDGETECHSONAR

☒ Save my password.

Note: Assume all these settings are case sensitive.



Remote Desktop Connection → Local Resources

Remote computer sound : Bring to this computer

Local devices : ☒ Disk Drives



Remote Desktop Connection → Experience

Choose connection speed : Custom

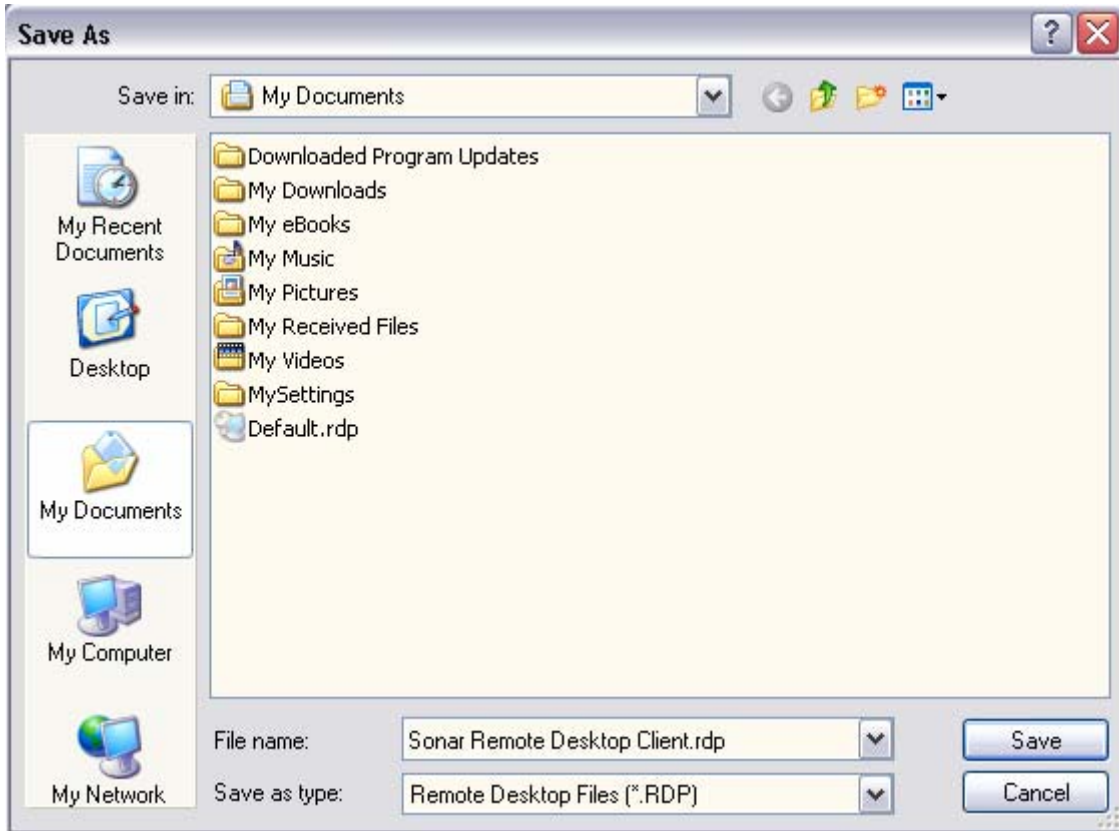
Allow the following : ☒ Desktop background
: ☒ Themes
: ☒ Bitmap caching

Note: These experience settings may be further reduced for lower bandwidth XPE Target system links



Remote Desktop Connection → General → Save As

From the General Tab, click the **Save As** button.
Change the filename to "Sonar Remote Desktop Connection.rdp".
Save the "Sonar Remote Desktop Connection.rdp" file to the "My Documents" folder.



Make Desktop shortcut to Sonar Remote Desktop Connection

Right-click on the "Sonar Remote Desktop Connection.rdp" file in "My Documents" folder and click "Copy".
Right-click on an empty space on the Windows Desktop and click "Paste Shortcut".
Rename the desktop shortcut to "Sonar Remote Desktop Connection".



3. Windows XPE Enhanced Write Filter

Note: This section is for informational use only and contains no additional procedural instructions.

Windows XP Embedded Enhanced Write Filter (EWF)

Windows XP Embedded uses the EWF to protect a volume from write transactions. Architecturally the EWF is implemented as a filter driver to redirect and cache all writes destined for a protected volume into an EWF overlay. The write cache in the EWF overlay remains available to the partition, so the EWF overlay creates the illusion that the protected volume is writeable.

A commandline tool called EWF Manager is available to manage the EWF, and can be used to commit the write cache in the EWF overlay to the protected target drive partition for permanent storage (see below).

EWF RAM Registry mode

EdgeTech Sonar systems use EWF RAM Registry mode. With EWF RAM Registry mode, the write cache is stored in a RAM based overlay, and the EWF configuration information is stored in the system's registry.

The entire write cache is lost when the system is powered down. This ensures that the target always powers up in exactly the same configuration.

EWF RAM Registry mode requires a special "warm" restart procedure to commit the EWF overlay write cache to the protected partition for permanent storage (see below).

EWF Manager

A commandline tool called EWF Manager is available to manage the EWF, and can be used to commit the EWF overlay to a protected target drive partition.

To maintain the integrity of the EdgeTech factory installed Windows XP Embedded operating system, users are strongly advised against using the EWF manager. Situations where the use of the EWF Manager cannot be avoided include the changing of network settings and installation of new hardware devices.

Due to the extremely limited target drive WINXPE partition space, it is essential that some Windows XP Embedded cleanup is done before committing an existing EWF overlay to the target drive permanently.

Files that should be deleted before a "commit" are located in:

```
WINXPE ( C: )
  WINDOWS \ Temp
  Documents and Settings \ Administrator \ Local Settings \ History \ Today
  \ Temp
  \ Temporary Internet Files
  \ My Recent Documents
```

EWF Manager Commandline Syntax

Display the Enhanced Write Filter (EWF) status	<code>"ewfmgr c:"</code>
Commit overlay data to protected volume on next restart	<code>"ewfmgr c: -commit"</code>

Warm Restart procedure

For EWF RAM Registry mode, a Warm Restart, without powering down, must follow the "commit" command, otherwise the RAM based overlay data will be lost during the powered down state.

Warm Restart, without powering down, by clicking: Start Menu → Windows Security → Restart