



IBM N2200W WBT 1.5 SE Training

Understanding the Update Utility

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Preview

- Part I: Essential Information of the Update Utility
 - Allows System Software (Flash and Boot) Image Update
 - Allows Configuration Cloning
- Part II: Supplementary Information
 - What is XML?
 - Designing Update Packages for System Administrator
 - Commands for updating the image
 - XML Command Files: Directives, DTDs, Validation

Part I: Essential Information

- System Software (Flash and Boot) Image Update
- Configuration Cloning

System Software (Flash and Boot) Image Update

■ What is Flash Image Update?

- Ability to upgrade the system software (Flash and Boot) image on the WBT via the customers WBT/update server and LAN.

■ Where does the image come from?

- From IBM
 - The customer is notified on the following NetVista thin client support Web site that there is an update:
 - www.pc.ibm.com/support
 - select **NetVista**
 - select **NetVista thin client**
 - select **Hot News**
 - locate the following item: **NetVista N2200w (8363Wxx) - Service packs**. This item will have a link to the software download site.
 - The company's System Administrator will copy the system software (Flash and Boot) image update package (including RDP, ICE, TE, WBT 1.5 operating system files, boot PROM image, and sample XML files) from IBM's Update Server to a Local Update Server (LUS) on the customers' WBT LAN.

System Software (Flash and Boot) Image Update (cont'd)

- How do you accomplish a System Software (Flash and Boot) Image Update?
 - Obtain an image update file and place it on a web server attached to the WBT's LAN.
 - You point one or more WBTs to the URL of the image update file on the web server.
 - You select to update immediately or optionally when the WBT is next powered on.
 - The new image update file is flashed (pulled) into the WBT(s).

System Software (Flash and Boot) Image Update (cont'd)

■ Prerequisites

- To perform an image update, you will need a LAN that has a DHCP and HTTP server, image update file, and one or more WBTs.

System Software (Flash and Boot) Image Update (cont'd)

Specific Steps for System Software Image Update:

For the WBTs you want to use the new image

- 1) Bring up the Terminal Connection Manager (press **Ctrl-Alt-End**, if in a current session).
- 2) Press **F2** to bring up the Terminal Properties sheet.
- 3) Select the **Update** tab.
- 4) Enter the URL to image file on the local web server (e.g. <http://124.13.23.21/update/newimage.xml>).
- 5) Select **Update Now** or Select the **Check for WBT updates at every power on**.
- 6) If **Update Now** was selected, the new system software image is immediately flashed into the WBT. If the **Check WBT updates at every power on** was selected, the image will be flashed into the WBT the next time the device is powered on.

Configuration Cloning

- WBTs can be configured either manually (sitting at each terminal) or by Configuration Cloning
- What is Configuration Cloning?
 - Ability to capture configuration information (including RDP, ICA, and TE session configurations) from one WBT and allow that configuration to be used to update one or more other WBTs. This allows you to set up one WBT correctly, and use that configuration on other WBT's without manually entering the same configuration data at each WBT.
- Where does the configuration come from?
 - From the company's System Administrator
 - The System Administrator can create the configuration clone by capturing configuration information from one of the company's own WBT.

Configuration Cloning (cont'd)

- How do you accomplish Configuration Cloning?
 - The System Administrator sets up one WBT with the correct configuration (including RDP, ICA, and TE sessions) by entering the information manually at the WBT using its setup screens.
 - You specify a directory on an FTP server connected to the WBT via a LAN to receive the cloned configuration.
 - You issue a command to capture and export the configuration information to the web server file.
 - You edit the sample XML files to reflect your actual server environment.

Configuration Cloning (cont'd)

- Then using the Update Flash Image capability above, you point one or more WBTs to the URL of the configuration image update file on the web server.
- You select to update immediately or optionally when the WBT is next powered on.
- The new image with the cloned configuration information is flashed into the WBT(s).

Configuration Cloning (cont'd)

Specific Steps for Cloning a Configuration:

On the WBT you want to clone

- 1) Configure the WBT to have the desired configuration to clone.
- 2) Bring up the Terminal Connection Manager (press **Ctrl-Alt-End**, if in a current session).
- 3) Press **F2** to bring up the Terminal Properties sheet.
- 4) Select the **Export** tab.
- 5) Enter the URL of the directory on the FTP server that will receive the cloned configuration file (called Saveconfig.reg) and Emulator Configuration files.
- 6) Click **Export Now**. Click **OK** when the confirmation dialogue appears.
- 7) The System Administrator creates an XML image update file that points to the Saveconfig.reg and Emulator Configuration files generated above.

NOTE: You can make a series of configurations by modifying one WBT and saving each configuration to a new location on the web server. This will allow you to point one or more WBTs to each of the configurations. Using this method, you can set up groups of WBT with differing configurations.

Configuration Cloning (cont'd)

Specific Steps for Cloning a Configuration (cont'd):

For the WBTs you want to use the new cloned configuration image

- 1) Bring up the Terminal Connection Manager (press **Ctrl-Alt-End**, if in a current session).
- 2) Press **F2** to bring up the Terminal Properties sheet.
- 3) Select the Update tab.
- 4) Enter the URL to image file on the local web server (e.g. <http://124.13.23.21/cloned/newconfig.xml>).
- 5) Select **Update Now** or Select the **Check for WBT updates at every power on**.
- 6) If **Update Now** was selected, the new flash image (with the cloned configuration information) is immediately flashed (pulled) into the WBT. If the **Check WBT updates at every power on** was selected, the image will be flashed (pulled) into the WBT the next time the device is powered on.

NOTE: With SP1 availability, you can update everything (WBT image and configuration) by pointing to a single XML update file that includes instructions to update image and configuration, or you can update the image and configuration information in separate steps (first point to XML file with image update instructions then point to XML file with the configuration update instructions). With SP0.5, you can update the image and configuration information in separate steps (as described above).

Part II: Supplementary Information

- What is XML? (A Primer)
- Designing Update Packages
- XML Command Files: Directives, DTDs, Validation

XML - Universal Data Language

- XML is for structured data what ASCII is for text
- Standards based way for managing and delivering data
- Same family tree as HTML
- Not just for the web

What is XML?

■ This is XML

```
<weather-report>
  <date>March 25, 1998</date>
  <time>08:00</time>
  <area>
    <city>Seattle</city>
    <state>WA</state>
    <region>West Coast</region>
    <country>USA</country>
  </area>
  <measurements>
    <skies>partly cloudy</skies>
    <temperature>46</temperature>
    <wind>
      <direction>SW</direction>
      <windspeed>6</windspeed>
    </wind>
  </measurements>
</weather-report>
```

What is XML?

■ So is this

```
<hamburgers>
  <hamburger lowfat="dream on">
    <name>CowBurger</name>
    <description>Greasy and good.</description>
    <price>2.99</price>
  </hamburger>
</hamburgers>
```


What is XML?

- Here's an inventory example:

```
<!DOCTYPE Inventory SYSTEM "Inventory.dtd">
  <Inventory>
    <part>
      <make>SteelWorks</make>
      <model>Axle 423</model>
      <description>Slot car axle</description>
      <quantity units="each">12</quantity>
    </part>
  </Inventory>
```

What is XML?

- And HTML is a subset of XML:

```
<HTML>
  <HEAD>
    <TITLE>My Jungle Home Page</TITLE>
  </HEAD>
  <BODY>
    The scariest jungle: Follow the map
    to see lions and tigers and bears.
  </BODY>
</HTML>
```

What is XML?

- Officially - eXtensible Markup Language
- “XML is a meta-markup language that provides a format for describing structured data.”
- Defines the syntax for data structure - that syntax is very similar to HTML
- Text based and easy to read

Where did XML Originate?

- Both XML and HTML were born from SGML (Standard Generalized Markup Language)
- XML for web data; HTML for presentation
- Unlike HTML which combines web page content and formatting into one language
 - XML separates content from formatting
 - XML has moved beyond web pages

XML Document Object Model

- Also known as an “XML Parser”
- Not currently included in Windows CE or WBT
- BSQUARE provides the parser in IBM’s WBT.

XML Validation

- “Well formed” means the XML is syntactically correct
- “Validated” means the XML is well formed and adheres to a specific representation
- Document Type Definitions (DTD) and XML Schemas are ways of formally declaring XML representations

XML Resources

■ Free XML Editor

- <http://msdn.microsoft.com/xml/notepad/xpsetup.exe>

■ XML Developer Center

- <http://msdn.microsoft.com/xml/default.asp>

■ XML Magazine

- <http://www.xmlmag.com/>

■ XML.com

- <http://www.xml.com>

■ DevX

- <http://www.xml-zone.com/>

Designing Update Packages

- Update Package is the whole set of information and files that IBM's WBT needs to update itself including
 - XML Command File (aka "Update Package File")
 - Any software or other files to which it points
 - For designing Configuration Cloning XML update files, see the IBM N2200W WBT 1.5 SE Reference Guide.
- Resides on network, pulled down to terminal

Designing Update Packages (cont'd)

- Two Purposes of Update Package
 - Update flash image of WBT
 - Update configuration information (cloning)
- Packages include XML directives for
 - Package itself
 - Image updates
 - Configuration updates
- Directives different for image and configuration updates

Package Directives

- Includes standard header

Refer to sample XML update file on next page)

- First two lines on the next page are defined by IBM and must not be changed
- Third line is a comment line
- Fourth line is Package ID
 - The ID is the number that the WBT looks for when it is first turned on. If this number is different than that currently stored on the WBT and the **Check for WBT updates at every power on** is selected on the Update tab, the WBT will be updated according to the XML directives. Otherwise the XML file and its directives will be ignored.
- The next to the last line causes the WBT to reboot
 - Used after updating for updates to take effect

Sample Image Update Package

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE Package SYSTEM "SoftwareUpdate.dtd">
<!-- Sample2 Updating CE Operating System -->
<Package ID="0090">
  <CopyFile OSImage="Yes" OSImageSize="0xA1018F">
    <Description>Windows CE 2.12 Update</Description>
    <Source>http://christiney/nk.bin</Source>
    <Destination>\Program Files\nk.bin</Destination>
  </CopyFile>
  <Reboot>Yes</Reboot>
</Package>
```

Directives for Image Update

- `<CopyFile OSImage="Yes" OSImageSize=size>`
 - Directive to pull a file down to the WBT.
 - OSImage specifies file to be a system image
 - OSImageSize specifies size of image (in hex)
- `<Description>Insert your description here</Description>`
 - Description of the image being pulled down to WBT
- `<Source>http://christiney/nk.bin</Source>`
 - Location of the image on the http server to be pulled to WBT.
- `<Destination>\Program Files\nk.bin</Destination>`
 - Location to which the image file will be copied to on WBT.
- `<Reboot>Yes</Reboot>`
 - Updates the image and reboots the WBT

Directives for Configuration Update

- Need to pull down one .reg file for the cloned RDP and ICA connections using <CopyFile> directive
- Need to pull down one .ses file for each TE session you want cloned using <CopyFile> directive
- Need to issue an <UpdateRegistry> directive to load the RDP and ICA registry values (in the .reg file above) into the WBT's Windows CE Registry

Directives for Configuration (cont'd)

- `<CopyFile>`
 - Pulls down file to WBT
- `<Description>` Insert your description here`</Description>`
 - Description of the image being pulled down to WBT
- `<Source>``http://christiney/Saveconfig.reg``</Source>`
 - Location of the file on the http server to be pulled to WBT (either .reg or .ses)
- `<Destination>``\Program Files\Saveconfig.reg``</Destination>`
 - Location to which the file (either .reg or .ses) will be copied to on WBT.
- `<FileName>` of the `<UpdateRegistry>` directive
 - Points to where the pulled down .reg file was stored on WBT

Sample Configuration Update Package

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE Package SYSTEM "SoftwareUpdate.dtd" >
<!-- Sample2 Updating CE Operating System -->
<Package ID="0090">
  <CopyFile>
    <Description>Cloned RDP and ICA sessions</Description>
    <Source>http://christiney/Saveconfig.reg</Source>
    <Destination>\Program Files\Saveconfig.reg</Destination>
  </CopyFile>
  <CopyFile>
    <Description>Cloned Terminal Emulation sessions</Description>
    <Source>http://christiney/3885abf1.ses</Source>
    <Destination>\HardDisk3\ 3885abf2.ses </Destination>
  </CopyFile>
  <UpdateRegistry>
    <Description>Update registry</Description>
    <FileName>\Program Files\Saveconfig.reg</FileName>
  </UpdateRegistry>
</Package>
```

Software Update DTD

- All update command files must conform to this Document Type Definition (DTD) file

```
<?xml version="1.0" encoding="UTF-8"?>
<!ELEMENT Package (CopyFile*,DiskOnChipOsUpdate*,Execute*,UpdateRegistry*,
Reboot*)>

<!ATTLIST Package
  ID CDATA #IMPLIED>

<!ELEMENT CopyFile (Description?,Source,Destination,CommandLine?)>
<!ELEMENT DiskOnChipOsUpdate (Description?,Source)>
<!ELEMENT Execute (Description?,FileName,CommandLine)>
<!ELEMENT UpdateRegistry (Description?,FileName)>
<!ELEMENT Reboot (#PCDATA)>

<!ATTLIST CopyFile
  OSImage (Yes|No) "No"
  OSImageSize CDATA "0"
  Register (Yes|No) "No"
  Execute (Yes|No) "No"
  WaitForExit (Yes|No) "No">

<!ATTLIST Execute
  WaitforExit (Yes|No) "No">

<!ELEMENT Description (#PCDATA)>
<!ELEMENT Source (#PCDATA)>
<!ELEMENT Destination (#PCDATA)>
<!ELEMENT CommandLine (#PCDATA)>
<!ELEMENT FileName (#PCDATA)>
```


Validating Command Files

- Contents must be validated prior to deployment using:
 - The SoftwareUpdate.dtd file
 - XML Notepad
 - IE 5.0
- The XML Notepad validates against the dtd file to ensure that
 - all necessary XML tags are present and
 - the XML file is well formed

Summary

- XML is a simple plain-text tag language
- The Update application uses XML to define and execute image updates
- The System Administrator writes the XML file
- The terminal knows how to read the XML file
- The System Administrator can clone configurations
- The terminal user sees a very simple interface

Questions?

Questions?