Preparing Games for Windows Vista

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What’s Changed?

- User Account Control
- Game Explorer
- Parental Controls
- Media Center Edition
- Xbox 360 Controller for Windows
- Minimum Bar
- Deployment
User Account Control
What it means

- Single most impacting change for games
- 2 account types
  - Standard User
  - Administrator
- By default, EXEs run as standard user
  - Even EXEs run from admin accounts
  - Unless explicitly 'elevated'
User Account Control
UI for elevate to admin

- EXEs can be elevated via user prompt

- Administrators see:

- Standard users see:
# User Account Control

Standard user process r/w access

<table>
<thead>
<tr>
<th>CLSID Name</th>
<th>Default Path</th>
<th>Read</th>
<th>Write</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSIDL_DESKTOP</td>
<td>C:\Users&lt;user&gt;\Desktop</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>CSIDL_MYDOCUMENTS</td>
<td>C:\Users&lt;user&gt;\Documents</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>CSIDL_LOCAL_APPDATA</td>
<td>C:\Users&lt;user&gt;\AppData\Local</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>CSIDL_APPDATA</td>
<td>C:\Users&lt;user&gt;\AppData\Roaming</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>CSIDL_COMMON_APPDATA</td>
<td>C:\ProgramData</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>CSIDL_PROGRAM_FILES</td>
<td>C:\Program Files</td>
<td>Y</td>
<td>N*</td>
</tr>
<tr>
<td>CSIDL_WINDOWS</td>
<td>C:\Windows</td>
<td>Y</td>
<td>N*</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Registry Key</th>
<th>Read</th>
<th>Write</th>
</tr>
</thead>
<tbody>
<tr>
<td>HKEY_CURRENT_USER</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>HKEY_LOCAL_MACHINE</td>
<td>Y</td>
<td>N*</td>
</tr>
<tr>
<td>HKEY_CLASSES_ROOT</td>
<td>Y</td>
<td>N*</td>
</tr>
</tbody>
</table>

*Administrator processes only
User Account Control
How elevate works

- Elevate happens at process create
- Manifest extensions
  - If admin access is required:
    
    ```
    <requestedExecutionLevel
    level="requireAdministrator"
    uiAccess="false"/>
    ```
  
  - Otherwise do:
    
    ```
    <requestedExecutionLevel
    level="asInvoker"
    uiAccess="false"/>
    ```
  
  - If no requestedExecutionLevel, virtualization kicks in
Virtualization

- Backwards compatibility 'hack'
  - Not performant
- Means that writes to protected folders and registry entries still 'succeed'
  - File/registry writes redirected to per-user virtual store
  - Virtual/real directories are merged on directory-scan/read
    - For apps with no manifest
    - For Explorer if "compatibility files" is selected
- File/registry writes to protected areas can't be seen by other users
User Account Control
What it means for games

- Design for standard user
  - Use asInvoker in the manifest
- Don’t require admin to play the game!
  - You’ll get an elevate prompt every time
  - Breaks parental controls for all games
- Requiring admin to install is OK
- Test with standard user
- Think about patching
  - Article in DXSDK discusses options
Game Explorer

What is it?

- Central HUB for Windows gaming
- Located right off Start Bar
Game Explorer

Tasks

- Application can define
- Customizable
- Link to saved games
Game Explorer
Rich Saved Games

- User double-clicks on file to launch game
- Launches app-defined command line
- Metadata stored inside saved game
Game Explorer
Integrating, part 1

- Use GDFMaker tool found in DXSDK
  - Creates XML based .GDF file
    - Contains game’s metadata
    - Optionally includes game’s rating
  - Creates a resource file
- Compile resource file into a binary
- Sign this binary to enable game rating
  - Test with private trusted test certificate
  - For details, see “Authenticode Signing for Game Developers”
Game Explorer
Integrating, part 2

- **During game install**
  - Call IGameExplorer::AddGame()
  - Pass in full path to binary containing GDF
  - Create game explorer tasks
  - Simply shortcuts in known folder locations

- **During uninstall**
  - Call IGameExplorer::RemoveGame()

- **Details and sample code in DXSDK**
  - GameuxInstallHelper - sample DLL to simplify details and supports install packages

- Details and sample code in DXSDK
Game Explorer
Rich Saved Games

- Define save game path in GDF
- Create regkeys to associate unique file extension with Windows and Game Explorer during install
  - HKLM keys, so need admin privileges
- Write saved game with predefined header
- For details, see DXSDK docs/sample
Parental Controls
What is it?

- OS-level enforcement of regional game ratings
  - ESRB, CERO, OFLC, PEGI, BBFC, USK
- Ratings provided in game’s GDF
- Only restricts Standard User accounts
  - Thus games must work with Standard User
- GDF binary must be Authenticode signed
  - Game is marked as Unrated otherwise
Set up how Bobby will use the computer

Parental Controls:
- On, enforce current settings
- Off

Activity Reporting:
- On, collect information about computer usage
- Off

Settings

Web restrictions
Control allowed websites, downloads, and other use

Time limits
Control when Bobby uses the computer

Games
Control games by rating, content, or title

Block specific programs
Block any programs on your computer

Activity reports
View activity reports

Bobby
Limited user account
Password protected

These settings are on:
Game ratings: Up to ADULTS ONLY
Parental Controls

Control which types of games Bobby can play

Which ratings are ok for Bobby to play?
The Entertainment Software Ratings Board defines these ratings.

- **EARLY CHILDHOOD**
  - Titles rated EC - Early Childhood have content that may be suitable for ages 3 and older. Titles in this category contain no material that parents would find inappropriate.

- **EVERYONE**
  - Titles rated E - Everyone have content that may be suitable for persons ages 6 and older. Titles in this category may contain minimal violence, some comic mischief, and/or mild language.

- **EVERYONE 10+**
  - Titles rated E10+ - Everyone 10 and older have content that may be suitable for ages 10 and older. Titles in this category may contain more cartoon, fantasy or mild violence, mild language, and/or minimal suggestive themes.

- **TEEN**
  - Titles rated T - Teen have content that may be suitable for persons ages 13 and older. Titles in this category may contain violent content, mild or strong language, and/or strong language.

- **MATURE**
  - Titles rated M - Mature have content that may be suitable for persons ages 17 and older. Titles in this category may contain mature sexual themes, more intense violence and/or strong language.
Parental Controls

If a game has no rating, can Bobby play it?

- Allow games with no rating
- Block games with no rating

Block these types of content

Even if a game has an allowed rating, you can block it for the type of content it contains.

- Alcohol Reference - Reference to and/or images of alcoholic beverages
- Animated Blood - Discolored and/or unrealistic depictions of blood
- Blood - Depictions of blood
- Blood and Gore - Depictions of blood or the mutilation of body parts
- Cartoon Violence - Violent actions involving cartoon-like situations and characters. May include violence where a character is unharmed after the action has been inflicted
- Comic Mischief - Depictions or dialogue involving slapstick or suggestive humor
- Crude Humor - Depictions or dialogue involving vulgar antics, including “bathroom” humor
- Drug Reference - Reference to and/or images of illegal drugs
- Educational - Content of product provides user with specific skills development or reinforcement learning within an entertainment setting. Skill development is an integral part of product
- Fantasy Violence - Violent actions of a fantasy nature, involving human or non-human characters in situations easily distinguishable from real life
- Informational - Overall content of product contains data, facts, resource information, reference materials or
- Intense Violence - Graphic and realistic-looking depictions of physical conflict. May involve extreme and/or realistic blood, gore, weapons, and depictions of human injury and death
- Language - Mild to moderate use of profanity

OK  Cancel
Parental Controls

Control specific games Bobby can and can not play

Allowed Ratings: Ao - ADULTS ONLY, M - MATURE, T - TEEN, E10+ - EVERYONE 10+, E - EVERYONE, Ec - EARLY CHILDHOOD
Denied Descriptors: None

<table>
<thead>
<tr>
<th>Title/Rating</th>
<th>Status</th>
<th>User Rating Setting</th>
<th>Always Allow</th>
<th>Always Block</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chess Titans</td>
<td>Can play</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FreeCell</td>
<td>Can play</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hearts</td>
<td>Can play</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mahjong Titans</td>
<td>Can play</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minesweeper</td>
<td>Can play</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purble Place</td>
<td>Can play</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solitaire</td>
<td>Can play</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spider Solitaire</td>
<td>Can play</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Media Center
What is it?

- Enables a 10-foot experience on Windows
- Large icons
- Remote control
- Not separate edition
- Home Professional
- Ultimate
Media Center
How to integrate into MC

- Drop an XML-based .MCL file in a folder
  - Points to icon & exe to launch
- Support HDTV resolutions
  - Widescreen, 720p, 1080i
- Stay in title-safe region
  - Keep UI elements in the inner 85%
- Re-launch MC when finished
- Details in DXSDK
  - “Introduction to the 10-Foot Experience”
Xbox 360 Controller for Windows
Consider supporting it

- Xbox 360 controller works on Windows
  - Using the XInput API
- XInput API is very simple
  - Sample code & docs provided in DXSDK
  - Preferred API for controllers
- Make menus navigable with the controller
Minimum Bar
What’s changed?

- Better min spec machines
- Faster CPU
- Faster graphics hardware
- More system memory
- Enables more demanding games
# Minimum Bar

## OS min specs

<table>
<thead>
<tr>
<th></th>
<th>Windows Vista Premium Ready</th>
<th>Windows Vista Capable</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CPU</strong></td>
<td>1 GHz</td>
<td>800 MHz</td>
</tr>
<tr>
<td><strong>System Memory</strong></td>
<td>1024 MB</td>
<td>512 MB</td>
</tr>
<tr>
<td><strong>Graphics</strong></td>
<td>Shader model 2.0, 128 MB</td>
<td>Direct3D 9 capable</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Windows XP Recommended</th>
<th>Windows XP Minimum</th>
<th>Windows 98 Recommended</th>
<th>Windows 98 Minimum</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>CPU</strong></td>
<td>333 MHz</td>
<td>233 MHz</td>
<td>Pentium</td>
<td>66 MHz</td>
</tr>
<tr>
<td><strong>System Memory</strong></td>
<td>128 MB</td>
<td>64 MB</td>
<td>32 MB</td>
<td>16 MB</td>
</tr>
<tr>
<td><strong>Graphics</strong></td>
<td>800x600</td>
<td>800x600</td>
<td>800x600</td>
<td>640x480</td>
</tr>
</tbody>
</table>
Deployment
What’s new?

- DirectX Setup
  - Still needed for SDK DLLS
    - XACT, XInput, D3DX, etc.
  - DirectX Web installer
    - ~300 KB exe
    - Downloads DX DLLs from MS
    - Designed with casual games in mind

- Do all writes to privileged directories/registry keys during setup
Questions?

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