Solving User Profile Challenges for XenApp and/or XenDesktop

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One Profile Type Doesn’t Fit All

Answer Depends On . . .

- User requirements and customizations
- Application requirements
- Citrix technologies
  - XenApp + XenDesktop, XenApp only, XenDesktop only, or ?
- Administrator expertise
- Existing infrastructure
  - Current profile solution
  - Storage
  - Active Directory GPOs, including folder redirection
Profile Types

- Microsoft
  - Local
  - Mandatory
  - Roaming
  - Terminal Services
    - Mandatory
    - Roaming
- Citrix Profile management
- Third party, such as AppSense

So many choices . . . what kind of user profile is best?
Logon Process
User Profiles
XenApp

Select app and access XenApp
• Load balancing
• Initiate server connection

Logon
• Authenticate
• Load user profile
User Profiles

XenDesktop

Apps

User Settings

OS
Why Does It Take Soooooo Long to Logon?

- Logon script
  - Loops, network printers or subsequent script calls
- Drive mappings
- Roaming or mandatory profile
  - Large or non-optimal profile
  - Access across busy/congested network
- GPO processing
  - Multiple GPOs
- Authentication
  - Domain controllers busy/congested
- Access to Citrix resource
  - Less than optimal XenApp load balancing or Citrix XML Service configuration
  - Less than optimal XenDesktop DDC configuration
User Profile Characteristics
What Is a User Profile?

• Depending on profile type(s) and configuration, user experience may vary based on access to different systems
  • Arghhh! 😞

• Customizations retained in user profile
  • Such as: Control panel settings
## What If No Administratively Defined Profile Exists?

<table>
<thead>
<tr>
<th>Situation</th>
<th>XenApp</th>
<th>XenDesktop</th>
<th>Windows Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>First logon with no network profile administratively designated</td>
<td>New profile created on that server from local default user</td>
<td>New profile created on that desktop from local default user</td>
<td>New profile created on that client device from local default user</td>
</tr>
<tr>
<td>Subsequent logon to same computer with no network profile administratively designated</td>
<td>Existing profile on that server accessed and modified in that session</td>
<td>Existing profile on that desktop accessed and modified in that session</td>
<td>Existing profile on that client device accessed and modified in that session</td>
</tr>
<tr>
<td><strong>Issues</strong></td>
<td>User settings not accessible from another XenApp server</td>
<td>When desktop reprovisioned, user settings lost</td>
<td>Settings from XenApp and XenDesktop sessions dissimilar</td>
</tr>
</tbody>
</table>
Microsoft Profile Precedence

Terminal Services Mandatory/Roaming → GPO → User Properties

Network Mandatory/Roaming → GPO* → User Properties

Local

* Active Directory on Windows Server 2008 or later and Windows Vista or later
Terminal Services Profile

• Apply only to Terminal Services and/or XenApp sessions
  • Does not apply to virtual or physical desktops
  • But does apply to XenApp published desktops

• Network profile applies to Terminal Services and/or XenApp session only if no Terminal Services profile
Microsoft Profile File

- Located under Users directory
  - Ntuser.dat = roaming profile
  - Ntuser.man = mandatory profile

- Ntuser.* populates HK Current User hive

- System Properties ➔ Advanced ➔ User Profiles ➔ Settings
  - Also SystemPropertiesAdvanced.exe
Mandatory Profile

• Also called Mandatory Roaming
  • User assigned a profile; typically a task-based user
  • Changes are not saved
  • Can be applied to:
    • Profile
    • Terminal Services Profile

• Works with folder redirection to save some data and provide some personalization
  • Example: Store Outlook configuration in AppData

Tip: Configure the Citrix Printer Properties Retention policy to store data on the client device, not in the roaming profile
Citrix Profile Management

• Included with:
  • XenApp Enterprise/Platinum
  • XenDesktop VDI/Enterprise/Platinum

• Based on acquired Sepago technology

• Supported by Citrix

• Configured by means of ADM template (GPO)
AppSense

- Environment Manager is most commonly used third-party user profile solution

- Sold and supported by AppSense and partners

- Retains user policy and personalization settings

- Cross-platform (x86/x64 and v1/v2) support
# User Profile Characteristics

<table>
<thead>
<tr>
<th>Criteria</th>
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<th>Roaming</th>
<th>Terminal Services Mandatory</th>
<th>Terminal Services Roaming</th>
<th>Citrix Profiles</th>
<th>AppSense</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default setting</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrative assignment</td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Where stored</td>
<td>Local device</td>
<td>Network</td>
<td>Network</td>
<td>Usually network</td>
<td>Network</td>
<td>Network</td>
<td>SQL Server</td>
</tr>
<tr>
<td>Where user changes saved</td>
<td>Local machine</td>
<td>Not saved</td>
<td>Network</td>
<td>Not saved</td>
<td>Network</td>
<td>Network</td>
<td>SQL Server</td>
</tr>
<tr>
<td>Data written when profile saved</td>
<td>All</td>
<td>None</td>
<td>All</td>
<td>None</td>
<td>All</td>
<td>All</td>
<td>Deltas only</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Deltas only</td>
<td></td>
</tr>
</tbody>
</table>
GPOs

- Consider OU structure and how GPOs applied
  - Will a specific profile apply to XenApp, XenDesktop, and/or client device?

- Several dozen user profile-related GPOs exist
  - Review Administrative templates settings in particular
  - Depending on the profile solution, may or may not impact behavior
Additional User Configuration GPOs

- **User Configuration** → **Policies** → **Administrative Templates** →
  - **System** → **User Profiles**
    - Exclude directories in roaming profile
    - Limit profile size
  - **System** → **Group Policy**
    - Group policy slow link detection
  - **Desktop**
    - Prohibit user from manually redirecting profile folders
Additional Computer Configuration GPOs

- Computer Configuration → Policies → Administrative Templates →
  - System → User Profiles
    - ALL!!
  - System → Group Policy
    - Group policy slow link detection
Folder Redirection
Folder Redirection Interaction with Network-Based User Profile

• Redirected folder data not incorporated into user profile

• Any type of user profile can use folder redirection
  • Even mandatory!

• Generally recommended and encouraged
  • Eliminates need to store folder data in user profile
  • Keeps user profile smaller
Folder Redirection

• Can redirect contents of one or more folders
  • User Configuration → Windows → Folder Redirection

• Specific folders vary based on Active Directory version

• Data stored on network
  • Accessible to XenApp and XenDesktop

• Works with all profile solutions
Special Folder Redirection

• Maps local “Documents" and "Desktop" folders to administratively configured Folder Redirection location

• Optional setting applicable to:
  • XenApp 5 for Windows Server 2008
  • XenApp 6 for Windows Server 2008 R2

Access to client drives must be enabled to use Special Folder Redirection
• User must allow access to local drives
• Client drive mapping must not be administratively disabled
Configuration of Special Folder Redirection

• Disabled by default in Web Interface

• Enabled by default in Policies
  • To disable, click Enabled to enforce Do Not Allow special folder redirection checkbox
Folder Redirection Considerations

• Any type of profile can use folder redirection
  • Even mandatory!

• Centrally stores folder contents on network—not on local device

• Ensure that sufficient and accessible storage exists

Where are my documents?!?!?
What If . . . ?

• Logon is slow?
  • Redirect folders such as AppData, Documents, etc., so that folder data is not loaded with profile, resulting in faster user profile load

• App makes frequent calls to AppData folder?
  • Don’t redirect AppData folder in particular because it will generate frequent calls to redirected folder repository during user session
  • Each data fetch makes the app appear slow
Which User Profile Type Should I Use for XenApp and/or XenDesktop?
## Basic questions to ask

### Resources Accessed
- Will the administratively defined user profile be used to access XenApp, XenDesktop, and/or physical client device?

### Operating System
- Are the current and new OSs based on same platform and version (x86 vs x64 and v1 vs v2)?

### Application Requirements
- Where are user settings and data saved for each app?
- Does the app have any unique requirements that impact the user profile?

### Existing User Profile
- What type is it?
- Can/will it be used for XenDesktop as is?

### New User Profile
- Will a new profile be designated?
- Will it be based on the existing profile or will it be a totally new profile?

### User Experience
- Does administrative ease negatively impact users?
- Has the user experience been validated?
## Applicability to Resource Being Accessed

<table>
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<tr>
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<th>Mandatory</th>
<th>Roaming</th>
<th>Terminal Services Mandatory</th>
<th>Terminal Services Roaming</th>
<th>Citrix Profile Mgmt</th>
<th>AppSense/LiquidWare</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applies to physical Windows device</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>(physical only)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applies to XenDesktop sessions</td>
<td>✓</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>(VDA only)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Applies to Terminal Services/XenApp sessions</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>(server only)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Viability of User Profile Options

**Based on XenApp and/or XenDesktop**

<table>
<thead>
<tr>
<th>Profile Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Local</strong></td>
<td>• With rare exceptions, a local user profile is not an optimal choice because cannot be read by another network device</td>
</tr>
<tr>
<td><strong>Mandatory</strong></td>
<td>• If user and application settings support, a viable option</td>
</tr>
<tr>
<td><strong>Roaming</strong></td>
<td>• If &gt;1 resource accessed simultaneously, potential last writer wins issues</td>
</tr>
<tr>
<td><strong>Terminal Services Roaming or Mandatory</strong></td>
<td>• Cannot be used with XenDesktop</td>
</tr>
<tr>
<td><strong>Citrix Profile Management</strong></td>
<td>• A viable option</td>
</tr>
<tr>
<td><strong>Third-Party such as AppSense or LiquidWare</strong></td>
<td>• A viable option</td>
</tr>
</tbody>
</table>
Some profile settings don’t cross over . . .

• Unless profile solution explicitly supports, fully test:
  • v1 vs. v2
  • x86 vs. x64

Example: Citrix Profile shared between XenApp 5 on Windows Server 2003 and XenDesktop based on Windows 7 VDAs may yield unexpected results and is not supported at this time
## True Cross-Platform Integration

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<th>Terminal Services Roaming</th>
<th>Citrix Profile Mgmt</th>
<th>AppSense</th>
</tr>
</thead>
<tbody>
<tr>
<td>v1/v2</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐ Future</td>
<td>○</td>
</tr>
<tr>
<td>x86/x64</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐ Future</td>
<td>○</td>
</tr>
</tbody>
</table>
Does app installation follow standards?

Does app install into c:\Program Files or other location?

How will app be delivered?

Hosted, streamed, locally installed?

Special requirements?

Printers, database connection, etc.?

User data?

Can unique data be stored in home directory?

App data?

If stored in App Data folder, use folder redirection

If stored in other location, can it be moved, copied, or rerouted to folder?
Common Transitions

XenApp + XenDesktop

• Existing XenApp: Add XenDesktop
• Simultaneous use, such as:
  • XenApp hosted apps accessed from XenDesktop
  • XenApp and XenDesktop each accessed occasionally

XenApp → XenDesktop

• Existing XenApp: Transition to XenDesktop
• Cutover to XenDesktop, such as:
  • Users accessing XenApp today, will only access XenDesktop tomorrow
XenApp + XenDesktop
XenApp + XenDesktop: Existing TS Profile

Mandatory or Roaming

Options When Adding XenDesktop Based on Windows 7 VDA

- Microsoft: Change GPO pointer from Terminal Services to mandatory/roaming
- Microsoft: Create new user profile to be used for XenDesktop only
- Non-Microsoft: Convert user profile to a centralized profile (Citrix Profiles, AppSense or other third party)
Considerations for XenApp + XenDesktop

Existing TS Profile

• If converting TS profile to network profile consider whether user profile should apply to local desktop or just XenDesktop VDA
  • Block inheritance and/or set up GPO structure accordingly

• Using the same roaming profile to access multiple resources at the same time can create last writer wins issues
  • A better option for mandatory profiles
XenApp + XenDesktop: Existing Network Profile

Mandatory or Roaming

Options When Adding XenDesktop Based on Windows 7 VDA

- Microsoft: Re-use existing profile
- Microsoft: Create new user profile to be used for XenDesktop only
- Non-Microsoft: Convert user profile to a new profile type (Citrix Profiles, AppSense or other third party)
Considerations for XenApp + XenDesktop

Existing Network Profile

- Mandatory, Citrix, or third-party profile solution best options
  - If roaming profile to be opened by both XenApp and XenDesktop sessions simultaneously, last writer wins

Last written profile wins
XenApp + XenDesktop: Existing Non-Microsoft Profile
Citrix Profile Management or AppSense

Options When Adding XenDesktop Based on Windows 7 VDA
- Use same profile
- Create additional profile
Considerations for XenApp + XenDesktop

Citrix Profile Management or AppSense

• For same user experience, use same profile
  • Most common desired outcome

• Citrix Profile management does not currently support cross-platform settings (v1/v2 and x86/x64)

• Only deltas written to profile
  • Last writer wins issues minimal or none

• Profile streamed
  • Only minimal settings applied during session initiation for faster startup
XenApp → XenDesktop
XenApp → XenDesktop: Existing TermSvcs Profile

Mandatory or Roaming

Options When Adding XenDesktop Based on Windows 7 VDA

- Microsoft: Change GPO pointer from Terminal Services to mandatory/roaming
- Microsoft: Create new user profile to be used for XenDesktop only
- Non-Microsoft: Convert user profile to a centralized profile (Citrix Profiles, AppSense or other third party)
Considerations for XenApp → XenDesktop

Existing TS Profile

• Existing Terminal Services profile configuration **cannot** be used as is
  • Profile itself can be reused; TS setting cannot

• If converting TS profile to network profile consider whether user profile should apply to local desktop or just XenDesktop VDA
  • Block inheritance or set up GPO structure accordingly

• Consider also non-Microsoft profile
XenApp → XenDesktop: Existing Network Profile

Mandatory or Roaming

Options When Adding XenDesktop Based on Windows 7 VDA

- Microsoft: Re-use existing profile
- Microsoft: Create new user profile to be used for XenDesktop only
- Non-Microsoft: Convert user profile to a centralized profile (Citrix Profiles, AppSense or other third party)
Considerations for XenApp → XenDesktop

Existing Network Profile

- Existing network profile can be re-used
- Being that only one instance opened at a time, roaming will work fine
XenApp ➔ XenDesktop: Existing Non-Microsoft Profile

Citrix Profile Management or AppSense

Options When Adding XenDesktop Based on Windows 7 VDA
- Use same profile
- Create additional profile

Profile Type Now
- Citrix

XenApp
- Use same profile
- Create additional profile
Considerations for XenApp → XenDesktop

Citrix Profile Management or AppSense

• For same user experience, use same profile
  • Most common desired outcome

• Citrix Profile management does not currently support cross-platform settings (v1/v2 and x86/x64)

• Only deltas written to profile
  • Last writer wins issues minimal or none
## Transitioning User Profile Types

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<th>Citrix Profile Mgmt</th>
<th>AppSense</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can transition from mandatory</td>
<td>n/a</td>
<td>n/a</td>
<td>✓️</td>
<td>✓️</td>
<td>✓️</td>
<td>✓️</td>
<td>✓️</td>
</tr>
<tr>
<td>Can transition from roaming</td>
<td>n/a</td>
<td>✓️</td>
<td>n/a</td>
<td>✓️</td>
<td>✓️</td>
<td>✓️</td>
<td>✓</td>
</tr>
<tr>
<td>Can transition to mandatory</td>
<td>✓️</td>
<td>n/a</td>
<td>✓️</td>
<td>✓️</td>
<td>✓️</td>
<td>□</td>
<td>✓**</td>
</tr>
<tr>
<td>Can transition to roaming</td>
<td>✓️</td>
<td>✓️</td>
<td>n/a</td>
<td>✓️</td>
<td>✓️</td>
<td>✓️</td>
<td>✓**</td>
</tr>
</tbody>
</table>

*If mandatory profile saved as a template, can be transitioned
**Can be done by manually extracting profile settings from database
Sample Scenarios:
Terminal Services Profile for XenApp
**Sample Scenario: XenApp + XenDesktop**

*XenApp 5 for Windows Server 2008 x86 + Windows 7 x86 VDA*

- **Resources Accessed Today**: XenApp 5 for Windows Server 2008 (x86)
- **Existing User Profile**: TS roaming w/folder redirection
- **Resources to be Accessed Tomorrow**: Windows 7 VDA (x86), XenApp 5 for Windows Server 2008 (x86)
- **Applications**: Most same; some new apps with standard save locations
- **New User Profile**: Network roaming w/folder redirection

**Will this work?**
- Same platform and profile type (x86 and v2)
- No new apps with unique requirements

**BUT**... if roaming profile accessed simultaneously, could experience last writer wins issues!
- Better alternative is a mandatory profile or a non-Microsoft profile
**Sample Scenario: XenApp + XenDesktop**

*XenApp 5 for Windows Server 2008 x64 + Windows 7 x86 VDA*

- **Resources Accessed Today**
  - XenApp 5 for Windows Server 2008 (x64)
- **Existing User Profile**
  - TS mandatory w/folder redirection
- **Resources to be Accessed Tomorrow**
  - Windows 7 VDA (x86)
  - XenApp 5 for Windows Server 2008 (x64)
- **Applications**
  - Most same but some new with unique requirements
  - All same but some true x64
- **New User Profile**
  - Network mandatory w/folder redirection

---

**Will this work?**
- Same profile type (v2) but different platform (x86/x64)
- New apps with unique requirements
- Need to fully test to ensure compatibility
  - Better alternative: move to a profile type that explicitly supports distinct platforms
Sample Scenario: XenApp → XenDesktop

XenApp 5 for Windows Server 2008 x86 → Windows 7 x86 VDA

- Resources Accessed Today
  - XenApp 5 for Windows Server 2008 (x86)
- Existing User Profile
  - TS roaming w/folder redirection
- Resources to be Accessed Tomorrow
  - Windows 7 VDA (x86)
- Applications
  - Most same; some new apps with standard save locations
- New User Profile
  - Network roaming w/folder redirection

• Will this work?
  • Same platform (x86) and profile type (v2)
  • No new apps with unique requirements
  • Would also work for mandatory profile
Sample Scenario: XenApp → XenDesktop

XenApp 5 for Windows Server 2003 x86 → Windows 7 x86 VDA

Resources Accessed Today
- XenApp 5 for Windows Server 2003 (x86)

Existing User Profile
- TS roaming w/folder redirection

Resources to be Accessed Tomorrow
- Windows 7 VDA (x86)

Applications
- Most same but some new with unique requirements

New User Profile
- Network roaming w/folder redirection

• Will this work?
  • Same platform (x86/x64) but different profile type (v1/v2)
  • New apps with unique requirements
  • Need to fully test to ensure compatibility
    • Better alternative: move to a profile type that explicitly supports distinct platforms and unique app requirements
Summary
General Recommendations: User Profile Type

• Don’t do nothing unintentionally; that defaults to local profiles
• Use simplest user profile solution that addresses needs

Microsoft User Profiles
• XenApp only: Terminal Services Mandatory or Roaming
• XenDesktop only: Mandatory or Roaming
• XenApp + XenDesktop: Mandatory

Citrix Profiles

Third-Party such as AppSense
General Recommendations

• If a mandatory profile will address requirements, that’s the simplest and easiest option

• Many variables to user profile configuration
  • Apply profile-related GPOs carefully
  • Ensure compatibility with non-Microsoft profiles

• Fully test any user profile changes
  • EdgeSight provides insight into user logon

• Folder redirection is typically beneficial

• Make sure your users are happy!
Resources

• **User Profiles for XenApp and/or XenDesktop** white paper (http://support.citrix.com/articles/CTX124799)

• **Technical Intro to User Profiles** video (http://www.citrix.com/tv/#videos/595)

• **User Profile Management** Streaming feature video (http://www.citrix.com/tv/#videos/1691)