

Concurrent User Profile Access

In many environments it is desirable that the user have concurrent access to their profile, or, in other words, have their Profile VHD attached to several computers at the same time. For example, a user may be logged in on one computer for their desktop and simultaneously logged in to another machine that is providing a remote application.

FSLogix supports this scenario by using VHD [difference disks](#). How these disks are used is slightly different between Profile Containers and [Office 365 Containers](#).

ProfileType Setting

The way Profile Containers uses difference disks is controlled via the "ProfileType" setting. This setting can have a value of 0, 1, 2, or 3.

Type '0' (Normal) - This is the default behavior if the setting is not present	
On Logon	Client tries to directly attach the <code>VHD(X)</code> file. No difference disks are used. If a concurrent access is attempted, it will fail with a sharing violation (error 20).
On Logoff	Client detaches the <code>VHD(X)</code> .
Type '1' (Read/Write)	
On Logon	<ul style="list-style-type: none"> Client attempts to open the <code>RW.VHD(X)</code> difference disk with Read/Write access. If it is successful, it merges the difference disk to the parent. If it completes the merge, the <code>RW.VHD(X)</code> file is deleted. Client creates a new <code>RW.VHD(X)</code> difference disk. Client attaches the <code>RW.VHD(X)</code> as the Profile VHD.
On Logoff	<ul style="list-style-type: none"> Client detaches the <code>RW.VHD(X)</code> difference disk (the user's Profile <code>VHD(X)</code>). Client attempts to open the <code>RW.VHD(X)</code> difference disk with Read/Write access. If it is successful, it merges the difference disk to the parent. If it completes the merge, the <code>RW.VHD(X)</code> file is deleted.
Type '2' (Read Only)	
On Logon	<ul style="list-style-type: none"> Client attempts to open the <code>RW.VHD(X)</code> difference disk with Read/Write access. If it is successful, it merges the difference disk to the parent. If it completes the merge, the <code>RW.VHD(X)</code> file is deleted. Client attempts to delete the previous <code>RO</code> difference disk (if it exists). Client creates the new <code>RO</code> difference disk. Client attached the <code>RO</code> difference disk as the user's Profile VHD.
On Logoff	<ul style="list-style-type: none"> Client detaches the <code>RO</code> difference disk. Client deletes the <code>RO</code> difference disk. Client attempts to open the <code>RW.VHD(X)</code> difference disk with Read/Write access. If it is successful, it merges the difference disk to the parent. If it completes the merge, the <code>RW.VHD(X)</code> file is deleted.
Type '3' (Attempt RW role, but fall back to RO role if another client has the RW role)	
On Logon	Client checks to see if a <code>RW.VHD(X)</code> file exists. If it does not, the client takes the <code>RW</code> role and performs the same steps as <code>ProfileType = 1</code> . If the <code>RW.VHD(X)</code> file does exist, the client takes the <code>RO</code> role and performs the same steps as <code>ProfileType = 2</code> .

Notes:

- `RO` difference disks are stored in the local temp directory and are named `%userid%_RO.VHD(X)`.
- The `RW` difference disk is stored on the network next to the parent `VHD(X)` file and is named `RW.VHD(X)`.
- The merge operation can be safely interrupted and continued. If one client begins the merge operation and is interrupted (e.g. powered off), another client can safely continue and complete the merge. This is why both the `RW` and `RO` clients begin by attempting a merge of the `RW.VHD(X)`.
- Merge operations on an `ReFS` file system (where the difference disk and the parent are on the same `ReFS` volume) are nearly instantaneous no matter how big the difference disk is.

- Merge operations can only be done if there are no open handles to either the difference disk or the parent `VHD(X)`. This is why the `RO` client also attempts to merge the `RW.VHD(X)`. It may be the last session to disconnect.