

Using ArcGIS Pro in the VDI



Introduction

This guide is adapted from Tracey Miller’s User Guide for Working in the VDI. It will be updated on a regular basis as the VDI gains more applications and capabilities.

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Part 1: Signing on to a Virtual Desktop (VDI) and ArcGIS Pro

A. Make sure you can access the VDI

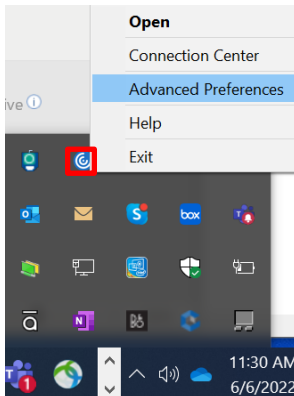
1. **Required:** Link Pass and access to the current Forest Service Citrix ArcMap environment.
[Requesting access to Citrix](#)

B. Confirm you have the right Citrix Workspace version:

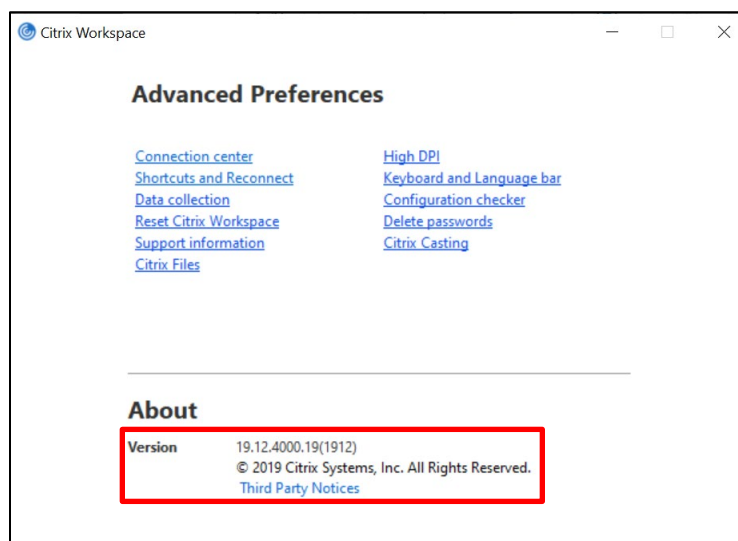
1. To find out what's installed, click the Show hidden icons button at the bottom right side of the Task Bar.



2. Right-click on **Citrix Workspace Icon** then click **Advanced Preferences**.



3. Confirm you have Citrix Workspace version **19.12** (or later). If you don't then download it from the Software Center.



C. Open Citrix StoreFront (use Chrome or Edge):

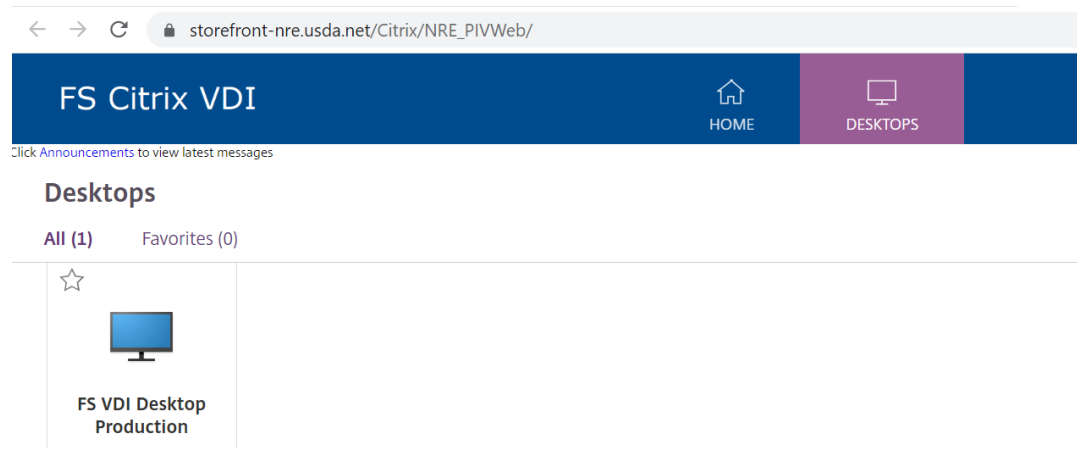
1. If you are on VPN or working from a Forest Service Office use this link: <https://storefront-nre.usda.net/>.
2. Otherwise use this link: <https://vdi.fs.usda.gov/>.

The first time you login, you may need to work through a series of websites to set up Citrix access through your browser.

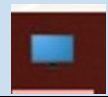
- o Click “**Detect Citrix Workspace app**”*
- o Click **Always allow....** and then click **Open** to open the Citrix Workspace Launcher*
- o “Just a moment...”, click **I agree with the Citrix license agreement***
- o Click “**Already Installed**”*
- o Click **Log On** to log on with your smart card*

D. Open a Virtual Desktop

1. Click the **Desktop Tab** to see your available desktops.
 - i. Note: If you only have access to one desktop, this desktop may open automatically from Citrix StoreFront. If not, click **ONCE** on a Desktop icon to launch.

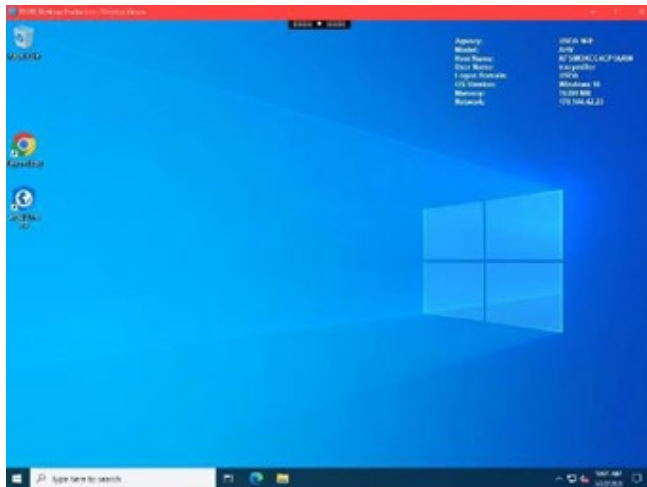


Where is my VDI Desktop? The desktop may launch behind the Citrix StoreFront window. Watch your taskbar for the VDI icon to appear.



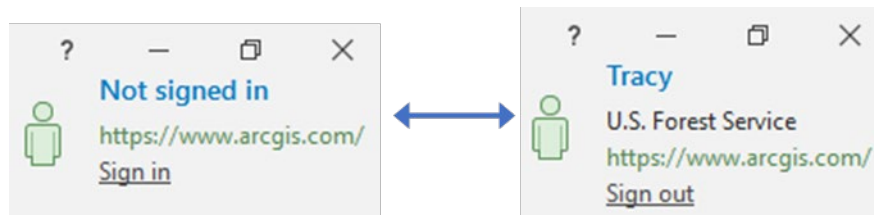
2. Wait for the “Sign-in option” to appear. If needed, pick the Smart card option that displays your name and smart card number (xxxxxxxxxx@fedidcard.gov) and Enter PIN.

The first time you open the VDI Desktop will be a bit slow because your new profile is being created. Be patient. Once it has completed launching, it will look similar to the image below.



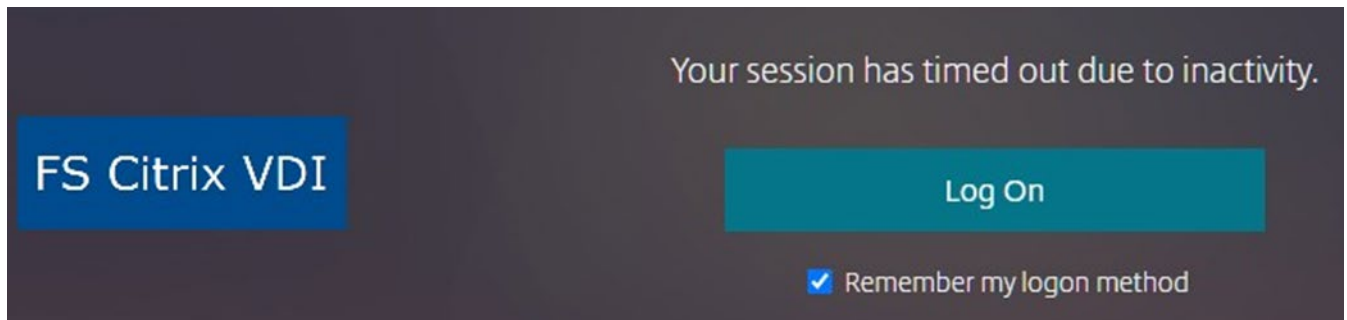
E. Open ArcGIS Pro and set up licensing & the AGOL portal:

1. Double-click on the ArcGIS Pro icon (located on the desktop) to start the application.
2. The desktops are set up to use Concurrent Licensing by default. Users should only switch to the AGOL Named User option for accessing extensions with limited licensing. When you need to switch back to concurrent licensing, the URL for the License Manager is:
27004@NTCFXSOPSX1241.usda.net.
3. New users will automatically be assigned the extensions for Spatial and 3D Analyst. Any additional extensions must be activated manually (ArcGIS Pro Settings > Licensing > Configure your licensing Options).
4. Borrowing licenses is disabled by the VDI license manager. Users needing to borrow licenses must do this from their local PC.
5. To access AGOL or the NIFC portals, sign in using the option at the upper right corner of the application window. **You will need to sign into AGOL or NIFC each time you open a new VDI desktop.**



F. Let the Citrix StoreFront window close itself:

1. Once your virtual desktop is opened, it is running independently from Citrix StoreFront web page. In the Citrix StoreFront browser window, you may see warning and timeout messages; these messages may be ignored. Do not “Log off” from StoreFront while the VDI Session is open; this will put the session into a disconnected state. Best practice is to let Citrix StoreFront close itself once the virtual desktop is launched, resulting in the window below:



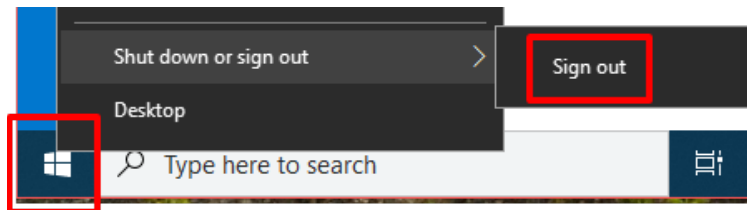
Part 2: Signing out of ArcGIS Pro, the VDI Desktop and Citrix StoreFront

A. Exit ArcGIS Pro

1. Use either the Application's Exit option or click the application window's close button ("X").
 - i. ArcGIS Pro services may continue to finish processes - such as sharing to AGOL - after exiting the main application. As a best practice, confirm that all sharing has been completed (e.g. check AGOL for confirmation), and that geoprocessing is finished before exiting the application. Closing the virtual desktop will stop these processes.

B. Sign Out of the VDI

1. Right-click on the Start Menu, select **Shut down or sign out** then click **Sign out**.



If you sign off of your Virtual Desktop without closing an application, the application will be terminated immediately. If you close the desktop - intentionally or it shuts down unexpectedly - without "signing out", the session will likely go into a Disconnected Mode. Best practice is always to Sign out. See Troubleshooting the VDI for more information about session disconnects.

C. If needed, close Citrix StoreFront:

1. If Citrix StoreFront is still active in your browser, manually close the session by clicking the settings icon in the upper right corner & selecting "Log Off" or by clicking the desktop window's close button ("X").

If you manually log off of Citrix StoreFront without closing the Virtual Desktop first, you will put your session in a disconnected mode.

Part 3: The Basics of a VDI Session

A. VDI Session Types & Timeouts

1. VDI desktop sessions can exist in several different states:
 - i. **Unassigned but available:** running but waiting to be assigned to a user
 - ii. **Active:** assigned to a user, opened on their local PC and functioning correctly
 - iii. **Disconnected:** assigned to a user, running behind-the-scenes in the data center but not on the local PC; users can reconnect to disconnected sessions to continue their work.
 - iv. **Hung:** may or may not be visible on a local PC; hung sessions are frozen and may require VDI Administrator assistance (see Troubleshooting the VDI).
2. **Timeouts:** The VDI environment currently has two timeouts that impact the state of your VDI session.
 - i. The **Idle Session Timeout** (3 hours) controls the amount of time the VM can stay in an active state without mouse or keyboard activity. If this timeout is reached, the session goes into a Disconnected State.
 - ii. The **Disconnected State Timeout** (2 hours) is the amount of time that a session can run in the disconnected mode before the virtual computer is shut down. Note: VDI session timeouts are not related to timeouts enforced between the VDI Desktops & connections to the T: Drive or Enterprise Geodatabases.
3. **Long-running processes:** If you require longer Idle & disconnect times for executing long-running geoprocessing, please submit a request through the GIS Help Desk. Users may be assigned temporary (up to 5 consecutive days) or permanent access to a profile that grants Idle Session Timeouts (6 hours) and Disconnected State Timeouts (24 hours).

B. Re-connecting to a Disconnected Session

If a user's session enters a disconnected mode, they will have 2 hours to reopen their session before the desktop is closed down. Some actions that can trigger a disconnected session include: inactivity (i.e. exceed idle time), removing your smart card, VPN dropping, logging off of StoreFront, or hitting the "x" button in the upper-right corner of the VDI desktop.

1. **To open a disconnected session, simply open the URL for the VDI and launch (click once) on the Desktop icon.** Users with access to multiple desktops must re-launch the same Desktop icon that corresponds to their disconnected desktop session.

Part 4: Working with a Virtual Desktop

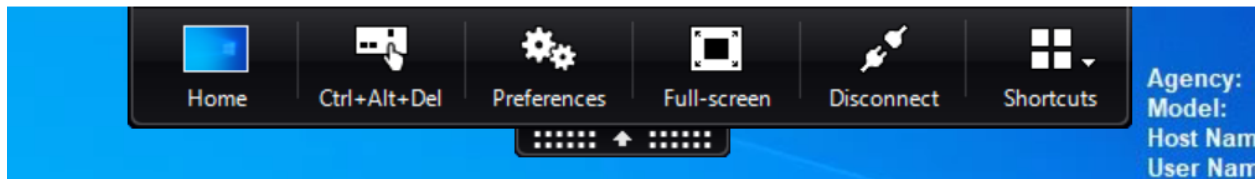
A. Citrix VDI Toolbar

1. At the top of the Virtual Desktop, click the drop-down menu to open the Citrix VDI Toolbar.



2. The most useful items in the toolbar are the Full-Screen & Window options. These toggle the display mode between a full-screen and an adjustable, movable window display. The Home button will minimize the virtual desktop application to your local PC taskbar.

- Desktop Viewer



DO NOT change the Preferences settings in the XenDesktop Toolbar

B. Spanning multiple monitors

1. With the virtual desktop in the “Window” mode, you can move the display window between monitors.
2. Selecting “Full-screen” while the window is spanning multiple monitors will cause the desktop to be full-screen over multiple monitors.

C. Storing user-created data & application files

1. Copying data files to the virtual desktop is not recommended. All files will be deleted when you sign off the desktop.
2. Storage space is available in your user profile. However, users should follow the **Agency best practice** of using the T: Drive for storing user-created data and application files. In ArcGIS Pro, a T: Drive location can be set as a default setting for both creating projects (Options > Application > General) and unpacking packages & templates (Options > Application > Share and Download).

WARNING: Unlike the T: Drive, projects and data stored under the user profile (e.g. C:\Users\<username>\Documents\ArcGIS\) will not have access to “Restore previous versions”. The only backup of this data is offsite and accessible only as part of a disaster recovery effort.

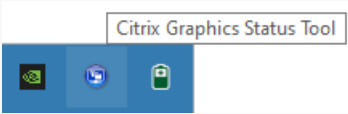
D. Improving the performance of the desktop in the VDI

1. Use your local PC for internet browsing, as well as running Outlook and Teams.
2. The VDI desktop graphics card resources support a display window spanning two 4K monitors. Monitor configurations requiring greater number of pixels will cause some loss of performance. In locations with poor internet connections, performance may be improved by working off VPN or by decreasing the resolution of your monitors.

Snapping settings in ArcGIS Pro can cause major performance impacts when editing data. Use the List by Snapping (Catalog Pane) and other snapping configurations to set the most efficient snapping environment for your workflow.

E. Improving the quality of the image displayed on the desktop

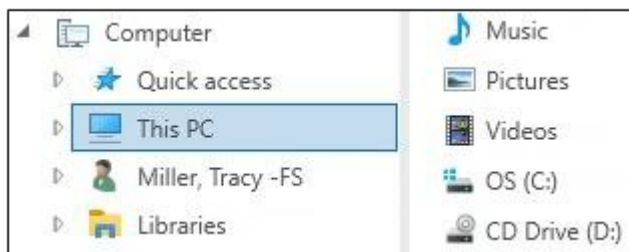
Users control two settings that can improve the quality of the image displayed on a local PC. Neither of these settings has any impact on the actual data.

Pixel Perfect	High DPI
<ul style="list-style-type: none"> Pixel Perfect is set on the VDI desktop, not on your local PC. When “Off” (by default), Citrix detects whether there is slowness on the network and compresses the screenshot images accordingly. When a user switches to Pixel Perfect, an uncompressed image is delivered. This setting uses higher network bandwidth and can cause loss in performance. To set: On the VDI desktop, click “Show hidden icons” > right-click on the Citrix Graphics Status Tool icon > Switch to pixel perfect  <ul style="list-style-type: none"> This is set per session and therefore is not saved after the desktop is closed. Use when you need a higher quality image for your workflow (e.g. digitizing from an orthophoto) or when text in the image is too pixellated. 	<ul style="list-style-type: none"> Display Pixels per Inch (DPI) is set on your local PC desktop. By default, the Windows OS controls how the Citrix image is scaled on your display. If your image quality seems poor, try setting High DPI to “Yes”. This can be especially effective when the VDI Desktop is in a Windows mode (as opposed to Full Screen), or when working with tablets or low resolution monitors. This setting has no impact on network bandwidth or performance. To set: on your local PC desktop, click “Show hidden icons” > right-click on the Citrix Workspace Icon > Advanced Preferences > High DPI This setting is saved on your local PC – i.e. it doesn’t need to be set each session - but initially requires logging out and back in to Citrix Use optionally if you see an improvement

F. Access to your Local PC files, devices and Windows clipboard

The Virtual Desktop does not have direct access to open from, or save files to, your local PC. In addition, it cannot access peripheral devices plugged into your PC’s USB or other ports.

1. Follow the current Data Center practice of moving data from your local PC up to the T: Drive so that it is accessible by a VDI
2. **Clipboard:** Copying and pasting text from a local PC application into ArcGIS Pro (or vice versa) is a useful way to work between applications in Citrix and your local PC. For example, you can copy information from a local Word document into an attribute table open in ArcGIS Pro. Note: This Copy/Paste functionality only works for users that open the VDI while either On VPN or from a Forest Service Office.
3. What are the C: and D: Drives I see on the VDI Desktop? Neither of these drives refer to your local PC. This “C: Drive” (see image below) refers to the C: Drive on the VDI; the “CD Drive (D:)” is used by the VDI Administrators for installing infrastructure software.



G. Personalizing your desktop

Many of the same options to customize your local PC are available for the VDI desktop. These changes are saved to your user profile.

1. It's helpful to [make the color of your VDI taskbar different from the color of your local PC taskbar](#). This will make it easier to keep the desktops straight when working between the VDI and your local PC.
2. You can also pin items to the taskbar, add commonly used folders to Quick access in File Explorer, and make other personalizations to fit your personality and common workflows.

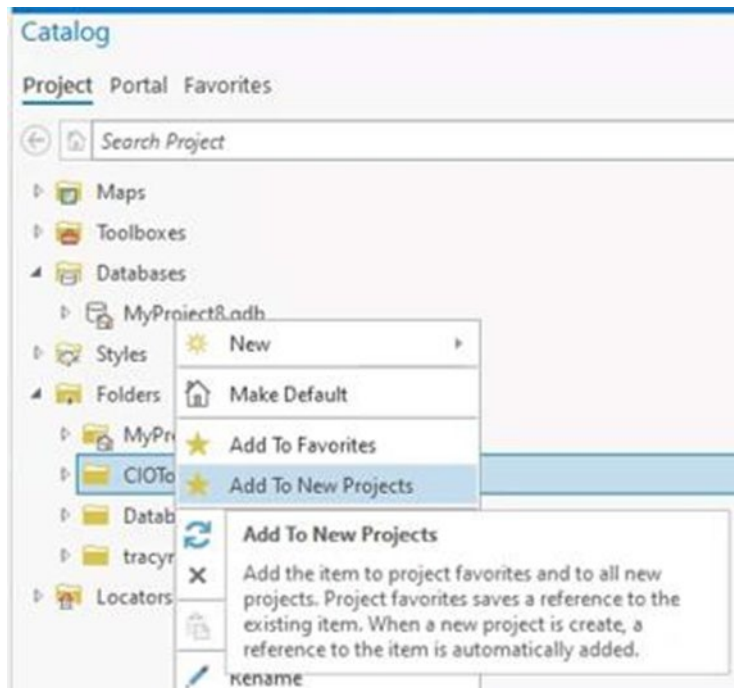
If you change the Background picture, you must launch a new desktop to create the VDI session information graphic displayed in the upper right corner of the VDI desktop. Do NOT add any files under the Windows Music, Videos and Pictures folders; these are not persisted when the VDI session is closed. Finally, do NOT adjust the display resolution of the VDI desktop.

Part 5: Working with ArcGIS Pro in the VDI

A. Accessing Enterprise data

ArcGIS Pro works fine with T: Drive data as well as accessing Enterprise Geodatabases (SDE) through database connections created in ArcMap. The application is a bit slower to open connections to SDE geodatabases and Feature Datasets than ArcMap; this is inherent with the application and not a factor of the VDI architecture.

1. **VDC unit geodatabases and the EDW:** Use the database connection files found in T:\FS\Reference\GeoTool\agency\DatabaseConnection.
2. **NRM geodatabase:** Copy your NRM connection file to a location on the T: Drive. If you open ArcCatalog in the current Citrix ArcMap environment, you can copy/paste within this app.
 - i. As an alternative, you can copy/paste inside the VDI's File Explorer. **Best practice** is to copy the connection file from your ArcCatalogProfile (T:\DataCenter\Citrix\AppData<xx>\<username>\Application Data\ESRI\Desktop10<xx>\ArcCatalog) to a more permanent location on the T: Drive.
3. **ArcMap Layer Files (.lyr)** work in ArcGIS Pro. However, they do not have the full functionality of ArcGIS Pro layer Files (.lyrx). Layer files can be upgraded to the ArcGIS Pro format by loading the ArcMap layer file in the project and then, from the resulting layers, create a new ArcGIS Pro layer file through the Share tab. At some point in the migration process, the best practice will be to upgrade layer files; however, .lyrx files cannot be read in ArcMap.
4. **SDE Management in ArcGIS Pro:** Enterprise Geodatabase Manager Guide for ArcGIS Pro (Oracle Version).
5. **Frequently-used data locations** (folders or connection files) can be identified as Favorites or even added to all new projects. Right-click on the folder connection and Add to New Projects.



Warning: Renaming a folder in ArcGIS Pro Catalog will permanently rename the folder. As an option, use the Alias function to create an alternative name for a folder connection (aliases are stored at the project level).

B. Add-ins

Add-ins allow developers to extend the functionality of out-of-the-box ArcGIS Pro by customizing the user interface. Once loaded, new tools may appear on the ribbon tab or other areas of the applications. Unlike ArcMap, users are not required to install most add-ins in ArcGIS Pro. Instead, they simply use the Add-in Manager to navigate to the folder in which the add-in is stored.

1. **Shared Add-ins** appear in on all user desktops. These are stored on the image C: Drive in a designated folder managed by the VDI Administrator. Currently, the VDI has no Agency-wide Add-ins.
2. **My Add-Ins** are optional add-ins accessed and managed by the user through the ArcGIS Pro Add-In Manager. To add or remove an add-in: Settings > Add-In Manager > Options > Add Folder and navigate to the folder (i.e. not to the Add-in file itself) in which the .AddInX file is stored. ArcGIS Pro must be restarted to see the new add-in.
 - i. **Agency-wide Add-ins:** Stored in the folder C:\USDA\FS\ArcGIS Pro\AddIns\<add-in name> and managed by the VDI Administrator.
 - ii. **Local Add-ins:** Loaded by a user from their own network folder location.

C. Fonts

In general, fonts are installed by the VDI administrator and available to all users on the VDI desktops but you can use custom fonts.

1. To install a font, right-click on the font file in File Explorer then click **Install** which will save the font to the your user profile.

2. To request a new font for Agency-wide availability, submit a ticket to the GIS Help Desk and include the name & location for the font(s) on the T: Drive.

D. Styles

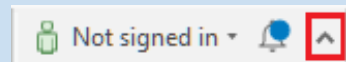
Other than application-installed System styles, users must manually add additional styles to their project.

1. **Agency-wide Styles:** Stored in the folder C:\USDA\FS\ArcGIS Pro\Styles folder, these include requested styles from [Gallery for Esri Styles](#) as well as styles for the Forest Visitor Map and FS Topo. To request a new Agency-wide style for the VDI, submit a GIS Help Desk ticket.
2. **Local Styles:** Regions, units and individuals can provide access to their local styles through a T: Drive folder. ArcGIS Pro has its own style format (.stylx), so styles should be upgraded for use in the VDI.
3. **Adding styles:** Styles can be added project by project (Insert Tab > Styles Group > Add > Add Style), stored as a Favorite, or added to all new projects.

E. Unresponsiveness with an ArcGIS Pro session in the VDI

At times, while the ArcGIS Pro application is engaged in a time-consuming processing, it may show the application as “Not Responding”. Be patient and wait some time before abandoning the task; this message often means that ArcGIS Pro is still processing a command. However, if your application shuts itself down, or freezes completely and must be manually shut down by the Windows Task Manager, ArcGIS Pro has a project recovery function. By default, project backups are taken automatically every 5 minutes. However, remember to save edits often; unsaved edits are not recoverable after a crash.

Where’s my ribbon? ArcGIS Pro has a small down arrow in the upper-right corner of the application that can be used to toggle the ribbon on & off. Don’t be surprised if you accidentally minimize the ribbon; if this happens, simply toggle this tool to bring it back into view.



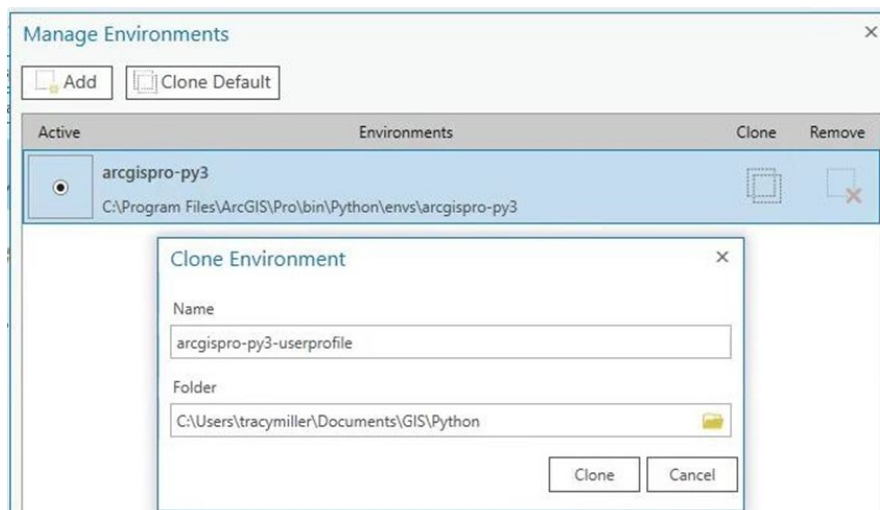
F. Cloning the ArcGIS Pro Python environment

Optional - most users will have no reason for this functionality. The Esri default clone environment is a restricted folder - a location where users cannot modify files. If users need to add packages or modify files, a second Python environment must be created with sufficient permissions to modify content and run executables. The VDI has a solution that satisfies these requirements, using the following steps:

1. Create a new folder called “GIS” under your C:\Users\<username>\Documents folder
2. Inside this new folder, create another folder called “Python”
3. In ArcGIS Pro > Settings > Manage Environments, click on clone button next to the default environment



4. In the Manage Environments dialog (see image below), name your new environment “arcgispro- py3-userprofile” (use this exact name; do NOT substitute your name for “userprofile”) and set the “Folder” to your newly created “Python” folder location > Clone
5. Set your Python Project Environment to the new environment (restart required) and you can Refresh Package Information and add packages.
6. When moving between ArcGIS Pro versions, you may need to delete and recreate your clone. If you are unable to delete from the application (option is greyed out or you will get an error trying to switch to the cloned environment), delete the environment in File Manager. Then, reopen ArcGIS Pro; a warning message will pop up explaining that it is reverting to the default environment.

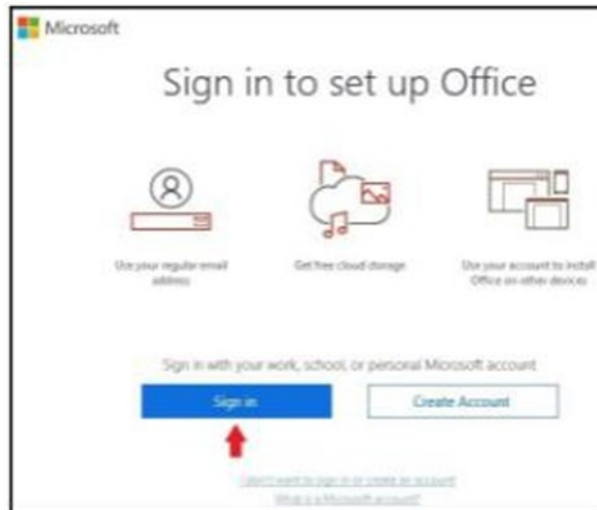


Part 6: Working with Microsoft Office 365 and Pinyon (Box) in the VDI

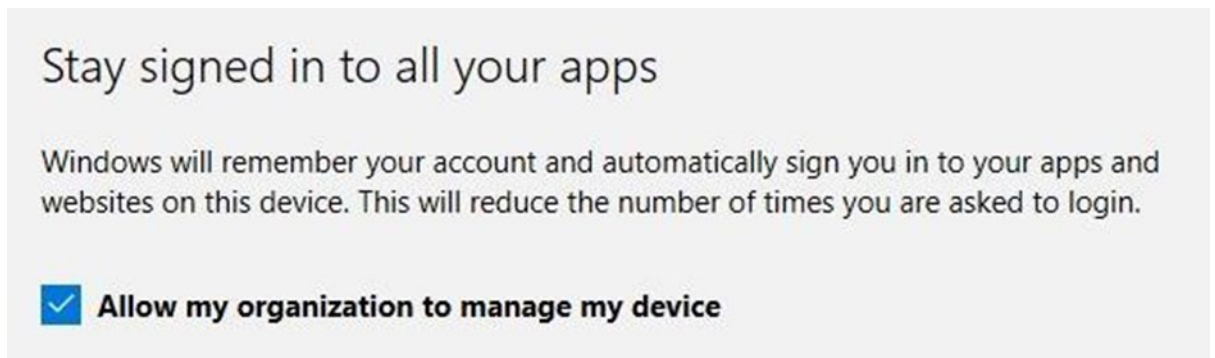
At this time, OneDrive will not be available in the VDI. Files on OneDrive can be copied to the T: Drive for access in the VDI. If you have a business requirement for this application, please reach out to: tracy.miller@usda.gov

A. Microsoft Office 365

1. The first time you open an Office 365 product, you may be prompted with the option to “Sign in” (see image below). This will sync your VDI desktop profile with your Office 365 profile. If see this option, choose Sign in, and enter your USDA email address in the next box.



2. If prompted, select **Allow my organization to manage my device**. This will do two things: ensure that you are set up correctly for all VDI applications and set the correct Forest Service synching policies.



B. Pinyon (Box)

1. Pinyon (Box) is only accessible through a browser-based interface. An icon linking to the correct URL is provided on the VDI Desktop. Users archiving GIS Projects from the T: Drive to Pinyon may use the VDI for this purpose.

Part 7: Resources

[Troubleshooting the VDI](#)

[GIS Help Desk](#)