MSO BLM Corporate GIS Edit Guide

Grazing

March 1, 2011

For

USDI – Bureau of Land Management
Montana State Office

Attachment 2-1

Table of Contents

1 List of Data Stewards

State Data Steward: Floyd Thompson

DISTRICT or FIELD OFFICE	DATA STEWARD NAME Date: 03/01/2011
Billings FO	Larry Padden
Butte FO	Vicki Anderson
Dillon FO	Pat Fosse
Glasgow FO	Ray Neumiller
Great Falls Oil and Gas FO	Dan Brunkhorst
Havre FO	Steve Zellmer
Lewistown FO	Adam Carr
Malta FO	Jon Kautt
Miles City FO	Ryer Jens
Missoula FO	Steve Bell
North Dakota FO	Thad Berrett
South Dakota FO	Thad Berrett
Upper Missouri River Breaks NM	Mitch Forsyth

2 Introduction

The Grazing (GRA) feature data set is intended to represent the Federal interests that depict the grazing and pasture boundaries for the states of Montana/Dakotas. The current GRA is based on a geodatabase with a feature data set representing the Federal interests using four separate feature classes. The GRA geodatabase is designed with the editor in mind. Publication versions will be extracted from the GRA and posted for public access.

The purpose of this user guide is to provide the editor with references and direction for the correct procedures to employ while editing the GRA.

3 Policies

Editing

State Data Steward:
The State Data Steward has the responsibility to ensure the updates to the geometry and the attributions adhere to the defined standards.

District/Field Office Data Steward:
The district/field office data stewards have the responsibility to define their edit boundaries for their editors and to coordinate with their neighbors for an agreed upon boundary. They

are responsible for ensuring that the geometry and attribution is complete and accurate within their area of responsibility.

Editor:
Every version created allows edits to the entire database. It is important to be aware that multiple editors can unknowingly "overlap" their edits. Editors will check for outstanding versions of their own and others prior to starting a new or continuing an existing edit session.
Editors shall adhere to the procedures described in this user's manual.

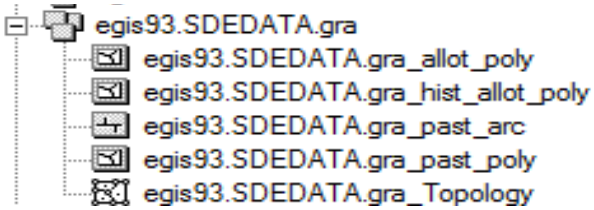
Frequency of Inspection: At a minimum District data stewards shall review their areas of responsibility once per year to ensure the data is accurate & current.

4 GIS Implementation

Feature Dataset:

SDEDATA.gra

Feature Classes:



GRA_ALLOT_POLY: The polygon features that show the boundaries for the allotments.

GRA_HIST_ALLOT_POLY: The polygon features that show historical allotments. Since the data in the RAS system is about allotments and pastures, where they are used, this is where the data connection between the geospatial feature data and the RAS application will be established.

GRA_PAST_ARC: The arc features that will define the polygons. These arcs will have the feature level metadata attributes shown assigned to them.

GRA_PAST_POLY: The polygon features that show the boundaries for the pastures.

GRA_TOPOLOGY: The rules that define the relationship of the geometry between the feature classes, and the relationship of the geometry within each feature class.

Note: Section 5.5 details the properties of the Topology layer (e.g., rules).

5 Editing Procedures

This section details the requirements and procedures regarding spatial and attribute edits for this Edit group. Edits shall occur in SDE Edits.sde using the feature data set **SDEDATA.gra**. Citrix will be the access to the feature data set. For more information on using Citrix see Appendix A.

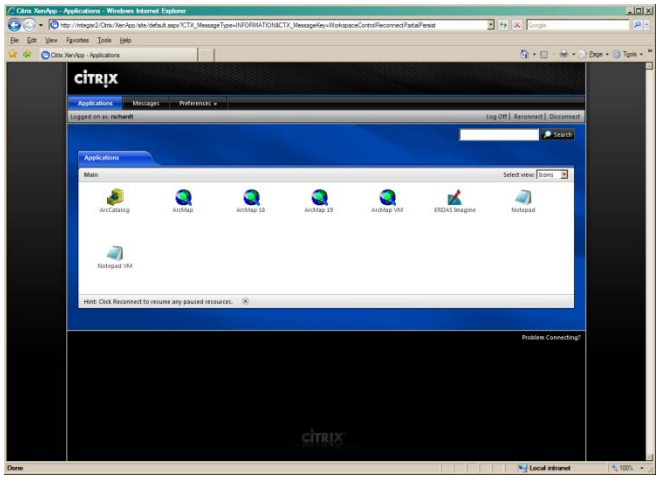
5.1 Prerequisites

1. Successful completion of the BLM's "ArcSDE Edit Processes" course.
2. Recommendation by the District/Field Office GIS coordinator and the District/Field Office data steward to the State Data Steward to grant edit access to the database is needed.
3. Reference datasets identified and uploaded to the appropriate directory in the editors citrix workspace.
4. Citrix has been installed on the user's machine by IRM (if not, go to section 6.2.1).
5. Connection to SDE.Edits in ArcCatalog.

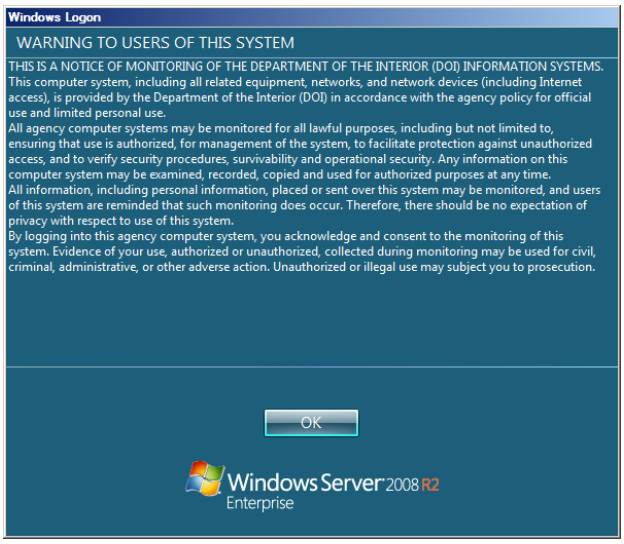
5.2 Workflow

Create active SDE connection in ArcCatalog
Note: A new connection is only needed if you do not have a current connection to the SDE Edits.sde database.

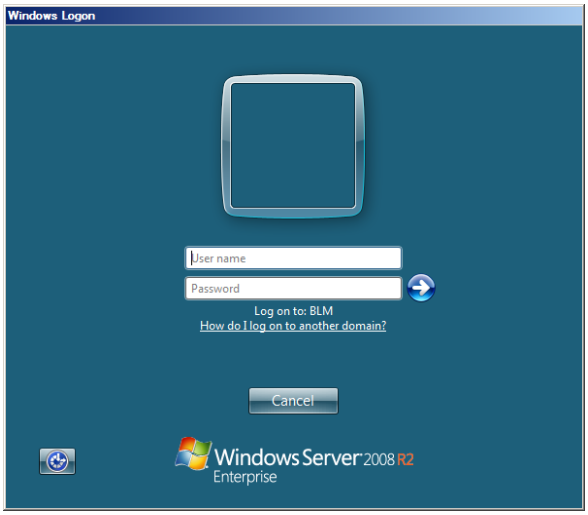
1. Open Citrix ArcCatalog
2. Open Internet Explorer
3. Enter **mtegis** in Address box
4. Select ArcCatalog from the Main in Citrix Applications



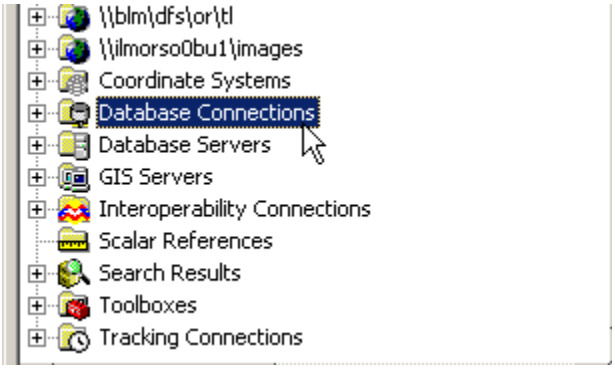
Click OK, to dismiss the notice of monitoring window.



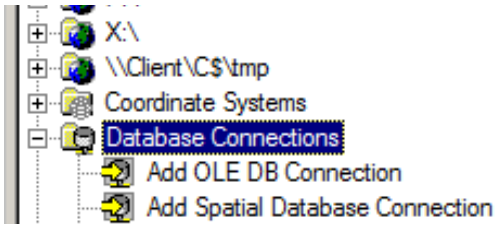
Login



In the ArcCatalog Catalog tree click on **Database Connections** to expand the connection.



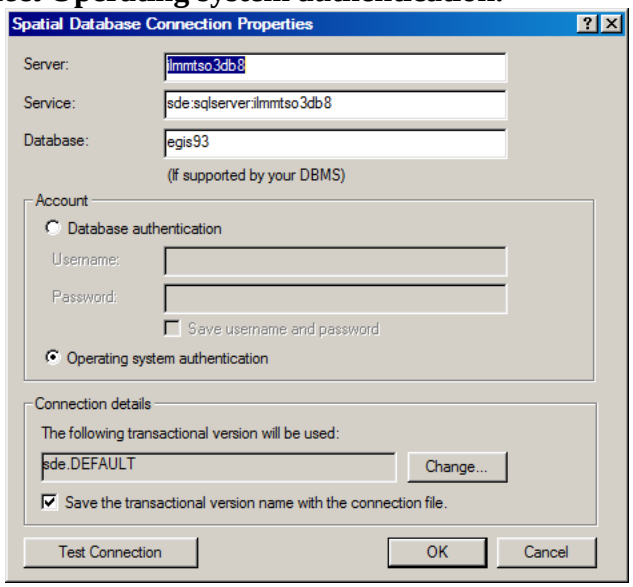
On the right side of ArcCatalog double click on **Add Spatial Database Connection** to create a new connection.



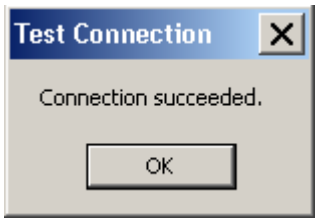
Fill in the values in the Spatial Database Connection Properties window for the SDE_Edits connection:

Server:	**ilmmtso3db8**
Service:	**sde:sqlserver:ilmmtso3db8**
Database:	**egis93**

In Account Area, select **Operating system authentication.**

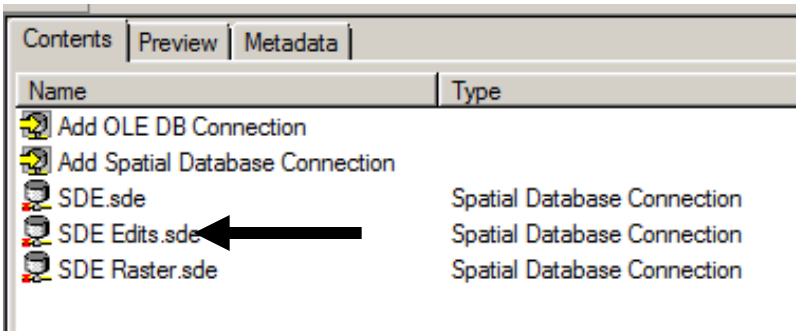


Click the **Test Connection** button to test your connection to the database.



If your connection succeeds **click OK** to close the Test Connection window, and **OK** again to close the **Spatial Database Connection Properties** window.

You should see your new connection in ArcCatalog. **Rename the connection to SDE Edits** or something similar so it is easy to identify.



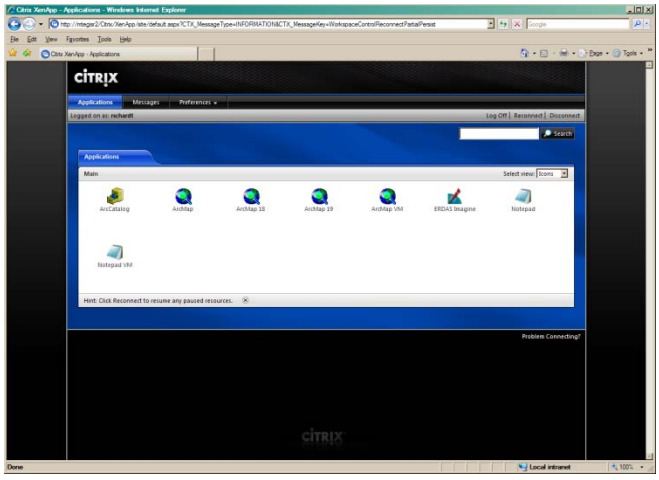
Close ArcCatalog

Creating a version for editing

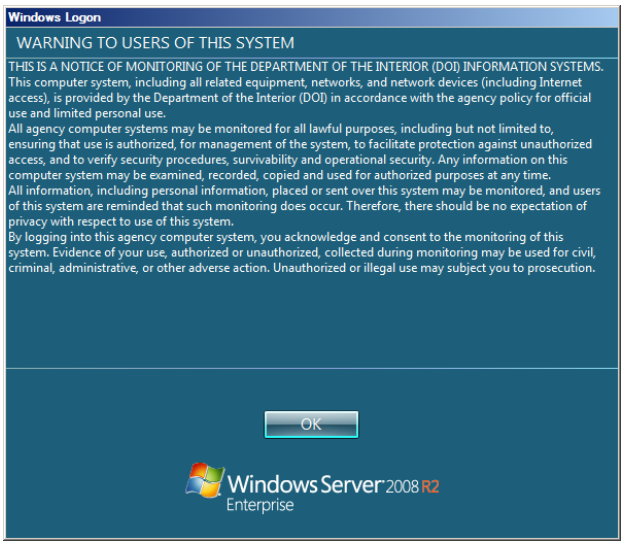
If you plan to make any edits to the GRA data, you need to create an edit version (if you are just viewing and querying data without making any changes a version does not have to be created).

Launch Citrix ArcMap

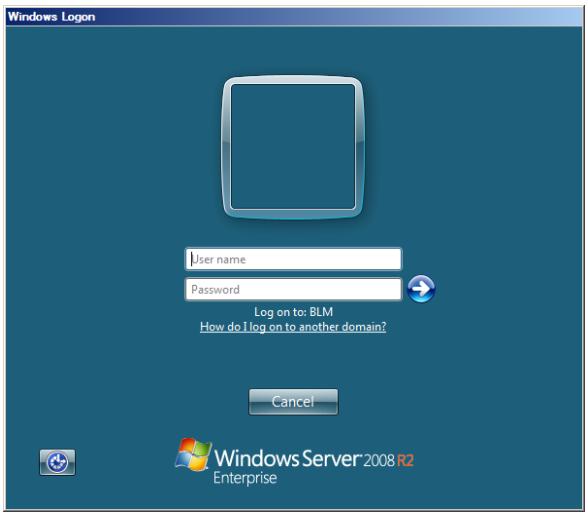
Open Internet Explorer
Enter **mtegis** in Address box
Select ArcMap from the Main in Citrix Applications



Click OK, to dismiss the notice of monitoring window.



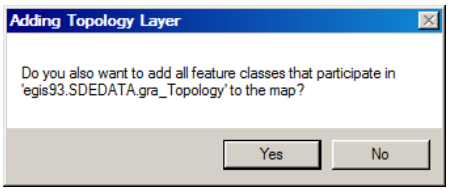
Login



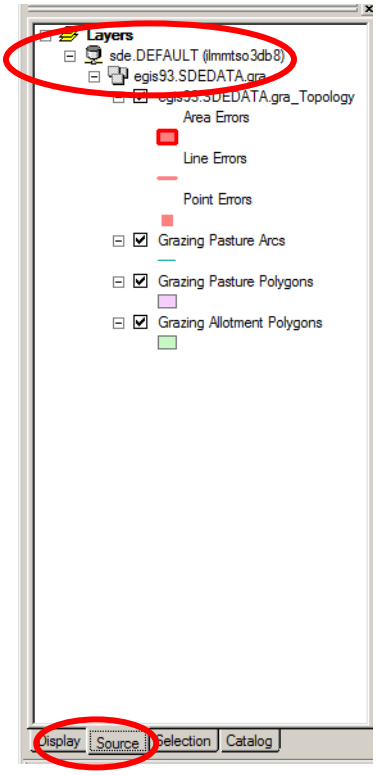
Add GRA data

Navigate through **Database Connections → SDE_Edits.sde → egis93.SDEDATA.gra** to add **egis93.SDEDATA.gra_Topology** to your current map. This will set up the feature data set with standard symbolization.

Click **Yes.** This will add the layers required to edit the grazing data.

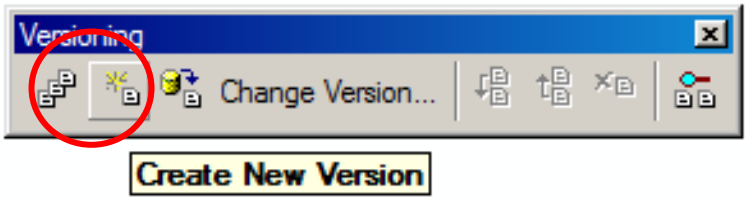


After adding the topology and all associated files to your ArcMap session, click the Source tab at the bottom of the table of contents to display the layers source data (SDE.DEFAULT).

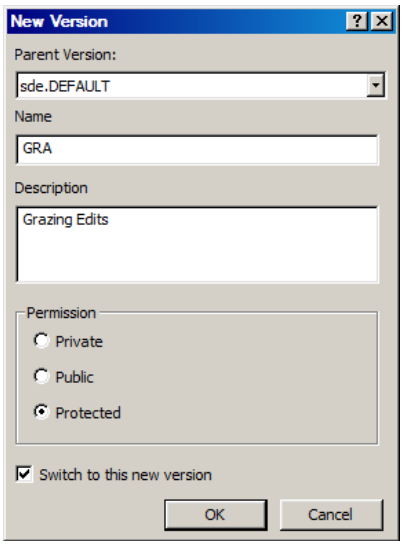


Create or Choose an Existing Version

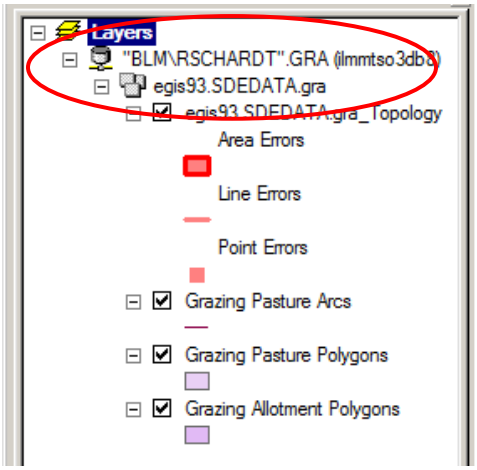
To create a version, click Create New Version in the Versioning Toolbar. If toolbar is not present go to **View → Toolbars →Versioning**.



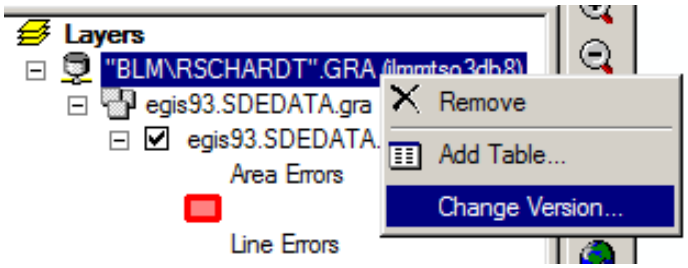
Enter information as shown and **OK**.



The layers in your map now point to the newly created version, and not the SDE.DEFAULT version, and can be edited.

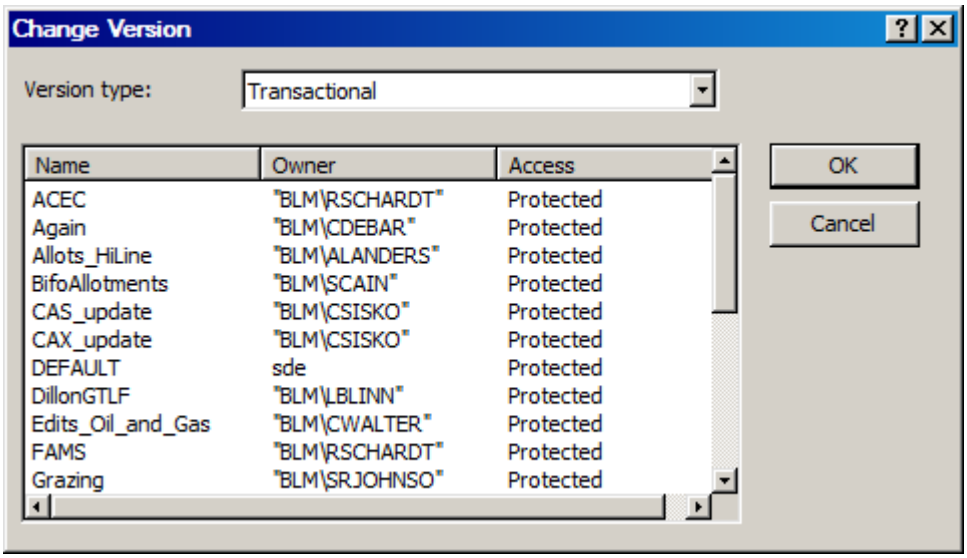


To view existing versions, right click on the SDE.DEFAULT version and select **Change Version**, and the version manager window appears.



The Version Manager window shows all of the current versions of the database and lets you select a different version that you have permission to edit. You will only be able to

select versions with your name for editing; however, you may view any of the available versions.



Select your Version and Click OK to change to desired version.

Once you have your version setup you can also save your ArcMap MXD to return to it at a later time to finish your edits.

If needed, you may add additional reference layers that will be used in the edit process, to the map. For efficiency with regeneration times, it is recommended to place reference data in your work space or the project space within the citrix environment.

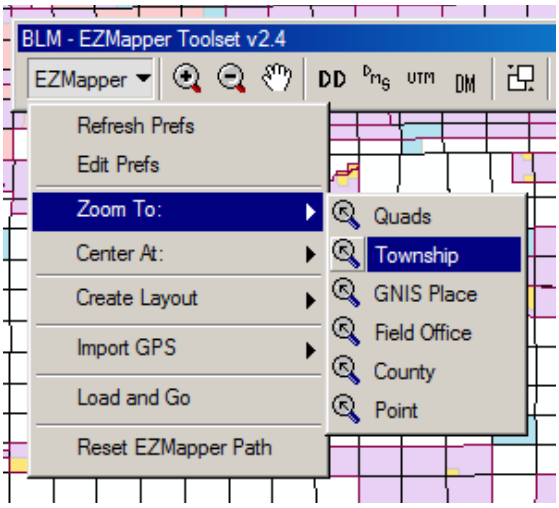
Creating New Allotments/Pastures

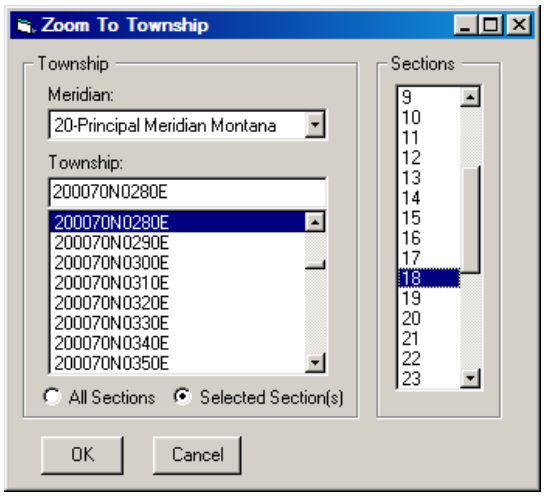
Edit Scenario – Create new allotment from a selected BLM ownership parcel.

A parcel of land has just been opened up to grazing by the BLM. The current ownership layer already contains this parcel but it is not contained in the grazing allotment layer.

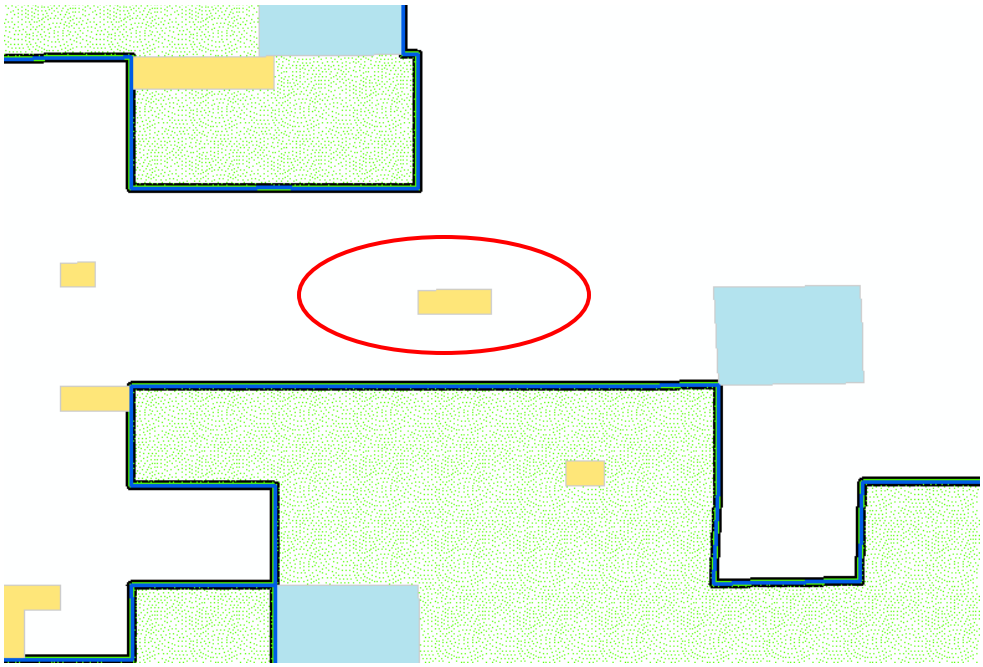
The township and range that this new allotment will be located in is T7N-R28E, section 18.

To help you find the correct Township, Range, and Section you can use the **Zoom To →Township** in the BLM EZ Mapper Toolbar to zoom to the area of interest.



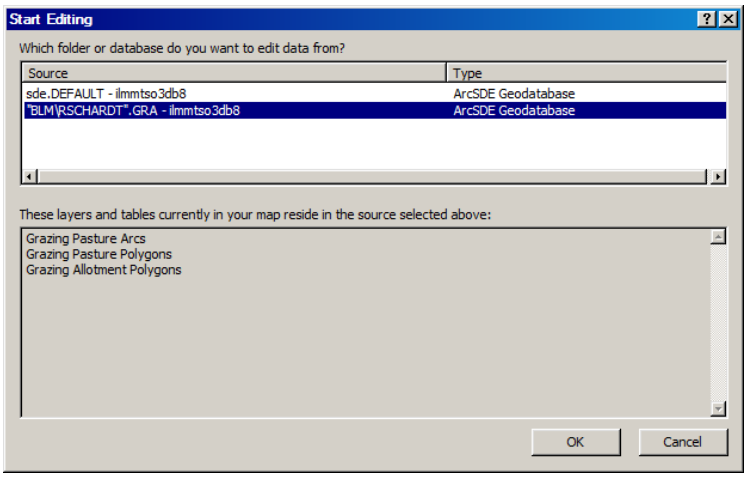


If needed, change the map scale to 1:15,000 to get a better view of the area (hint: type 15,000 into the map scale box). The selected BLM parcel is shown below.

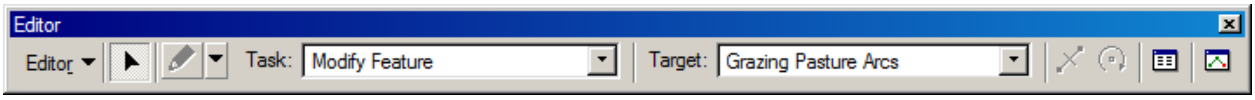


From the Editor dropdown list select Start Editing.

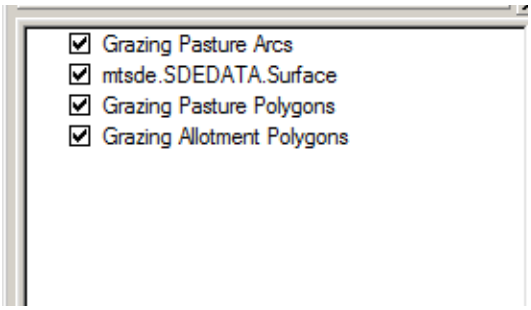
Select the appropriate database that you want to do the editing in and select **OK**.



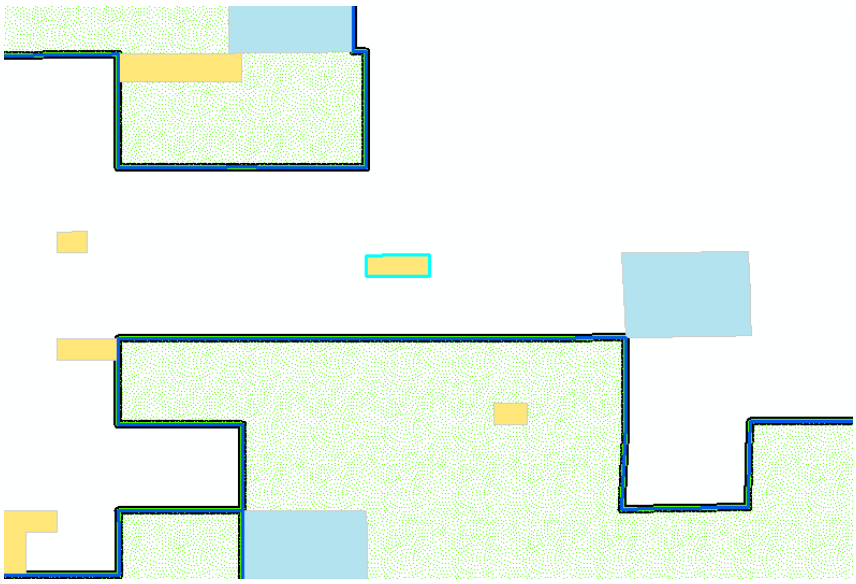
In the Editor toolbar, select the desired Target layer. In this example, we are using the Grazing Pasture Arcs. This is determined by the grazing boundaries implementation guidelines that require all allotment and pasture polygons be derived from pasture arcs.



Ensure that the layers you are currently working with are the only selectable layers in the map. This is accomplished by clicking on the Selection tab at the bottom of the TOC and placing a checkmark on the desired layers.



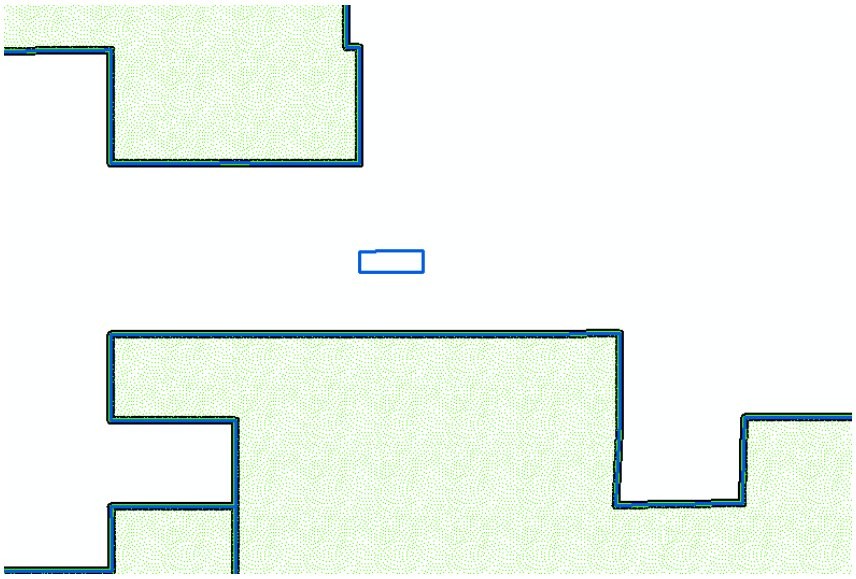
Use the Edit tool and click the center of the BLM polygon to select it (you may have to click outside of the selected section before clicking on the ownership polygon, or clear your selection first before selecting the ownership layer).



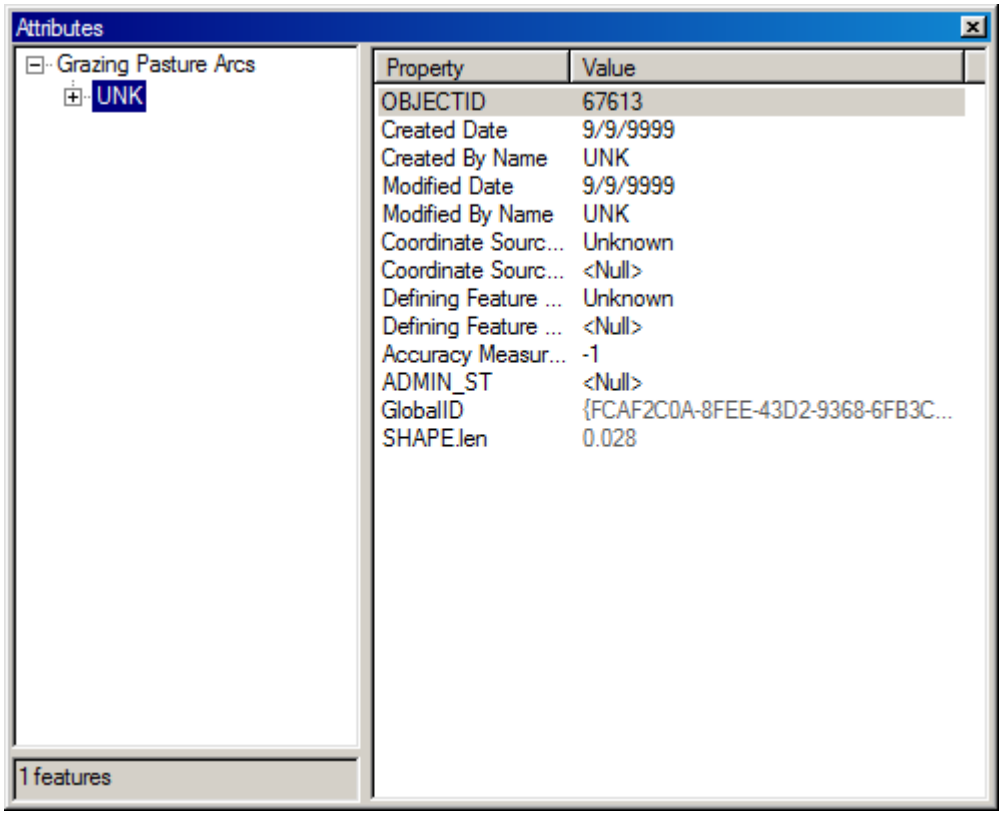
Edit →Copy or **Right** mouse click inside the selected polygon and select **Copy**.

Edit →Paste or **Right** mouse click inside the selected polygon and select **Paste**.

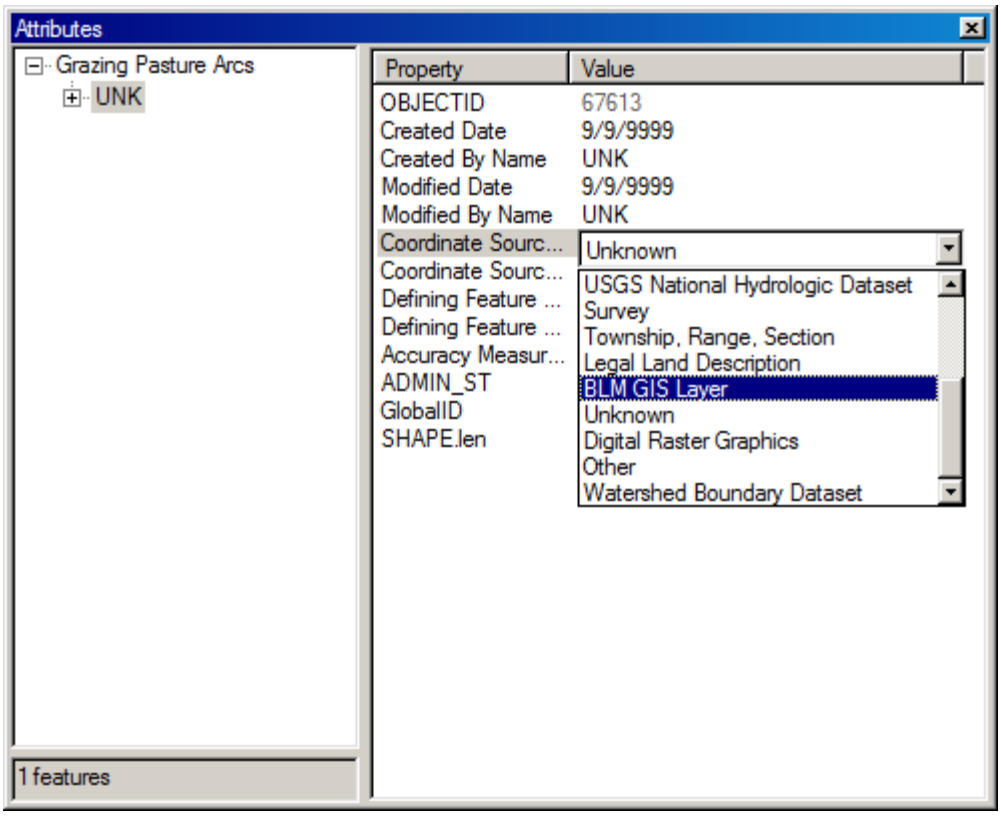
The selected polygon will be pasted in the target layer Grazing Pasture Arcs.



Open the attributes for the selected pasture arcs by clicking on the Attributes Dialog button on the Editor toolbar  .



We now need to add the appropriate attribute data for the new pasture arcs. To add this information, click on the value item for each field. Note: Fields will be both free entry and dropdown selections.

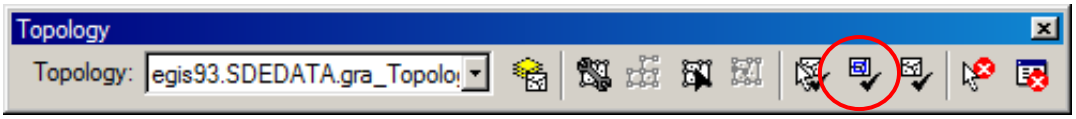


Note: When you are making multiple edits that will have the same attribute values, all of the features can be selected and attributed at the same time. Once you have all of the features selected they will appear under the layer name in the attribute window. When multiple features are selected in the attribute window clicking and selecting the layer name (Grazing Allotment Arcs in this case) will apply any attribute changes you make to all selected features.

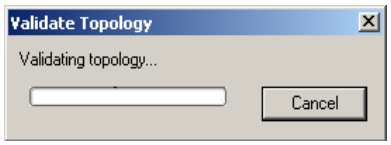
Close the Attribute window and Save your Edits.

After any editing has been done, topology has to be validated to ensure that no topology rules have been violated.

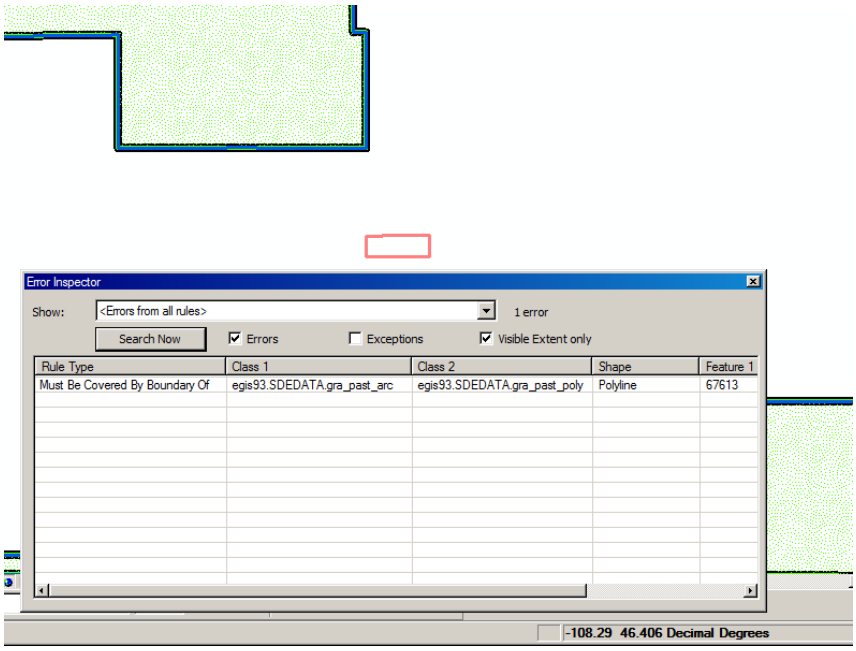
Click the Validate Topology in the Current Extent button  on the Topology toolbar.



A window is displayed to show that the topology is being validated.



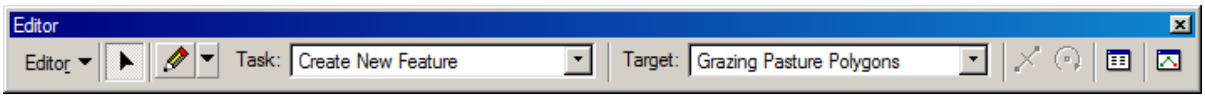
Open the Error Inspector from the Topology Toolbar  and search for errors in the current extent. In this example, one error is present.



The rule GRA_Past_Arc "Must Be Covered By Boundary Of" GRA_Past_Poly has been violated. In other words, there are features in GRA_Past_Arc that are not in GRA_Past_Poly.

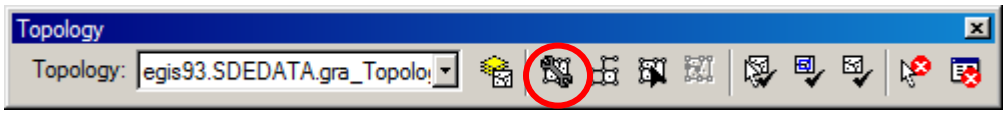
To correct this error, we will use the following procedure:

Set the target layer on your edit toolbar to Grazing Pasture Polygons, since we are working with the Pasture_poly layer and will be creating a new feature with the Construct Features tool.

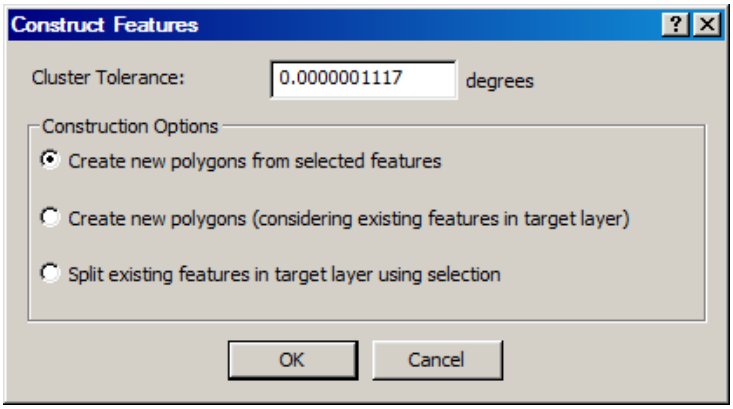


Select the Pasture_Arc that you want created in Pasture_Poly with the Editor Select tool.

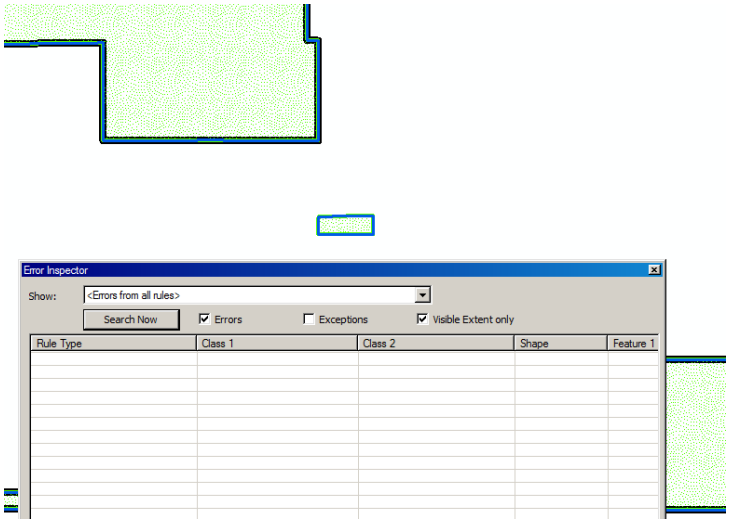
Select the Construct Features tool in the Topology toolbar.



The Construct Features dialog will ask what you want to do. In this case, choose the option to **"Create new polygons from selected features"** and **OK**.



Click the Validate Topology in the Current Extent button  on the Topology toolbar.

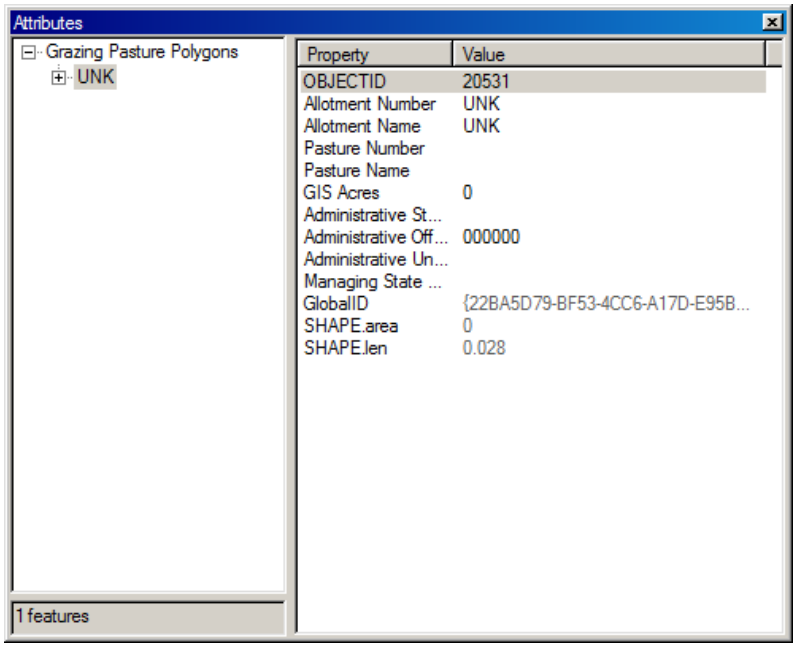


The Topology error has been resolved.

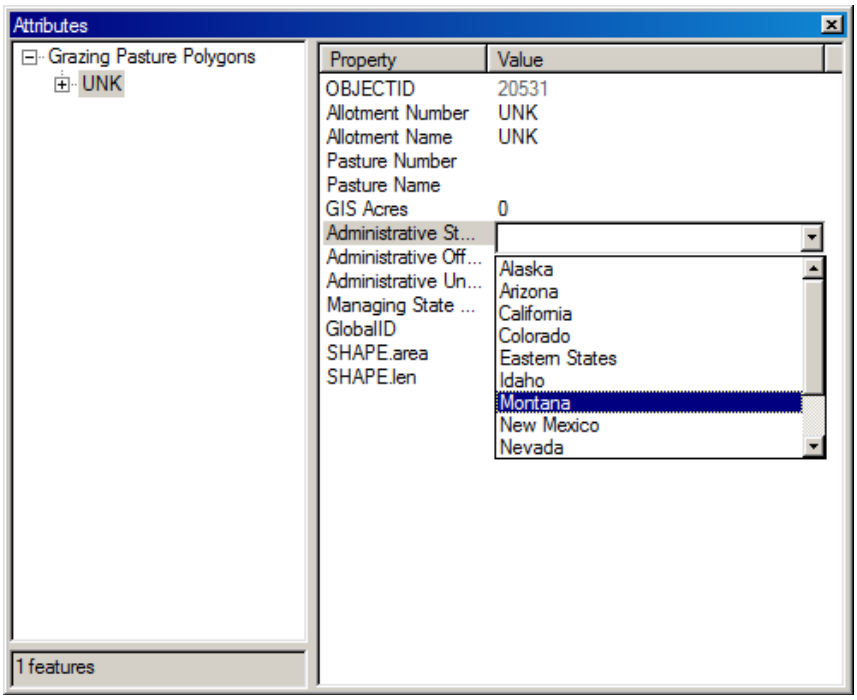
Click on the Selection tab at the bottom of the TOC and place a checkmark on Grazing Pasture Polygons.

Select the newly created Pasture Poly feature using the Edit Select tool.

Open the attributes for the selected pasture polygon by clicking on the Attributes Dialog button on the Editor toolbar .



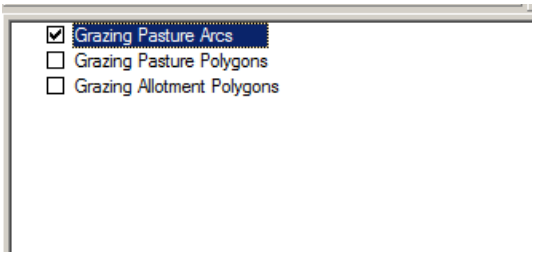
We now need to add the appropriate attribute data for the new allotment. To add this information, click on the value item for each field. Note: Fields will be both free entry and dropdown selections.



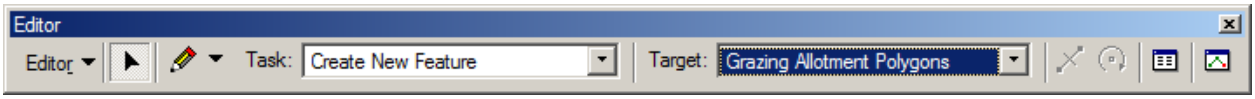
Close the Attribute window and Save your Edits.

The same steps will be used to create the feature in Grazing Allotment Poly.

Click on the Selection tab at the bottom of the TOC and place a checkmark on the Grazing Pasture Arcs.

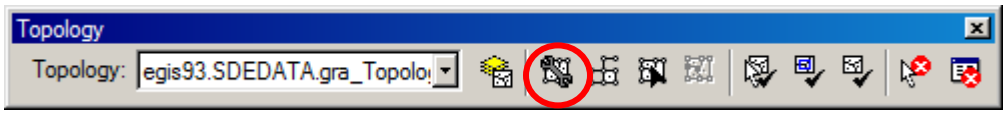


Set the target layer on your edit toolbar to Grazing Allotment Polygons, since we are working with the Allotment_poly layer and will be creating a new feature with the Construct Features tool.

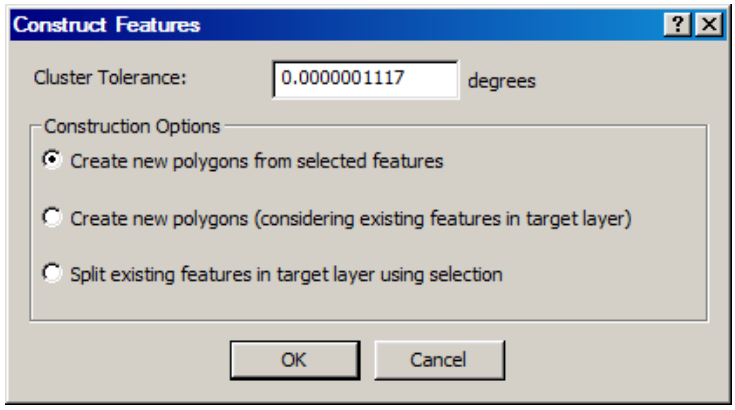


Select the Pasture_Arc that you want created in Allotment_Poly with the Editor Select tool.

Select the Construct Features tool in the Topology toolbar.



The Construct Features dialog will ask what you want to do. In this case, choose the option to **"Create new polygons from selected features"** and **OK**.



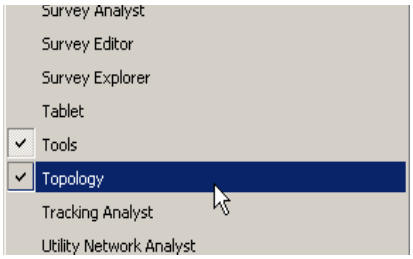
Click on the Selection tab at the bottom of the TOC and place a checkmark on Grazing Allotment Polygons.

Select the newly created Allotment Poly feature using the Edit Select tool.

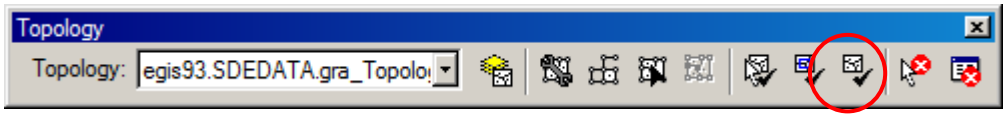
Open the attributes for the selected allotment polygon by clicking on the Attributes Dialog button on the Editor toolbar  and update the attribute information.

Validating Entire topology

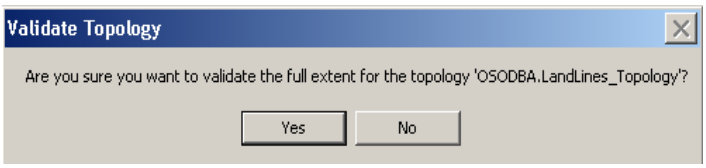
If you have not already done so, once all of the edits are completed the entire topology needs to be validated to make sure that editing did not introduce any topology errors in other areas. The topology can be validated using the topology toolbar. If needed, turn on the Topology toolbar **View → Toolbars → Topology**.



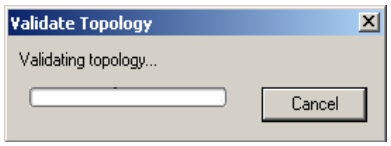
Make sure that you are in an edit session (Start Editing) and click the Validate Entire Topology button on the Topology toolbar.



Since validating the entire topology can take a long period of time, a warning message comes up to confirm that you want to validate the entire topology, click OK to start the validation process.

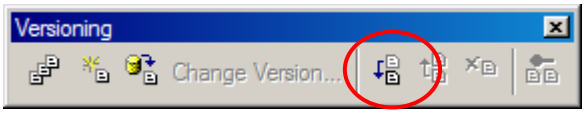


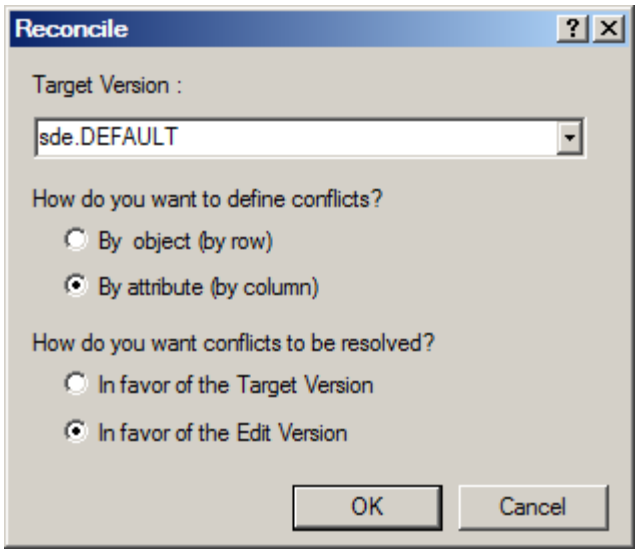
The Validating Topology status box will be displayed while the topology is being validated.



After the topology has been validated the Error Inspector can be used to view any topology errors that were created while editing. The Error Inspector can also be used to fix any topology errors.

Reconcile a Version: Once you are finished editing a version, you can merge the changes into any version that is the ancestor, such as the parent or DEFAULT version. To merge the changes, you must reconcile. This is accomplished by the reconcile tool in the Version toolbar.





Cancel a Job:
If you need to cancel a job, it must be done in Arc Catalog.
Select Database Connections, and right click on the SDE database (SDEeditor) and select versions. Select the version you wish to delete (no you cannot delete someone else's).

Posting of completed edits:
After you have completed your edits, Validated the topology and Reconciled, you need to post your version back to the database so that the SDE.DEFAULT version can be updated. This is done by the Montana/Dakotas SDE Administrator.

5.3 Cartographic Standards

The following is the order of priority for using reference data to create geometry.

1. Feature classes that have metadata with statements of accuracy or reliability of position.
2. Feature classes that were created from base data that referenced accuracy of position.
3. Digitizing from ortho corrected imagery with a statement of accuracy within the metadata

5.4 Snapping and Reference Layers

The following layers are the primary reference layers to be used to create and maintain the geometry for the grazing boundaries datasets.

1. NSDI Polygons/Arcs
2. NHD Polygons/Arcs (Water)
3. GTLF Arcs (Transportation)

Additional layers may need to be used to add additional geometry that involves the use of geographic features. Additionally, references will include, but not be limited to, Master Title

Plats (MTP), records of surveys, and deeds of record to determine how and where to create geometry and attribute the polygons.

5.5 Topology

The following properties are set for the Edit group's Topology layer:

Cluster Tolerance: The topology cluster tolerance of 0.0000001117 degrees.

Topology rules:

GRA_Past_poly	Must Not Overlap	
GRA_Past_arc	Must Not Overlap	
GRA_Past_poly	Boundary Must Be Covered By	GRA_Past_arc
GRA_Past_arc	Must Not Self Overlap	
GRA_Past_arc	Must Be Covered By Boundary Of	GRA_Past_poly

Allowed exceptions:

- The extents of the map will show a gap error

Ranks[1] – feature classes listed in order of reliability:

- GRA_Past_arc 1
- GRA_Allot_poly 1
- GRA_Past_poly 1

5.6 Feature Level Metadata Attributes

Data Sources
NSDI Data
Other Federal Data
Other Source Data

Data Quality
NSDI Data
Other Federal Data
Other Source Data

5.7 Attribute Categories and Definitions

TOPOLOGY: The rules that define the relationship of the geometry between the feature classes, and the relationship of the geometry within each feature class.

[1] Snapping priority between participating feature classes

GRA_PAST_ARC feature class field descriptions:

GIS NAME	ALIAS	DATA FORMAT	* REQ'D?	DOMAIN NAME
CREATE_DATE	Created Date	Date	M	
CREATE_BY	Created By Name	Char(30)	M	
MODIFY_DATE	Modified Date	Date	M	
MODIFY_BY	Modified By Name	Char(30)	M	
COORD_SRC_TYPE	Coordinate Source Type Code	Char(5)	M	DOM_COORD_ SOURCE_TYPE
COORD_SRC2	Coordinate Source Code	Char(25)	O	
DEF_FET_TYPE	Defining Feature Type Code	Char(15)	M	DOM_DEF_ FEATURE_TYPE
DEF_FET2	Defining Feature Code	Char(30)	O	
ACCURACY_FT	Accuracy Measurement In Feet	Long Integer(4)	M	

GRA_PAST_POLY feature class field descriptions:

GIS NAME	ALIAS	DATA FORMAT	* REQ'D?	DOMAIN NAME
ALLOT_NO	Allotment Number	Char(5)	M	
ALLOT_NAME	Allotment Name	Char(50)	M	
PAST_NO	Pasture Number	Char(2)	M	
PAST_NAME	Pasture Name	Char(50)	M	
GIS_ACRES	GIS Acres	Double(16.6)	M	
ADMIN_ST	Administrative State Code	Char(2)	M	DOM_ ADMIN_ST
ADM_OFC_CD	Administrative Office Code	Char(6)	M	
ADM_UNIT_CD	Administrative Unit Code	Char(8)	M	
ST_ALLOT_PAST	Managing State Allotment Pasture Number	Char(9)	M	

GRA_ALLOT_POLY feature class field descriptions:

GIS NAME	ALIAS	DATA FORMAT	* REQ'D?	DOMAIN NAME
ALLOT_NO	Allotment Number	Char(5)	M	
ALLOT_NAME	Allotment Name	Char(50)	M	

GIS_ACRES	GIS Acres	Double(16.6)	M	
ADMIN_ST	Administrative State Code	Char(2)	M	DOM_ ADMIN_ST
ADM_OFC_CD	Administrative Office Code	Char(6)	M	
ADM_UNIT_CD	Administrative Unit Code	Char(8)	M	
ST_ALLOT	Managing State Allotment Number	Char(7)	M	
ACTIVE_DT	Allotment Active Date	Date	M	

GRA_HIST_ALLOT_POLY feature class field descriptions:

GIS NAME	ALIAS	DATA FORMAT	* REQ'D?	DOMAIN NAME
ALLOT_NO	Allotment Number	Char(5)	M	
ALLOT_NAME	Allotment Name	Char(50)	M	
GIS_ACRES	GIS Acres	Double(16.6)	M	
ADMIN_ST	Administrative State Code	Char(2)	M	DOM_ ADMIN_ST
ADM_OFC_CD	Administrative Office Code	Char(6)	M	
ADM_UNIT_CD	Administrative Unit Code	Char(8)	M	
ST_ALLOT	Managing State Allotment Number	Char(7)	M	
ACTIVE_DT	Allotment Active Date	Date	M	
INACTIVE_DT	Allotment Inactive Date	Date	M	

5.7.1 Domains Specific to Grazing

No domain values are specific to the Grazing Data Standard.

Domain values are maintained separately from the data standard. This is due to values being more likely to have an addition or change that would not affect the data standard. Those value changes can be made without a revision to the entire standard. Individual states/offices can extend the domain table with additional values as necessary. However, metadata for the additional values must be documented by that office.

Coordinate Source Type Code

The code that identifies the general category for the origin of the location coordinate representing a compilation of the state adopted source codes. The domain contains those values that would most likely be used in the determination of source codes for the data set.

Attribute Domain Assignment: DOM_COORD_SOURCE_TYPE

Default value: UNK

Allowable Codes**:**

COORD_SOURCE_TYPE	Description
MAP	
IMG	Imagery
GPS	GPS
DLG	Digital Line Graph
CFF	Cartographic Feature Files
GCD	Geographic Coordinate Database
DEM	Digital Elevation Model
NHD	National Hydrologic Dataset
SRV	Survey
TRS	Township, Range, Section
LLD	Legal Land Description
GIS	BLM GIS Layer
UNK	Unknown

DRG	Digital Raster Graphics
WBD	Watershed Boundary Dataset
OTH	Other

Coordinate Source Code

The code that identifies a more specific description of the coordinate source. Suggested values appear in the table but the user is free to enter any value they choose. This domain is not intended to be all inclusive but may be used as a starting point for state-level lists of domain values. This list is not intended to be a substitute for the accuracy values that are found in the 'Accuracy Measurement Table'. This is an optional attribute.

Note: This is a suggested list only for this optional attribute. Individual states/offices are free to enter other values if they choose.

COORD_SRC_TYPE	COORD_SRC2	Description
MAP	24K map	USGS 1:24K hard-copy map
	100K map	USGS 1:100K hard-copy map
	misc map	miscellaneous paper maps, maps at varying scales
IMG	1 m doq	1 meter digital ortho quad
	air photo	
	satellite image	
GPS	GPS recreation grade	GPS recreation grade worse than 5 meter accuracy
	GPS resource grade	GPS resource grade 30cm to 5 meter accuracy
	GPS survey grade	GPS survey grade better than 30cm accuracy
DLG	24K dlg	USGS 1:24K digital line graphs
	100K dlg	USGS 1:100K digital line graphs
	250K dlg	USGS 1:250K digital line graphs
CFF		
GCD	GCDB	Geographic Coordinate Database
DEM	30 m dem	30 meter USGS Digital Elevation Model
NHD		
SRV	Cadastral Survey	Cadastral survey description based on bearing and distance from a surveyed start point
UNK	Unknown	Unknown coordinate source
DRG	24K drg	USGS 1:24K digital raster graphics
	100K drg	USGS 1:100K digital raster graphics
	250K drg	USGS 1:250K digital raster graphics
OTH	Other	Other source not listed in these domains

Defining Feature Type Code

The name (code) that identifies the high-level category for the actual physical or mapping characteristics (features) from which the arcs are derived (Appendix A).

Attribute Domain Assignment: DOM_DEF_FEATURE_TYPE

Default value: UNK

Allowable Codes:

DEF_FEATURE	Description	Definition
ER_SLOPE	Erosion Slope Landform	This combines two standard landform classifications. The two were combined to reduce confusion between erosion and slope landform features. The detailed description includes: rim, ridges, toe of slope, etc.
COAST_FLUV	Coastal Fluvial Landform	This combines two standard landform classifications. The two were combined to reduce confusion between coastal and fluvial landforms. The detailed description includes creeks, streams, rivers, shorelines, etc.
OTH_LAND	Other Landform	This includes any other landform, such as Mountain, Glacial, and Volcanic landforms.
VEG	Vegetation	When the boundary is defined by a vegetative transition (ex: wildlife migration route).
CONST_FEAT	Constructed Feature	When the boundary is defined by a constructed feature. The detailed description could include: fences, roads, pipelines, campgrounds etc., along with any offset/buffer description.
ADMIN_BND	Admin Boundary	When the boundary is specifically defined as following another administrative boundary, even if that administrative boundary is then described as following some other defining feature. For example part of an ACEC boundary may follow a planning boundary, and the planning boundary is defined as following a county boundary, and the county boundary is defined as following the midpoint of a river.
PLSS	PLSS	When the boundary is explicitly defined through PLSS.
OTH	Other	When the boundary is not well defined by any of the other codes, ex: OBLIQUE, PT-TO-POINT, etc.
UNK	Unknown	The default entry, no optional codes can be associated with this selection.

Crosswalk table from the old defining feature domain values to the new Defining Feature Type domain values

DEF_FEATURE (Old Version)	DEFINING_FEATURE_TYPE	Definition
RIM	ER_SLOPE	Natural topographic barrier to the movement of livestock.
FENCE	CONST_FEAT	Constructed fence.
LAKE	COAST_FLUV	The shoreline of any manmade or natural standing water.
ROUTE	CONST_FEAT	Road centerlines (using the name of the FAMS Feature Class).
STREAM_RBANK	COAST_FLUV	Downstream right bank of stream, manmade or natural moving water (indicates that the stream is within the downstream left pasture).
STREAM_LBANK	COAST_FLUV	Downstream left bank of stream, manmade or natural moving water (indicates that the stream is within the downstream right pasture).
STREAM_CENTER	COAST_FLUV	Centerline of stream, manmade or natural moving water.
PARCEL	PLSS	Legal line such as ownership or section line.
PT-TO-PT	OTH	Boundary is not a legal or geographic feature.
ROUTE_OFFSET	CONST_FEAT	Boundary is offset from a route.
UNK	UNK	Defining feature unknown.
	ADMIN_BND	
	VEG	
	OTH_LAND	

Defining Feature Code

The code that identifies a more specific description of the feature from which the arcs are derived to create polygon boundaries. This information further describes the physical or mapping feature that makes up the polygon boundary. Suggested values appear in the table but the user is free to enter any value they choose. This domain is not intended to be all inclusive but may be used as a starting point for state-level lists of domain values. This is an optional attribute.

Note: This is a suggested list only for this optional attribute. Individual states/offices are free to enter other values if they choose.

Defining Feature Type Code	Defining Feature Code	Description
ADMIN_BND	ownership	ownership
ADMIN_BND	county	county line
ADMIN_BND	forest	forest boundary
ADMIN_BND	land grant	land grant
ADMIN_BND	military	military boundary
ADMIN_BND	national border	national border
ADMIN_BND	national park	national park boundary
ADMIN_BND	special management area	special management area boundary
ADMIN_BND	right of way edge	right of way edge
ADMIN_BND	right of way centerline	right of way centerline
ADMIN_BND	state line	state line
ADMIN_BND	tract	tract
COAST_FLUV	coast	coastline
COAST_FLUV	river edge	river edge
COAST_FLUV	hydrologic divide	hydrologic divide
COAST_FLUV	Indian trust asset	Indian trust asset boundary
COAST_FLUV	river centerline	river centerline
COAST_FLUV	stream centerline	stream centerline
COAST_FLUV	wash centerline	wash centerline
COAST_FLUV	wash edge	wash edge
CONST_FEAT	aqueduct	aqueduct
CONST_FEAT	camp ground	camp ground
CONST_FEAT	levee	levee
CONST_FEAT	offset	offset from a constructed feature
CONST_FEAT	mine	mine
CONST_FEAT	parking area	parking area
CONST_FEAT	railroad centerline	railroad centerline
CONST_FEAT	road centerline	road centerline
CONST_FEAT	trail non-motorized	trail non-motorized
CONST_FEAT	transmission line centerline	transmission line centerline
CONST_FEAT	pipe line centerline	pipe line centerline
CONST_FEAT	water tank	water tank
CONST_FEAT	road edge	road edge
CONST_FEAT	railroad edge	railroad edge
CONST_FEAT	transmission line edge	transmission line edge
CONST_FEAT	pipe line edge	pipe line edge
ER_SLOPE	contour	elevation contour
ER_SLOPE	canyon	canyon

ER_SLOPE	ridge	ridge
ER_SLOPE	rim of canyon	rim of canyon
OTH	line between peak and contour	line between peak and contour
OTH	mineral survey	mineral survey
OTH	oblique	oblique
OTH	line between mountain peaks	line between mountain peaks
OTH_LAND		
PLSS	plss	plss
UNK	unknown	unknown
VEG		
	trail off highway vehicle	trail off highway vehicle
	survey	cadastral survey
	toe of slope	toe of slope

6 Appendix A

6.1 Citrix User Guide

The Citrix User Guide is a comprehensive manual intended to provide instructions for accessing and working with programs launched from the Citrix environment. The development of the Citrix User Guide is based on examples for the Citrix setup used by the Department of the Interior (DOI), Bureau of Land Management (BLM), Montana State Office (MSO). However, wherever possible, an effort has been made to generalize the user guide's content such that other agencies like the USDA Forest Service (FS) can modify the Citrix User Guide for their own use.

Format of the guide:
This manual provides reference information on recommended procedures for accessing the Citrix environment. Paragraphs proceeded by the following graphical icons provide additional information, tips, important notes, or warnings to the user related to the topic at hand.

 = Note, tip, or for your information (FYI)

 = Important note, warning, show stopper

 = Application or computer resources are in use (be patient)

User guide disclaimer: The functions and procedures defining the usage of Citrix may be revised at any time. Therefore, screen captures and specific instructions in this manual may no longer be current.

6.2 Quick reference for using the MSO BLM's Citrix applications

The following two pages summarize what you need to do in order to access the MSO BLM's Citrix Farm and to use Citrix applications (e.g., ArcMap). For further details, the reader will find references made to specific sections of this user guide.

6.2.1 What do I need to do in order to access Citrix?

1. If you are a new user, your first step is to contact the Help Desk and request that the Citrix program group be installed on your PC.

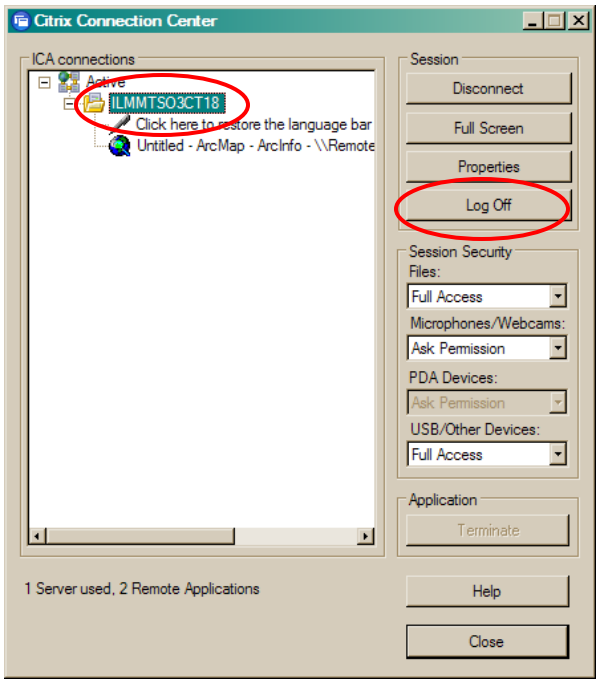
2. Start a Citrix application (e.g., ArcCatalog) to confirm you can successfully connect to Citrix and use the application.

6.2.2 What to do when using a Citrix application

- As soon as you launch a Citrix application (e.g., ArcMap), go to the Windows taskbar, right click on the Citrix Connection Center icon () , and record the name of the Citrix server you are connected to. This way, when you troubleshoot Citrix-connection problems involving the application you launched, you can answer the first question that will be asked you—what is the name of the Citrix server you are connected to?

- Questions regarding an application's use should be directed to an experienced user of the application, and not towards a Citrix administrator.

- How do I end my Citrix session?
  1. Exiting out of ArcCatalog and/or ArcMap will terminate the Citrix connection.
  2. At the end of the day, exit from <u>all</u> your Citrix applications. Note: If you have processes that need to continue overnight, contact the Citrix administrator.
  3. If the Citrix application is no longer responding or fails to close:
     - Open the Citrix Connection Center
     - Select the Server
     - Click Log Off



6.2.3 What Citrix ArcCatalog connections do I need?

Although Citrix ArcCatalog connections vary with the user's needs. The following connections are considered standard:

- X:\ ('\\ilmmtso3db8\user\Workspace') ← *Your network personal workspace*
- P:\GISProjects ('\\ilmmtso3db8\GISProjects') ← State Office/Field Office data and project areas

Avoid connections to root-level directories. Do not use DFS path names for connections. Never ever create connections to your local PC's drives.

6.2.4 Tips on transferring data across the network

The following tips on accessing data across the network:

- A Citrix application should reference data stored at the same network location as the Citrix Farm used to run your application. For example, your map document created using MSO's Citrix ArcMap should be saved to a network-workspace folder at the MSO.

- Always work with your GIS coordinator in transferring data from your office to a network folder. For a file transfer greater than 5 MB, the local GIS coordinator needs to schedule a file-transfer time with the Citrix administrator.

- Do not attempt to drag-and-drop a file generated from a Citrix application over to your Windows Desktop or to a local program running on your PC. *It will not work.*

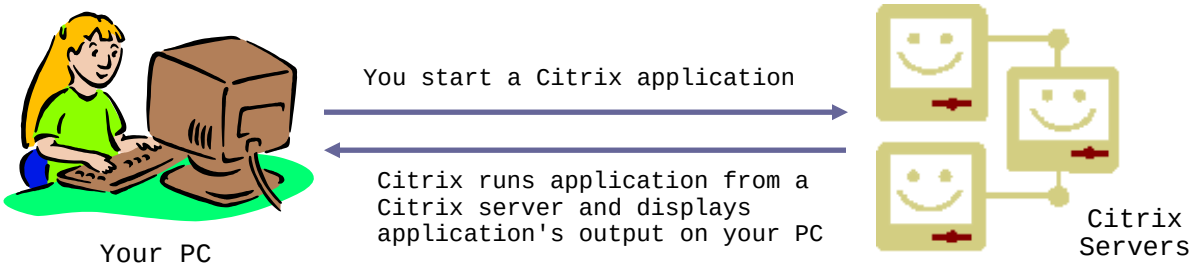
- Compress (or zip) data at the dataset's network location.

6.2.5 Citrix questions and problems

For Citrix-related questions, reference this user guide before consulting with your local GIS coordinator or the Help Desk.

6.3 What are Citrix and the Citrix Farm?

Designed by Citrix Systems, Citrix is a software "platform" that allows Windows applications such as ArcMap to deploy across a network of computers. The applications are stored on centralized Citrix servers collectively called a Citrix Farm (explained further in this section), which may be located hundreds of miles away from your actual location. As illustrated in the next graphic, you start the Citrix application from your personal computer (PC). Although running remotely from a Citrix server, the application is displayed locally on your PC.



For example, an employee located in a BLM office in Missoula wants to edit corporate-level GIS data stored on the MSO BLM's Enterprise (SDE) Geodatabase. A Citrix Farm at the MSO BLM has the latest version of ArcGIS that allows access to the MSO's corporate-level GIS data. Through Citrix, the Missoula employee can remotely run ArcMap as if the program were on the user's local PC and edit the corporate data. Concurrently, users from other BLM offices across the state can also access Citrix and remotely use ArcGIS to access the same corporate data without interfering with the work being done by other Citrix users.

A Citrix application's performance is influenced by the number of Citrix applications already running on a given Citrix server and also by the network activity. Remember, access to a Citrix application is done across a network. With a potential of hundreds of users accessing Citrix, how can a Citrix application be expected to function normally?

When a user connects to Citrix, the user is actually connecting to a network of Citrix servers called the Citrix Farm (a.k.a., server farm). Citrix evaluates the load utilization on each Citrix server (i.e., how many applications are running on each server). When a user connects to the Citrix Farm, a Citrix application such as ArcMap launches from the Citrix server with the lowest load utilization. Connecting to a "farm" of Citrix servers allows the Citrix application to function normally, even when multiple users are running the same application.

FYI: Determining the optimal load utilization is automatic and only occurs on your initial connection to the Citrix Farm. Initial connection to the Citrix Farm happens when you start a Citrix application.

What happens if I run more than one Citrix application at the same time? After determining the initial load utilization, any other Citrix application you start will launch from the same Citrix server. If you run more than four Citrix applications simultaneously, you will notice a decrease in software performance. If you need to use more than four Citrix applications concurrently, contact the Citrix administrator. Running a Citrix application is

not contingent upon knowing the names of the Citrix servers comprising the Citrix Farm. A server's name is "auto located" when Citrix is installed on your PC. If the need arises, a Citrix server's properties can be displayed by accessing the Citrix Connection Center from the PC taskbar.

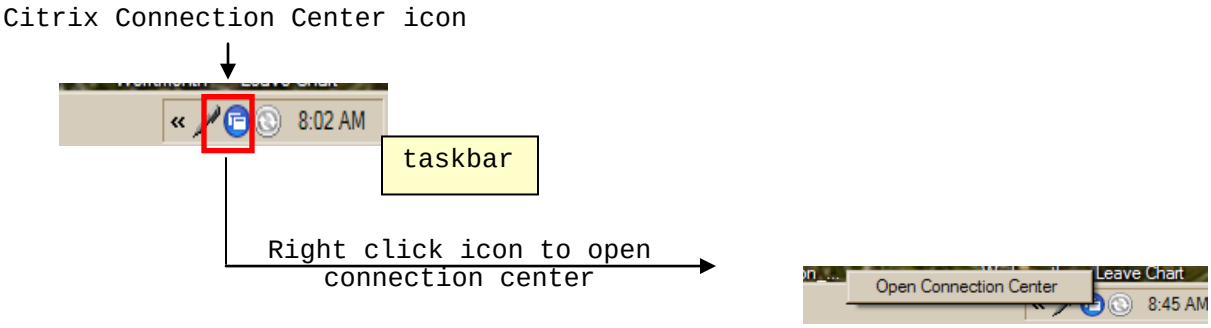
In addition to the Citrix-server load, network load can also affect a Citrix application's speed and response. The greatest impact to the network load occurs during file transfers between computer servers. As the load on the network increases, a Citrix application's performance decreases.

The MSO BLM continuously strives to find a balance between implementing Citrix applications versus the need for purchasing additional computer servers or increasing network capacity. If you believe the performance of your Citrix application has been reduced, please contact the Help Desk and request assistance from a Citrix administrator.

6.4 Citrix

6.4.1 Citrix Applications

As illustrated in the next graphic, a right click on the Citrix Connection Center icon ( ) opens a window to display active Citrix connects. If the PC's operating system is Windows, the icon can be found on the system tray of the taskbar. The taskbar is normally docked at the bottom of the Windows Desktop.



What if I cannot find the Citrix icon on the taskbar? Two primary reasons for which you may not find the Citrix icon on the Windows taskbar include the following: 1) If the Citrix connection is closed (i.e., not running), then the icon is removed from the taskbar. If you cannot find the Citrix program group, then the Citrix program is not installed on your PC. For MSO BLM employees, begin the installation process by contacting your office's Help Desk.

1.5 Accessing files and folders from Citrix

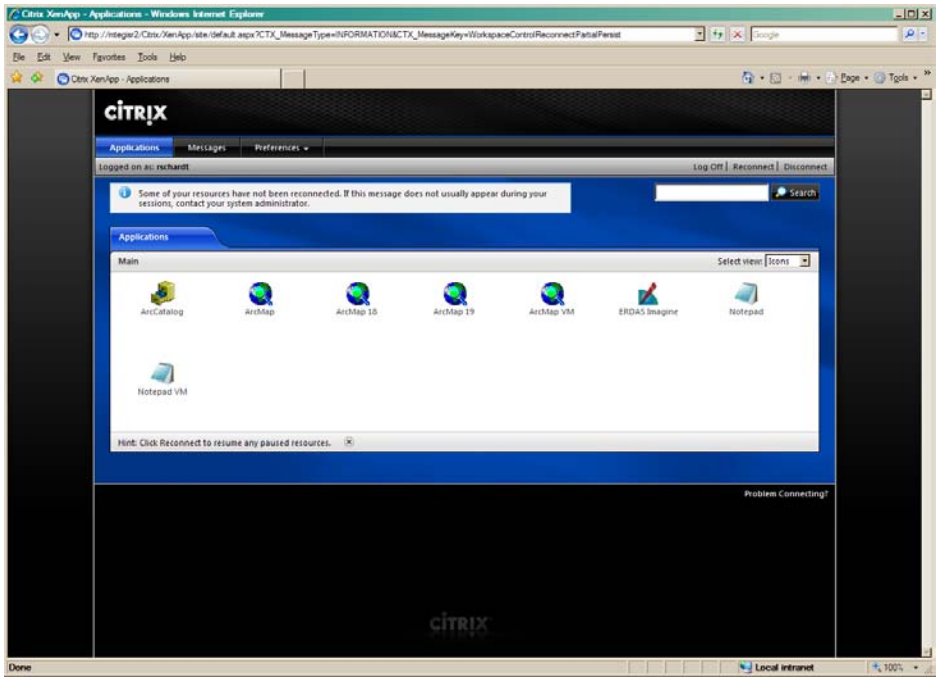
IMPORTANT: Access to Citrix requires a user name and password. The default setting is to use your Windows log on information; otherwise, you will be prompted to enter a user name and password.

Access to Citrix applications depends upon your group-access rights (which are part of your log on profile). For example, a Citrix administrator has access to all Citrix applications; whereas, a GIS user may only have access to applications found under the CITRIX_GIS_X[2] application group.

As illustrated in the next graphic, a GIS user wanting to launch a Citrix-based ArcGIS application such as ArcMap opens Internet Explorer and enters **mtegis** in the address box (this can also be added into the Favorites list).

.

Select the application that you want to run.



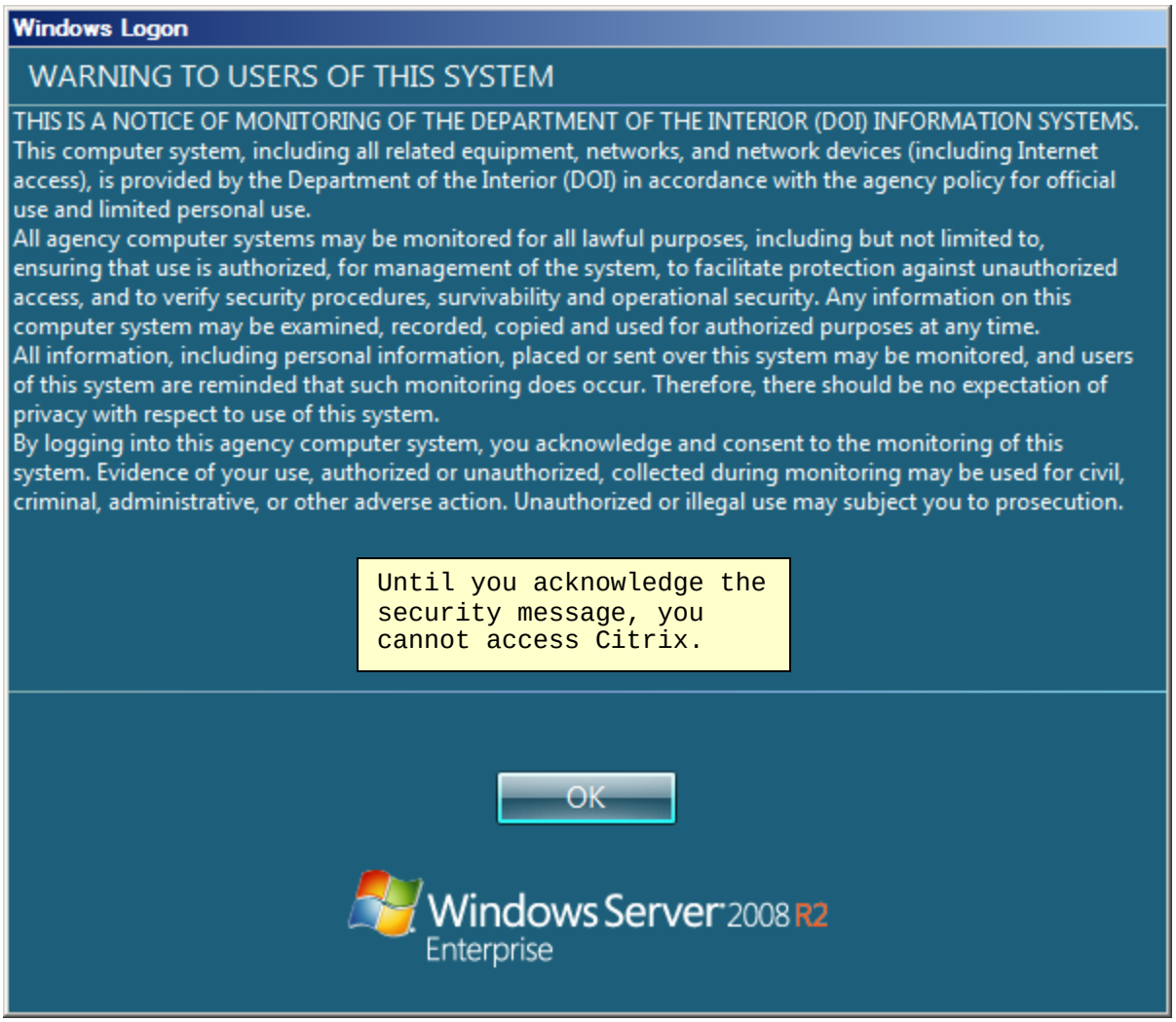
As of this writing, the CITRIX_GIS_92 application group contains the following Citrix applications:

- ArcGIS Desktop (ArcMap, ArcCatalog, ArcReader) version 9.3.1
- ArcInfo Workstation version 9.3
- ArcPad 8.0
- Python

NOTE: The Citrix User Guide does not provide instructions on how to use a particular application. For further assistance, please consult with a specialist for the application of interest. For example, for ArcGIS questions, please talk to your local GIS coordinator.

Depending upon your group-access rights, you may see other Citrix-application groups.

Good to know: As in the next graphic, whenever you begin a Citrix session the BLM's Security Warning window automatically opens. Until you click OK to the warning, you will be unable to access the Citrix application you just launched. If you do not acknowledge the window within a minute's time, the window automatically closes without connecting to Citrix.

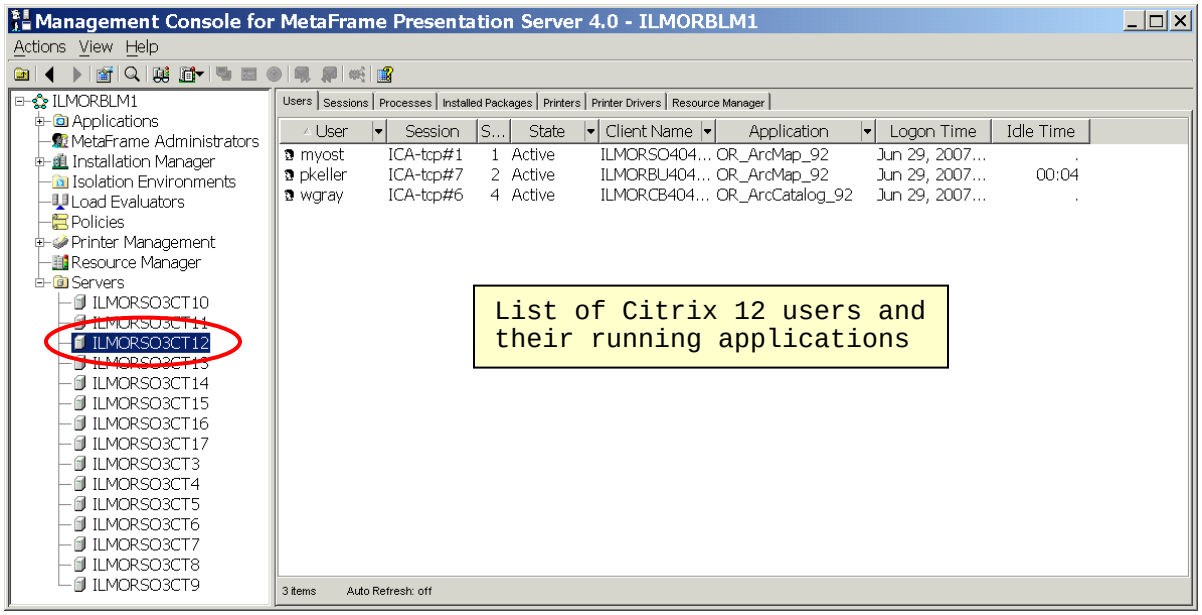


What is actually happening when I use a Citrix application: When you launch a Citrix application, what you see on your PC's monitor is an *image* of the software. The actual *computing* takes place on a Citrix server. The output of the computations is displayed on your monitor.

A good habit to develop whenever you start a Citrix application… Whenever you launch a Citrix application, before using the application, open the Connection Center and record the name of the Citrix server you are connected to. This way, when you troubleshoot Citrix-connection problems involving the application you launched, you can answer the first question that will be asked you—what is the name of the Citrix server you are connected to?

To further reinforce the importance of the previous paragraph, the next graphic is a screen capture of the Citrix Management Console as it is used by a Citrix administrator to manage the Citrix Farm. For any Citrix server, the names of each connected user and the applications they are running are listed. In this example, three users are connected to Citrix 12.

1.5 Accessing files and folders from Citrix



If a Citrix application is no longer responding or fails to close, use the Connection Center to end the application. From Citrix Connection Center window, single click on the listed application to highlight it, then click the Terminate button (or you can right click on the highlighted process → Terminate).

IMPORTANT: If you close, exit, or otherwise terminate a Citrix application with the intention of restarting the same application, wait at least 30 seconds to a minute before launching the Citrix program. Otherwise, the application reopens exactly as you last left it. After closing a Citrix application, do not immediately restart the same application.

Terminating an application does not necessarily end the connection to the Citrix server. If you have other applications running on that server, the connection to the server continues, and the applications remain running. If no other applications are running on the server, then you are disconnected from the Citrix server.

Besides terminating running applications, you can also use the Connection Center to disconnect from a Citrix server. Highlight the server name and click the Disconnect button (or you can right click on the highlighted server → Disconnect).

IMPORTANT: Before disconnecting from a Citrix server, close, exit, or otherwise terminate any running applications. Otherwise, the applications will continue running on the Citrix server and further tie up the server's resources.

What if I am disconnected from a Citrix server while an application is open? If you have not already logged off, try re-launching the same application. If you cannot reconnect to the same Citrix server within 30 seconds, then the server assumes the disconnection is permanent and will automatically terminate any applications you had running on that server.

If you are unable to terminate an application, you have some options.

1. Verify the Citrix application to terminate is open and active (click on the window's title bar). Then, press <Ctrl>+F1 and click the Task Manager button. The Task Manager window for that Citrix server opens. Select and end the Citrix process.
2. From the Connection Center, highlight the server name and click the Logoff button. Your connection to the Citrix server ends and *all* applications running on that server are terminated.
3. Contact the Help Desk and have a Citrix administrator terminate your applications and disconnect you from the Citrix server. The Citrix administrator will need to know the server name to disconnect. Use the Connection Center to identify the server name.

Good to know: For the Citrix Farm located at the MSO BLM, on a nightly basis, *all* running processes on *all* Citrix servers are automatically terminated. Always close, exit, or otherwise terminate your Citrix applications at the close of business day. For exceptions in which a Citrix application must run overnight, please contact a Citrix administrator.

6.5 Accessing files and folders from Citrix

If you are connected to Citrix, then you will also be able to save your Citrix-based work (e.g., ArcMap documents) onto any network folder that you can access.

From Citrix, the average user can navigate through network drives and folders from two applications: ArcCatalog and Internet Explorer. Connecting to network folders with ArcCatalog will be described first. Then, in Section 1.5.4, the use of Citrix Internet Explorer is further explained. Note: Windows Explorer from Citrix is only available to Citrix administrators.

6.5.1 Drive-letter designations

From Citrix, the MSO BLM has provided drive-letter designations allowing you direct access to network folders. As of this writing, the MSO BLM has two drive letters available for Citrix users: "X" and "P."

The "P" drive contains network folders relating to GIS datasets, GIS-related projects (e.g., ARIMS, GeoBOB, WOPR, etc.), GIS-related documentation, while the “X” drive is your network workspace. As a BLM employee, your network workspace folder is always available to you. The name of your network workspace folder is the same as your BLM domain, network user name. For example, if a user logs on as *jsmith*, then the workspace folder name is *jsmith*.

To find your network workspace, scroll down the list of network folders that leads you through “Ilmmtso3db8\Workspace\<your network user name>.” If you are unable to find your workspace folder, contact your local GIS coordinator or the Help Desk.

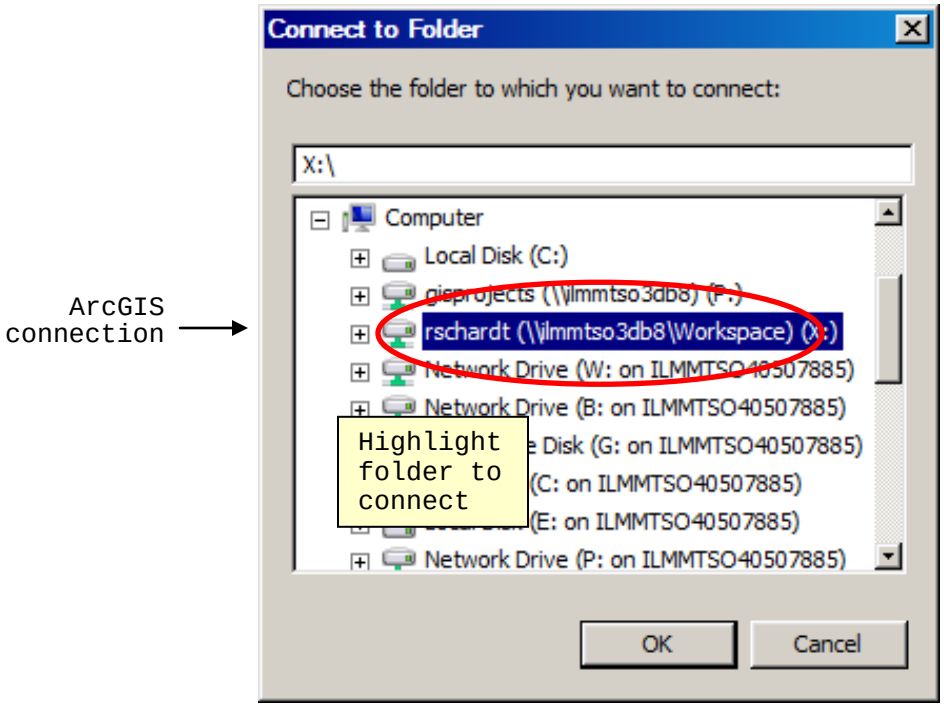
WARNING: Citrix drive-letter designations are not the same drive-letters found on your local PC. From Citrix, the C drive is **NOT** your local-hard drive. From Citrix, the C drive is

a drive letter for one of the Citrix servers on the Citrix Farm. When using Citrix ArcCatalog, consider disconnecting the C drive (right click on the C:\ connection → Disconnect Folder).

What if Citrix ArcCatalog is not listing a drive letter that I need to access? You will need to create a connection to the network path. For details on how to create a network connection in ArcGIS, read the next section.

6.5.2 Creating network connections in ArcGIS

The out-of-the-box (i.e., factory) settings for ArcGIS do not include automatic connections to the "X" and "P" drives. To create network connections ( ) in ArcGIS, open ArcCatalog, and click the Connect To Folder button ( ). As illustrated in the next graphic, the Connect To Folder dialog window opens allowing you to navigate to the folder location you will connect to. Note: If using ArcMap, the Connect To Folder button is available after the Add Data button ( ) is clicked.



Once the connection is created, ArcCatalog will automatically list the pathname every time the application is opened. The new connection is also available whenever ArcMap's Add Data dialog window is accessed.

WARNING: Do not connect to the root level (or top level) of a Citrix drive. A connection at the root level will cause ArcCatalog to search across multiple physical hard drives which will delay your use of ArcCatalog. Highest level connections should start with folders under the "P" or "X" drives.

6.5.3 Transferring data from local drives to network folders

The need may arise where you want to access and transfer data stored on your PC over to your network workspace. Once transferred to the network, the data will be accessible from Citrix-based applications such as ArcMap or ArcCatalog.

What is the best practice for accessing data from Citrix? Whenever possible, Citrix applications should reference data stored at the same network location as the Citrix Farm used to run your application. For example, if you are running ArcMap from the Citrix Farm located at the MSO BLM in Billings, Montana, then any data referenced by the application should also be located at the MSO BLM. Otherwise, the application will have to go across the network to retrieve the data. The farther the data resides from the Citrix server, the longer it will take for the Citrix application to process your requests. The best practice for accessing data from a Citrix application is to store the data on either the "P" drive or on BLM's Enterprise (SDE) Geodatabase.

How do I transfer data from my PC's local drive to my network folder? Unless you are familiar in the use of Distributed File System (DFS) paths, always work with your local GIS coordinator in transferring data from your office to a network folder.

Even if you know how to transfer data using DFS paths, always treat the Citrix environment much like the Internet. When you want to transfer files to and from Citrix, then, the larger the file size, the longer it takes to transfer the file. In addition, the transfer process impacts other users connected to Citrix. Therefore, a guideline to follow, if the file to transfer is greater than 5 MB, have your local GIS coordinator schedule a file-transfer time so as to minimize the impact to other users connected to Citrix.

From a program (e.g., Windows Explorer) running on my local PC, can I access data stored on the network? Yes. However, remotely accessed data should only be managed (i.e., copied, pasted, renamed, deleted, etc.) and not actually opened. For example, from your PC, do not open a PDF file stored remotely. This would cause your local version of Acrobat Reader to display the PDF over the network. Using a local program on network data only further decreases network performance. For further assistance, talk to your GIS coordinator.

From Citrix, can I access data directly from my local hard drive? No.

Can I drag-and-drop a file generated from a Citrix application over to a program running on my local PC? No. Nor can you drag-and-drop a file from your local PC into a Citrix application. The two operating systems work independently from each other.

However, you can drag-and-drop (or copy/paste) between Citrix applications—even if they reside on different Citrix servers (provided the servers belong to the same server farm).

Compress data at the dataset's network location. The transfer of compressed (a.k.a., zipped) data is a good idea. However, it is critical that you first compress the data at the dataset's current location on the network. If you try and compress the file to another network location (e.g., from your network workspace to your local PC), you would simultaneously

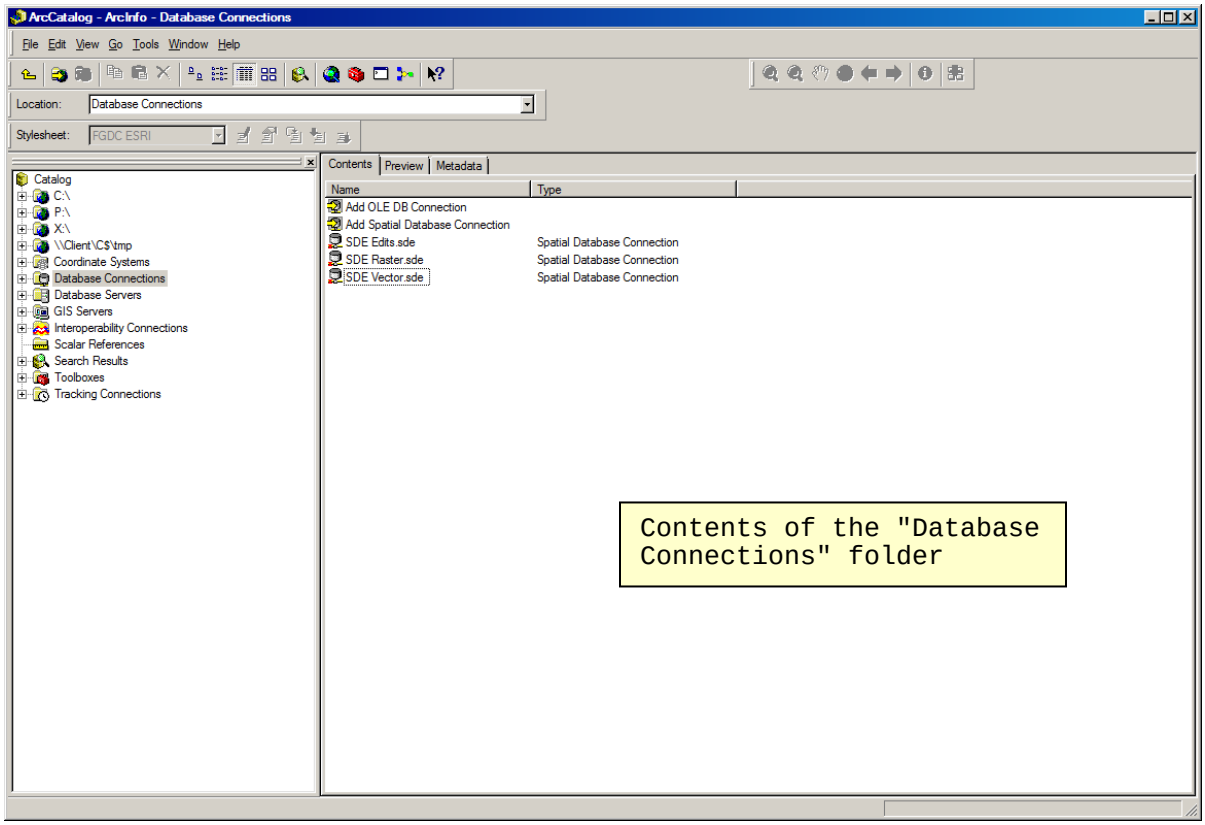
cause the compression program to both zip and transfer data across the network which could potentially halt network activity (and guarantee the wrath of users connected to the network).

6.5.4 How to use Citrix ArcCatalog to connect to the OSO BLM's Enterprise (SDE) Geodatabase

Several BLM-users accessing Citrix will be viewing and/or editing corporate-level GIS data that is stored on the MSO BLM's Enterprise (SDE) Geodatabase.

FYI: The SDE stands for Spatial Database Engine. ArcSDE is an application that works in the background whenever an ArcGIS application such as ArcMap or ArcCatalog is connected to an Enterprise Geodatabase. ArcSDE translates queries or requests made by the ArcGIS application into a syntax that the geodatabase understands. ArcSDE then translates the results of the geodatabase into a syntax that the ArcGIS application understands.

From Citrix, you can use ArcMap or ArcCatalog to access the OSO BLM's corporate-level data. As shown in the next graphic, open Citrix ArcCatalog and display the contents of the Database Connections folder.



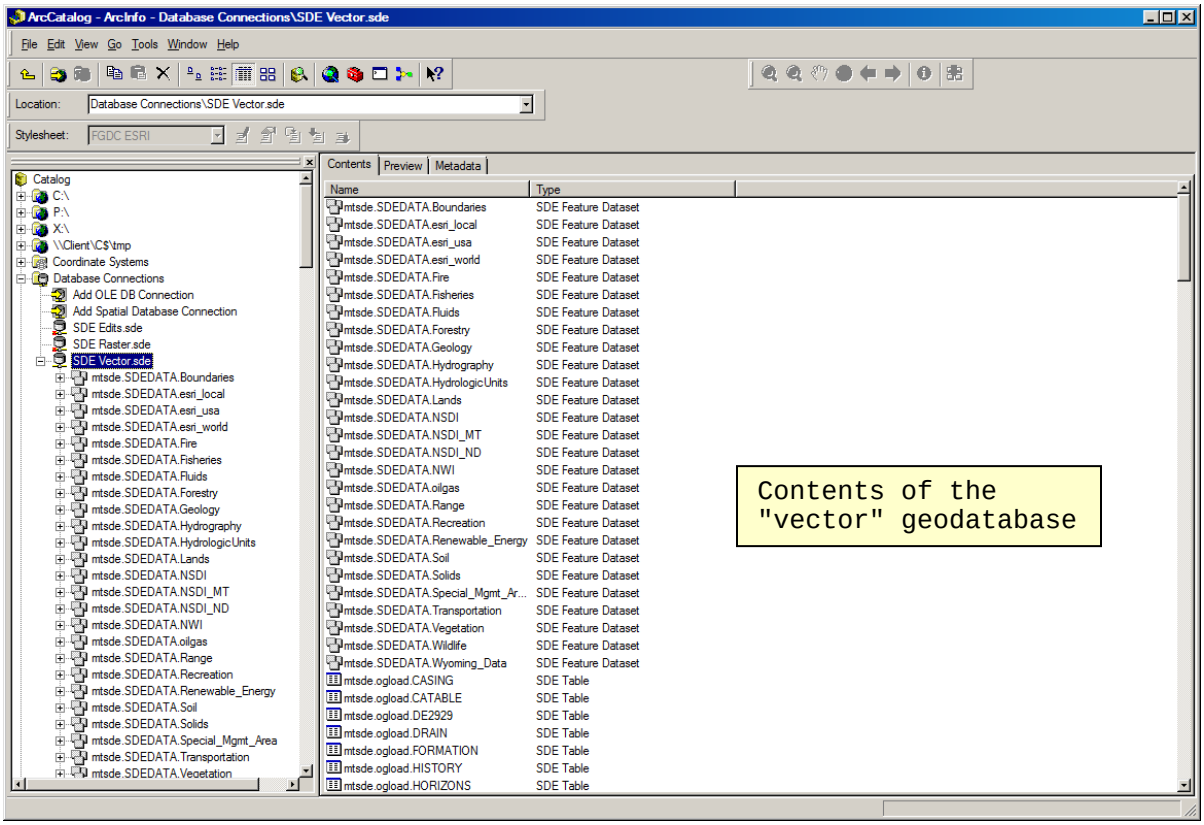
As of this writing, three SDE connections are already part of your Citrix profile: SDE Edits.sde, SDE Raster.sde, and SDE Vector.sde. The SDE Raster.sde is the MSO BLM's geodatabase that stores raster datasets (e.g., cell-based data such as elevation models, digital orthoquads, etc.). SDE Vector.sde is the MSO BLM's geodatabase storing vector datasets (i.e., points, lines, polygons such as found in Ground Transportation, Hydrology, Forest

Operations, Land Use Allocations, etc.), and SDE Edits.sde is the MSO's geodatabase storing the editable sde datasets.

My Citrix ArcCatalog session does <u>not</u> have any SDE Database Connections listed. First, try disconnecting from the Citrix server, wait 30 seconds, then re-open Citrix ArcCatalog. As needed, try a couple more times in disconnecting/reconnecting until you are connected to a different Citrix server. If the SDE Database Connections are still missing, contact the Help Desk and ask for the assistance of a Citrix administrator.

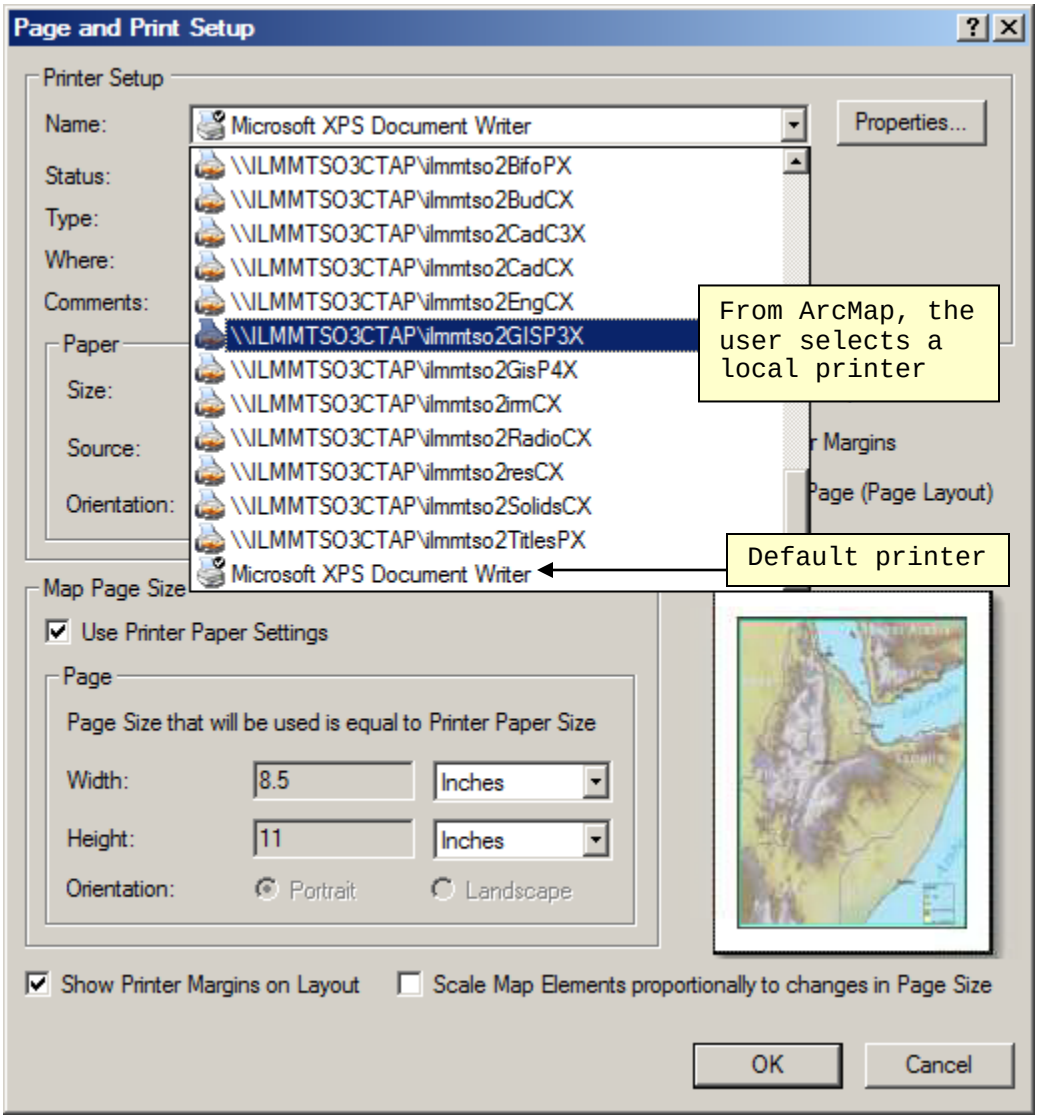
Notice in the previous graphic, that the connection icons ( ) have a tiny red "x" at each icon's lower left. This indicates that ArcCatalog is disconnected from the geodatabases. To reconnect an ArcCatalog database connection, you can either right click on the connection name → Connect, or simply double click on the connection name.

In the next graphic, the contents of the MSO BLM's vector geodatabase are displayed. From Citrix ArcCatalog, you can preview the datasets, or drag-and-drop them into Citrix ArcMap.



6.6 Printing from Citrix

The Citrix Farm maintains a list of your office's printers and plotters. In the next graphic, the user has opened the Citrix ArcMap's Page and Print Setup dialog window, and has selected a printer from a list of printers and plotters available in the local office.



What if I cannot find a printer I need? It is possible you may be connected to a Citrix server whose list of printers is dated and/or improperly configured. If you do not see a list of printers that you are accustomed to seeing from a print-dialog window, make note of the server name and report the problem to the Help Desk. As a possible fix, try exiting the Citrix application and re-connecting to a different Citrix server.

How do I change my default printer used by Citrix applications? In the previous graphic, the default printer is indicated by a white checkmark in a black circle just before the printer's name. In this example, the Citrix user's default printer is called "Microsoft XPS

Document Writer." Because you cannot access the Citrix version of the Windows operating system, you cannot change the default printer name. To change the Citrix-default printer, contact the Help Desk.

Good habit: Your print settings made on one Citrix server may not persist to all Citrix servers on the Citrix Farm. Therefore, before printing from a Citrix application (e.g., ArcMap), always verify the printer's property settings.

6.7 Troubleshooting problems when using Citrix

This section addresses how to resolve common problems users may encounter when using Citrix. For Citrix-related issues not covered in this document, please contact the Help Desk and request assistance from a Citrix administrator.

A good habit to develop whenever you start a Citrix application… Whenever you launch a Citrix application, before using the application, right click the Citrix Connection Center icon ( ). Record the name of the Citrix server you are connected to. This way, when you troubleshoot Citrix-connection problems involving the application you launched, you can answer the first question that will be asked you—what is the name of the Citrix server you are connected to?

6.7.1 Top five problems you could encounter when using Citrix

The following Citrix issues have been encountered frequently among Citrix users:

1) When I open a Citrix application, I no longer see my user-profile settings.

Problem: I have been a Citrix user for several months. During that time, I have made several user-interface customizations to Citrix applications such as ArcMap and ArcCatalog. Today, when I launched the same Citrix applications, all my software settings have been reset to their factory (out-of-the-box) settings and my Internet Explorer favorites are gone.

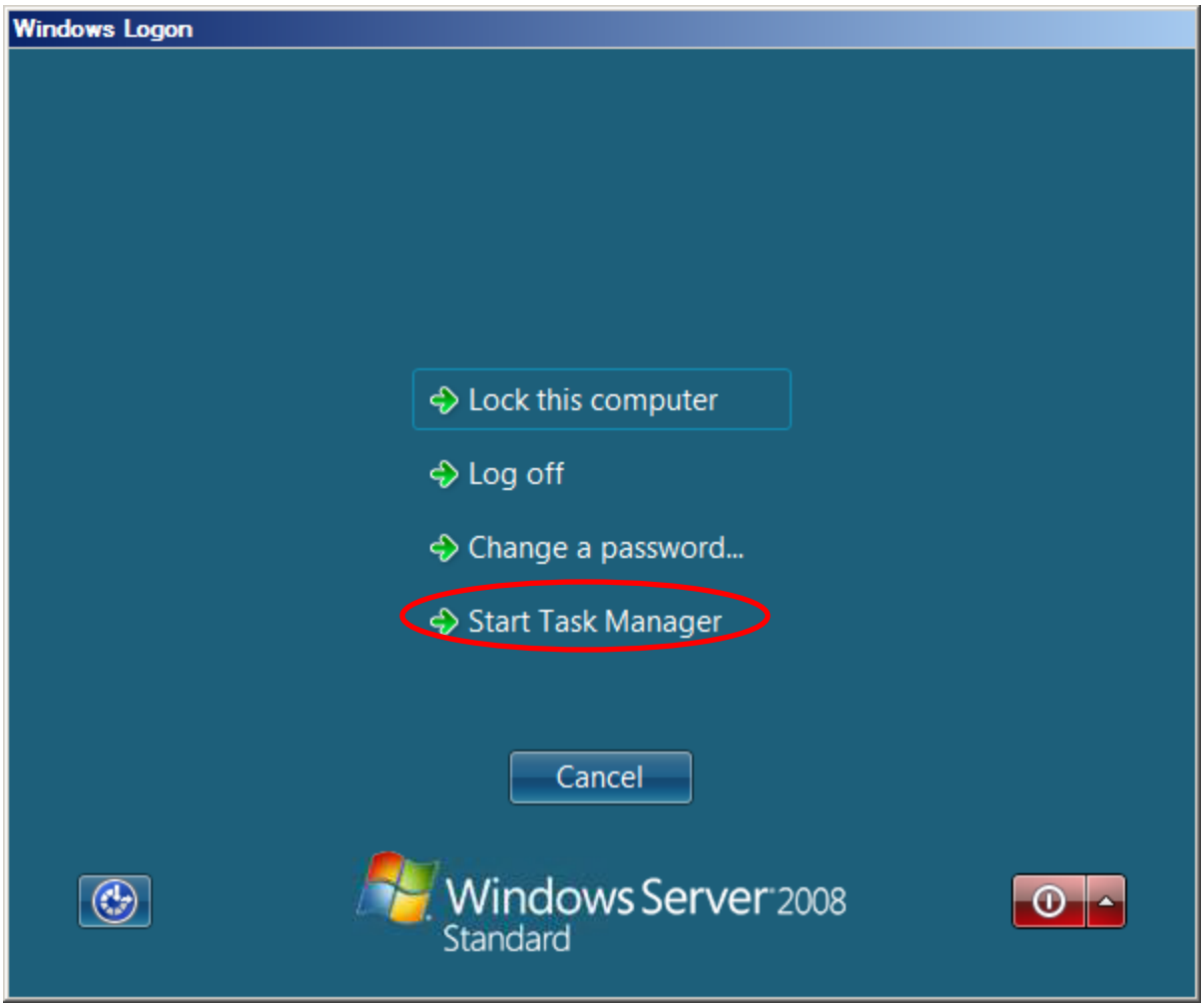
Solution: Do NOT exit, close, or otherwise terminate the Citrix application. Otherwise, your user-profile settings will update to the current (out-of-the box) settings. The Citrix server you are connected to is not finding your roaming log-in profile. Do NOT make any changes to the application. Immediately contact the Help Desk.

2) A Citrix application is no longer responding or fails to close.

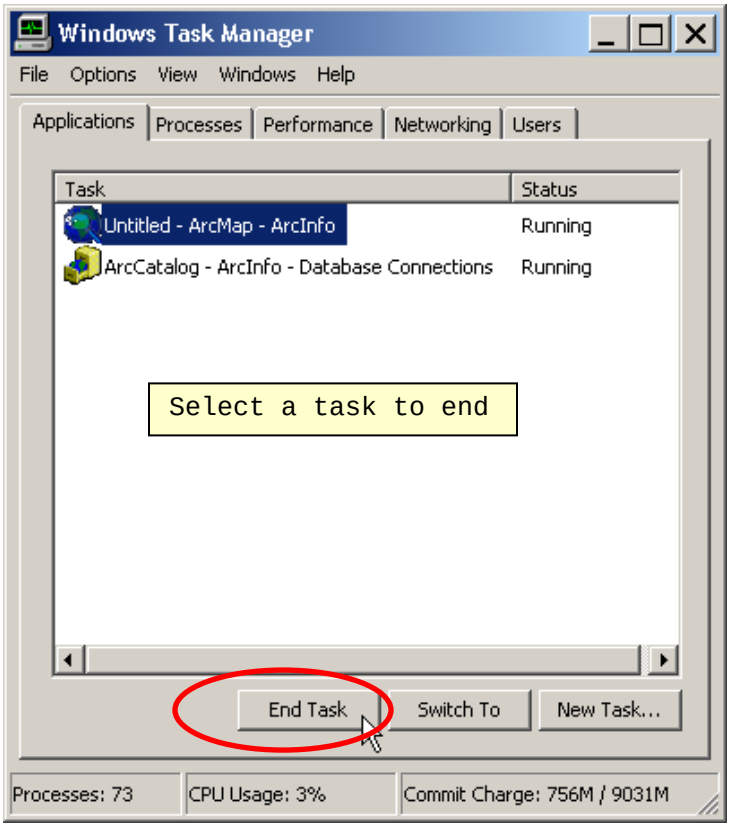
Solution 1: Right click on the Citrix Connection Center. Single click on the listed application to highlight it, then click the Terminate button (or right click on the highlighted process → Terminate).

Solution 2: If the first solution does not work, right click the Server Name → Log off.

Solution 3: You can use the Citrix version of the Windows Task Manager to end an application. To launch the Citrix Task Manager, a Citrix application must be open on your local PC—preferably the unresponsive Citrix application so as to ensure you are opening the Task Manager for the Citrix server running the unresponsive application. With the mouse cursor in the Citrix application, press <Ctrl>+F1. As in the next graphic, the Citrix Windows Security dialog window opens, click on the Start Task Manager.



As in the next graphic, the Citrix version of Windows Task Manager opens. Activate the Applications tab. Only your applications from a single Citrix server are listed. Select the application you wish to terminate (e.g., ArcMap), and click the End Task button.



Solution 4: As a last resort, contact the Help Desk and request that the Citrix administrator terminate your application(s). Note: you will be asked which Citrix server to disconnect.

3) I want to use local data in a Citrix application, but I cannot access my PC's hard drives from the Citrix application.

Solution: Citrix is an independent operating system from the operating system used by your PC. Citrix will not be able to access your PC's hard drives. If you need to transfer files from your PC to the network (e.g., your network worskspace), contact your GIS coordinator to schedule a time for the file transfer.

4) I want to attach a file stored in my network workspace to my e-mail.

Solution: Until an e-mail program becomes available on Citrix, you must transfer the network file to a location on your PC's hard drive. You can use Windows Explorer to copy the file from your network workspace and paste it to a location on your PC's hard drive.

5) I want to print from a Citrix application, and cannot find the printer I need.

Solution: If you do not see a list of printers that you are accustomed to seeing from a print-dialog window, make note of the server name and report the problem to the Help Desk. As a possible fix, try exiting the Citrix application and re-connecting to a different Citrix server.

Tip: Report any Citrix printing issues to the Help Desk.

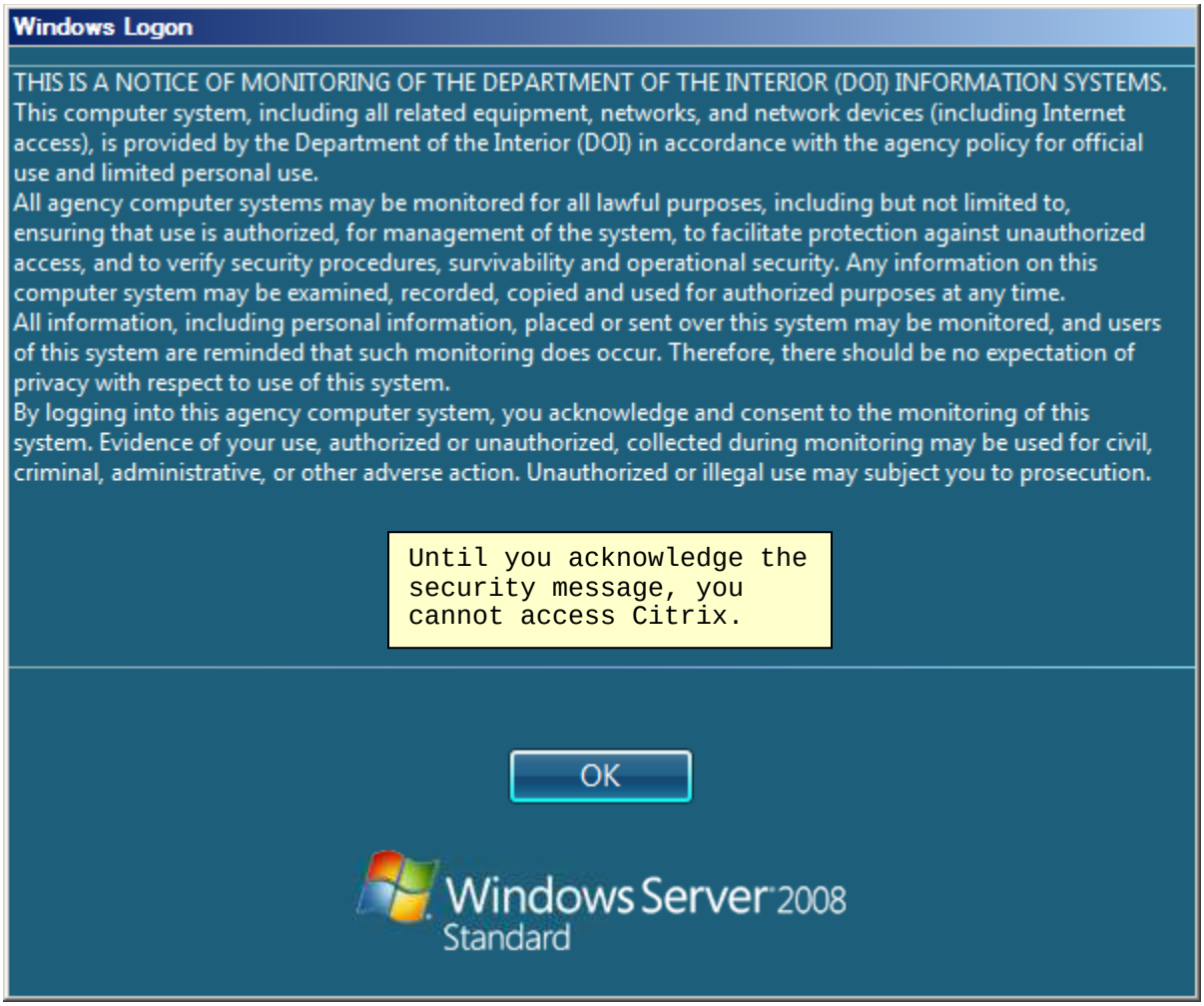
6.7.1.1 Accessing Citrix

1) The Citrix Connection Center icon ( ) does not appear on my PC's system tray.
Solution: The program could be closed and needs to be reopened. If the Citrix program cannot be found, then the software may not be installed on your PC. If this is the case, then, for BLM employees, begin the installation process by contacting your office's GIS coordinator (otherwise, contact the Help Desk).

6.7.1.2 Using a Citrix application

For questions or instructions regarding an application's use, contact a software specialist or the Help Desk. For example, direct any ArcGIS question to your local GIS coordinator.

1) I select and launch a Citrix application, but it does <u>not</u> open.
Solution 1: If you are reconnecting to the Citrix Farm, launching a Citrix application automatically opens the BLM's Security Warning window (see the next graphic). If you do not acknowledge the security message within a minute's time, you will not be given access to Citrix. Note: If other windows are open, the Security Window may be behind them.



Solution 2: Right click on the Citrix Connection Center and Open Connection Center. From the Connection Center window, single click on the listed application to highlight it, then click the Terminate button. From the Connection Center window, single click on the Disconnect button (which disconnects you from the listed Citrix server). From the Citrix Applications window, re-launch the application. If the application does not open, repeat this process of terminate/disconnect one more time. If the application still will not open, contact the Help Desk.

3) I keep connecting to the same Citrix server even though I want to connect to a different Citrix server.

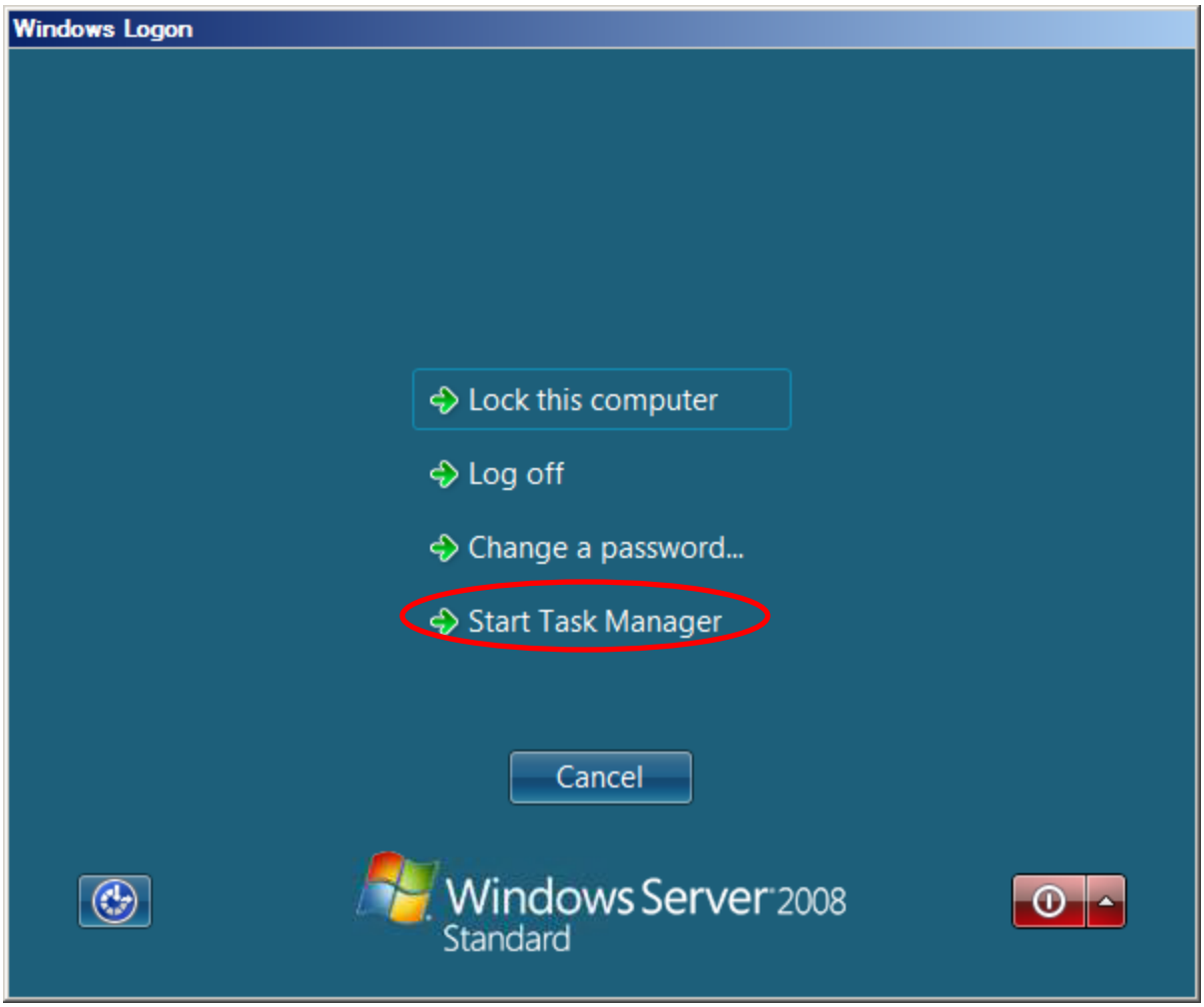
Solution: Right click on the Citrix Connection Center and Open Connection Center. From the Connection Center window, terminate any running applications. Then, click on the Disconnect button (which disconnects you from the listed Citrix server). From the Citrix Applications window, re-launch an application. Open the Connection Center to verify the name of the Citrix server. If you connect to the same server, repeat this process of terminate and disconnect. If you still cannot connect to a different Citrix server, contact the Help Desk and request that the Citrix administrator connect you to another Citrix server. Note: For special situations (e.g., where intensive computer processing is required), you may be able to request a Citrix server for your use only. Discuss the matter with the Citrix administrator.

4) A Citrix application is no longer responding or fails to close.

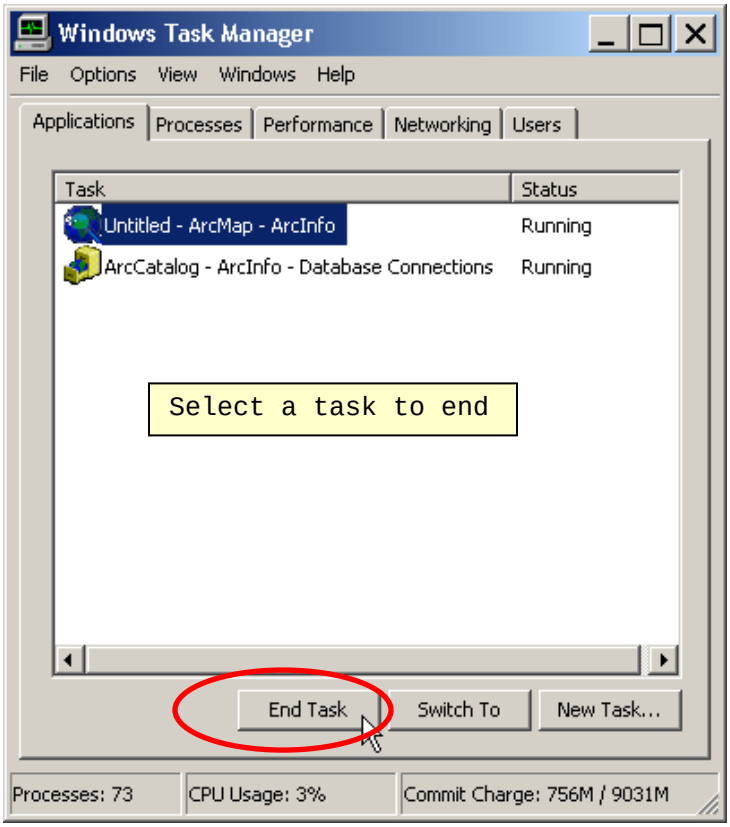
Solution 1: Right click on the Citrix Connection Center and Open Connection Center. From the Connection Center window, single click on the listed application to highlight it, then click the Terminate button (or right click on the highlighted process → Terminate).

Solution 2: If the first solution does not work, right click on the Citrix Connection Center and Open Connection Center → Log off. Note: All of your Citrix applications will be terminated.

Solution 3: You can use the Citrix version of the Windows Task Manager to end an application. To launch the Citrix Task Manager, a Citrix application must be open on your local PC—preferably the unresponsive Citrix application so as to ensure you are opening the Task Manager for the Citrix server running the unresponsive application. With the mouse cursor in the Citrix application, press <Ctrl>+F1. As in the next graphic, the Citrix Windows Security dialog window opens, click on the Start Task Manager.



As in the next graphic, the Citrix version of Windows Task Manager opens. Activate the Applications tab. Only your applications from a single Citrix server are listed. Select the application you wish to terminate (e.g., ArcMap), and click the End Task button.



Solution 4: As a last resort, contact the Help Desk and request that the Citrix administrator terminate your application(s). Note: you will be asked which Citrix server to disconnect.

5) I made some customizations to a Citrix application I was using. After I closed the application and restarted it, my customizations were <u>not</u> there.

Solution: If you close, exit, or otherwise terminate an application with the intention of restarting the same application, <u>allow a minute to pass</u> before launching the program. Otherwise, the application reopens exactly as you last left it. <u>After closing an application, do not immediately restart the same application</u>.

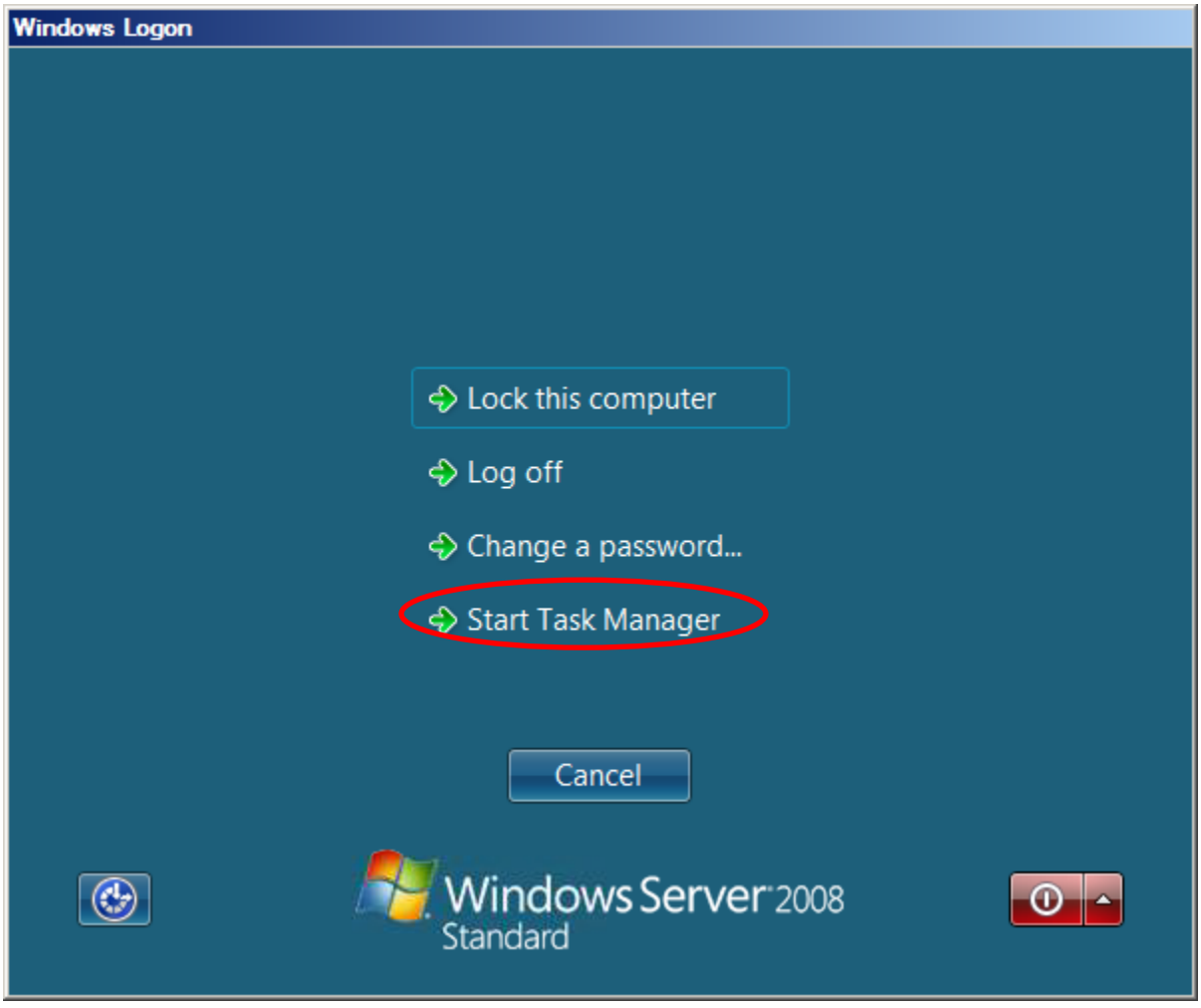
6) When I open a Citrix application, I no longer see my user-profile settings.

Problem: I have been a Citrix user for several months. During that time, I have made several user-interface customizations to Citrix applications such as ArcMap, ArcCatalog, and Internet Explorer. Today, when I launched the same Citrix applications, all my software settings have been reset to their factory (out-of-the-box) settings and my Internet Explorer favorites are gone.

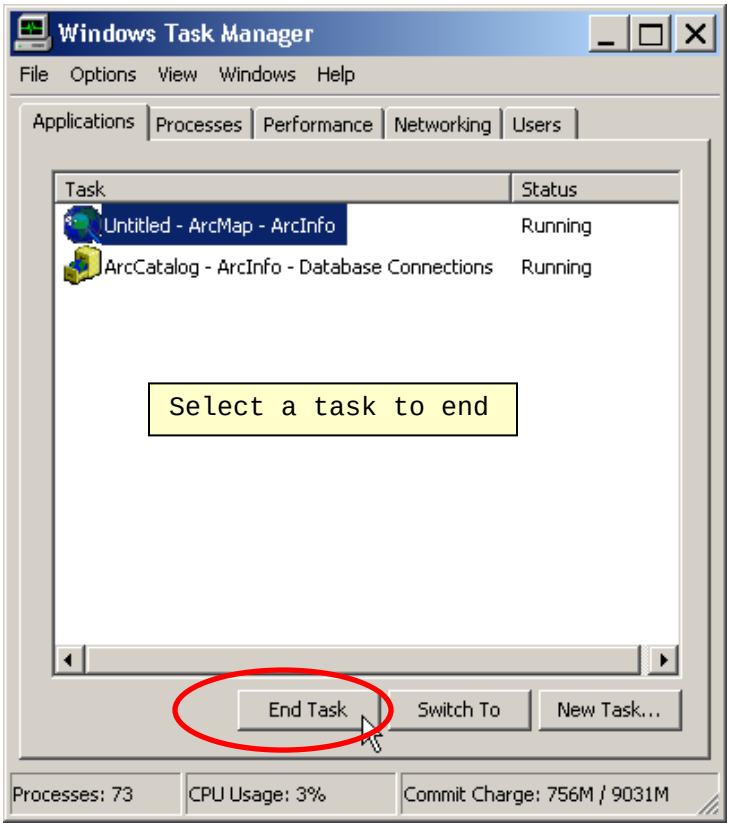
Solution: Do <u>NOT</u> exit, close, or otherwise terminate the Citrix application. Otherwise, your user-profile settings will update to the current (out-of-the box) settings. The Citrix server you are connected to is not finding your roaming log-in profile. Do <u>NOT</u> make any changes to the application. Immediately contact the Help Desk.

7) **I was disconnected from Citrix before closing the Citrix application I was using. In order to save my work, I need to reopen the same Citrix application.**
Solution: If you have already logged off the Citrix server, then your connection you had with the Citrix application is permanently gone. However, sometimes a network connection is lost for only a few seconds. If you can reconnect to the same Citrix server within 30 seconds, then you can access the same Citrix application. Otherwise, after 30 seconds, the Citrix server assumes the disconnection is permanent and will automatically terminate any applications you had running on that Citrix server.

8) **I started an application process (e.g., Model Builder or Python code) and the application is stuck in an infinite loop. I cannot terminate the Citrix application.**
Solution 1: You can use the Citrix version of the Windows Task Manager to end an application. To launch the Citrix Task Manager, a Citrix application must be open on your local PC—preferably the unresponsive Citrix application so as to ensure you are opening the Task Manager for the Citrix server running the unresponsive application. With the mouse cursor in the Citrix application, press <Ctrl>+F1. As in the next graphic, the Citrix Windows Security dialog window opens, click on the Start Task Manager.



As in the next graphic, the Citrix version of Windows Task Manager opens. Activate the Applications tab. Only your applications from a single Citrix server are listed. Select the application you wish to terminate (e.g., ArcMap), and click the End Task button.



Solution 2: If the first solution does not work, contact the Help Desk and have the Citrix administrator terminate the application. Note: you will be asked which Citrix server contains the non-responsive application.

9) I have several lengthy processes that will tie up the resources of the Citrix server I am connected to.

Solution: Contact the Help Desk and request that the Citrix administrator assign you a Citrix server for your use only.

6.7.1.3 Printing from a Citrix application

Your print settings made on one Citrix server may not persist to all Citrix servers on the Citrix Farm. Therefore, before printing from a Citrix application (e.g., ArcMap), always verify the printer's property settings.

***** Report any Citrix printing issues to the Help Desk. *****

1) I want to print from a Citrix application, and I cannot find the printer I need.
Solution: If you do not see a list of printers that you are accustomed to seeing from a print-dialog window, make note of the server name and report the problem to the Help Desk. As a possible fix, try exiting the Citrix application and re-connecting to a different Citrix server.

2) How do I change the default printer used by Citrix applications?
Solution: Because you cannot access the Citrix version of the Windows operating system, you cannot change the default printer name; therefore, you must contact the Help Desk.

6.7.1.4 Your network connection, network drive letters, and network workspace

1) My Citrix application is opening and/or running slower than normal.
Solution 1: If you are reconnecting to the Citrix Farm, then the Citrix application will not open until your connection properties are verified and you have acknowledged the BLM's Security Warning window. Subsequent launchings of a Citrix application will be faster.
Solution 2: If more than 10 Citrix users are connected to the same Citrix server, and they are all using the server's resources (e.g., editing, querying, processing, etc.), your Citrix application will run slower than normal. Contact the Help Desk and request that you connect to a different Citrix server whose load utilization is the lowest.
Solution 3: If large amounts of data (e.g., > 5 MB) is being read from or written to hard drives on the same Citrix server you are connected to, then your Citrix applications will run slower. Contact the Help Desk and request that you connect to a different Citrix server. If you are the user transferring the large datasets, contact the Help Desk and request a data-transfer time when Citrix Farm usage is minimal. Note: For the second and third solutions, you may be able to request access to a Citrix server for your use only.
Solution 4: If network users are simultaneously transferring data on the network (e.g., downloading PDF files), then the more network activity, the slower the Citrix applications will run. There is little you can do until there is a reduction in network activity.

2) How do I find out if the network is down?
Solution: If you have successfully logged on to your PC, then the network is up and running. Occasionally, you may notice a pop-up window on your PC's Desktop indicating that you are "working off-line." When this happens, the network is down.

3) How do I find out if the Citrix Farm is down?
Solution: Try reconnecting; otherwise, contact the Help Desk.

4) Launching Citrix ArcCatalog takes longer than it should.
Solution 1: Is Citrix ArcCatalog the first application you are launching since you connected to Citrix? Be patient. Even from your local PC, the first time launching of ArcCatalog is slower than usual as the PC and software verify connection properties and current licensing.
Solution 2: Are any of your ArcCatalog connections to the root (i.e., top) level of a drive letter or to a DFS path? Right click on any root-level Catalog connection or DFS path, and choose Disconnect. Citrix ArcCatalog connections should only be to network drive letters.

Solution 3: As the number of Catalog connections increases, so does the initial start-up of ArcCatalog as the application verifies each connection. Use Catalog connections sparingly; disconnect Catalog connections you use infrequently or not at all.
Solution 4: Unless needed for your work, disconnect any Catalog connection that accesses remote servers.
IMPORTANT: Do not use Citrix ArcCatalog to connect to any of your local PC's hard drives, nor should you connect to any DFS paths.

5) My Citrix application (e.g., ArcCatalog or Internet Explorer) is not listing the network drive letters (e.g., "P" or "X") that I need to access.
Solution: If you are using either Citrix ArcMap or Citrix ArcCatalog, you need to create a connection to the drive letter.

6) From Citrix, I cannot access my network workspace.
Solution: Your network workspace can be found under X:\workspace\<your network user name>. Note: If your "X" drive is empty of files and folders, it is possible that the network hard drive is down. Contact the Help Desk.

7) From Citrix, I cannot access my PC's hard drives.
Solution: Citrix is an independent operating system from the operating system used by your local PC. Citrix will not be able to access your PC's hard drives. If you need to transfer files from your PC to the network (e.g., your network workspace), contact your GIS coordinator to schedule a time for the file transfer.

8) How do I create a new folder in my network workspace?
Solution: To create a new folder in your network workspace, you can use either Citrix ArcCatalog or Citrix Windows Explorer.

9) I want to attach a file stored in my network workspace to my e-mail.
Solution: Until an e-mail program becomes available on Citrix, you must transfer the network file to a location on your PC's hard drive or contact your GIS coordinator for further assistance.

6.7.1.5 Accessing data through an SDE connection

1) My Citrix ArcCatalog session does not have any SDE Database Connections listed.
Solution: First, try disconnecting from the Citrix server, wait at least 30 seconds to a minute, then re-open Citrix ArcCatalog. If unsuccessful, repeat two more times until you are connected to a different Citrix server. If the SDE Database Connections are still missing, contact the Help Desk and ask for the assistance of a Citrix administrator.