

Mobile checklist b: configure replication	3
Part 1: Configuring SDE and the backdrop database.....	3
Step 1: Prepare the enterprise SDE geodatabase	3
Step 2: Create the InitialExtract version	5
Step 3: Create the Backdrop geodatabase	7
Part 2: Configuring the replication server.....	12
Step 1: Set server properties	12
Step 2: Set replica properties	14
Step 3: Run ArcFM geodatabase replication server.....	18
Step 4: Test replication	18
Part 3: Configuring the web server	21
Step 1: Complete the IIS installation	21
Step 2: Configure the IIS Application Pool	24
Step 3: Configure the Virtual Directory.....	27
Step 4: Add MIME types to IIS	29
Step 5: Set web server properties in the ArcFM Geodatabase Replication Administrator	30
Step 6: Test the web server configuration.....	33
Part 4: Configuring client-side replication.....	34
Step 1: Create the field unit base path	34
Step 2: Set field unit properties in the ArcFM Geodatabase Replication Administrator	34
Step 3: Test the field unit configuration.....	36
Part 5: Configuring the login database.....	37
Step 1: Prepare the database for use	37
Step 2: Change the data source for stored displays.....	39
Step 3: Test the login database.....	45
Part 6: Additional tasks	48
Checklist end.....	48

MOBILE CHECKLIST B: CONFIGURE REPLICATION

IMPORTANT: Before beginning the Mobile configuration process, complete all items listed in *Mobile Checklist A: Preparation*.

In these steps, the Enterprise Server (file hosting), Replication Server, and Web Server are distinguished. If you are working on an ideal setup, where all three servers are actually the same machine, then apply *all* instructions given for any of the three servers to your unified server.

PART 1: CONFIGURING SDE AND THE BACKDROP DATABASE

STEP 1: PREPARE THE ENTERPRISE SDE GEODATABASE

For an SDE geodatabase to act as the final authority on all data involved in a Mobile implementation, the SDE geodatabase must first be compatible with the version of ArcFM currently installed. The tables and fields within the SDE geodatabase should be assigned the necessary ArcFM model names before any other Mobile databases are created.

- On the Enterprise Client Configuration Machine, run **Start > Programs > ArcGIS > ArcCatalog**.
- In the ArcCatalog tree on the left, expand **Database Connections**.
- Double-click **Add Spatial Database Connection** and enter all connection information.
- Uncheck **Save the transactional version name with the connection file**.

The screenshot shows the 'Spatial Database Connection Properties' dialog box. It has a title bar with a question mark and a close button. The fields are: Server: 'vm-mobileed', Service: '5151', Database: 'sde'. Below these is a note '(If supported by your DBMS)'. The 'Account' section has two radio buttons: 'Database authentication' (selected) and 'Operating system authentication'. Under 'Database authentication', there are fields for Username: 'sde' and Password: 'xxxx', with a checked box for 'Save username and password'. The 'Connection details' section has a text box with 'sde.DEFAULT' and a 'Change...' button. At the bottom, there is an unchecked checkbox for 'Save the transactional version name with the connection file.' and buttons for 'Test Connection', 'OK', and 'Cancel'.

etc

The simplest arrangement is for SDE to own the **Sync** version and the **InitialExtract** version. However, any user may own the Initial Extract version as long as the Replication Server is given the correct user name and password to access it.

etc

Depending on the version of ArcFM and the permissions granted to user sde, you may need to run Create/Update ArcFM Solution System Tables and Upgrade ArcFM Solution Database as user sde, then again as user ArcFM. See the version-specific "What's New" section of Configuring the ArcFM Solution help for details.

Unchecking the option to save the transaction means that every time you connect to the enterprise SDE geodatabase, you will be prompted to choose a version. Choosing the correct version each time is essential to a successful Mobile implementation. At key moments, connecting to the wrong version could create problems significant enough to require redoing much work. For example, when copying data into the new Backdrop database, it is essential to connect to the InitialExtract version, not the Sync version.

- Verify that the version is the **Sync** version (typically sde.DEFAULT).
- Click **[OK]**.

This connection will be referred to as the *entSDEgdb* connection for the remainder of this checklist.

Even if the enterprise SDE geodatabase is up-to-date, running Upgrade ArcFM Solution will not harm the database, but will ensure that it is compatible with the currently installed version of ArcFM.

- Right-click the **entSDEgdb** connection and choose **Upgrade ArcFM Solution Database**.
- When the **Upgrade ArcFM Solution Database** prompt appears, click **[Yes]**.

Next you will update the MM system tables. The Create/Update ArcFM Solution System tables command will not alter any data in the MM tables, but will ensure that the tables have the correct structure.

- Right-click the **entSDEgdb** connection and choose **Create/Update ArcFM Solution System Tables**.
- When prompted to choose a version, choose the **Sync** version.
- Assign the model name **MM ENTERPRISE** to the enterprise SDE geodatabase.



Because the ArcGIS Utility Network Analyst extension is not available in ArcGIS Engine, Telvent created its own tracing support extension for use in ArcFM Viewer for ArcGIS Engine. This code relies on these model names. When implementing Mobile ArcFM or Mobile Designer, you do not need to assign the network edge model names because ArcFM and Designer use ArcGIS Desktop (ArcMap) instead of ArcGIS Engine.

Implementation-Specific Steps
<p>Applies to: All ArcFM Viewer-based implementations View-Only, Basic Redliner, Advanced Redliner, Inspector</p>
<ul style="list-style-type: none"> <input type="checkbox"/> To each electric edge feature class (PriOHElectricLineSegment, Bus Bar, SecondaryUGElectricLineSegment, etc.) assign the ELECTRICNETWORKEDGE model name. <input type="checkbox"/> To each gas edge feature class (DistributionMain, etc.) assign the GASNETWORKEDGE model name. <input type="checkbox"/> To each water edge feature class (WDistributionMain, etc.) assign the WATERNETWORKEDGE model name.

STEP 2: CREATE THE INITIAL EXTRACT VERSION

The InitialExtract version marks a key moment in the life of the enterprise SDE geodatabase. All edits made to the Sync version before the InitialExtract version is created will be included in the Backdrop geodatabase. All edits made to the Sync version after the InitialExtract version is created will not be included in the Backdrop geodatabase. These later edits will be added to the Backdrop geodatabase through replication after the Backdrop has been moved to the Field Unit.

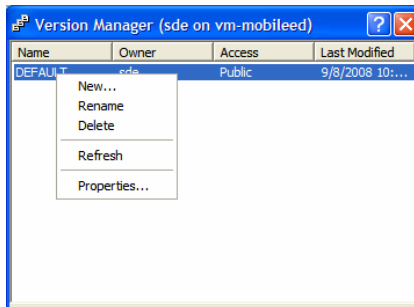


The sync version (normally DEFAULT) must be the parent of the InitialExtract version. The version you right-click over before choosing New will be the parent of the new version.

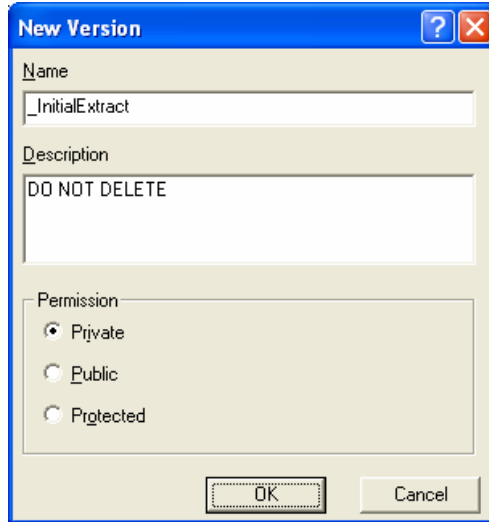
- Right-click the **entSDEgdb** connection and choose **Versions**.
- In the Version Manager window, right-click over **DEFAULT** and choose **New**.



A version name that begins with an underscore will appear toward the top of any forward-sorted version list. If you do choose to start the version name with an underscore, remember to include that underscore in every property field you encounter that requires the Initial Extract Version name.



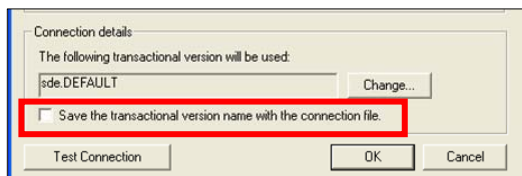
- For **Name** enter **_InitialExtract**
- For **Description** type **Do not delete**
- Set **Permission** to **Private**.



- Click **[OK]**.
- Close the **Version Manager** window.

The InitialExtract version should be used only at the proper times during replication configuration and initialization. To double-check that InitialExtract will not be the default connection version you will revisit the enterprise SDE geodatabase connection properties.

- Right-click the **entSDEgdb** connection and choose **Connection Properties**.
- Verify that **Save the transactional version name with the connection file** is **NOT** checked.



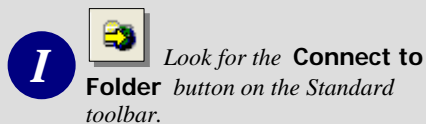
- Click **[OK]**.

etc

After Mobile is running successfully, you can delete the **InitialExtract** version. However, if this version is deleted before the first replication server (Replica Build) process runs, you will have to redo much of your configuration work, including creating a new Backdrop geodatabase.

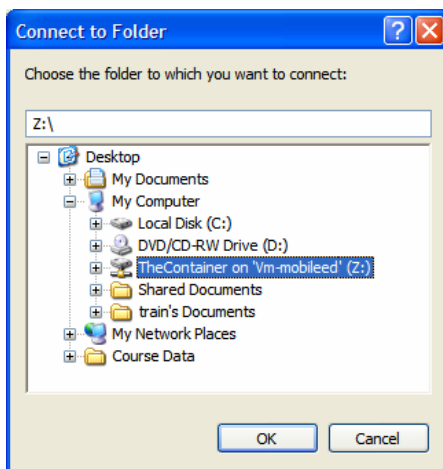
STEP 3: CREATE THE BACKDROP GEODATABASE

You will create the Backdrop on the Enterprise Server, from which it will be copied during the first replication client (Update Request) process run on each Field Unit.

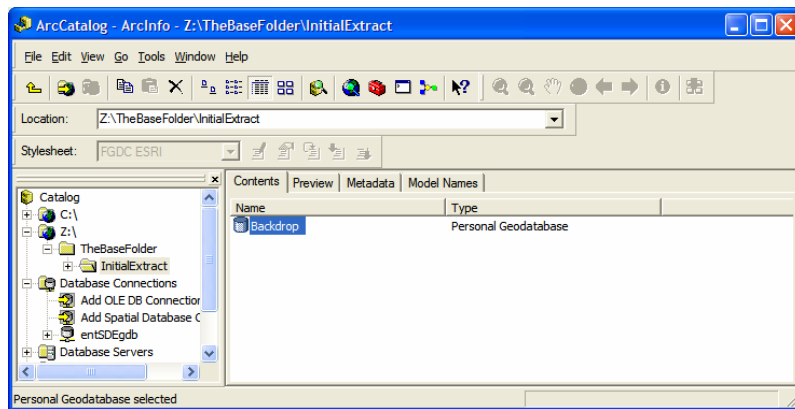


Optional: If implementing Redliner or Inspector, and intending for field users to have the option of saving redlines (graphics and ink) in an ArcFM Annotation Feature Class, this class must be in a separate dataset of its own, and must be included in the Backdrop geodatabase. If there are multiple ArcFM Annotation Feature Classes, they can all be in the same dataset.

- Click the **Connect to Folder** button and create a connection to the Enterprise Server base path. In these steps, it is assumed that the Enterprise Server base path will be accessible from a mapped drive **Z:**.



- Click **[OK]**.
- Expand **Z:** and **TheBaseFolder**.
- Right-click **InitialExtract** and choose **New > Personal Geodatabase** or **File Geodatabase**.
- Name the new geodatabase **Backdrop**



tip

Do not open the Connection Properties in order to check whether you are connected to Initial Extract. Because we are keeping **Save the transactional version name with the connection file unchecked**, the Connection Properties will always revert to **DEFAULT** upon opening.

- Right-click the **entSDEgdb** connection and choose **Disconnect**.
- Right-click the **entSDEgdb** connection and choose **Connect**.
- When prompted to specify a transactional version, choose **sde._InitialExtract**.

Be very careful to choose the InitialExtract version! InitialExtract marks a moment in time shortly before the creation of the Backdrop geodatabase. After the Backdrop is in place on the Field Unit, any edits made to the sync version after the InitialExtract version was created can then be applied to the Backdrop database, bringing it up to date again. However, if the Backdrop is created from some other version, important edits might be missed in the first update, and will never reach the field users.

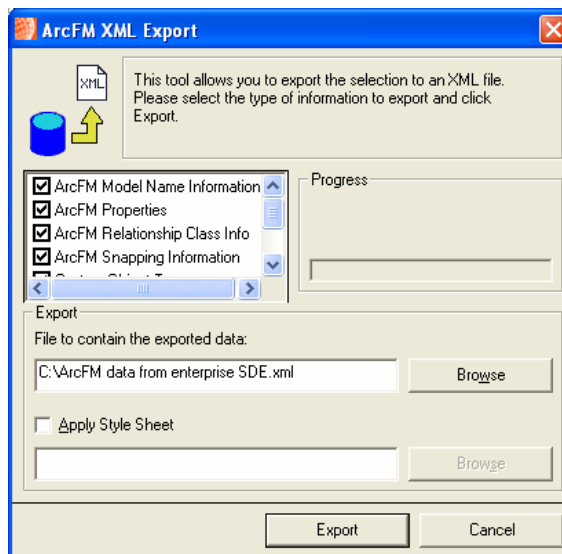
- Click **[OK]**.
- Copy the desired datasets and feature classes from the **entSDEgdb** connection into **Backdrop** using either copy and paste or a schema and extract template. Telvent recommends copy and paste.
- Right-click **Backdrop** and choose **Create/Update ArcFM Solution System Tables**.
- Right-click **Backdrop** and choose **Upgrade ArcFM Solution Database**.

tip

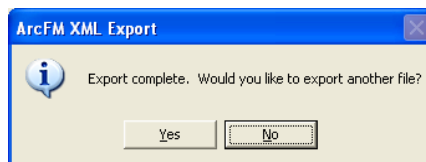
Most Servers and Field Units will not have ArcGIS Desktop software installed. Therefore, any operations requiring ArcCatalog will be done by running ArcCatalog on the Enterprise Client and then opening a connection within ArcCatalog to the Server or Field Unit base path.

Next you will copy critical ArcFM properties (model names, snapping settings, etc.) from the enterprise SDE geodatabase into the Backdrop.mdb geodatabase.

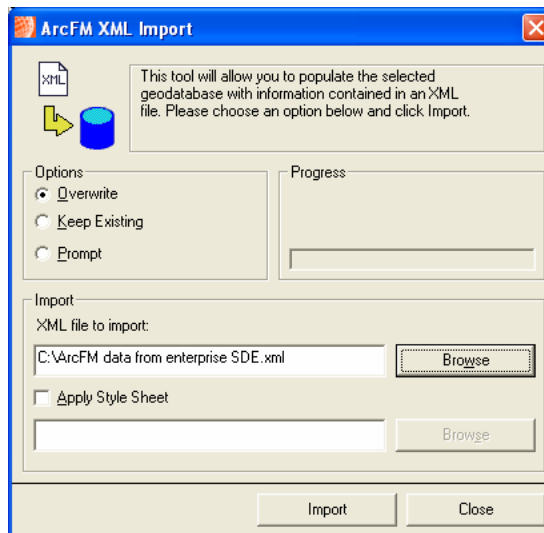
- Right-click the **entSDEgdb** connection and choose **ArcFM XML Export**.
- Connect to the **Sync** version if prompted.
- When the **ArcFM XML Export** window opens, check all options.
- Choose a convenient location for the file.



- Click [**Export**].
- If prompted to export another file, choose [**No**].



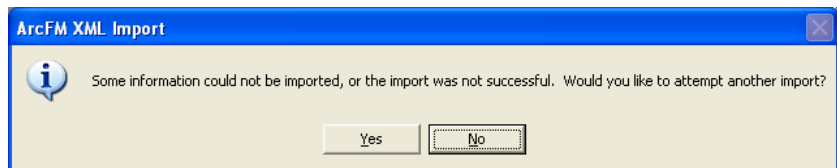
- Right-click **Backdrop.mdb** and choose **ArcFM XML Import**.



- Choose **Overwrite**.
- Browse to the file you just exported.
- Click [**Import**].

You may choose to see a list of information that was not imported. Since the Backdrop database contains fewer tables than the enterprise SDE geodatabase, many of the enterprise properties will not apply to the Backdrop.mdb.

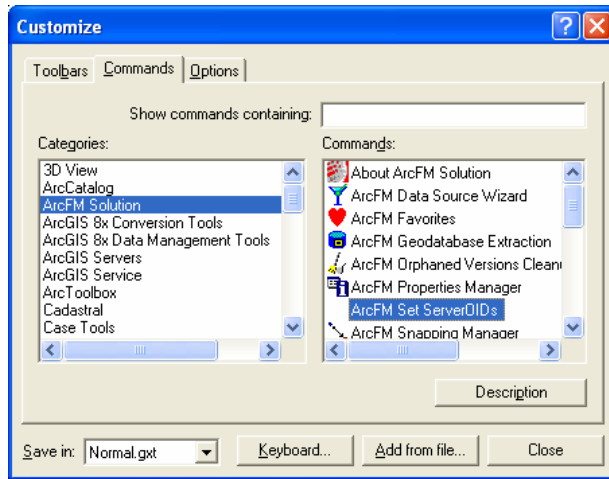
- If prompted to import again, choose [**No**].



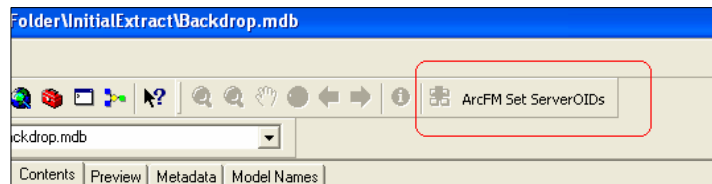
Next you will add the Set ServerOIDs command to the ArcCatalog interface and run it. If you used the schema and extract template method to populate the Backdrop database, you do not need to run Set ServerOIDs.

- From the **Tools** menu, choose **Customize**.
- In the **Customize** dialog, choose the **Commands** tab.

- In the **Categories** column on the left, choose **ArcFM Solution**.



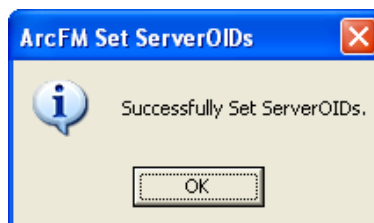
- From the **Commands** column on the right, click and drag **ArcFM Set ServerOIDs** onto any toolbar.



- Close the **Customize** dialog.
- In the ArcCatalog tree, select **Backdrop.mdb**.
- Click the new **ArcFM Set Server OIDs** button.
- When the **Successfully Set ServerOIDs** message appears, click [**OK**].



This step may take 30 minutes to several hours.

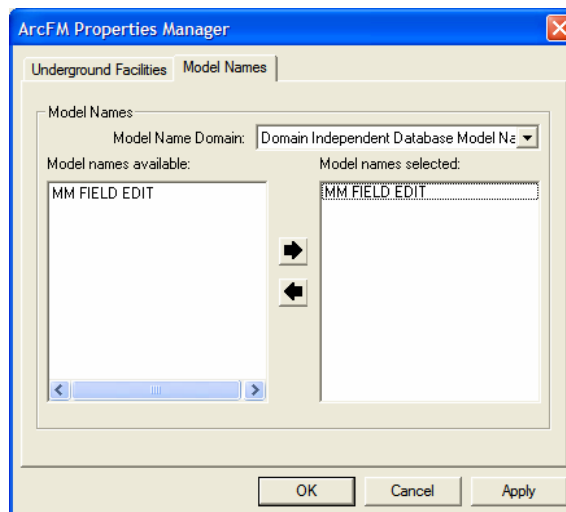


ArcFM relies on model name assignments to determine what roles each database, table, and field will play in the GIS. The MM FIELD EDIT database model name indicates that a database will act as the backdrop.

- Right-click the **Backdrop** database and choose **ArcFM Properties Manager**.
- Choose the **Model Names** tab.
- Assign the **MM FIELD EDIT** model name to the **Backdrop** database. If any other model names are assigned to this database, unassign them.

tip

The **ArcFM Properties Manager** will be disabled until *Create/Update ArcFM Solution System Tables and Upgrade ArcFM Solution Database* have been run on the database.



- Click [**OK**].

PART 2: CONFIGURING THE REPLICATION SERVER

STEP 1: SET SERVER PROPERTIES

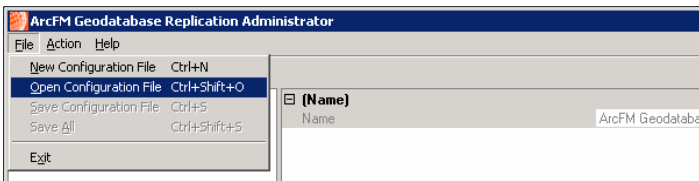
I

If the **ArcFM Geodatabase Replication Administrator** command appears twice in the Start menu, you can launch the application from either listing. On the classroom server, it appears twice because the Replication Web and the Replication Server software have both been installed on the same server (this is the ideal arrangement). If desired, you may remove either command from the Start menu.

- On the Replication Server, from the **Start** menu choose **Programs > ArcFM Solution > ArcFM Geodatabase Replication > ArcFM Geodatabase Replication Administrator**.
- In the ArcFM Geodatabase Replication Administrator, from the **File** menu choose **Open Configuration File**.

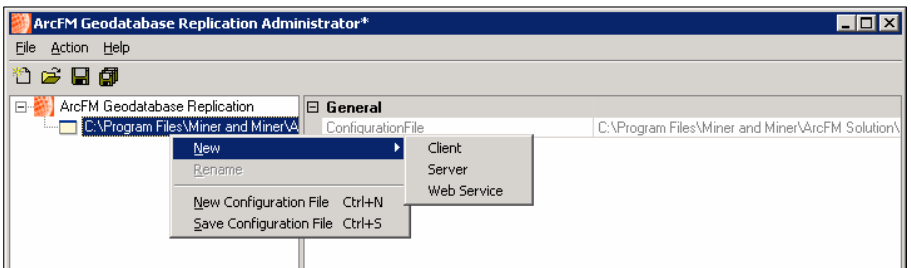


ReplicationConsole.exe.config is an XML file listing all the Replication Server properties which can be set and providing some default values for them. Sample.Server.ReplicationConsole.exe.config is an XML file listing the same Replication Server properties, but with examples provided for all values.



❑ Browse to **C:\Program Files\Miner and Miner\ArcFM Solution\Bin\ReplicationConsole.exe.config**.

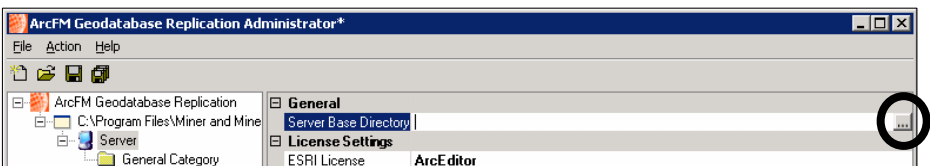
❑ In the tree on the left side of the ArcFM Geodatabase Replication Administrator, right-click over **ReplicationConsole.exe.config** and choose **New > Server**.



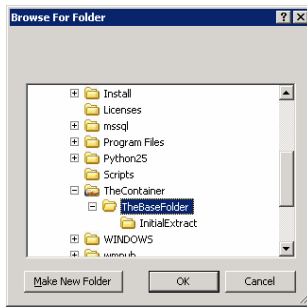
❑ On the right side of the window, under General, click in the **Server Base Directory** field.



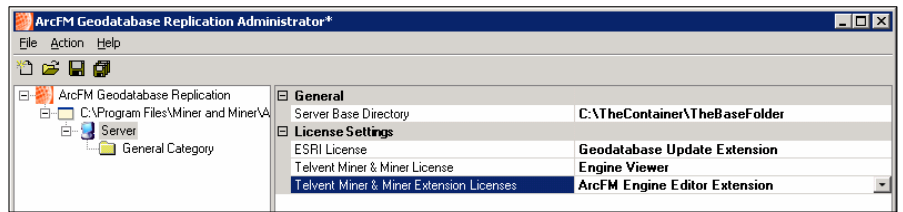
To register a new ESRI license file (.ecp), run Start > Programs > ArcGIS > Software Authorization. Choose "I have received an authorization file from ESRI and am now ready to finish the registration process" and click Next. Choose "I received the authorization file by email and have saved it to disk." Click the Browse button and locate the .ecp file. Click Next. Click Finish. The next time you open the ArcFM Geodatabase Replication Administrator, it will recognize the license(s) granted in the chosen .ecp file



❑ Click the Browse (three dot) button to browse to the Enterprise Server base directory, e.g. **C:\TheContainer\TheBaseFolder**. Do not browse to any directory within it.



- Set the ESRI and Telvent licenses to match your available licenses.



- From the **File** menu, choose **Save All**.
- If any **Configuration Errors** appear in the lower part of the dialog, resolve them before proceeding any further. If there are license errors, you may not be able to save your settings until the licenses are registered in the ArcGIS Software Authorization or ArcFM Desktop Administrator tools.

Configuration Errors				
Name	Property	Description	Path	
Server	GlobalServerRe...	Esri License <esriLicenseProductCodeArcEditor> is not ava...	C:\Program Files...	

Ready



To confirm the necessary **Telvent licenses** are available, run *Start > Programs > ArcFM Solution > License Manager > Desktop Administrator*.

STEP 2: SET REPLICA PROPERTIES

Now that you have confirmed access to the necessary licenses, you will declare the locations of critical folders and databases and give a name to this *replica* – the entire system of enterprise base path, Backdrop geodatabase and enterprise SDE geodatabase used to provide updates for specific tables or geographic areas to field users. These steps show how to create and configure only one replica, but you may repeat them with different replica names to create replicas for data that update at different intervals (e.g. landbase vs. facility) or for distinct geographic areas

etc

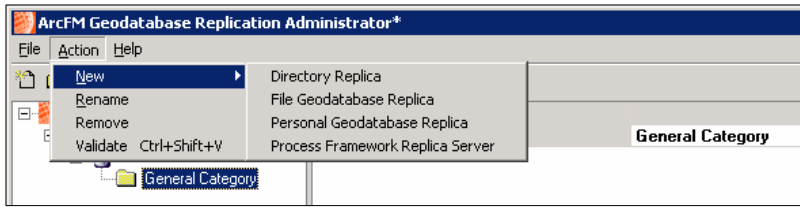
Categories are used to organize multiple replicas, much like folders are used to organize multiple files. If you only have one replica, the Category Name does not matter. If desired, you may rename the General Category by selecting it in the tree on the left, then changing the name on the far right.

etc

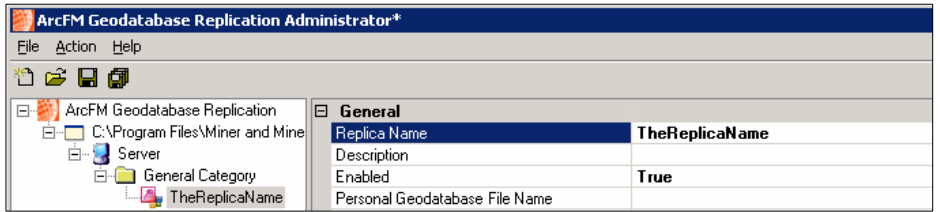
If the Backdrop geodatabase were a file geodatabase, you would choose **New > File Geodatabase Replica** instead.

(service territories, counties, etc.), allowing field users to subscribe only to the replicas they need.

- In the tree on the left, select **General Category**.
- From the **Action** menu, choose **New > Personal Geodatabase Replica** or **File Geodatabase Replica** depending on which type of Backdrop you created.



- On the right side of the window, for the **Replica Name** enter the replica name (e.g. **TheReplicaName**).

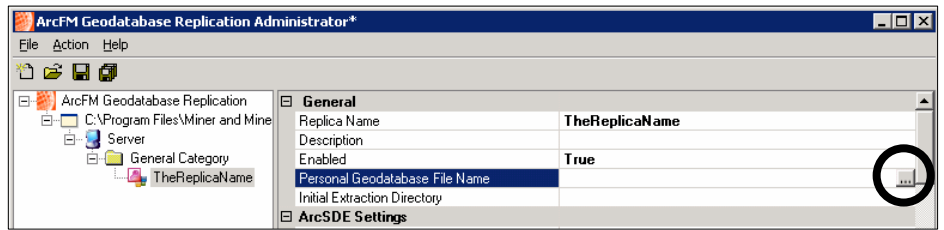


The Replica Name matches the Field Unit's files with the appropriate information on the Web Server and Replication Server. If the Field Unit, Web Server, and Replication Server have any difference in Replica Name, replication will not work. Therefore, give the replica a simple descriptive name and make sure to use the same Replica Name when configuring the Web Server and Field Unit.

- If desired, type a description into the **Description** field.
- Verify that **Enabled** is set to **True**.
- For **Personal (or File) Geodatabase File Name** click the Browse (three dot) button.

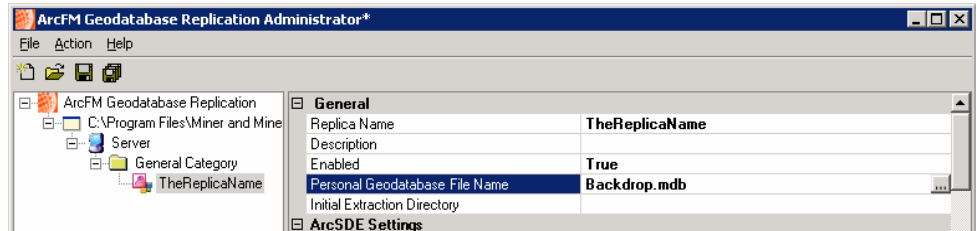
etc

You can temporarily set **Enabled** to **False** in order to prevent replication from running.



Browse to the **Backdrop** database (e.g. in **C:\TheContainer\TheBaseFolder\InitialExtract**).

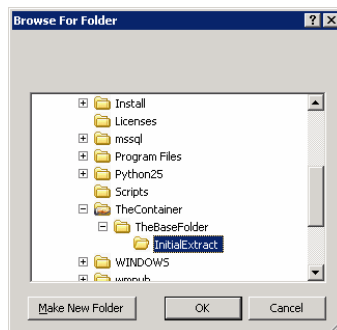
Click [**Open**].



For **Initial Extraction Directory**, click the Browse (three dot) button.

Browse to the InitialExtract folder (e.g. **C:\TheContainer\TheBaseFolder\InitialExtract**).

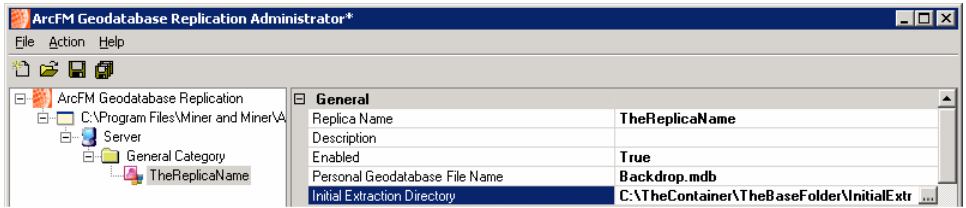
Be sure to browse only to the InitialExtract directory, not to any specific file, or this value will cause an error when you later try to save.



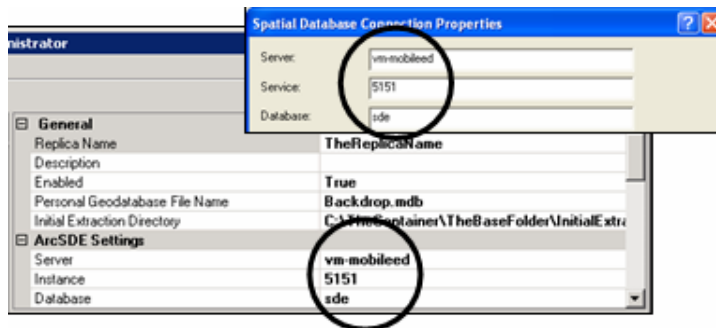
Click [**OK**].



When set to **True**, **Compress** decreases the FGDB size. However, this process may take some time, so set **Compress** to **False** while testing, then change it to **True** when testing is complete.



- If **Backdrop** is a file geodatabase, set **Compress** to **False**. There is no **Compress** setting for a PGDB.
- For **Server** enter the ArcSDE Server name (e.g. **vm-mobileed**).
- For **Instance, Database, User Name,** and **Password** enter the same values you used in the ArcCatalog Spatial Database Connection Properties. A Database value is only necessary if the enterprise SDE geodatabase is a SQL Server database.



- For **Initial Extract Version** specify the geodatabase version from which the tables in the Backdrop geodatabase were copied or extracted (e.g. **SDE._InitialExtract**).
- For **Sync Version** specify the parent of the InitialExtract version (e.g. **SDE.DEFAULT**).
- For **Keep Initial Version** choose **True**.
- Scroll down to **Email Settings**.
- For **Email SMTP Server** enter an email server accessible from the Replication Server (formatted as **sundance.miner.com**).



If **Keep Initial Version** were set to **False**, the Initial Extract version would be deleted immediately after the first replication process (**Replica Build**) occurred. Normally, it is safer to keep the Initial Extract version through the first few replication runs just in case reinitializing replication becomes necessary.

- For **Email Address** enter the email address of the administrator for this Mobile implementation.
- Change any other settings as needed.
- From the **File** menu, choose **Save All**.
- If any **Configuration Errors** appear at the bottom of the window, resolve them.
- Once all errors are resolved, save the settings and close the ArcFM Geodatabase Replication Administrator.

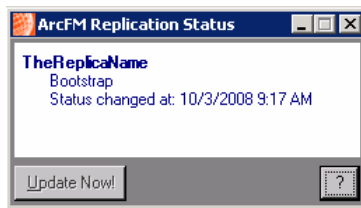
STEP 3: RUN ARCFM GEODATABASE REPLICATION SERVER ---



*If an error appears the first time you run **ArcFM Geodatabase Replication Server**, try running it again.*

- Still on the Replication Server, from the **Start** menu choose **Programs > ArcFM Solution > ArcFM Geodatabase Replication > ArcFM Geodatabase Replication Server**.

This calls ReplicationConsole.exe, which runs the Replica Build portion of the replication process.



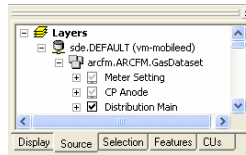
If any errors appear in the ArcFM Replication Status box, note and resolve them before proceeding. You can also check the Event Viewer for more details on any errors.

STEP 4: TEST REPLICATION ---

Next you will edit the Sync version to test whether the Replica Build process will successfully identify the edits and extract them for use in Field Unit updates.

- On the Enterprise Client, start **ArcMap**.

- In the **ArcFM Login** screen, browse to the **entSDEgdb** spatial database connection.
- When prompted, choose the **Sync** version. If this is not permitted, choose a child version of the Sync version, then remember to reconcile and post the child version to the Sync version before you run the server-side replication (Replica Build) process again.
- Apply a **Stored Display**.
- On the Table of Contents **Source** tab, verify that the current version is correct. If necessary, change the version on the Source tab by right-clicking the connection and choosing **Change Version**, then choosing the correct version from the list that appears.



Be absolutely certain you are not editing the InitialExtract version!

- From the Editor toolbar, **Editor** menu, choose **Start Editing**.

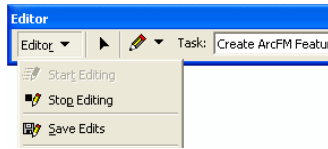


- Sketch a new feature on the map. Zoom in if necessary.
 - Using one of the **Identify** tools, click on the new feature to view its **ObjectID**.
 - Note the **Feature Class** and **ObjectID** here:
-

When you next run replication (Replica Build), you will need this ObjectID to determine whether the new feature was recognized as an edit.

I The ArcFM method of sketching a point feature is to click the feature on the Table of Contents **Features** tab, enter any required attributes on the **ArcFM Attribute Editor Targets** tab (available from the ArcFM toolbar), then click on the map to place the feature.

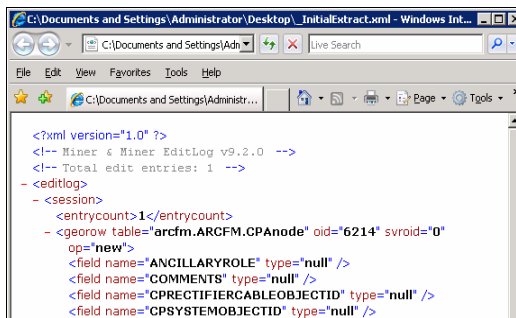
- From the **Editor** menu choose **Save Edits**.



- From the **Editor** menu choose **Stop Editing**.
- Close **ArcMap**.
- If prompted to save changes to Untitled, choose **[No]**.
- On the Replication Server, from the **Start** menu choose **Programs > ArcFM Solution > ArcFM Geodatabase Replication > ArcFM Geodatabase Replication Server**.
- In the Enterprise Server base directory, browse to the new Replica Name folder (e.g. **C:\TheContainer\TheBaseFolder\TheReplicaName**) and open the new **Extract_<date_time>** folder inside.
- In the **Extract_<date_time>** folder, open the **XML** file and confirm that your new feature is listed.

tip

The **XML** file in the **Extract** folder lists any edits recognized by the replication software as having been made after the previous replication run (**Replica Build**). The **XML** file will not include edits captured during previous **Replica Builds**. After its creation, the **XML** file is not accessed by any replication process so you may view it without interfering in future replication. All other files in the **Extract** folders must not be opened, or you will have to build and distribute a new **Backdrop** geodatabase and restart replication.



- If the **XML** file does not list your newly created feature, then replication did not succeed. Check the **Event Viewer** for error information, resolve any errors, and run **ArcFM Geodatabase Replication Server** again.
- Once replication recognizes your new feature, test each of the following edit types. You can test them all

in one Replica Build, but make sure that all five types of edits do appear in the resulting XML file. For example, you may find that attribute updates are recognized while feature deletions are not, in which case you will need to resolve this error before proceeding. Remember to save edits, stop editing, and close ArcMap before running the ArcFM Geodatabase Replication Server command.

Edit	Feature Class	ObjectID	Details
Insert a feature			
Delete a feature			
Update an attribute			Changed attribute _____ from value _____ to value _____
Relate a feature to an object			Object Class _____ Object's OID _____
Unrelate a feature and an object			Object Class _____ Object's OID _____

PART 3: CONFIGURING THE WEB SERVER _____

IMPORTANT: These Web Server configuration instructions assume that the Web and Replication Servers are the same machine. If your Web and Replication Servers are different machines, see the *Configuring the ArcFM Solution* help for instructions on additional necessary steps, including creating and configuring a domain user.

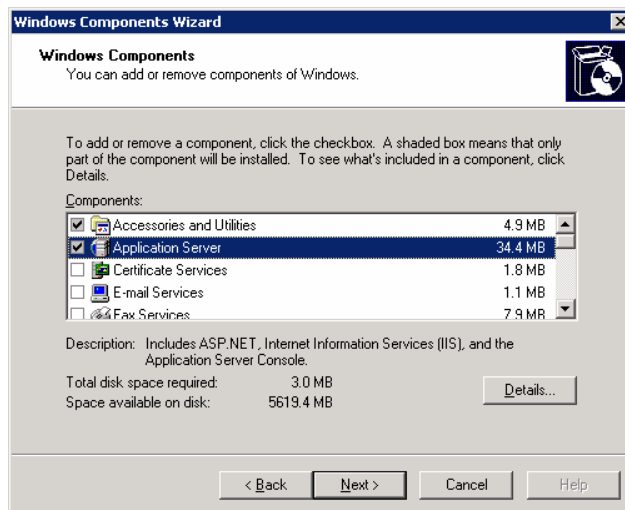
STEP 1: COMPLETE THE IIS INSTALLATION _____

- On the Web Server, open the **Control Panel**.

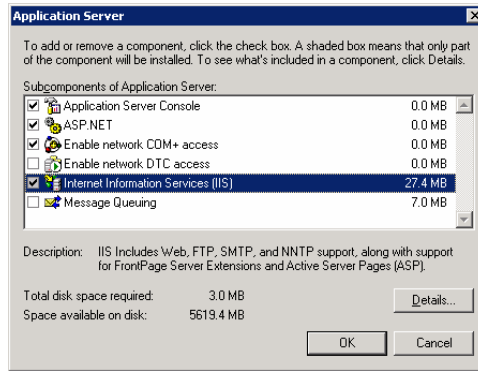
- Open **Add or Remove Programs**.
- From the left frame, choose **Add/Remove Windows Components**.



- Verify that **Application Server** is checked, then select it and click **[Details]**.

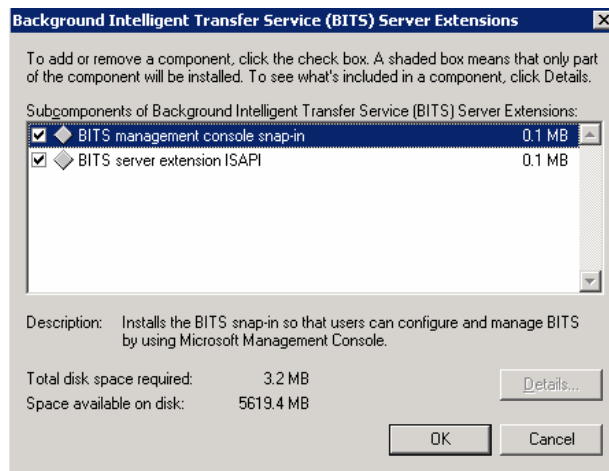


- Verify that **ASP.NET** is checked.
- Verify that **IIS** is checked, then select it and click **[Details]**.



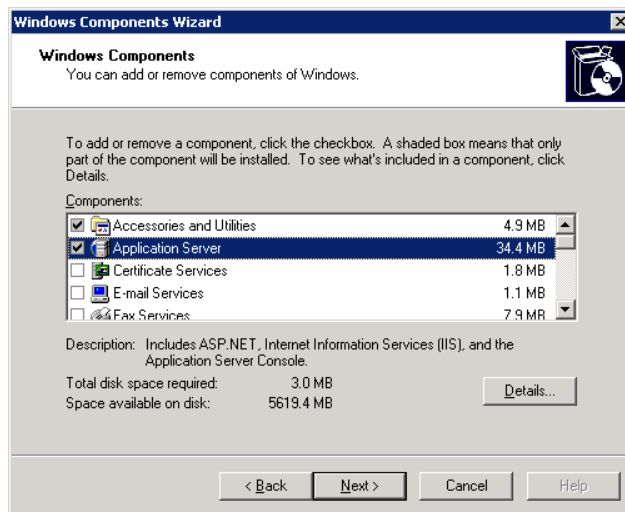
- Verify that **Background Intelligent Transfer Service (BITS) Server Extensions** is checked, then select it and click [**Details**].

- Verify that **BOTH** boxes are checked.



Always check *both* BITS choices, not just one! ArcFM Replication requires both BITS extensions.

- Click [**OK**] to all dialogs until you return to the Windows Component Wizard.



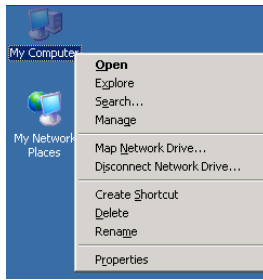
- Click [**Next**] to run Configure Components.
- When the wizard is done, click [**Finish**]

Because ArcFM GDB Replication Web is closely tied to IIS, after changing these IIS settings you may need to reinstall ArcFM GDB Replication Web for it to function properly.

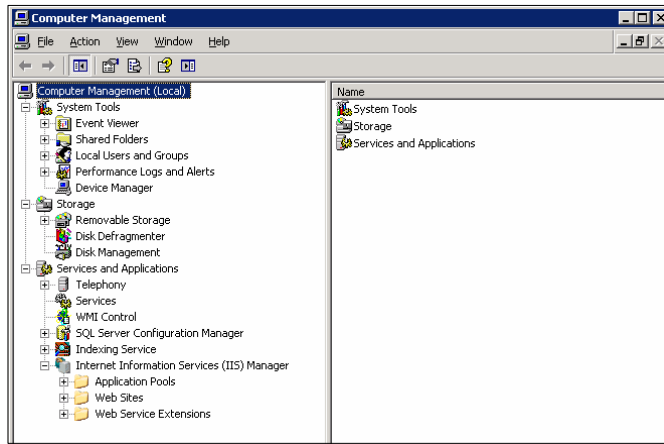
- Uninstall **ArcFM GDB Replication Web**. Be sure you do not uninstall ArcFM GDB Replication Server.
- Run the **ArcFMGDBReplicationWeb.msi** installer available from Telvent.
- Close the **Add or Remove Programs** window.
- Close the **Control Panel**.

STEP 2: CONFIGURE THE IIS APPLICATION POOL _____

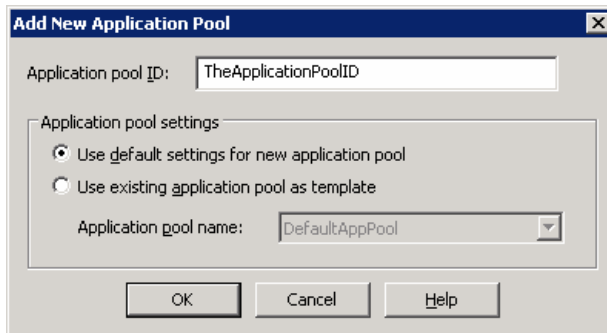
- Still on the Web Server, right-click **My Computer** and choose **Manage**.



- In the **Computer Management** window, expand **Services and Applications > Internet Information Services (IIS) Manager**.



- Right-click **Application Pools** and choose **New > Application Pool**.
- In the Add New Application Pool dialog, set the **Application pool ID** (e.g. **TheApplicationPoolID**).



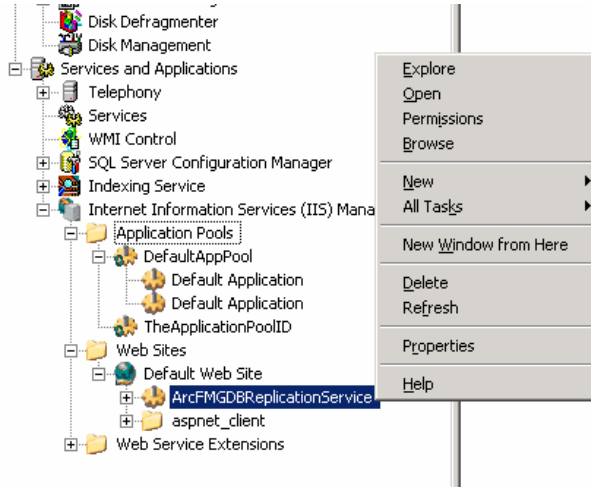
- Choose **Use default settings for new application pool**.

etc An **Application Pool** is a grouping of services and programs which can be managed as a unit (for assigning permissions, etc.). The **Application Pool ID** you specify will be visible in the IIS Inetpub folder.



The **ArcFM GDB Replication Service** is installed by the Telvent ArcFM Replication Web software to receive Update Requests from Field Units.

- Click [**OK**].
- In the **Computer Management** window, under **Internet Information Services (IIS) Manager** expand **Web Sites > Default Web Site**.
- Right-click **ArcFMGDBReplicationService** and select **Properties**.



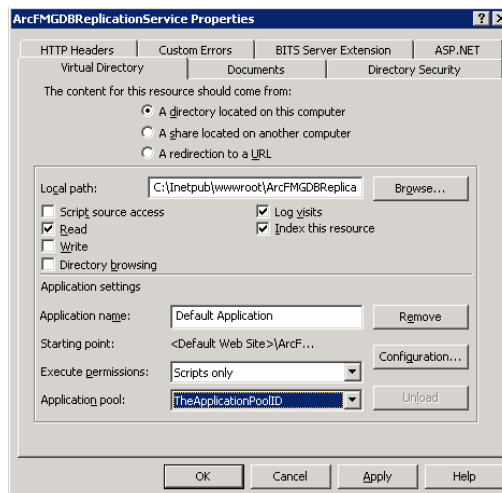
- Choose the **Virtual Directory** tab.
- If there is a [**Create**] button to the right of Application Name, click this button.
- From the **Application pool** drop-down choose the application pool you created (e.g. **TheApplicationPoolID**).



The application should already exist and have the name of "Default Application." However, if the application has not yet been created, a [**Create**] button will be visible next to the Application Name field. After the [**Create**] button is clicked, it will be replaced by the [**Remove**] button.



IIS permissions will vary at every customer site. Allow for time to test and adjust these settings until they are compatible with ArcFM Replication, and ensure that an authorized member of the customer IT staff will be available to make these permission changes while you are on site. Errors stating "Access Denied," "Can't Read" or "Can't Write" are typically the result of incorrect IIS permissions.



- Click [**OK**].

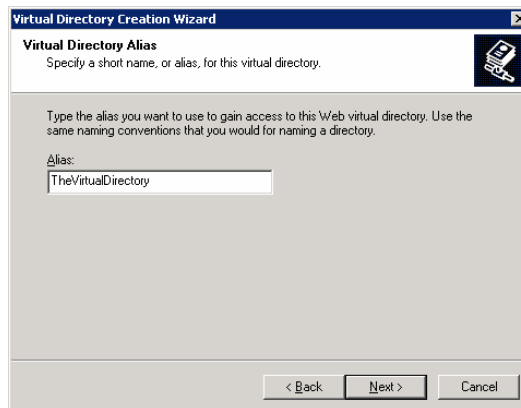
STEP 3: CONFIGURE THE VIRTUAL DIRECTORY

The Virtual Directory is simply an alias for the enterprise base path. The Field Unit will access database updates from an address that includes the Virtual Directory rather than the entire enterprise base path.

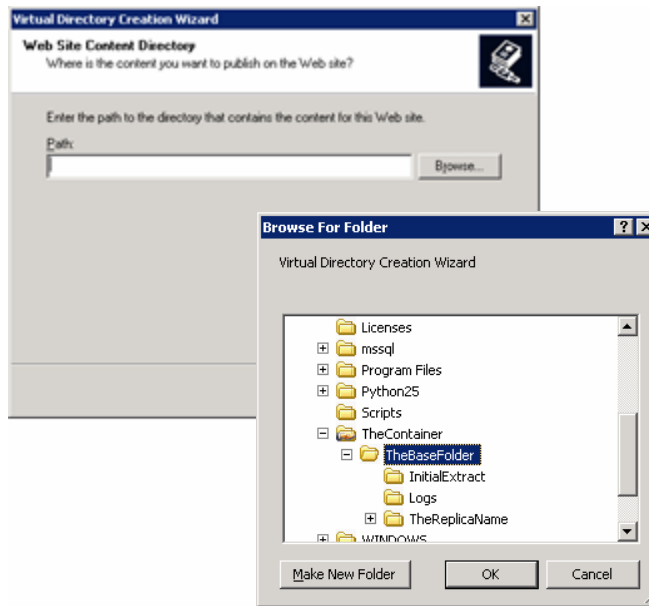
- In the **Computer Management** window, under **Internet Information Services (IIS) Manager > Web Sites**, right-click **Default Web Site**.
- Choose **New > Virtual Directory**.

The Virtual Directory Creation Wizard will appear.

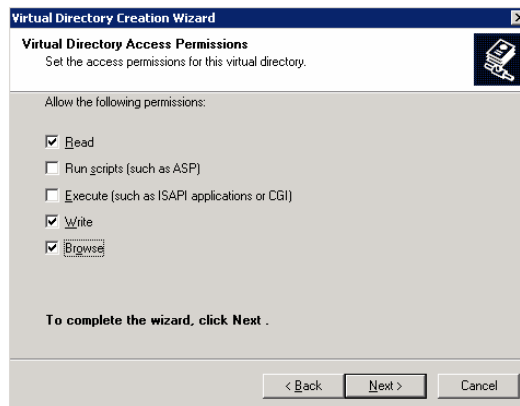
- In the welcome screen, click [**Next**].
- For the **Virtual Directory Alias**, enter a name for the Virtual Directory (e.g. **TheVirtualDirectory**).



- Click [**Next**].
- For the **Path**, browse to the enterprise base path (e.g. **C:\TheContainer\TheBaseFolder**).



- Click [**OK**].
- Click [**Next**].
- Check the **Read**, **Write**, and **Browse** permissions.

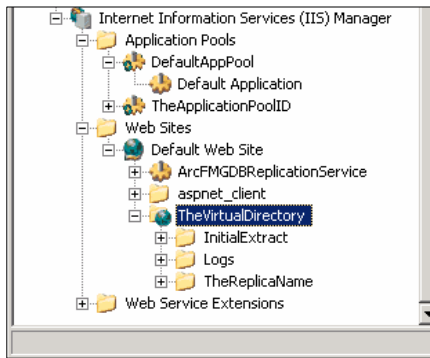


- Click [**Next**].
- Click [**Finish**].

You now have a Virtual Directory listed under Web Sites. Because the Virtual Directory is an alias for the enterprise base path, when you expand the Virtual Directory you will see that everything contained in the enterprise base directory is listed under the Virtual Directory.

- Expand **TheVirtualDirectory** to view its contents.

etc The **Virtual Directory** is just a pointer to the base directory. The **Virtual Directory** name acts as an alias, easier to enter than the precise location of the enterprise base directory.

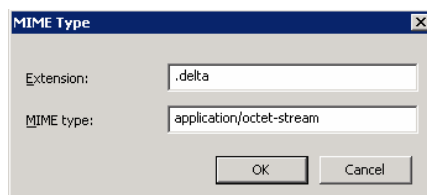


STEP 4: ADD MIME TYPES TO IIS

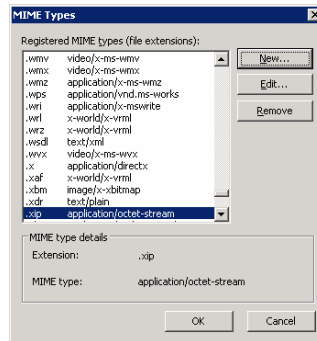
- In the **Computer Management** window, right-click **Internet Information Services (IIS) Manager** and select **Properties**.



- In the **Internet Information Services (IIS) Manager Properties**, click [**MIME Types**].
- In the **MIME Types** window, click [**New**].
- For **Extensions** enter **.delta**
- For **MIME type** enter **application/octet-stream**



- Click [**OK**].
- In the **MIME Types** window, click [**New**].
- For **Extensions** enter **.xip**
- For **MIME type** enter **application/octet-stream**
- Click [**OK**] to all dialogs.

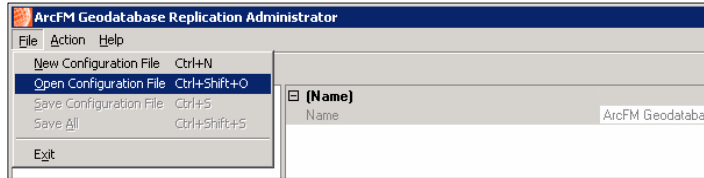


- Right-click **TheVirtualDirectory** and choose **Properties**.
- Choose the **HTTP Headers** tab.
- Click [**MIME Types**].
- If the **.delta** and **.xip** types are not listed here, add them.
- Click [**OK**] to all dialogs.
- Close the **Computer Management** window.

STEP 5: SET WEB SERVER PROPERTIES IN THE ARCFM GEODATABASE REPLICATION ADMINISTRATOR

- Still on the Web Server, from the **Start** menu, choose **Programs > ArcFM Solution > ArcFM Geodatabase Replication > ArcFM Geodatabase Replication Administrator**.

- In the ArcFM Geodatabase Replication Administrator, from the **File** menu choose **Open Configuration File**.



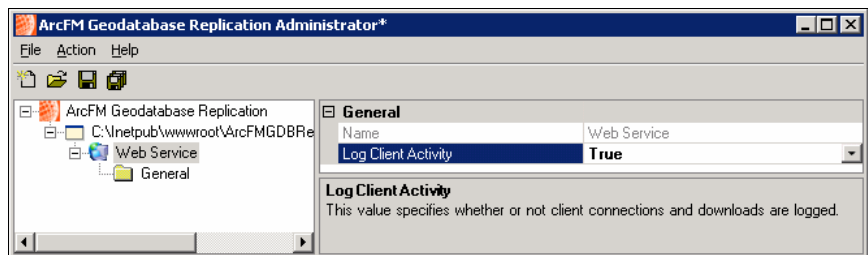
- Browse to **C:\Inetpub\wwwroot\ArcFMGDBReplicationService\Web.config**.
- Click **[Open]**.
- If the Web.config file includes any sample replicas, such as **NortheastElectric** or **NortheastLandbase**, right-click each one and choose **Remove**.



If your Backdrop geodatabase were a file geodatabase, you would choose **New > File Geodatabase Replica** instead.

Tracking Web Server use is optional, but for this class you will keep tracking turned on.

- Select the **Web Service** node.
- Set **Log Client Activity** to **True**.



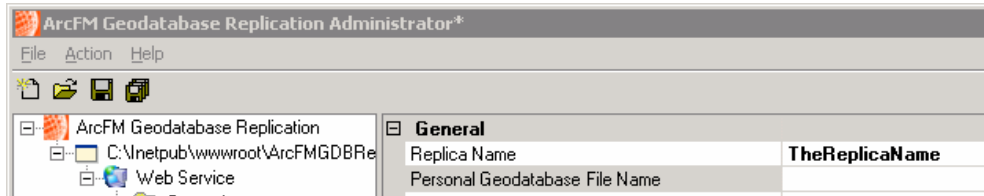
Next you will specify implementation details for your replica.

- Right-click the **General** category and choose **New > Personal Geodatabase Replica Web Service**.
- For **Replica Name**, enter the same Replica Name used in the ReplicationConsole.exe.config file configured earlier (e.g. **TheReplicaName**).



If your Backdrop geodatabase were a file geodatabase, you would choose **New > File Geodatabase Replica** instead.

etc The **Replica Name** must be identical on the Replication Server, Web Server, and Field Unit for replication to succeed.

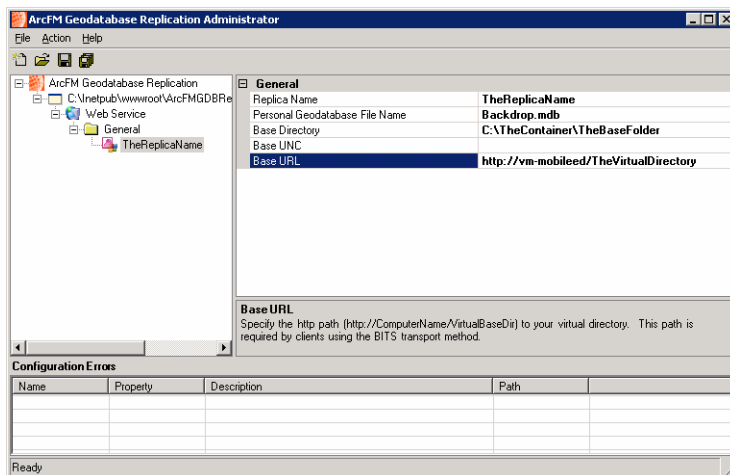


The Replica Name must be entered into the server ReplicationConsole.exe.config, Web.config and the client ReplicationConsole.exe.config with exactly the same spelling. If the Replica Name differs in any of these three locations, replication will fail.

- For **Personal Geodatabase File Name**, browse to the Backdrop geodatabase in the Enterprise Server base path (e.g. **C:\TheContainer\TheBaseFolder\InitialExtract\Backdrop.mdb**).
- Click [**Open**].
- For **Base Directory**, browse to the Enterprise Server base path (e.g. **C:\TheContainer\TheBaseFolder**).
- Click [**OK**].
- For **Base URL** enter the server name and Virtual Directory name (e.g. **http://vm-mobileed/TheVirtualDirectory**).

etc A **Base UNC** value is only necessary if you use *UncCopy* instead of *BITS*.

etc All slash (virgule) characters in the Base URL must be forward slashes, not back slashes.

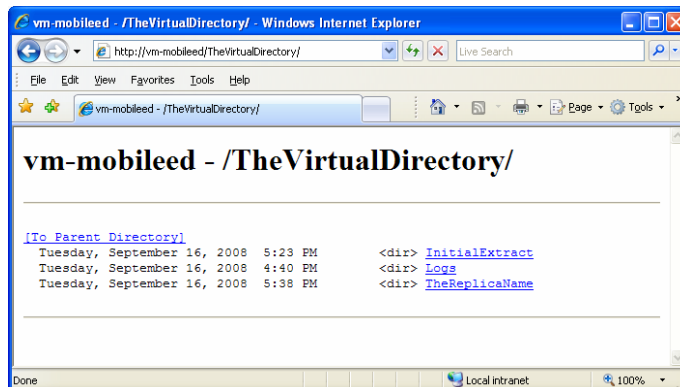


- (Optional) To log each time a field unit retrieves an update, select the **Web Service** node and set **Log Client Activity** to **True**.
- From the **File** menu, choose **Save All**.
- If any **Configuration Errors** appear at the bottom of the window, resolve them.
- Once all errors are resolved, save the settings and close the ArcFM Geodatabase Replication Administrator.

STEP 6: TEST THE WEB SERVER CONFIGURATION

When the Web Server is correctly configured, the Field Unit can view the contents of the Enterprise Server base directory (using the Virtual Directory) and access the Web Server's replication services.

- On the Field Unit, open the **Internet Explorer** web browser.
- In the Address bar, enter the Base URL - the same URL you set in the ArcFM Geodatabase ReplicationAdministrator (e.g. **http://vm-mobileed/TheVirtualDirectory/**).



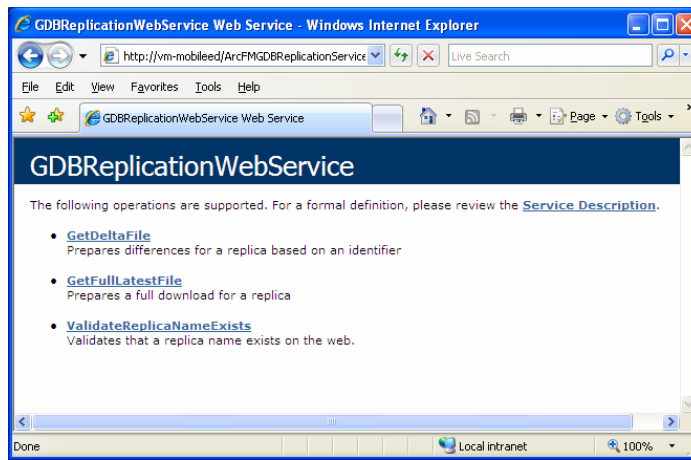
- Once that web page loads successfully, test the URL **http://vm-mobileed/ArcFMGDBReplicationService/gdbreplicationwebservice.asmx** (use the customer Web Server name in place of *vm-mobileed*).



The only part of the second URL that will change from one customer to another is the name of the Web Server. The ARCFMGDBREPLICATION SERVICE web site is created when the ArcFM GDB Replication Web software is installed, and always has the same name.



If the Replication and Web Servers are separate (a distributed implementation), you will still use the Web Server's name in both of these URLs.



- If either page does not load successfully, resolve the problem before proceeding.

PART 4: CONFIGURING CLIENT-SIDE REPLICATION

STEP 1: CREATE THE FIELD UNIT BASE PATH



The Field Unit base path does not have to be identical to the Enterprise Server base path.

- On the Field Unit, create a new folder and subfolder at the top level of a drive (e.g. **C:\TheContainer\TheBaseFolder**).

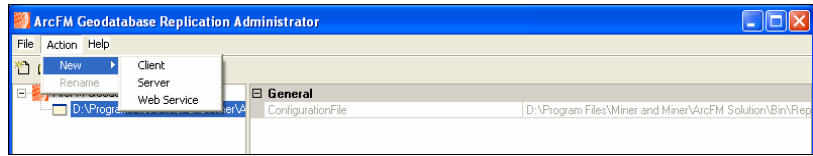
STEP 2: SET FIELD UNIT PROPERTIES IN THE ARCFM GEODATABASE REPLICATION ADMINISTRATOR

- Still on the Field Unit, from the **Start** menu, choose **Programs > ArcFM Solution > ArcFM Geodatabase Replication > ArcFM Geodatabase Replication Administrator**.
- From the **File** menu choose **Open Configuration File**.
- Browse to **Program Files\Miner and Miner\ArcFM Solution\Bin\ReplicationConsole.exe.config**.
- Click **[Open]**.
- Select **ReplicationConsole.exe.config** in the tree.



Alternately, you could right-click **ReplicationConsole.exe.config** in the tree to choose **New > Client**.

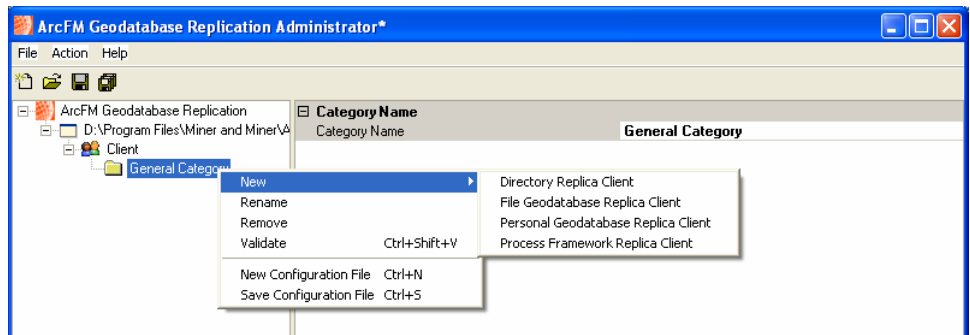
- ❑ From the **Action** menu choose **New > Client**.



- ❑ For **Client Base Directory** browse to the Field Unit base directory (e.g. **C:\TheContainer\TheBaseFolder**).

- ❑ Click [**OK**].

- ❑ Right-click **General Category** and choose **New > Personal (or File) Geodatabase Replica Client**.



- ❑ For **Replica Name** type **TheReplicaName**

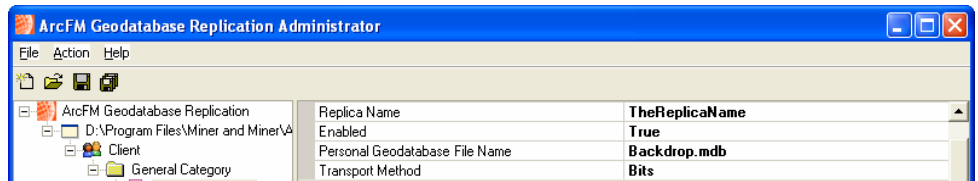
The Replica Name must be entered into the server ReplicationConsole.exe.config, Web.config and the client ReplicationConsole.exe.config with exactly the same spelling. If the Replica Name differs in any of these three locations, replication will fail.

- ❑ Verify that **Enabled** is set to **True**.
- ❑ For **Personal (File) Geodatabase File Name**, type **Backdrop.mdb** or **Backdrop**

- ❑ For **Transport** method choose **Bits**.

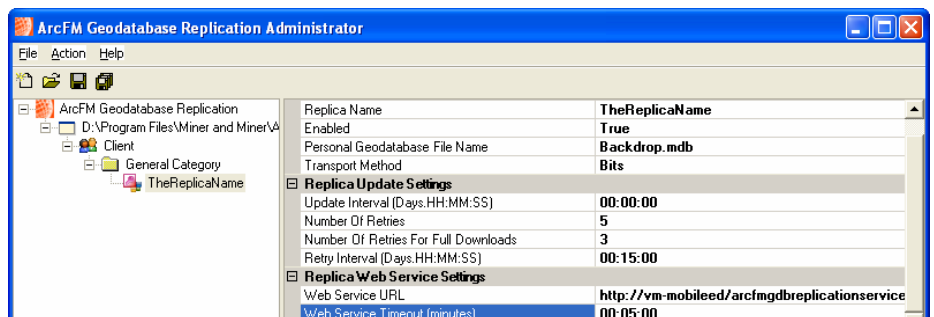
I The **Replica Name** must be identical on the Replication Server, Web Server, and Field Unit for replication to succeed.

etc Microsoft **BITS** technology downloads files in the background while the end user does not need the bandwidth for other tasks. BITS can also resume an interrupted download instead of starting again from the beginning, unlike **UncCopy**.



- Do not change the default values for any **Replica Update Settings**.

- For the **Web Service URL** enter **http://vm-mobileed/ArcFMGDBReplicationService/GDBReplicationwebservice.asmx** (use the customer Web Server name in place of *vm-mobileed*).

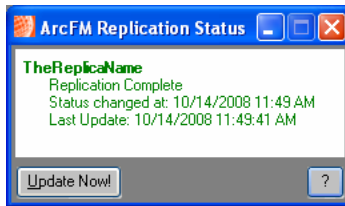


- From the **File** menu, choose **Save All**.
- If any **Configuration Errors** appear at the bottom of the window, resolve them.
- Once all errors are resolved, save the settings and close the ArcFM Geodatabase Replication Administrator.

STEP 3: TEST THE FIELD UNIT CONFIGURATION

- Still on the Field Unit, from the **Start** menu choose **Programs > ArcFM Solution > ArcFM Geodatabase Replication > ArcFM Geodatabase Replication Client**.

etc All slash (virgule) characters in the **Web Service URL** must be forward slashes, not back slashes.



- If any errors appear, look in the Event Viewer for more information. Any message requesting you retry replication indicates an error. After making corrections, you must exit and restart the Replication client process (not just choose Update Now) for your changes to take effect.
- When replication succeeds without producing any errors, observe that a Replica Name folder has been created on the Field Unit (e.g. **C:\TheContainer\TheBaseFolder\TheReplicaName**). Inside this folder will be the **Backdrop** database. Do not open this file!

PART 5: CONFIGURING THE LOGIN DATABASE

If implementing Redliner or Inspector, to allow field users to save redlines (graphics and ink) in a Session/Design without requiring an ESRI ArcEditor license, the Stored Display showing when a new Session/Design is opened must include a layer from a feature class which meets all three of the following criteria:

- Is not in a network
- AND is in a dataset that does not contain a network
- AND does not have feature-linked annotation.

Otherwise, to allow field users to store redlines in an ArcFM Annotation Feature Class, this class must be included in the backdrop geodatabase in a dataset of its own.

STEP 1: PREPARE THE DATABASE FOR USE

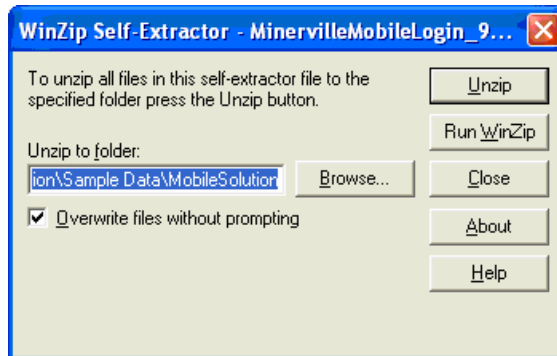
Telvent provides a sample Login database that you can tailor to fit a client's Mobile implementation. You will start by uncompressing the sample Login database, then update it to ensure that it is compatible with the current version of ArcFM.

- Double-click the sample **MinervilleMobileLogin_ *version*.exe** to unzip it.

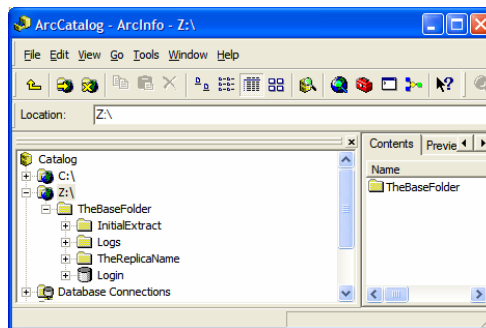


By default, the self-extracting *MinervilleMobileLogin_version.exe* places the extracted *MinervilleMobileArcFMLogin.mdb* in **C:\Program Files\Miner and Miner\ArcFM Solution\Sample Data\MobileSolution**.

- Click [**Unzip**].
- When the extraction is complete, start **ArcCatalog**.



- Using ArcCatalog, copy and paste the **MinervilleMobileArcFMLogin.mdb** database into the Enterprise Server base directory (e.g. **Z:\TheBaseFolder**).



You may name the *Login* database anything allowed by your operating system. The *Login* database name will be visible to field users.



If your *Stored Displays* will be altered on an ongoing basis, consider creating folders on the Enterprise Server and the Field Units for directory replication. Directory replication can propagate updated copies of the *Login* database to all Field Units.

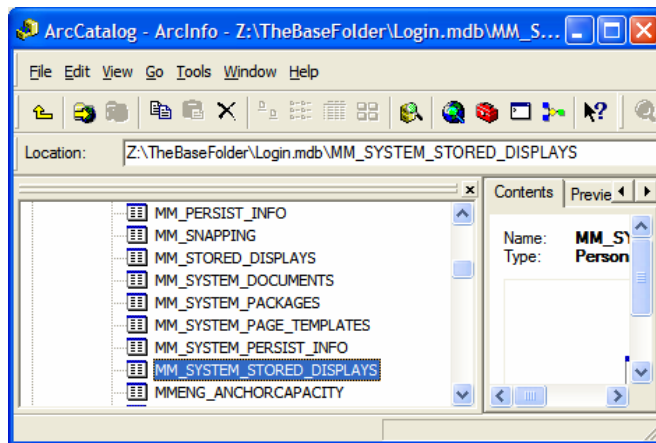
- Rename this new copy of **MinervilleMobileArcFMLogin.mdb** if desired. In these steps, the database will be called **Login.mdb**
- Right-click **Login.mdb** and choose **Create/Update ArcFM Solution System Tables**.
- Right-click **Login.mdb** and choose **Upgrade ArcFM Solution Database**.

STEP 2: CHANGE THE DATA SOURCE FOR STORED DISPLAYS

I To delete a table, right-click over it and choose **Delete**.

- From the Login.mdb database, delete the following tables:

MM_STORED_DISPLAYS
MM_SYSTEM_STORED_DISPLAYS
MM_PACKAGES
MM_SYSTEM_PACKAGES



I If using SQL Server, connect to the database that contains the MM tables (usually "sde"), not the database that contains the feature classes (usually "arcfm").

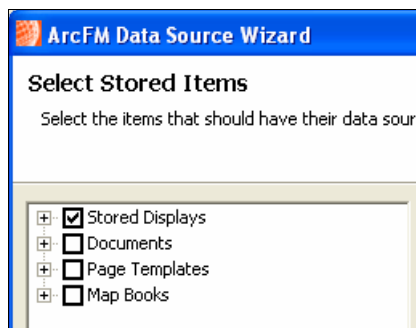
- If including Page Templates in the Login database, delete the tables **MM_PAGE_TEMPLATES** and **MM_SYSTEM_PAGE_TEMPLATES**.
- Connect to the enterprise SDE geodatabase using the **sde** database and **sde.DEFAULT** version, as user **sde**.
- From the enterprise SDE geodatabase, copy the following tables:

MM_STORED_DISPLAYS
MM_SYSTEM_STORED_DISPLAYS
MM_PACKAGES
MM_SYSTEM_PACKAGES

- Paste these tables into the **Login** database.
- If including Page Templates in the Login database, copy the tables **MM_PAGE_TEMPLATES** and **MM_SYSTEM_PAGE_TEMPLATES** from the enterprise SDE geodatabase to the Login database.

Next you will create a testing copy of the base path for use in setting the correct data source for all the layers of the Login database Stored Displays. The testing base path must have the same path as the Field Unit base path.

- On the Enterprise Client, create a folder and subfolder with identical names and drive locations as the Enterprise Server Base Path (e.g. **C:\TheContainer\TheBaseFolder**).
- Create a folder named for the Replica Name (e.g. **TheReplicaName**) inside the testing base path (C:\TheContainer\TheBaseFolder).
- Using ArcCatalog, copy the **Backdrop** geodatabase from the Enterprise Server base path (**Z:\TheBaseFolder**) to the Enterprise Client testing base path (**C:\TheContainer\TheBaseFolder\TheReplicaName**).
- Right-click **Login.mdb** and choose **ArcFM Data Source Wizard**.
- Click **[Next]**.
- Check the box for **Stored Displays**. If including Page Templates, also check the box for **Page Templates**.

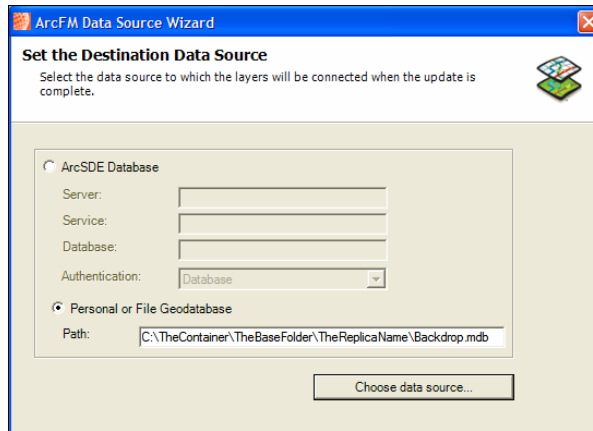


- Click **[Next]**.
- Choose **Set all data sources**.
- Click **[Next]**.
- Choose **Personal or File Geodatabase**.

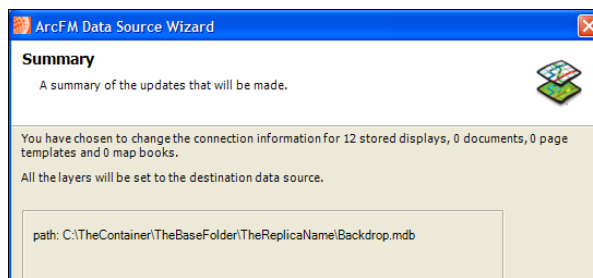
etc

Do **NOT** browse to the Backdrop geodatabase on the Enterprise Server or Field Unit! If you do so, the data source path will contain the Enterprise Server or Field Unit machine name (e.g. \\vm-mobileed\TheContainer\TheBaseFolder\InitialExtract) instead of the local base path (e.g. C:\TheContainer\TheBaseFolder\InitialExtract). If the machine name is hardcoded, the Login database will only be usable on that one machine, instead of all Field Units.

- Click [**Choose data source...**].
- Browse to the **Backdrop** geodatabase in the Enterprise Client testing base path (e.g. **C:\TheContainer\TheBaseFolder\TheReplicaName\Backdrop**).
- Click [**OK**].



- Click [**Next**].
- Verify that the path begins with the drive name (e.g. "C:\") not any machine name (e.g. "\\vm-mobileed").



- Click [**Next**] again.
- If prompted to connect to the enterprise SDE geodatabase, connect to the **sde** geodatabase as user **sde** using the **sde.DEFAULT** version.
- When the wizard is finished, click [**OK**].

Implementation-Specific Steps

Applies to: Implementations allowing users to place graphics
**Basic Redliner, Advanced Redliner, Inspector,
Mobile ArcFM, Mobile Designer**

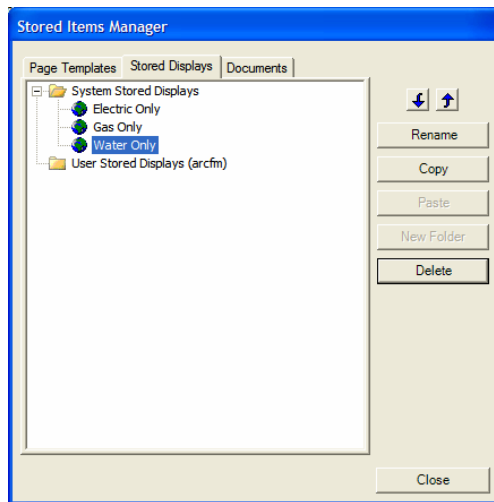
- Right-click **entSDEgdb** and choose **ArcFM Favorites**.
- Export the Graphic Favorites.
- Right-click **Login.mdb** and choose **ArcFM Favorites**.
- Import the Graphic Favorites.

Implementation-Specific Steps

Applies to: Implementations allowing spatial edits
Mobile ArcFM, Mobile Designer

- Right-click **entSDEgdb** and choose **ArcFM Favorites**.
- Export the ArcFM Favorites and/or CUs.
- Right-click **Login.mdb** and choose **ArcFM Favorites**.
- Import the ArcFM Favorites and/or CUs.

- On the Enterprise Client, start **ArcMap**.
- In the **Login to ArcFM** screen, log in to the **Login** database in the Enterprise Server base path. The user name does not matter.
- On the ArcFM toolbar, from the **Stored Items** menu, choose **Stored Items Manager**.



Stored Displays with fewer layers generally have better performance.

- Remove any Stored Displays that field users will not need.
- Click [**Close**].
- For each of the Stored Displays that the field users will need:
 - Make sure the Stored Display contains only the layers field users will need. Remember to remove any unnecessary non-spatial tables on the **Table of Contents > Source** tab.
 - Make sure all of the layers point to tables included in the **Backdrop** database in the testing base path.
 - From the **Stored Items** menu choose **Save** to save your changes to the Stored Display.
- If including Page Templates in the Login database, on the ArcFM toolbar from the **Stored Items** menu, choose **Stored Items Manager**.
 - On the **Page Templates** tab, delete any unneeded Page Templates
 - Test each remaining Page Template. Page Templates which use external files (e.g. logo image files) may display a broken link. Correct this by deleting the link, then copying and pasting the image into the Page Template instead of using Insert menu > Picture or Insert menu > Object.

Implementation-Specific Steps

Applies to: Implementations allowing users to place graphics
**Basic Redliner, Advanced Redliner, Inspector,
Mobile ArcFM, Mobile Designer**

- Display the **Graphics** tab (**Tools menu > Options > TOC tab**).
- Confirm that the graphics you imported are present.

Implementation-Specific Steps

Applies to: Implementations allowing spatial edits
Mobile ArcFM, Mobile Designer

- Start Editing.**
- Verify that the **Feature Favorites** and/or **CU Favorites** you imported are present.
- Stop Editing.**

- Close **ArcMap**.

Next you will share the Field Unit base directory in order to copy the Login database from the Enterprise Server to the Field Unit.

- On the Field Unit, right-click the top base path folder (e.g. **C:\TheContainer**) and choose **Sharing and Security**.
- Check **Share this folder on the network**.
- Check **Allow network users to change my files**.
- Click **[OK]**.
- On the Enterprise Client, map a drive to the Field Unit folder (e.g. **C:\TheContainer**).
- On the Enterprise Client, using **ArcCatalog**, copy the **Login** database from the Enterprise Server base path

to the Field Unit base path (e.g.
C:\TheContainer\TheBaseFolder).

STEP 3: TEST THE LOGIN DATABASE

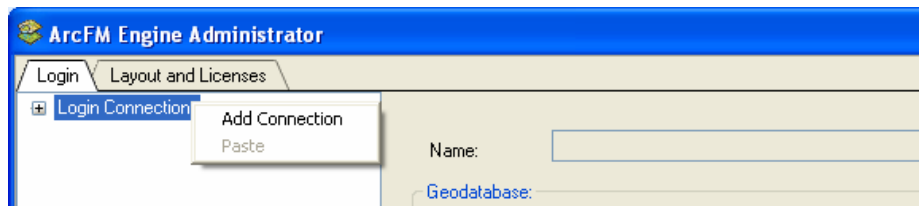
A field user views geodatabase data by connecting to the Login database and applying a Stored Display. The Stored Display retrieves data from the Backdrop geodatabase for display to the user. In this step you will use the ArcFM Engine Administrator to create and test the Login connection, then test each Stored Display.

Implementation-Specific Steps

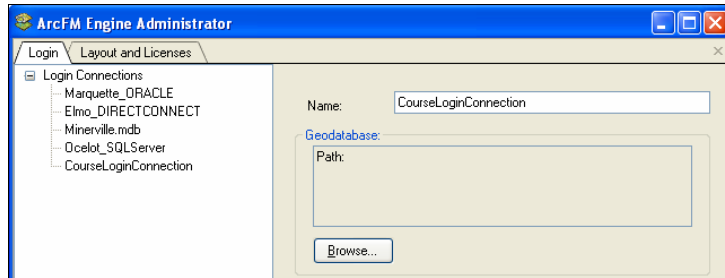
Applies to: Implementations on the ArcMap platform
Mobile ArcFM, Mobile Designer

- On the Field Unit, start **ArcMap**.
- In the ArcFM or Designer login screen, browse to the Login database.
- Test that all layers of all **Stored Displays** appear correctly.
- Test that all **Page Templates** appear correctly.
- Do **NOT** start editing. Never edit the Backdrop database directly.
- Skip all instructions below regarding the **ArcFM Engine Administrator** and **ArcFM Viewer for ArcGIS Engine** and jump to the next step.

- On the Field Unit, run **Start > Programs > ArcFM Solution > ArcFM Engine Administrator**.
- Choose the **Login** tab.
- Right-click **Login Connections** and choose **Add Connection**.



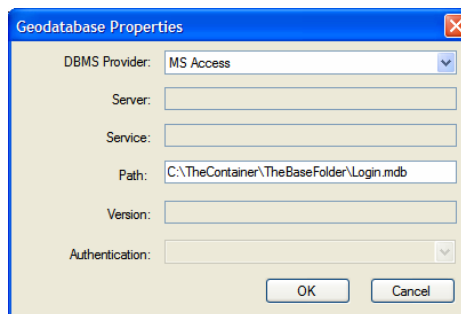
- ❑ On the right side of the window, for **Name** type a connection name for future use by end users (e.g. **CourseLoginConnection**).



- ❑ Under **Geodatabase**, click [**Browse**].

- ❑ From the **DBMS Provider** drop-down choose **MS Access**.

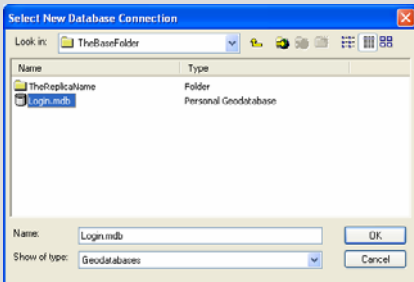
- ❑ In the **Path** field enter the path to the Login database on this Field Unit (e.g. **C:\TheContainer\TheBaseFolder\Login.mdb**).

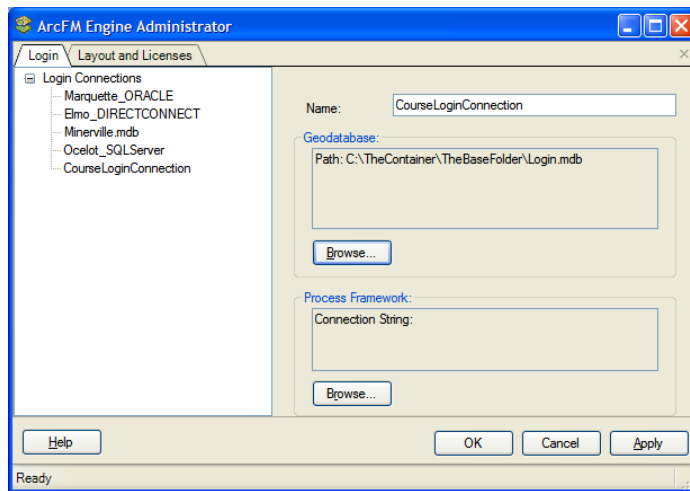


- ❑ Click [**OK**].

Do NOT connect to the Backdrop database using this tool. Instead, the Stored Displays in the Login database will point to the Backdrop database.

etc If ArcGIS Desktop is installed on the Field Unit, you will see the **Select New Database Connection** dialog instead of the **Geodatabase Properties** dialog. Regardless of which dialog you use to specify the Login database, the resulting connection will be the same.



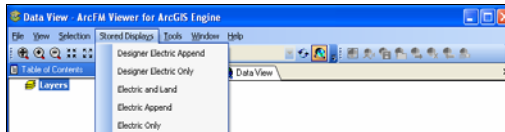


Do NOT enter any information in the Process Framework (PX) area. You will create and configure the field Process Framework database in a later exercise.

- In the **ArcFM Engine Administrator** window, click **[Apply]** .
- Show the **Layout and Licenses** tab.
- In the tree on the left, select **Licenses**.
- In the licenses list on the right, verify that only the licenses which will be available to this machine are checked, and that all licenses necessary to run the software are checked.
- Click **[OK]**.
- Still on the Field Unit, run **Start > Programs > ArcFM Solution > ArcFM Viewer for ArcGIS Engine**.
- Log in using the newly-created connection to the Login database. The user name does not matter.



- From the **Stored Display** menu, apply each Stored Display and look for any broken layers (identified with a red exclamation mark).



- If you included **Page Templates** in the Login database, test each one by choosing **File > Print**.

If there are any problems with any Stored Displays and/or Page Templates, correct them by opening ArcMap on the Enterprise Client and making the necessary changes to the Enterprise Server Login database Stored Displays and/or Page Templates. Close ArcMap, use ArcCatalog to re-copy the Login database from the Enterprise Server to the Field Unit, and re-test the altered Stored Displays and/or Page Templates.

Once your Stored Displays display correctly, you may also locate the features you edited in the enterprise SDE geodatabase to verify that the edits you made have been applied to the Field Unit Backdrop geodatabase.

PART 6: ADDITIONAL TASKS

- For all implementations using ArcFM Viewer, use the ArcFM Engine Administrator to configure ArcFM Viewer interface settings (toolbars, dockable windows, etc.).
- Configure Directory Replication (ideally for the Login database) if desired.

CHECKLIST END

etc To locate an edited feature, from the View menu choose **ArcFM Locator**. From the Locator Tool drop-down, choose **Attribute Query**. From the Search drop-down, choose the desired feature class. Enter the feature's enterprise SDE geodatabase ObjectID into the ServerOID field, then click Find.