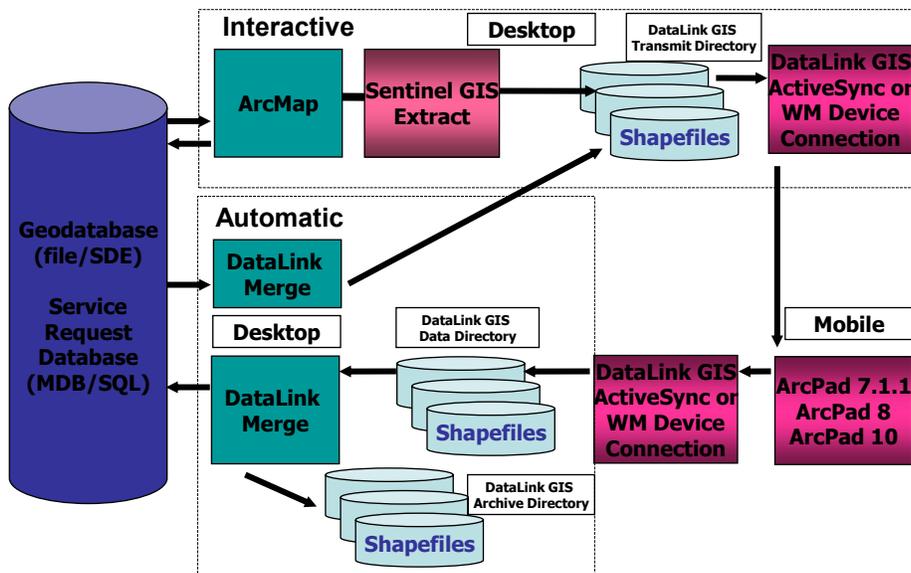## Reason

There has been some confusion as to the difference between synchronizing data (receive/send) and merging data, when to merge data vs. extract data, how to get updated information to handhelds, and when to merge. This support note discusses DataLink GIS best practices and explains the differences between these operations, discusses some frequently asked questions, then recommends some best practices related to these ideas.

Solution

The typical Sentinel GIS data flow is pictured below.

Some key terms and concepts are defined below.

- **Synchronize (Receive/Send)** – the process of transferring shapefiles and .dbf files from the mobile device to the DataLink GIS "Data" directory, or from the DataLink GIS "Transmit" directory to a mobile device. In the case of a Windows Mobile device, one device at a time must be connected with a cable to the PC. Windows Mobile Device Center (Windows 7/8/10) connects the mobile device to the PC and enables files to be transferred back and forth. In the case of a Windows tablet or laptop, a memory device must be removed from the laptop or tablet and connected to the computer using an SD card reader or USB connection, or wireless sync can also be configured. Settings for the file directories that DataLink GIS uses for transmitting or receiving data are configured in DataLink GIS Options > File Paths. "Send Files" also updates program files and configuration settings on the mobile devices.
- **Merge –** the process of moving new or updated information from the files in the DataLink GIS "Data" directory into the SentinelGIS geodatabase (the location of which is configured in DataLink GIS > Options

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> File Paths > Merged Files Path) and the ServiceRequest database, and copying updated information from these to files in the DataLink GIS "Transmit" directory.
- **Extract** – the process of creating a package of map data that is placed in the DataLink GIS "Transmit" directory. Sentinel GIS toolbars in ArcMap each have their own "Extract Data for Mobile Device(s)" command. All map layers that you select are extracted. This process copies and converts data from wherever it is stored on your computer or network to a single location in a format that ArcPad can read.

Frequently Asked Questions
Do I have to Extract Data each time I make a change to my map?

That depends on whether you have made changes to mosquito sites or to other layers in your map. If you have only made changes to mosquito or trap sites or other Sentinel map layers, you do not have to Extract. If you make changes to your map (the ArcMap .mxd map document) or other layers in your map, you do have to Extract. Examples of changes requiring an Extract:

- A new layer is added to the map that you want on the mobile devices
- A layer in the map is updated (e.g. a parcels layer is replaced with a newer parcel layer, or a layer in the map points to an SDE database that is constantly or periodically updated)
- New features are added to layers *other than Sentinel site layers* (e.g. new No Spray zones)
- Edits are made to features *other than Sentinel site layers* (e.g. Zone boundaries are reshaped, Zones are renamed)
- Changes are made to layer properties (e.g. different symbology, display scales, or labeling settings)

I made changes in a Sentinel Configuration Utility to pick lists and other settings. Do I have to do an extract?

No. Changes to pick lists and other configuration settings will automatically be transferred to mobile devices next time they are synchronized.

I synchronized my handhelds but updates that I made on the desktop aren't showing on the mobile device afterward. Why?

The Merge process will extract updated information from the Sentinel GIS geodatabase to the DataLink GIS "Transmit" directory if one of the following conditions is met:

- New or updated data has been processed for a mosquito site layer (e.g., if new data is received from a mobile device for the MosquitoSite_Point layer and processed by Merge, then data will be extracted for the MosquitoSite_Point layer, *but not for other layers*), or
- The DataLinkMergeMapping.xml file (found in the DataLink GIS Home path) is set to "Always Extract" for the given layer (this is the default setting for new installations of Sentinel GIS, but existing installations may not have this option configured)

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```
<MobileDataSource>MosquitoSite_Point.shp</MobileDataSource>
<!-- Name of the office data source (shapefile, PGDB or SDE connection file -->
<OfficeDataSource>SentinelGIS.gdb</OfficeDataSource>
<OfficeFeatureClassName>MosquitoSite_Point</OfficeFeatureClassName>
<CopyToTransmitAfterMerge>True</CopyToTransmitAfterMerge>
<AlwaysExtract>True</AlwaysExtract>
<TransferSet>Larviciding Data</TransferSet>
```

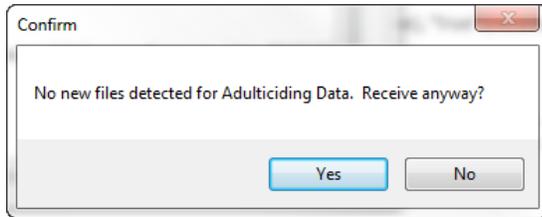**DataLink GIS says that there are no new files to receive. Why?**

DataLink GIS attempts to analyze whether any shapefiles or tables on the connected mobile device have been edited. If it does not detect that any changes have been made, it will not receive any data. This check is performed for each layer (shapefile), so if changes have been made to point sites but not lines or polygons, then only the point shapefile will be received.

This check does not work on the Trimble Nomad (the operating system does not properly mark files as modified so the check fails). Therefore, a setting must be modified in the SCM.config file to force DataLink GIS to either prompt the user to receive data files even if it can't detect whether there are any updates, or to simply receive all data files no matter what.

```
<module name="DataLink GIS">
  <globaloptions>
    <categories>
      <category name="run">
        <options>
          <option name="autorun" value="true" />
          <option name="bringtofront" value="true" />
          <option name="confirmclose" value="false" />
        </options>
      </category>
      <category name="transfer">
        <options>
          <option name="autoreceive" value="false" />
          <option name="autosend" value="false" />
          <option name="autoarchive" value="true" />
          <option name="autoclear" value="true" />
          <option name="bypassarchivecheck" value="prompt" />
        </options>
      </category>
```
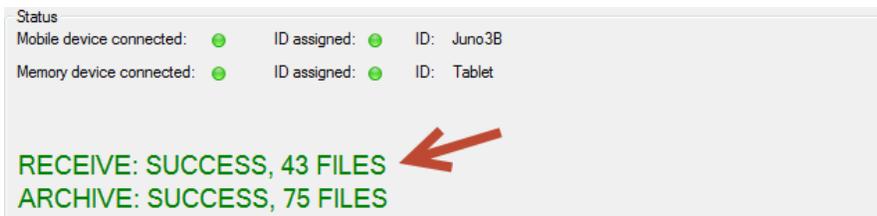
Acceptable values are "prompt" (receive a prompt each time), "true" (receive all files no matter what), or "false" (perform the check).

Set to "prompt" and no new data detected:

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Confirm

No new files detected for Adulticiding Data. Receive anyway?
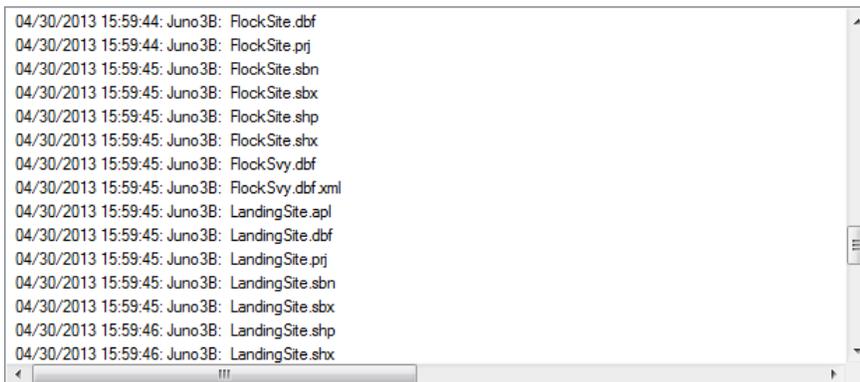
Yes   No

I just installed a Sentinel update (patch installer). How do I get the updates onto my mobile devices?

Program files are updated when a mobile device is synchronized. If the Sentinel update required running the Schema Updater, schema changes are reflected on the mobile device after a merge extracts updated information from the SentinelGIS geodatabase.

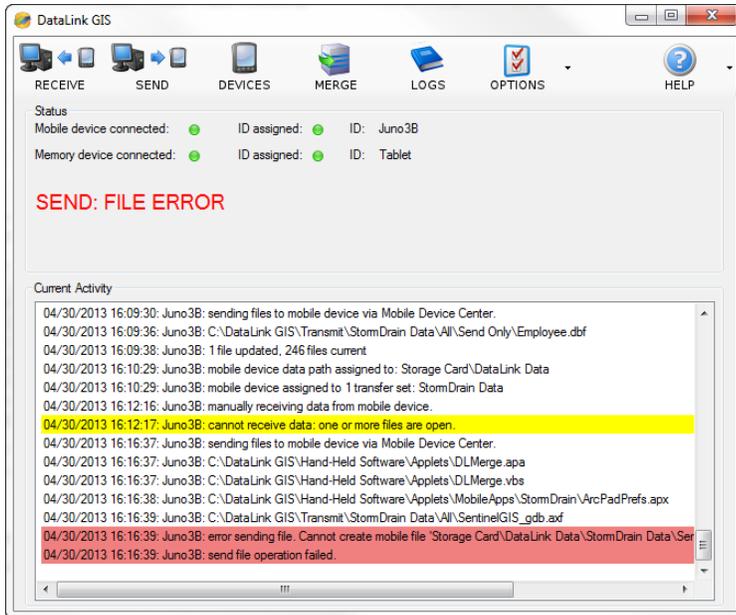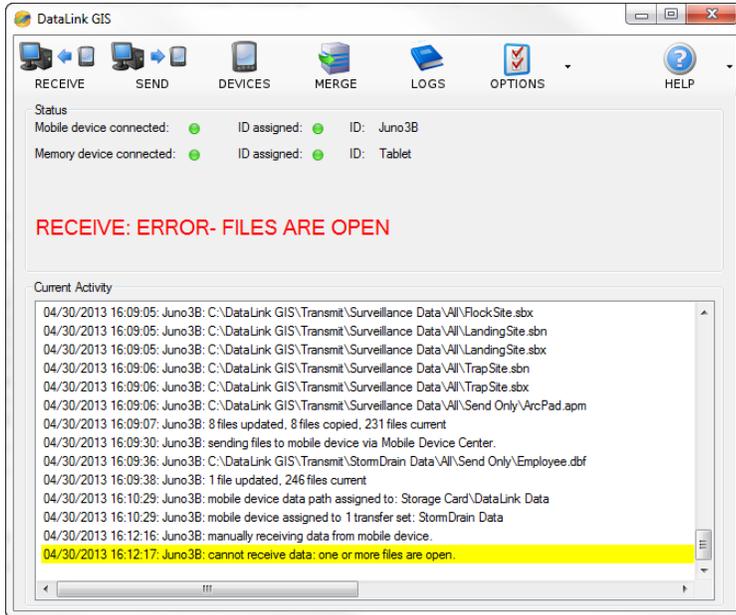**DataLink GIS says it received a large number of files. What does that mean?**

Status
Mobile device connected: ●   ID assigned: ●   ID: Juno3B
Memory device connected: ●   ID assigned: ●   ID: Tablet

RECEIVE: SUCCESS, 43 FILES
ARCHIVE: SUCCESS, 75 FILES

DataLink GIS keeps a record of all the files that it receives.

```
04/30/2013 15:59:44: Juno3B: FlockSite.dbf
04/30/2013 15:59:44: Juno3B: FlockSite.prj
04/30/2013 15:59:45: Juno3B: FlockSite.sbn
04/30/2013 15:59:45: Juno3B: FlockSite.sbx
04/30/2013 15:59:45: Juno3B: FlockSite.shp
04/30/2013 15:59:45: Juno3B: FlockSite.shx
04/30/2013 15:59:45: Juno3B: FlockSvy.dbf
04/30/2013 15:59:45: Juno3B: FlockSvy.dbf.xml
04/30/2013 15:59:45: Juno3B: LandingSite.apl
04/30/2013 15:59:45: Juno3B: LandingSite.dbf
04/30/2013 15:59:45: Juno3B: LandingSite.prj
04/30/2013 15:59:45: Juno3B: LandingSite.sbn
04/30/2013 15:59:45: Juno3B: LandingSite.sbx
04/30/2013 15:59:46: Juno3B: LandingSite.shp
04/30/2013 15:59:46: Juno3B: LandingSite.shx
```

Each shapefile layer consists of multiple files, each of which is counted.

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DataLink GIS says it can't receive data from (or send data to) my mobile device. Why?

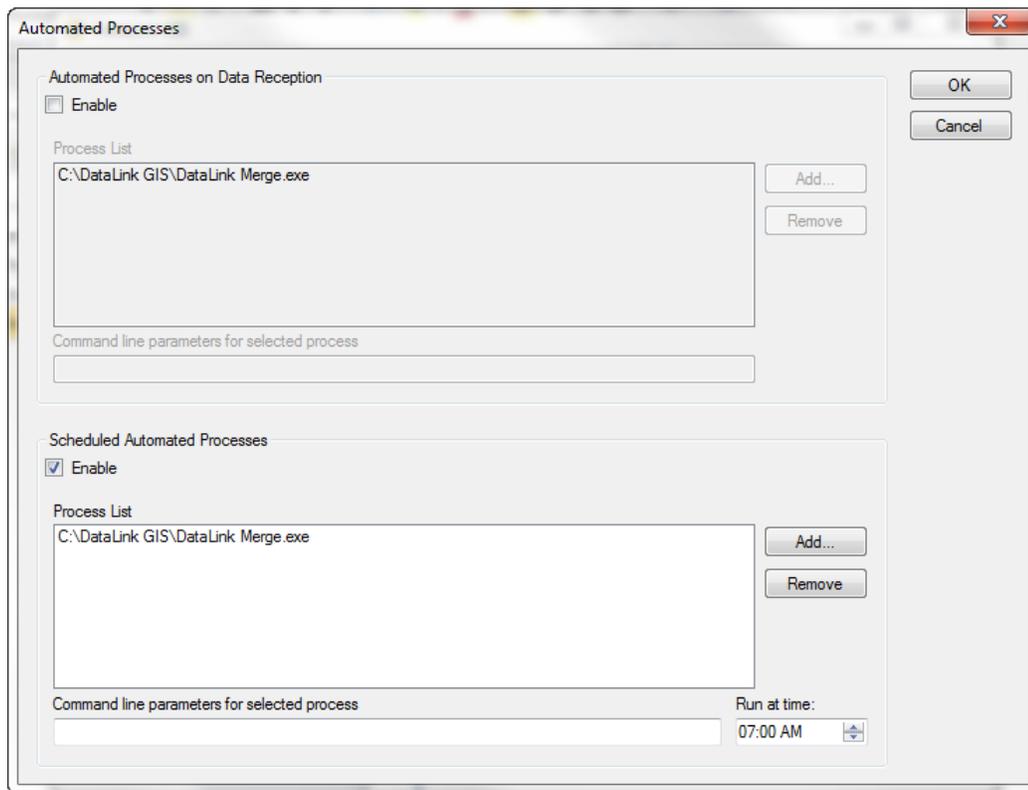This error occurs if the Sentinel program has not been closed on the connected mobile device.

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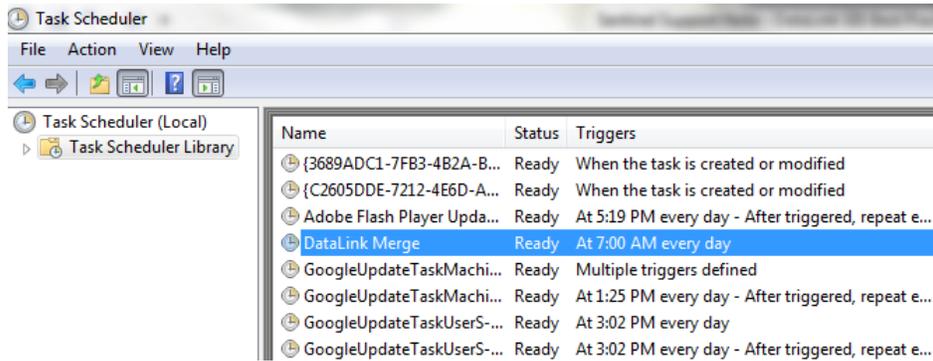Ph: 208-324-8006   http://www.frontierprecision.com

Best Practices

- Always exit Sentinel GIS (using the Exit button) first before plugging in a mobile device
- Make sure to close any edit sessions on the Sentinel GIS geodatabase before merging data
- Don't try to merge data from more than one computer at a time – if you have DataLink GIS installed on more than one computer, set up one of them to run merge on a schedule or manually.

DataLink GIS Options > Automated Processed – configured to run merge on a schedule (DataLink GIS has to be running for this to work)

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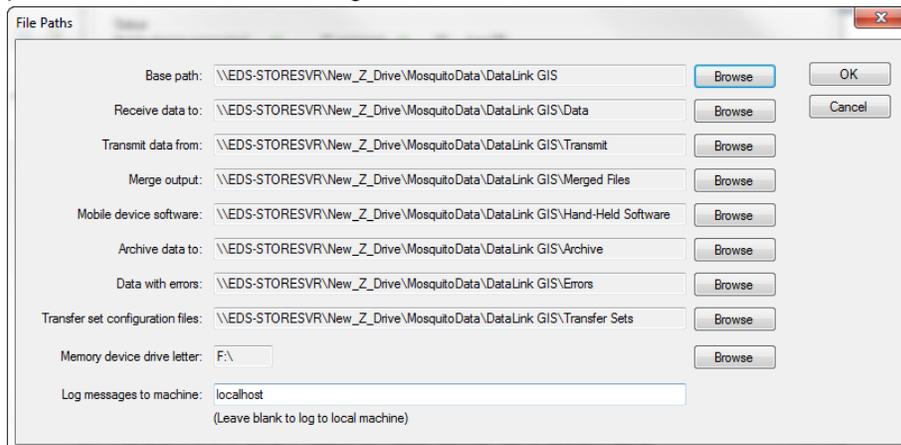Ph: 208-324-8006   http://www.frontierprecision.com

Windows Task Scheduler configured to run merge on a schedule (DataLink GIS does not have to be running for this to work)

Run Merge Manually from within DataLink GIS, or create a shortcut on your desktop to c:/DataLink GIS/DataLink Merge.exe

- If you have more than a few mobile devices, to save time turn of the automatic merge process, synchronize all mobile devices, then run merge manually. Synchronize all mobile devices again to ensure they all have up-to-date information.
- If more than one computer has DataLink GIS or Sentinel GIS installed on it, configure Sentinel GIS file paths so that at least the Merged Files, Hand-Held Software, and Transfer Sets file paths are shared.

- Share Sentinel & DataLink configuration between multiple computers by copying the SCM.config (located in c:\DataLink GIS\Merged Files by default) to a shared network location. Then, open c:\DataLink GIS\SCM.path in a text editor and modify it to point to the UNC path of the shared location (back up the file first). *Note: the Elecdata Logging Service will need to run as a user that has permissions to the shared file location.*

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