



Sentinel[®] GIS

Service Request Module Quick Start Guide

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Introduction

About Sentinel GIS

Sentinel GIS is your complete solution for recording and managing data critical to controlling mosquitoes. This easy-to-use package features mobile GIS solutions for mosquito control, automated synchronization between the desktop GIS and the mobile GIS, and supervisory tools making it easy for supervisors to customize and maintain their workflow processes. Applications are based on industry standard Esri ArcGIS and ArcPad software yet they are fully customizable for your specific needs.

Sentinel GIS offers four application modules. Pick and choose the modules that fit your mosquito control needs. Modules can be added onto the package when you are ready to implement new control methods.

Sentinel GIS Modules

Larviciding

To control mosquito populations, field inspectors first locate standing water bodies that serve as mosquito breeding grounds and apply control agents if mosquito larvae or pupae are present. Field inspectors prepare for field work by synchronizing their handheld device with a desktop computer using DataLink GIS. In the field, they navigate to the water bodies needing inspection. Once at the site, the crew maps the site with GPS, records an inspection, or views a past inspection. Inspectors can record the application of multiple biological agents along and view past treatment history. Sentinel GIS helps manage the inspection schedule on a per-site basis.

Adulticiding

In Adulticiding, fog-spraying is used to kill adult mosquitoes. The Adulticiding application manages spraying activities to efficiently schedule personnel and equipment while minimizing chemical usage and costs. Supervisors prepare for spraying activities by downloading user-specific application settings, accompanying maps, and GIS layers into their handheld device. In the field, the sprayer operator logs in to the application, which then records spray activities, including location, time, chemical type and amount. Spray areas can be viewed on a map. Back at the office, supervisors automatically transfer, merge, and update the GIS. ArcGIS provides desktop tools for map display and query including the creation of fog areas. Supervisor tools are available for managing personnel, equipment details, and chemicals used. Pre-defined report templates quickly generate required spray activity reports.

Surveillance

Collecting data on adult mosquitoes and other disease vectors such as dead birds and sentinel chickens facilitates the formulation of an effective control plan. Surveillance methods include:

1. Monitoring mosquito population distribution and abundance over time via traps and landing counts
2. Testing trapped mosquitoes for diseases affecting human or animals
3. Testing sentinel chickens or dead wild birds for diseases

Using Sentinel GIS Surveillance, supervisors prepare for field activities by downloading GIS data for trap locations, mosquito species, sentinel chicken flock information, data collection forms, and maps into the handheld device. In the field, the technician navigates to or maps trap sites, records trap site surveys, conducts sentinel chicken or dead wild bird surveys, and records landing count rates. This information is automatically transferred into the GIS back at the office. ArcGIS provides desktop GIS tools for map display and query. Supervisor tools enable management of trap information, laboratory surveys, mosquito species, sentinel chicken flock and dead bird details, and laboratory test results. Predefined templates quickly generate a wide variety of map layers and reports for analysis, including mosquito abundance, disease details, and mosquito disease distribution.

Service Request

The Service Request includes a web-based desktop application for creating, tracking and reporting incoming service requests about mosquito or other customer service activity. Information logged includes location, complaints about biting or swarming mosquitoes, or requests for mosquito control. Analyzing this information, the agency can identify the problem sources, apply treatments efficiently and reduce the amount of pesticide used. Supervisors prepare for field activities by downloading service request locations, assigned requests, and accompanying maps into the handheld device. In the field, the inspector maps the service request location, and updates service request details. Back at the office, field data are merged into ArcGIS. Supervisor tools are available to prioritize service requests, establish work zones, and identify trends and problem areas. Predefined report templates summarize service requests over a specified time period.

System Components, Hardware and Software Requirements, Installation Instructions

More details are provided in the *Sentinel GIS Installation Guide*, which provides complete instructions on installation and configuration for each Sentinel module. System components and hardware and software requirements for installation are also discussed in detail.

Finding Additional Information

Help and User Guides

Sentinel GIS help is available in the Quick Start Guide (Program Files\ElecData\Mosquito\[ModuleName]\ in PDF format) and in the Quick Reference Guide. The Quick Start Guide provides operating instructions for the Sentinel GIS ArcMap toolbars, including setup and configuration, map queries and data generation, and report generation. It also includes instructions for

DataLink GIS configuration and operation. Instructions for handheld software operation are also provided.

ArcGIS Desktop Help is available through the Help menu in ArcMap.

ArcPad help is available in the ArcPad User Guide (Program Files\ArcPad x.x\Help\), but it applies to the standard ArcPad interface.

Online self-help resources for handheld devices, including documentation, operating system or firmware updates, support notes and bulletins, white papers, and FAQ's, can be accessed on each manufacturer's Website. For Trimble handheld devices, go to www.trimble.com/support and click the link for your model. For Juniper Systems handheld devices, go to www.junipersys.com/support and click the link for your model.

Training

Sentinel GIS training is available from Frontier Precision. Remote assistance, including product orientation and informal task-oriented training, is included in technical assistance. Formal instructor-led on-site training is also available in 1-, 2-, or 3-day formats. For information and pricing, please contact Frontier Precision at (208) 324-8006.

ArcPad GPS Training (including Trimble Certified Mobile GIS Training) is also available from Frontier Precision. ArcPad training can be provided for any handheld device with any GPS receiver. Trimble Certified training can be provided for ArcPad with Positions with any Trimble GPS hardware. If you would like to use standard ArcPad for other data collection projects, please contact us for a training schedule or for on-site training options.

Esri Virtual Campus and instructor-led training is available for ArcGIS Desktop. See <http://training.Esri.com/gateway/index.cfm> for help deciding which courses best suit your needs or the needs of your users.

Technical Assistance

Sentinel Support

High-priority unlimited toll-free phone and email support is available from Frontier Precision. If FieldSeeker GIS software maintenance is current, please use the contact information below to contact support. This technical support covers the mobile devices, server setup, and FieldSeeker GIS software configuration and use.

To contact Technical Support:

Frontier Precision

(208) 324-8006, 8 AM – 5 PM MTN

support@frontierprecision.com

When contacting support, please supply your contact details (name, company, email, phone) and the nature of your inquiry. This helps support to locate your information and history more quickly

Please note that high-priority technical support does not include software maintenance for Esri software, or hardware warranty for Trimble GPS equipment or Juniper Systems hardware. Esri ArcGIS software has Support and Maintenance extensions available separately from Esri; see www.esri.com/support for more details. Trimble GPS equipment comes with 1 year hardware warranty standard, which can be extended two additional years. Please contact Frontier Precision for FieldSeeker GIS software maintenance renewal or hardware warranty extension, and Esri for ArcGIS software maintenance.

If you have not purchased software maintenance, product updates and technical support will not be available.

Handheld and GPS Support

Technical support for your mobile device is available from the retail outlet where it was purchased, the equipment manufacturer, the warranty service company (e.g. SquareTrade, Asurion), or Frontier Precision, depending on where you purchased it.

Esri Software Support

ArcGIS Desktop and ArcPad software support as it relates to the use of Sentinel GIS is obtained through Electronic Data Solutions. Technical assistance for issues, bugs, or defects with standard ArcGIS or ArcPad software is obtained through Esri Support. Technical assistance is included in annual software maintenance. Even if maintenance is not current, self-help resources are also available from ESRI's Website.

Live Support from ESRI:

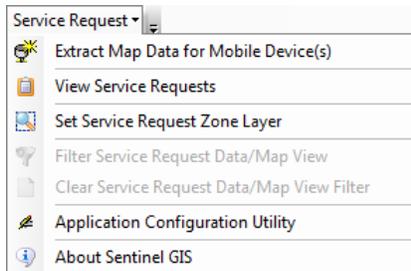
(888)377-4575 toll-free

Online request: <http://support.Esri.com/index.cfm?fa=homepage.policies.gateway>

Self-help resources, including patches and service packs, user discussion forums, documentation, support notes and white papers:

www.Esri.com/support

Service Request Toolbar



The Service Request toolbar is available in ArcMap. If it is not visible, turn it on by selecting **Customize > Toolbars**.

The toolbar contains the following items:

Extract Map Data for Mobile Devices(s). Choose layers to extract for mobile devices. All map data and service requests are extracted and prepared for sending to the handhelds using DataLink GIS.

View Service Requests. View service requests that are open, assigned, or pending review in a hierarchical tree grouped by status, zone, and date. Upon opening, this tool geocodes Service Requests that haven't already been located (if file-based geocoding is configured). It also provides tools for searching for requests, manually placing them on the map, assigning to a technician, closing them, editing them, and creating, reviewing, editing and deleting treatments for them.

Set Service Request Zone Layer. Select the layer in the current map Table of Contents (TOC) that represents the zone layer. This is subsequently used for request details and reports.

Filter Service Request Data/Map View. Display service requests by date range and problem target.

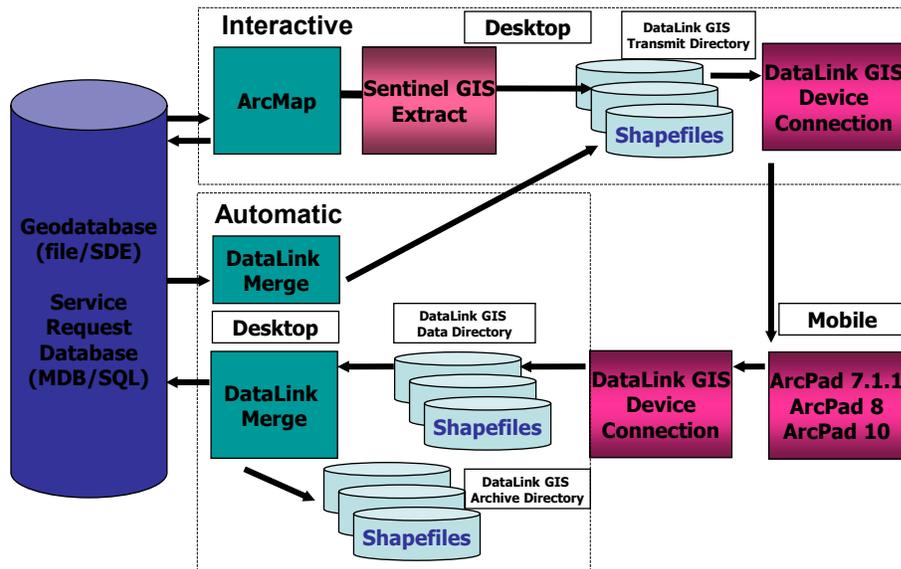
Clear Service Request Data/Map View Filter. Clears the filter criteria so all service requests that are not closed are displayed on the map.

Application Configuration Utility. Configure pick lists for Web, ArcGIS desktop, and mobile applications, including employees, supervisors, problem targets, and field notes. Also configure geocoding options.

About Sentinel GIS. Obtain version and help information.

Workflow

Sentinel GIS Data Flow



The diagram above illustrates the Sentinel GIS data flow. This will assist you in understanding a typical workflow.

Typical Sentinel GIS workflow involves initial setup tasks, regular data synchronization, and analysis including reports and map data generation.

Setup tasks - including configuring DataLink GIS and the Service Request configuration utility, creating a Service Request map, and extracting data for the mobile devices - generally are performed once, and then only periodically adjusted as needed.

Synchronization tasks - including receiving data from mobile devices, merging data to the database, and sending data back to the mobile devices - usually occur on a regular basis.

Analysis activities occur whenever needed.

Here is a summary of the typical workflow steps. Each of these items will be covered in more detail in upcoming sections of this guide.

Configure DataLink GIS Options

DataLink GIS manages the data flow between handhelds and desktop PC's, as well as automatic data transactions with the Service Request database. Processed field data is archived.

Configuration includes setting file paths, auto-run options, and when to merge field data. Handheld configuration in DataLink GIS includes assigning a handheld ID and transfer set(s), such as Surveillance Data, Larviciding Data, and Service Request Data.

Service Request Application Configuration Utility

The configuration utility is used to set up pick lists such as employees, problem targets, supervisors, and field notes; and to set up geocoding options.

Create a Service Request Map for the Handhelds

Create an ArcMap MXD file that will be used as the basis for map appearance in ArcPad on the handhelds. Configuring options such as display scales, easy-to-read symbology and labels, and field visibility, will optimize ArcPad performance and user experience. If you are using Service Request with Larviciding or Surveillance, you can use the same map.

Extract Data

Choose which layers to extract for the mobile device.

Create Service Requests

New requests are created in the Web application.

Synchronize (Send Files)

Connect each handheld to the desktop PC and send files through DataLink GIS.

Mobile Operation

View open and assigned requests, place requests with GPS or on map with stylus, enter notes for requests, create treatments (if using with Larviciding), create new requests, and close requests.

Synchronize (Receive Files/Merge/Send Files)

Connect each handheld to the desktop PC and receive files through DataLink GIS. Data is merged to the database immediately, or at a time specified during configuration. Once all data is merged, data is sent back to each handheld.

Service Request Tools

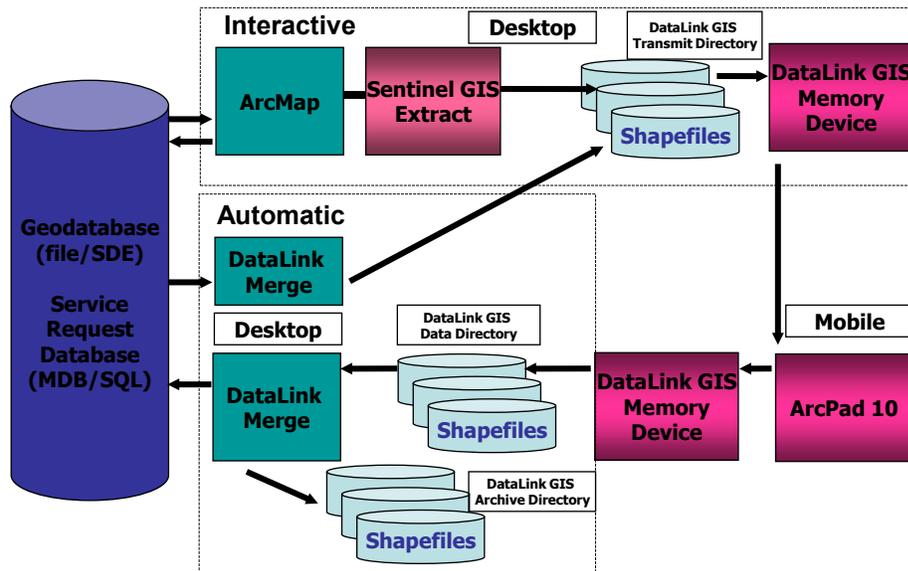
Use the ArcGIS Desktop tools to search for, review and edit requests; review, edit, or create treatments for requests; assign requests; place on map; close requests.

Analysis

Use the Web application to search for, review and edit requests and create reports. Use the ArcGIS Desktop application to filter the requests that display on the map.

Workflow – Memory Card Device

Sentinel GIS Data Flow



The diagram above illustrates the Sentinel GIS data flow with a Memory Card device. This is intended to support data collection using a Windows laptop, where users can take advantage of increased screen size, processor speed, RAM, and data storage. In most respects the workflow is the same, but there are some important differences.

- DataLink GIS sends ArcPad field data and Sentinel GIS program files, applets, and configuration files to a memory card device on a configured drive letter. This means that the PC with DataLink GIS requires a card reader (if using SD cards).
- The memory card device is removed from the card reader and inserted into the Windows laptop.
- The Sentinel GIS Mobile Application Manager is run from the memory card device (an application shortcut should be created on the desktop of the Windows laptop).
- Sentinel GIS data is collected
- Sentinel GIS is shut down
- The memory card device is removed from the Windows laptop and inserted into the card reader
- DataLink GIS receives data from the memory card device and processes it

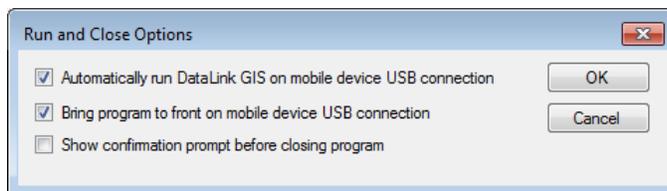
Configuration

A small amount of configuration is required prior to using Service Request. It's easy to adapt the program to your district or organization. When staff, products, or priorities change, the program changes with you.

DataLink GIS Options

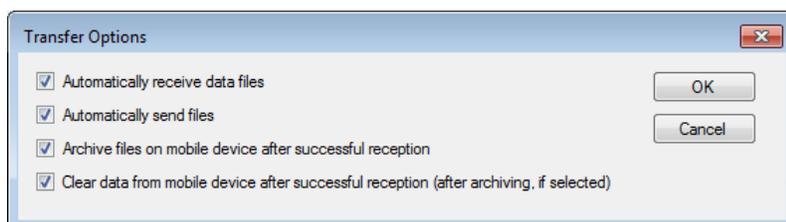
DataLink GIS automatically synchronizes data between mobile devices and your PC. Map data, pick lists, and service requests will automatically be sent to any mobile device that is recognized by DataLink GIS. Any data collected in the field will automatically be downloaded and processed when a recognized mobile device is connected.

Run and Close Options



1. Click Options > Run/Close. The top two options are checked by default.
 - a. Automatically run DataLink GIS on mobile device USB connection (*Note: DataLink GIS does not automatically run when a memory card is plugged in*)
 - b. Bring program to front on mobile device USB connection
 - c. Show confirmation prompt before closing program
2. Press OK to save your changes.

Transfer Options



1. Click Options > Transfer. All options are checked by default.
 - a. Automatically receive data files

- b. Automatically send files
 - c. Archive files on mobile device after successful reception. Files will be retained for 7 days.
 - d. Clear data mobile device after successful reception (after archiving, if selected)
2. Press OK to save your changes.

Path Options

Best Practices:

- At a minimum, set the Merge output (Sentinel GIS database or SDE connection file and Sentinel Configuration Manager settings are stored here), Mobile device software (program files, applets, and configuration files are stored here), Archive data to, Data with errors, and Transfer set configuration files (send-only file lists are stored here) to a shared network directory.
- Receive and Transmit paths may be on a network directory or local, but be aware that setting the receive path to a network location increases network traffic and may incur data transfer delays and permissions management.
- Use UNC paths instead of mapped drive letters (for example, \\MY_SERVER\Shared\Sentinel vs. Z:\Sentinel).
- At a minimum, back up the Merge output and Mobile device software folders regularly.

The screenshot shows a 'File Paths' dialog box with the following fields and values:

- Base path: C:\Program Files\DataLink GIS
- Receive data to: C:\Program Files\DataLink GIS\Data
- Transmit data from: C:\Program Files\DataLink GIS\Transmit
- Merge output: C:\Program Files\DataLink GIS\Merged Files
- Mobile device software: C:\Program Files\DataLink GIS\Hand-Held Software
- Archive data to: C:\Program Files\DataLink GIS\Archive
- Data with errors: C:\Program Files\DataLink GIS\Errors
- Transfer set configuration files: C:\Program Files\DataLink GIS\Transfer Sets
- Memory device drive letter: E:\
- Log messages to machine: localhost
(Leave blank to log to local machine)

1. Click Options > File Paths. Set file path locations to a local or network location.
 - a. Base path: the default base path is C:\Program Files\DataLink GIS\ for Windows XP and C:\DataLink GIS\ for Windows 7 or 8. Changes to the base path will be inherited by all other paths (except memory device drive letter).
 - b. Receive Data To: This is the location field data will automatically be received to when a recognized device is connected. To avoid data overwrite, sub-folders are created by

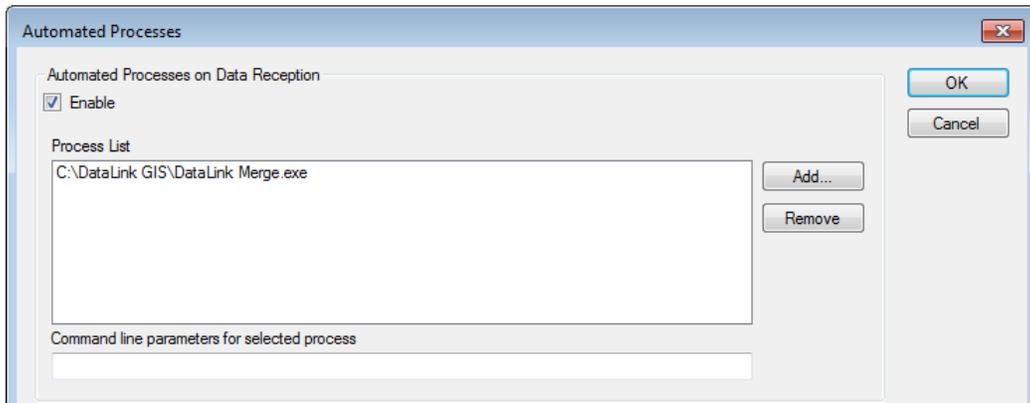
Transfer Set, Date, Device ID, and Suffix. For example, if Larviciding Data is received from a mobile device whose ID is 'Archer_5' on April 29, 2013, this data would be received to 'c:\Program Files\DataLink GIS\Data\Larviciding Data\20130429\Archer_5-01.' If data is received a second time on the same day from the same mobile device the data would be received to '...20130429\Archer_5-02.'

- c. **Transmit Data From:** This is the location where ArcPad map data will be extracted by the Sentinel toolbar in ArcMap or by DataLink Merge. DataLink GIS sends file that are located in this directory to recognized mobile devices.
- d. **Merge Output:** This is the location where the 'Sentinel GIS' geodatabase or SDE connection file is created when data is extracted for the first time, or the Sentinel GIS configuration utility is run for the first time. All GIS data that is processed by DataLink Merge will be merged to the geodatabase that is contained in this path or the SDE repository indicated by the SDE connection file in this path. The centralized Sentinel Configuration Manager (SCM) configuration is also stored in this path. Service Requests are stored in an Access or SQL Server database (not a geodatabase). The location of this database is specified during installation, and is stored in the SCM.config file.
- e. **Mobile Device Software:** ArcPad applet files and program settings that are contained here will be sent to recognized mobile devices using DataLink GIS. Many options set in the Sentinel toolbar in ArcMap will make changes to configuration files contained in sub-directories of this folder.
- f. **Archive Data To:** When DataLink Merge runs, all valid data in the 'Receive Data To' folder is first merged to the geodatabase, and then archived. Sub-folders are created by Transfer Set, Date, Device ID, and Suffix as previously discussed.
- g. **Data With Errors:** If any portion of the DataLink Merge process fails for a particular data folder, it is moved here, so that other data folders can subsequently be processed.
- h. **Transfer Set Configuration Files:** Each module creates a "send-only file list" when data is extracted using the Sentinel GIS toolbar in ArcMap. The configuration files are created in this directory.
- i. **Memory Device Drive Letter:** If mobile data collection will be performed on a Windows laptop, DataLink GIS synchronizes data to a memory device (SD card or other removable memory). Specify the drive letter assigned to this memory device by Windows.
- j. **Log Messages to Machine:** The computer name where the logging server resides. If installed locally, this is 'localhost' or blank.

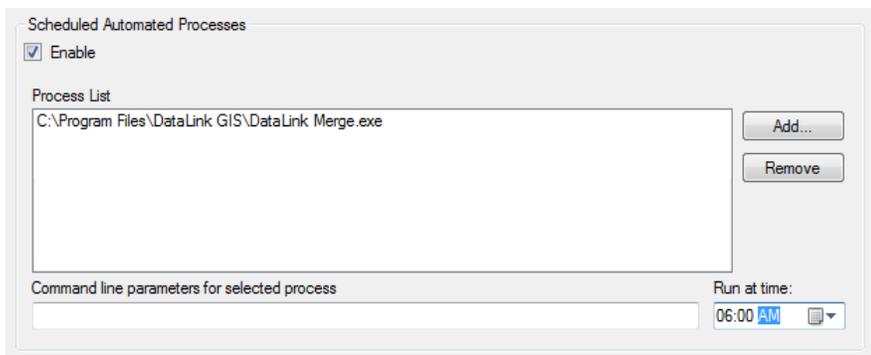
Automated Processes Options

1. Click Options > Automated Processes. Check the box to Enable Automated Processes on Data Reception if you would like DataLink Merge to process field data that is received from a

recognized mobile device as soon as it is received. This option works well if you have a small number of mobile devices.



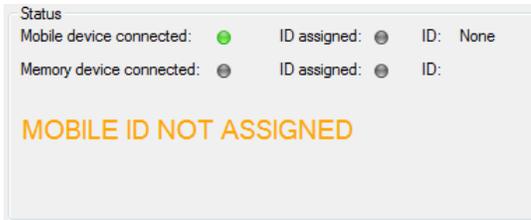
2. Optionally, uncheck the box to Enable Automated Process on Data Reception, and check the box to Enable Scheduled Automated Processes. Press the Add... button and browse to c:\Program Files\DataLink GIS\. Select DataLink Merge.exe. Set the time for the automated process to run. This option works well if you have a larger number of mobile devices. When DataLink Merge runs at the specified time, all data that has been received from recognized mobile devices that has not yet been merged will be processed. **Please Note:** DataLink GIS must be running at the specified time for the automated process to execute. Another option is simply to run Merge manually from the DataLink GIS toolbar. The Windows Task Scheduler can be used to schedule Merge to run whether DataLink GIS is open or not.



3. Click OK to save changes.

Devices

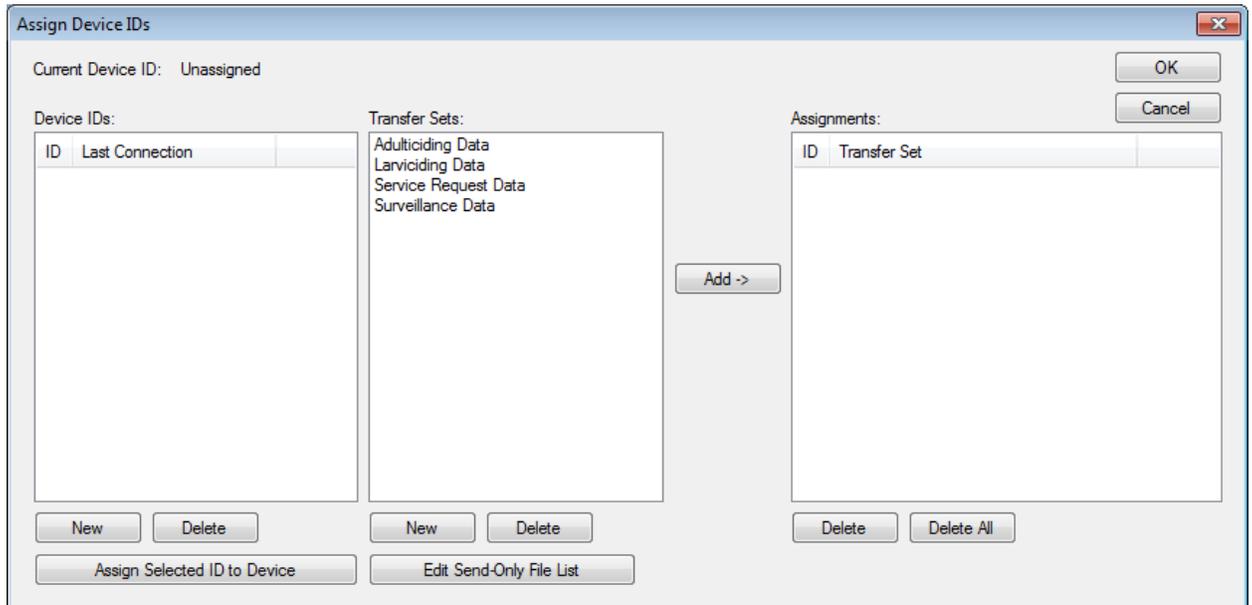
1. Connect your mobile device to your PC using Microsoft ActiveSync or Windows Mobile Device Center.
2. DataLink GIS will show that a device is connected, but not recognized.



3. Click the Devices button.

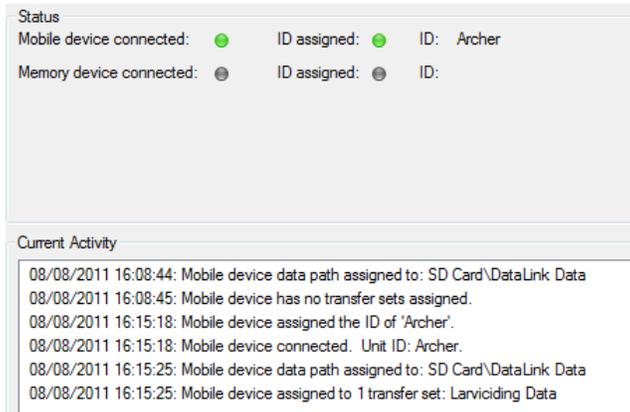


4. The following dialog displays. Device IDs are created and assigned on the left. Available transfer sets are listed in the middle. Device-Transfer Set assignments are listed on the right.



5. Click the **New** button under the Device IDs list. Type in a unique device ID and press Enter. The ID will be added to the list. The Device ID list can be created even if a device is not connected.
6. Make sure the new ID is highlighted and click the **Assign Selected ID to Device** button. The currently connected device will be given the selected ID. If a mobile device and memory card device are both connected, the user must select one or the other.
7. Make sure the new ID is highlighted, and then select the Transfer Set to assign to the device. Press the **Add ->** button to assign it to the selected device. Multiple transfer sets can be created. *Note: Service Request Data does not need to be assigned to devices if service requests are included in the extract for Larviciding or Surveillance data.*

- Click the **OK** button. The display should now change to indicate that the ID is recognized. Also, the activity log will indicate where the data path will be on the device. This is created on the SD Card on the mobile device (if there is one), or on the first non-volatile storage that is found (looking in reverse alphabetical order), such as Built-in Storage, SD-MMC Card, or Storage Card. If no removable memory is found, the data path will be created in \My Documents.



Set Password

All DataLink GIS options can be password-protected. This prevents inadvertent changes to file paths, transfer settings, or device assignments.

- Click Options > Set Password.
- Type in the new password. Confirm, then press OK.



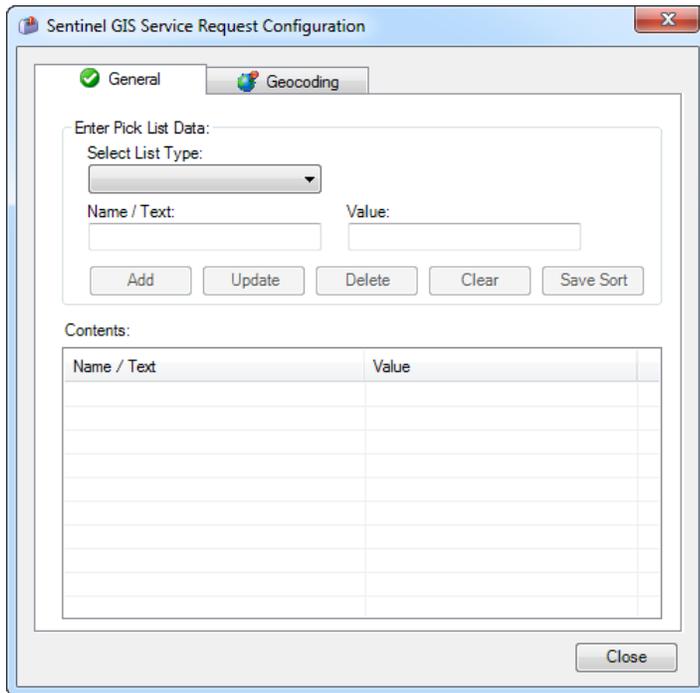
Service Request Application Configuration Utility

Service Request configuration options allow you to adapt the program to your operation, and to adjust as time goes on.

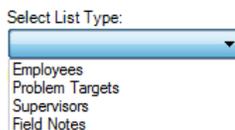
- Start ArcMap.
- Select Service Request > Application Configuration Utility.

General

Pick lists are easy to configure. They are used by the Web app, ArcGIS desktop, and mobile.



1. Select the pick list you would like to edit.



2. To add to the list, type in 'Name/Text' and 'Value' then press Add. The 'Name/Text' appears in the pick list on the handheld, while the 'Value' gets stored in the database.
3. To modify an item already on the list, select it, enter new text for Name/Text, enter new test for Value, and press Update.
4. To delete an item from the list, select it and press Delete.
5. The "Clear" button is only enabled when an existing list item is selected. Pressing "Clear" will clear the contents of Name/Text and Value so you can enter a new pick list item. It will not clear the list or delete the selected value from the list.

Pick List Types

- **Employees.** Employee list. *Note: if using Service Request with Larviciding or Surveillance, be sure the employee names match*
- **Problem Targets.** Request type, e.g. Mosquitoes, Flies, Weeds.
- **Supervisors.** Supervisor list.
- **Field Notes.** List of commonly used field notes for technician data entry.

Sort Pick Lists/Save Sort

Pick lists can be sorted by dragging and dropping an item to its desired place in the list. For example, you can drag most often used choices to the top of the list.

Contents:

Name / Text	Value
Fire Ants	Fire Ants
Flies	Flies
Honeybees	Honeybees
Mosquitoes	Mosquitoes
Other	Other
Rodents	Rodents
Weeds	Weeds

Pick lists can also be sorted alphabetically. Click on the column heading for Name/Text or for Value to sort from A to Z. Click again to sort from Z to A.

Contents: 

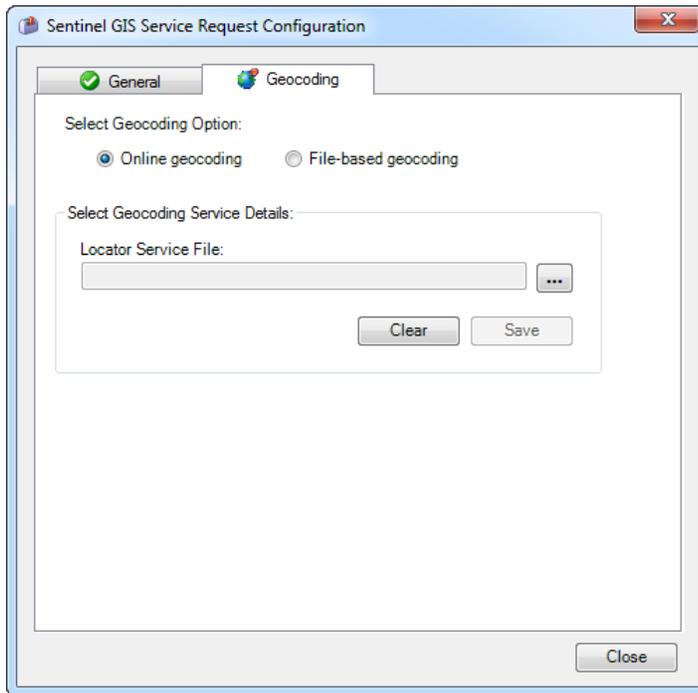
Name / Text	Value
Fire Ants	Fire Ants
Flies	Flies
Honeybees	Honeybees
Mosquitoes	Mosquitoes
Other	Other
Rodents	Rodents
Weeds	Weeds

Click Save Sort to save changes to the pick list order.



Geocoding

Configure online geocoding or file-based geocoding.



Online geocoding uses Google maps single-address geocoding at the time a service request is created in the Web application. The Lat/Long coordinate is stored with the request.

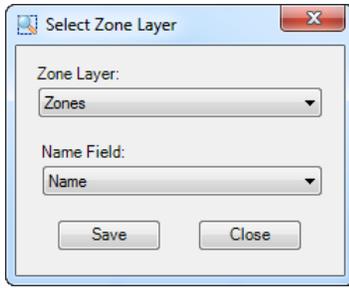
File-based geocoding uses an Esri address locator (.loc file). The address locator can be built from local authoritative data using ArcCatalog. Geocoding occurs at the time the ArcGIS Desktop “View Service Requests” tool is opened.

Service Request Toolbar Options

Set Service Request Zone Layer

The zone layer must be a polygon layer and must be loaded in the current map.

Click the Service Request toolbar, then click Set Zone Layer. Specify the layer name, and the field containing zone names. Each zone name must be unique.



When the zone layer is configured, service requests are assigned a zone when they are geocoded, when they are placed on the map, or when a field technician enters notes.

Creating Service Requests in the Web Application

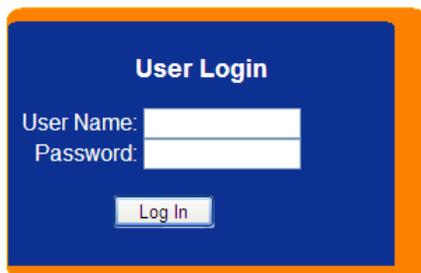
The Web application is used to create new requests, edit or delete existing requests, search for requests, print requests, manage user logins, and print reports.

To create a new request:

1. Start a Web browser.
2. In the address bar, type in the location of the Web app.
 1. If the Web application was installed on the local computer, type <http://localhost/sentinelgis> and press enter.
 2. If the Web application was installed on a different computer, use the computer name or IP address, e.g. <http://myserver/sentinelgis> or <http://123.4.5.67/sentinelgis>.
3. Log in initially using the following credentials:

User: **admin**

Password: **sentinelgis**

A screenshot of a 'User Login' form. The form has a blue background with an orange border. It contains two input fields: 'User Name:' and 'Password:'. Below the input fields is a 'Log In' button.

4. Click the Entry tab, and then click Create Request.

A screenshot of the 'Service Requests Administration' interface. It shows a navigation bar with 'Service Requests' and 'Administration' tabs. Below the navigation bar, there are two buttons: 'Entry' and 'Search'. At the bottom, there are two buttons: 'Create Request' and 'Edit Request'.

- Enter Service Request Details. Date and time are automatically entered, but can be adjusted. Priority and Status are required. If the status is Assigned, then Technician is required. The Treatment flag shows whether a treatment has been recorded for the request. The Zone list is populated if the Service Request Zone Layer is defined. Zone and Supervisor are not required.

Service Request Details

Date / Time:

* Priority: *Status: Treatment:

Zone: Supervisor: *Technician:

- Enter Caller Information. Required fields are marked with an asterisk. If the 'Anonymous Caller' box is checked, then caller fields are not required.

Caller Information Anonymous Caller (caller fields not required)

*First Name: *Last Name: Company:

*Address 1: Address 2:

*City: *State: *Zip:

*Phone1: Phone 2:

E-Mail: Other:

Preferred Method of Contact:

- Enter the Problem Location. Required fields are marked with an asterisk. If the 'Same as Caller' box is checked, address information is copied from the Caller Information fields.

Problem Location Same as Caller

*Description:

*Address 1: Address 2: Cross Street:

*City: *State: *Zip:

Subdivision: Dog on Premises Gate Locked Code:

- Enter the Problem Information. Required fields are marked with an asterisk. The 'Permission' check box is only enabled if the problem location is the same as the caller's. Field notes is editable, but will be populated in the mobile application when a field technician completes a Service Request.

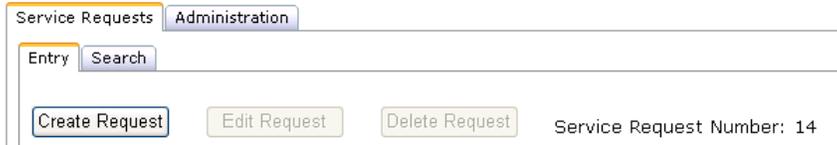
Problem Information

Target: *Summary:

Comments: Field Notes:

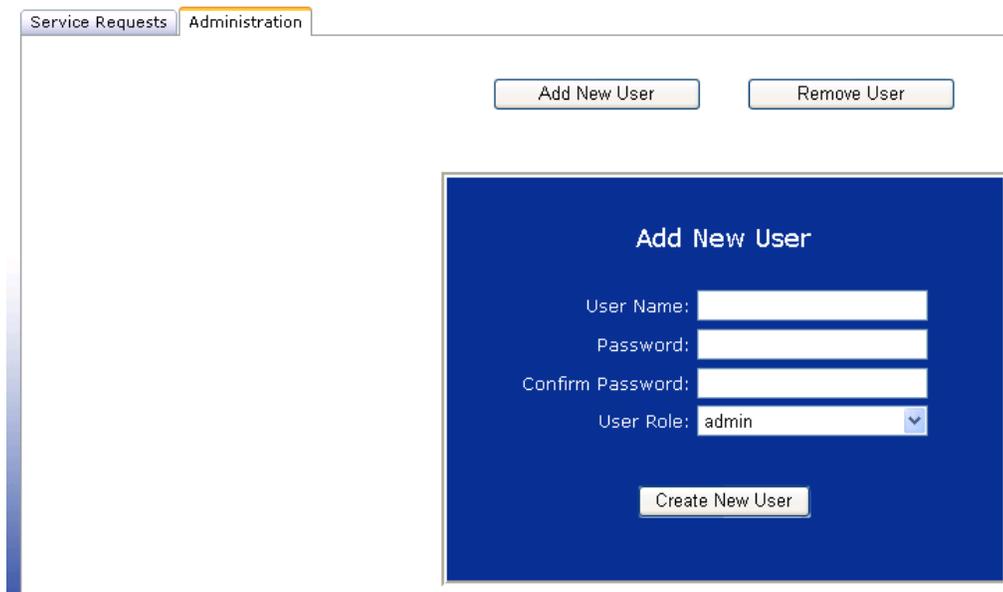
give permission to enter property for inspection ("Same As Caller" must be checked)

- Press Save. When the Service Request is created, a new Service Request ID is assigned.



Administration

1. To create new users, click the Administration tab. Enter a user name and password then press Add New User. Passwords must be at least 8 characters and contain at least one symbol (character other than a letter or number). New users can have two roles:
 - a. admin: Access to all tools and functions, including Administrator tab. Administrators can create or delete users.
 - b. user: Access to all tools and functions except the Administrator tab.



2. To remove an existing user, click Remove User. Select the user and press Remove.

Add New User

Remove User

Remove User

Select User to Remove:

admin (admin)
cminteer (admin)
chad (admin)

Remove User

Creating a Service Request Map for the Mobile Devices

Create a map in ArcMap that contains the layers, symbology, and settings that will be used on the handhelds in the ArcPad map. After the map is set up, extract it for sending to the handhelds with DataLink GIS. *If you are using Service Request with Larviciding or Surveillance, you can use the same map.*

Create a Map in ArcMap

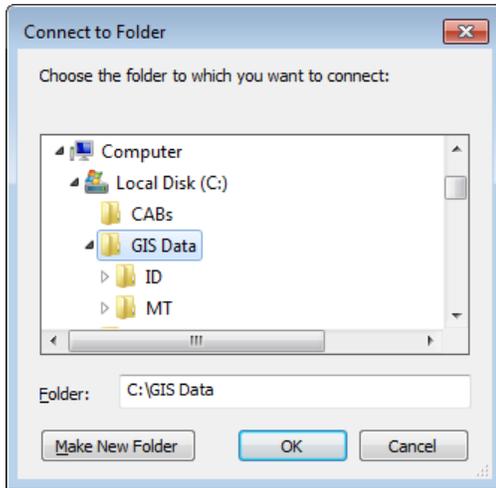
1. In ArcMap, press the Add Data button.



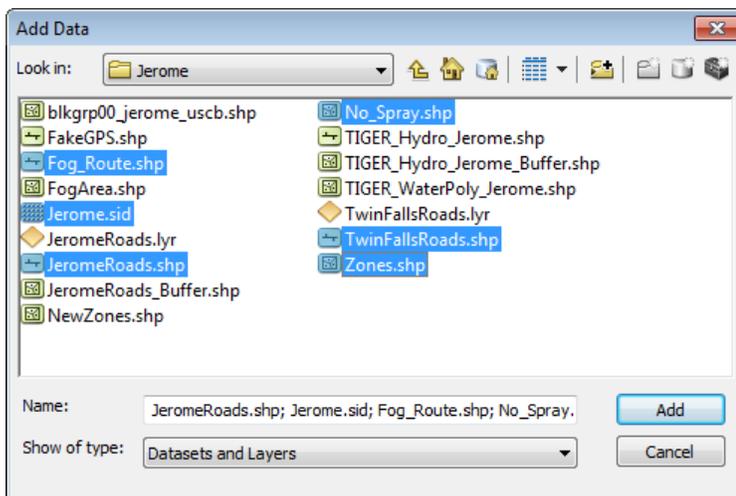
2. If you are using ArcGIS for the first time, press Connect to Folder to set up a folder connection.



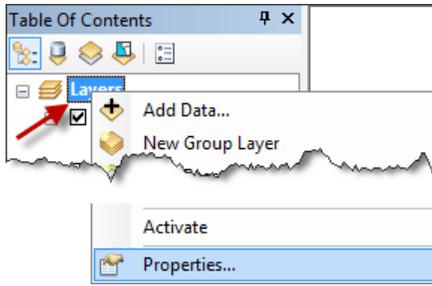
3. Browse to the folder you'd like to connect to and press OK. For example, if all of your GIS data is on C:\GIS Data\ or Z:\Users\Public\GIS Data\, add that folder connection.



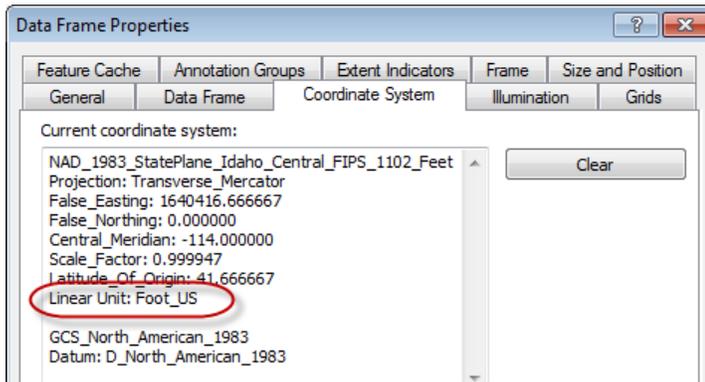
4. Browse to the location of the GIS data that you would like to use in the mobile application. (For a full listing of data formats that are compatible with ArcMap, see ArcGIS Desktop Help. Search for “Data formats supported in ArcGIS”. Please note that not all data that is compatible with ArcMap can be extracted for use on a mobile device. For example, ArcGIS Online content, images in an Image Server, or StreetMap data cannot typically be extracted from ArcMap, although there may be alternative methods for creating a static copy of this data.) Select your data layer(s) and press Add. Hold down the Ctrl key on your keyboard to select more than one layer.



5. Right-click the data frame and select Properties.



6. Verify the coordinate system and map units used in the data frame. By default, this will be the coordinate system of the first layer that is added into the data frame. **Please Note:** The data that will be sent to ArcPad will be created in the coordinate system of the data frame.



Layer Properties

Set layer properties, including symbology, labels, scale ranges, and visible fields. This optimizes the map appearance and program performance in ArcPad.

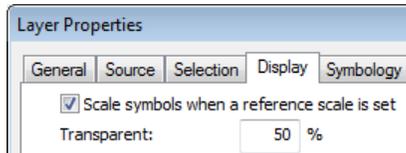
Symbology and Labels

1. In the ArcMap Table of Contents, click directly on the symbol for a given layer.

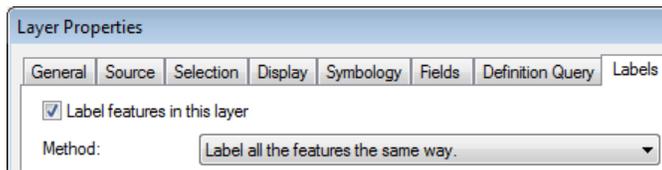


2. Select the desired symbol and color in the Symbol Selector and press OK.

- To set transparency for polygon features, so that other features are visible on the map underneath them, right-click the layer name in the Table of Contents and select Properties. In Layer Properties, select the Display tab. Enter the % transparency and click Apply.



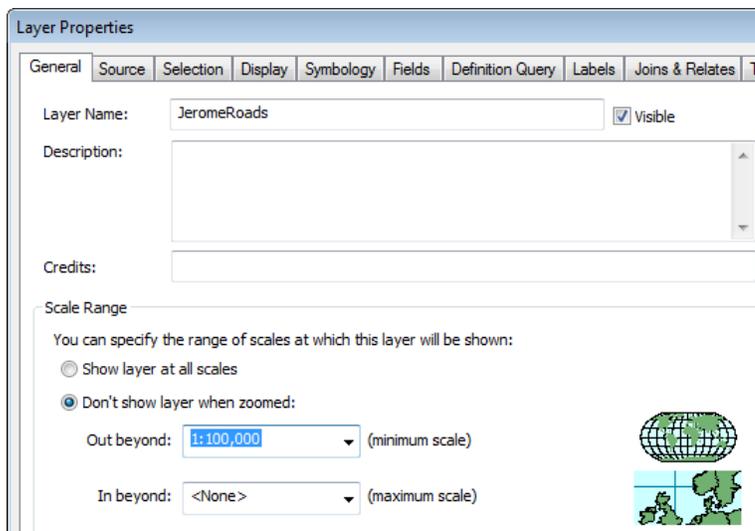
- Click on the Labels tab. Check the box to label features. Specify font settings and click Apply.



Display Scale

Configuring display scale settings improves ArcPad performance and map readability. If a layer contains thousands of features and would take a long time to draw at the full map extents, set the display scale so that the layer is only drawn when you zoom in on the map.

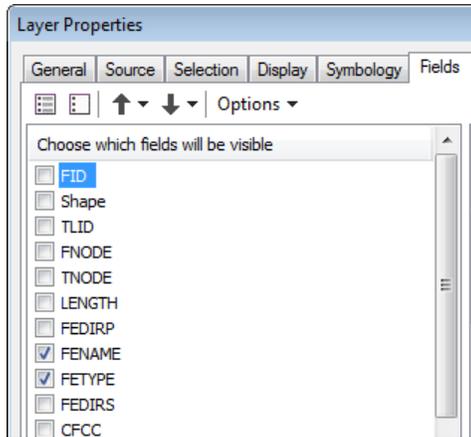
- In Layer Properties, click on the General tab. Click the radio button 'Don't show layer when zoomed: Out beyond:' and specify an appropriate scale. Click Apply.



Visible Fields

Turning off fields for background layers such as roads, parcels, section lines, etc., greatly reduces file size and improves program performance.

1. In Layer Properties, click on the Fields tab. Uncheck the box next to any fields that are not needed on the mobile device.

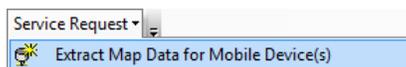


2. Click Apply, or OK to close Layer Properties.

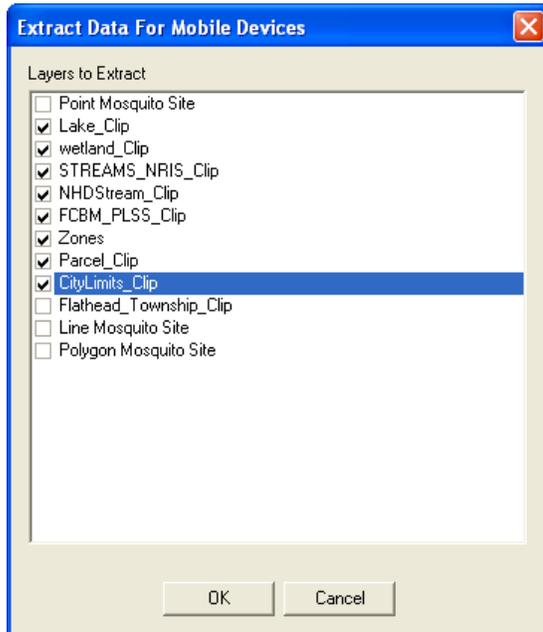
Extract Data

Extract data after the map is set up and saved the way you would like. You do not have to extract data each time you connect handheld devices. If you add new layers to the map, or make symbology changes, you should extract again. If you collect new Sentinel data, it will automatically be extracted for sending to the handhelds when DataLink Merge runs.

1. Click the Service Request drop-down and select Extract Map Data for Mobile Device(s).

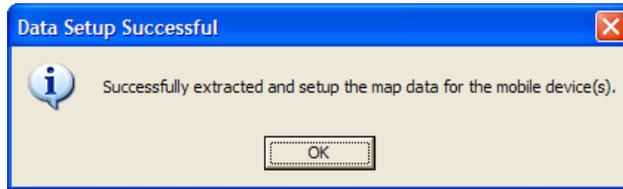


2. Select which layers to extract as background layers. Service Requests are extracted automatically.



3. The following actions take place.
 - a. The full extent of all selected vector (point, line, polygon) data in the active data frame will be extracted to a staging area and compared to data in the DataLink GIS Transmit directory (typically c:\Program Files\DataLink GIS\Transmit\Service Request Data\All\Send Only\). If data in the staging area is not different from that already in the DataLink GIS directory, it will not be re-extracted or re-sent to the handhelds. **Please Note:** Raster data is not extracted for use in the mobile device due in part to file size limitations for MrSID encoding, and performance and storage limitations on many mobile devices. Also note that the full extent of all vector data is extracted, regardless of zoom extent and layer visibility.
 - b. A Send-Only file list will be created for DataLink GIS. All vector data that is extracted is added to this list. Files on this list will not be received by DataLink GIS after data is collected in the field. When DataLink GIS sends files to the mobile device, it will only send files on this list if the data on the PC is newer than the data on the mobile.
 - c. An ArcPad.apm (.apm = ArcPad map file) file is automatically created that references all of the map data. All symbology, labeling, and field visibility settings will be retained in the ArcPad map.
 - d. The service request layer will be added to the map, if it does not already exist. This map layer is an X/Y display layer, and will only display requests that have been successfully geocoded. The requests will be displayed by status.

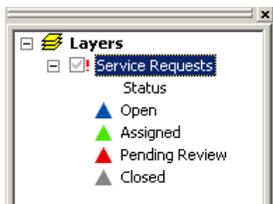
- e. You will be notified if data was successfully extracted. Press OK.



3. If you have not already done so, you will be prompted to save your ArcMap MXD file (your map document).
4. Choose a location for your ArcMap Document (.mxd), enter a File name, and press Save.

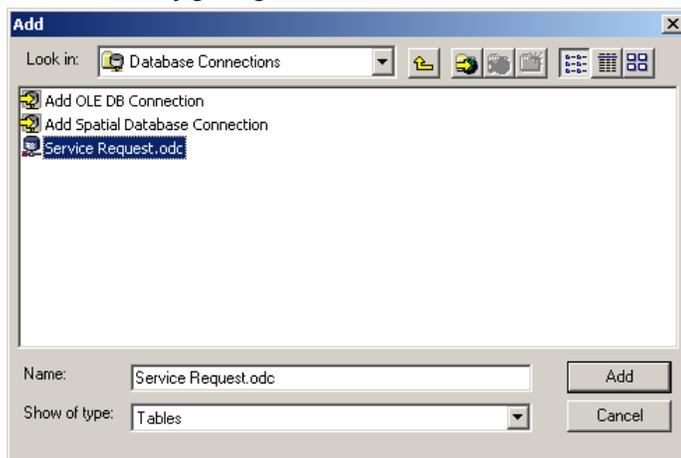
Configure Service Request Map Layer With SQL Data Source

If Service Requests are stored in a SQL Express database, the Service Request layer will be added to the current map, but the data source will need to be configured.

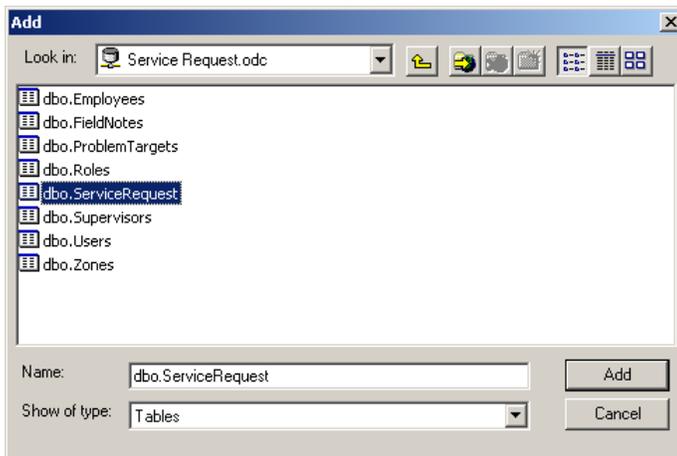


1. Click the red exclamation mark to the left of "Service Requests."
2. Choose Database Connections from the "Look in" dropdown. Double-click Service Request.odc.

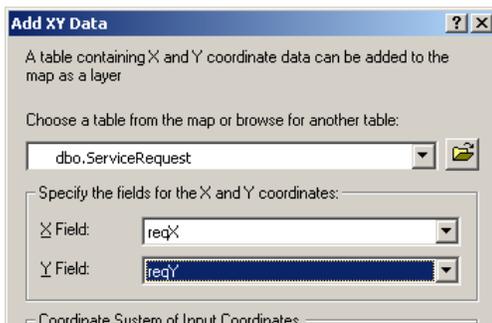
Note: if this database connection does not exist, see the Sentinel GIS Installation Guide for assistance configuring an OLE DB connection to the Service Request SQL data source.



3. Next, choose `dbo.ServiceRequest` and click Add.



4. Set the X and Y fields to `reqX` and `reqY` respectively. Set the Coordinate System to WGS 1984. Click OK.



Synchronizing Data with Mobile Devices

DataLink GIS synchronizes map data, service requests, Sentinel program files and configuration files with all recognized mobile devices.

Receive Files

DataLink GIS is usually configured to automatically receive (and archive, then clear) data files from the handhelds whenever one is connected. (See the Configuration section of this manual, under 'DataLink GIS.')

If this option is not turned on, it can be manually performed in DataLink GIS.

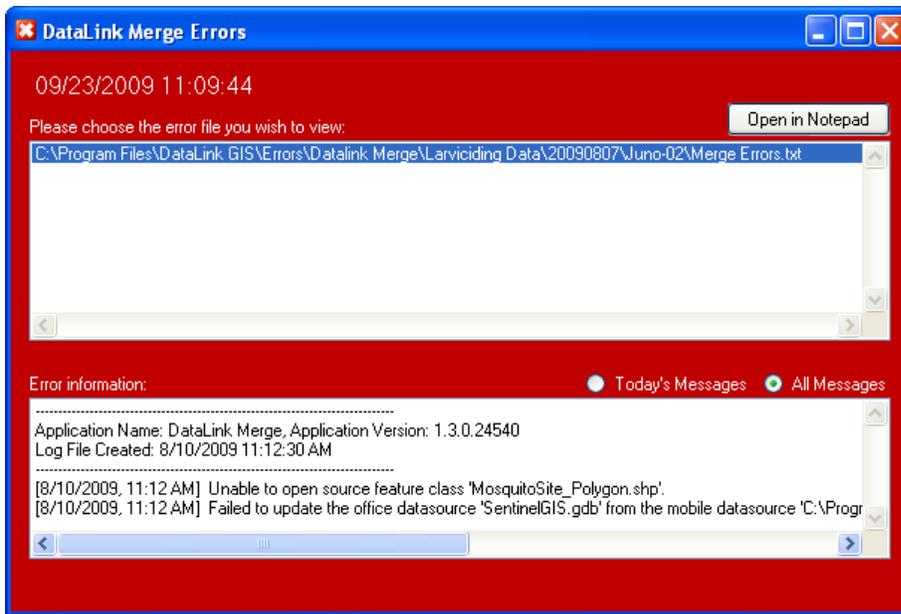
1. Press the Receive button in DataLink GIS.



Merge

DataLink GIS is usually configured to automatically merge data as soon as it is downloaded from a handheld. The Merge process manages transactions with the Service Request database, pushing new and modified data into it, and extracting updated information from it. All data that has been received from handhelds is evaluated by the Merge process, merged to the database, and archived. Updated information is extracted from the database to the DataLink Transmit directory.

If any errors are encountered while merging data, the program will report the problem, move the offending data to the configured DataLink GIS \Errors folder, and continue processing remaining data. The DataLink Merge Errors program will list the location of any problem files and the reason for the error.



This program can be run manually at any time by pressing the Merge button in DataLink GIS.



DataLink Merge can also be configured to run at a specific time, rather than each time data is received from a handheld. (See the Configuration section > DataLink GIS Options.) DataLink GIS must be running at the specified time in order for the Merge process to run successfully.

Send Files

DataLink GIS is usually configured to automatically send files, after it has received any new data from a handheld and successfully merged it. If this option is turned off, data can be sent manually in DataLink GIS.

1. Press the Send Files button to transfer the GIS data, pick lists, surveys, program files and configuration settings to your connected mobile device. **Caution: if map data, including Sentinel data, is newer on the desktop than it is on the handheld, handheld data will be overwritten.**



Mobile Operation

User Interface

Main Toolbar

The main toolbar is only displayed and available in the standalone Service Request applet. If service requests are included with Larviciding or Surveillance, their main toolbar will display instead.



1 2 3 4 5 6 7

1. Zoom In tool. Click the tool, then tap and drag a diagonal line on the map. A Zoom box will display until you release the tap/drag motion. After releasing, the map will zoom in on the extent you selected.

- a. Submenu: Fixed Zoom In. Select this button to zoom in on the center of the map.



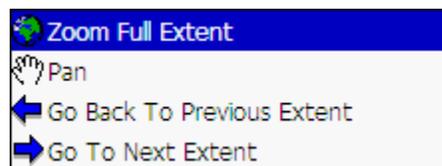
2. Zoom Out tool. Click the tool, then tap and drag a diagonal line on the map. A Zoom box will display until you release the tap/drag motion. The larger the box, the farther out the map will zoom after you release.

- a. Submenu: Fixed Zoom Out. Select this button to zoom out from the center of the map.

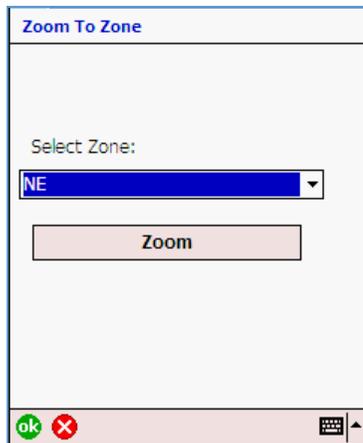


3. Zoom Full Extent. Tap the button to zoom to the full extent of the map.

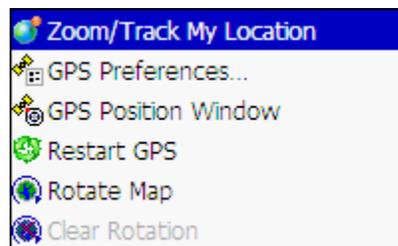
- a. Submenu: Pan, Go Back to Previous Extent, Go to Next Extent
 - i. Pan: Click the tool, then tap and drag the map to move it around in any direction.
 - ii. Go Back to Previous Extent: tap the button to go back.
 - iii. Go to Next Extent: tap the button to go forward.



4. Zoom to Zone. If a zone layer is configured (see Configuration section, in the Surveillance Toolbar Options sub-section), you can select the zone then press Zoom.



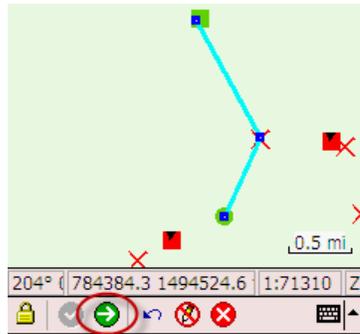
5. Zoom/Track My Location. Tap this button to center the map on your GPS location.
 - a. Submenu: GPS Preferences, GPS Position Window, Restart GPS, Rotate Map, Clear Rotation.
 - i. GPS Preferences: Tap this button to change GPS Preferences. These changes will only apply to the current session, and will be reset when Sentinel is restarted. (See the Sentinel GIS Installation Guide for more information about GPS Preferences, and changing GPS settings permanently for all handhelds.)
 - ii. GPS Position Window: Tap this button to open ArcPad's GPS Skyplot and other information screens to view GPS status and quality.
 - iii. Restart GPS: Tap this button to re-connect to the GPS receiver.
 - iv. Rotate Map: Tap this tool, then tap and drag on the map to change the map rotation to a direction other than North.
 - v. Clear Rotation: Tap this button to reset the map orientation to North.



6. Identify/View Request Details. Tap this tool, and then tap a Service Request to view information about it.
 - a. Submenu: Measure, Radial Measure.

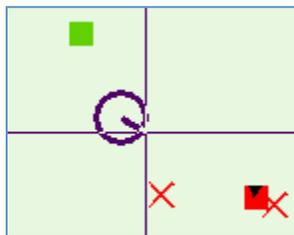


- i. Measure: Tap this tool, then tap on the map to add vertices to a 'measure line.' Then tap the Proceed button (green arrow) to view the measurement.



From Location	783208.2E, 1502633.6N
To Location	784384.3E, 1494524.6N
Direct Distance	1.6mi
Distance Along	1.7mi
From -> To	171°
To -> From	351°
Closed Area	182.57 acres

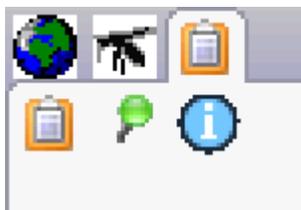
- ii. Radial Measure: Tap this tool, then tap and drag on the map to define the radius of a circle. When you release the tap/drag, measurement info will display.



From Location	784631.9E, 1500095.6N
To Location	785374.7E, 1499167.1N
Radius	0.2mi
Perimeter	1.4mi
From -> To	141°
To -> From	321°
Closed Area	101.97 acres

- 7. Refresh: Tap this button to redraw the map.

Service Request Toolbar (Inside Larviciding or Surveillance)



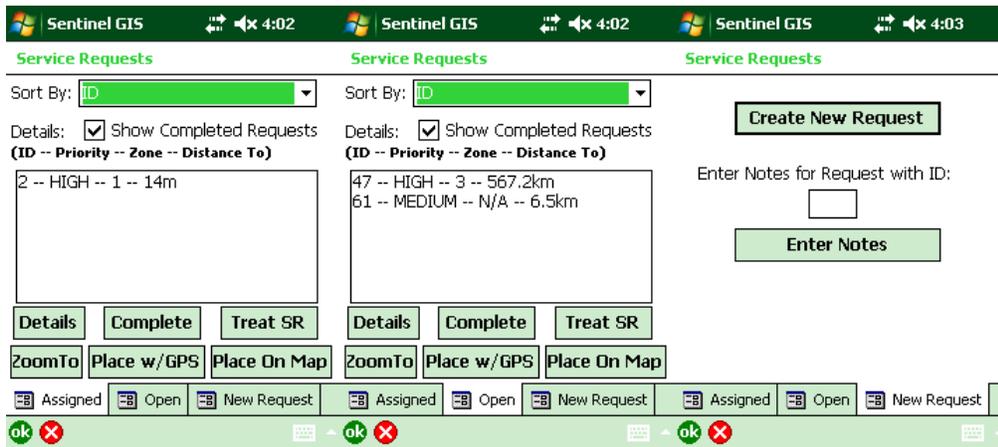
1 2 3

1. View Service Requests. View open and assigned requests, create new requests, enter notes, record treatments (if used in Larviciding module), locate request using GPS or stylus.
2. Create New Request. Tap the button to create a new service request in the field.
3. Identify/View Request Details. Tap this tool, and then tap a Service Request to view information about it.

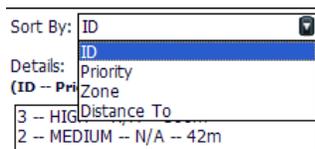
Working With Service Requests

Press the View Service Requests button.

Assigned service requests show in a list, sorted by priority and distance. Click on the Open tab to view service requests that aren't assigned to any particular technician. Click on New Request to create a new request in the field or to enter notes for a request that has not been transferred to the mobile device yet by ID number.



Service Requests can be sorted by ID, Priority, Zone, or Distance from GPS.



Completed requests will show in the list. Un-check the box to remove them from the list.

Details: Show Completed Requests

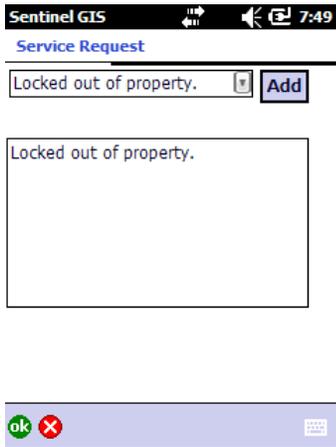
View Details

To see details for a Service Request, select it in the list and press Details. All information for the request is visible, but can't be modified. Click OK to close the details and return to the list.



Enter Field Notes/Complete Request

To enter field notes for a Service Request, select it in the list and press Complete. Enter notes by typing, or by selecting from the list and pressing Add.

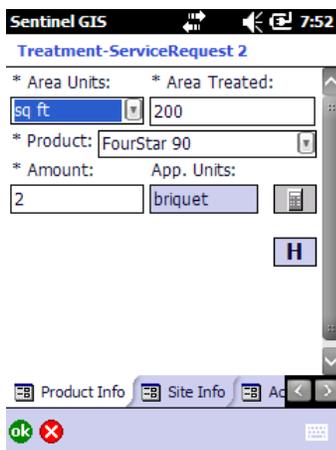


When you press OK, you will be asked whether you want to close the service request. If you plan to do more activities and enter more notes, press No. The request will remain on your list. If you do close the request, you can still display it by checking the box to “Show Completed Requests.” You can add more notes by pressing Complete.



Enter Treatment

To enter a treatment for a service request (rather than creating a permanent point site then entering inspection and treatment details), select it in the list and press Treat SR. Fill out the treatment form completely and press OK.



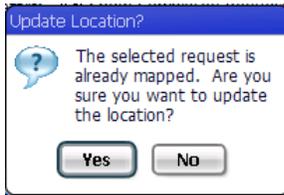
Other Actions

To zoom to a request on the map, select it and press ZoomTo.

To locate the request using GPS (which may be better than the geocoded location), select it and press Place w/GPS.

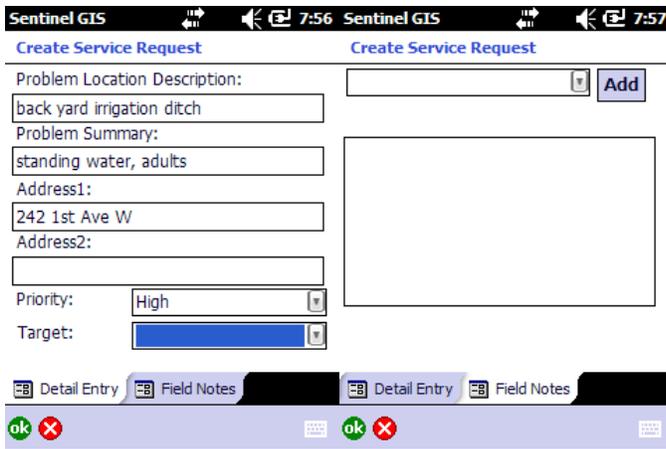
To locate the request by tapping on the map, select it and press Place On Map.

If the request is already geocoded, you will be asked to confirm.



Creating New Service Requests

To create a new request, tap the Create New Request button, or go to the New Request tab. Fill out the required information on the first page. Optionally record Field Notes on the 2nd page. Notes can also be entered later from the service request list.



Enter Notes for Request by ID

If a new request has been created in the office but has not been transferred to the mobile device, you can enter notes for it by ID number. Go to the New Request tab, enter the Service Request ID number then press Enter Notes.



Create New Request

Enter Notes for Request with ID:

117

Enter Notes



After doing so, the request will show in the Assigned tab. You can then record treatment information and take other actions as needed.

Exit the Program

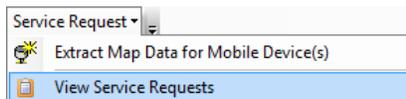
To exit, tap the Mosquito toolbar and press the Exit button. Or, if you are using the standalone Service Request applet, tap the Exit button on the Service Request toolbar.



Working With Service Requests on the Desktop

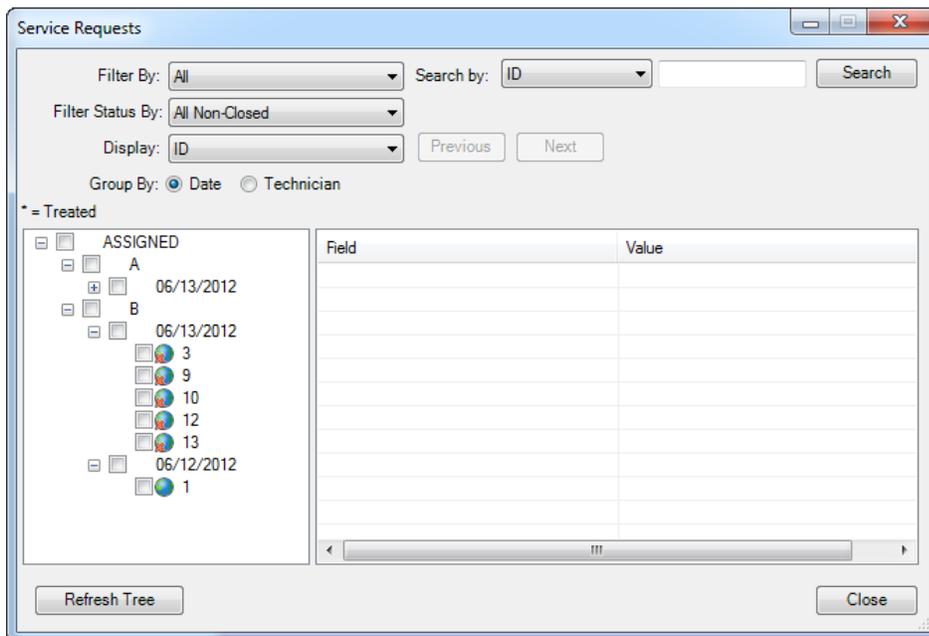
Service requests that have been created using the Web or mobile application can be viewed, edited, placed on the map, assigned, and closed. Treatment records can be created, viewed, edited, and deleted.

Click Service Request > View Service Requests.



If file-based geocoding is configured, requests that have not yet been geocoded are processed. (Geocoding is the process of assigning a Latitude/Longitude coordinate based on an address.)

Service requests are displayed in a tree view, arranged by status, zone, and date. They can also be grouped by status, zone and technician.



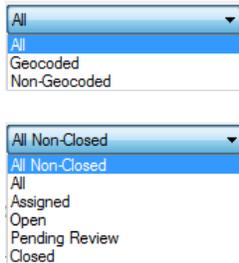
Request icons display whether the request is geocoded or not, and whether there is a treatment connected to the request.

Not geocoded: 

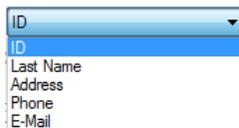
Geocoded: 

Searching and Filtering

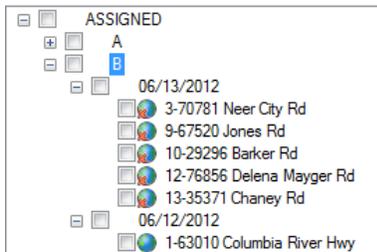
Service requests can be filtered by geocoding status or request status.



Service requests can be displayed by ID, last name, address, phone, or email.



For example, the following is displayed by address.

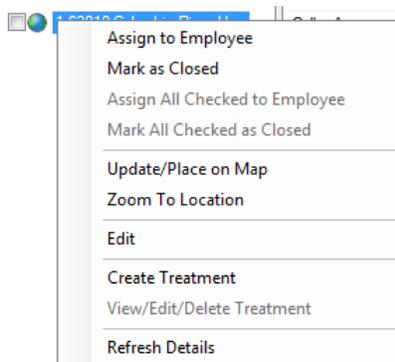


Search tools also let you search for requests based on ID, last name, address, phone or email. If multiple requests are found, you can look at them by pressing Next.



Editing

Requests can be assigned to employees, marked closed, placed on the map, edited, or treated. All options are available by right-clicking on a service request.



To edit request details, right-click an individual request then choose Edit. Make changes then press Save.

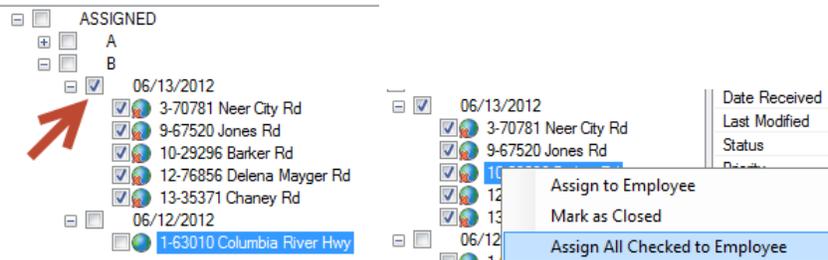
The screenshot shows the 'Edit Service Request' window for request number 13. The form is organized into several sections:

- Service Request Details:** Date / Time: 6/13/2012 11:29 AM. *Priority: Medium, *Status: Assigned, Zone: B, Supervisor: Mel, *Technician: Mel.
- Caller Information:** Includes fields for *First Name (Ty), *Last Name, *Address 1 (Chaney Rd), *Address 2, *City (Deer Island), *State (OR), *Phone1, *Phone2, E-Mail, and Other. Preferred Method of Contact is Phone. There is an option for Anonymous Caller.
- Problem Location:** *Description: adults. Address fields include Address 1, Address 2, City (Deer Island), and State (OR). Includes checkboxes for Dog on Premises and Gate Locked. Cross Street, Zip (97054), and Code fields are also present.
- Problem Information:** Target: Fogging Request, *Summary: fog. Includes text areas for Comments and Field Notes.

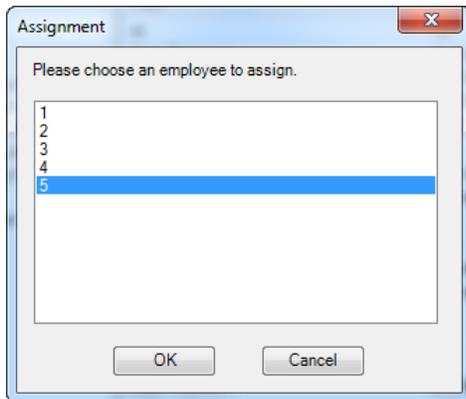
At the bottom, there is a checkbox for 'I give permission to enter property for inspection' and 'Save' and 'Cancel' buttons.

Assigning Requests

To assign an individual request, right-click on it then choose Assign to Employee. To assign multiple requests, check the check marks for individual requests, or for a group. Then right-click a request and select the option to Assign All Checked to Employee.



Select an employee then press OK.

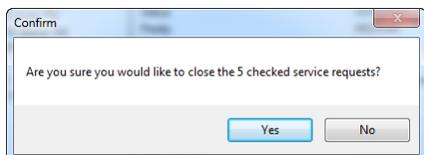


Requests can also be assigned in the Web application when they are created, or by editing them there. Or, if a request is Open, when a technician responds to the request and enters field notes, the request is assigned to him.

Marking Requests as Closed

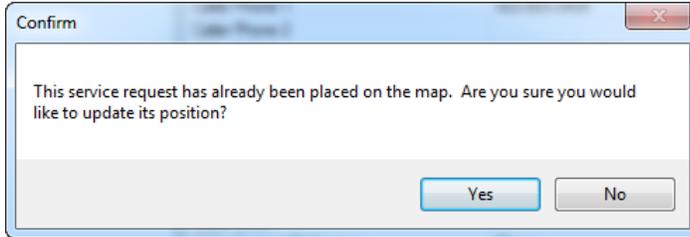
To close an individual request, right-click on it then choose Mark as Closed. To close multiple requests, check the check marks for individual requests, or for a group, then right-click a request and select the option to Mark All Checked as Closed.

You will be asked to confirm this action.

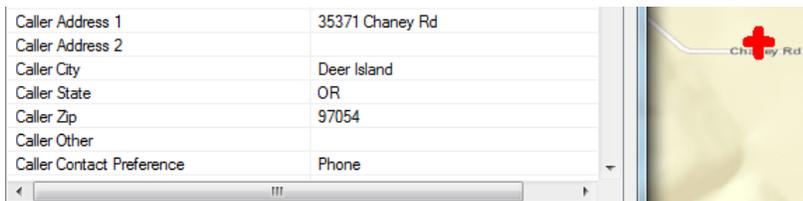


Placing Requests on the Map

To place a request on the map, first zoom to the location where it should be located. Then, right-click the request and choose Update/Place on Map. If the location was previously geocoded, you will be asked to confirm this action.



The updated location shows on the map, and the Latitude/Longitude coordinate for the request is updated.



Create Treatment

To create a treatment for a request, right-click it then choose Create Treatment. Fill out the treatment details then press Save.

Create Treatment

Treatment

Treatment Info

Treat Date: Wednesday, June 13, 2012

Treat Time: 10:25:00 AM

Field Tech: Mel

Product Info

* Product: Altosid Briquet

* Area Treated: 200 * Units: sq ft

* Amount: 2 App. Units: briquet

Site Info

General Wind Direction: Avg Wind Speed:

Temperature:

Activity

App. Time (mins): 10

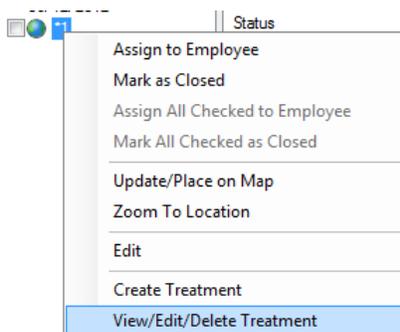
Activity:

Equipment type: Hand

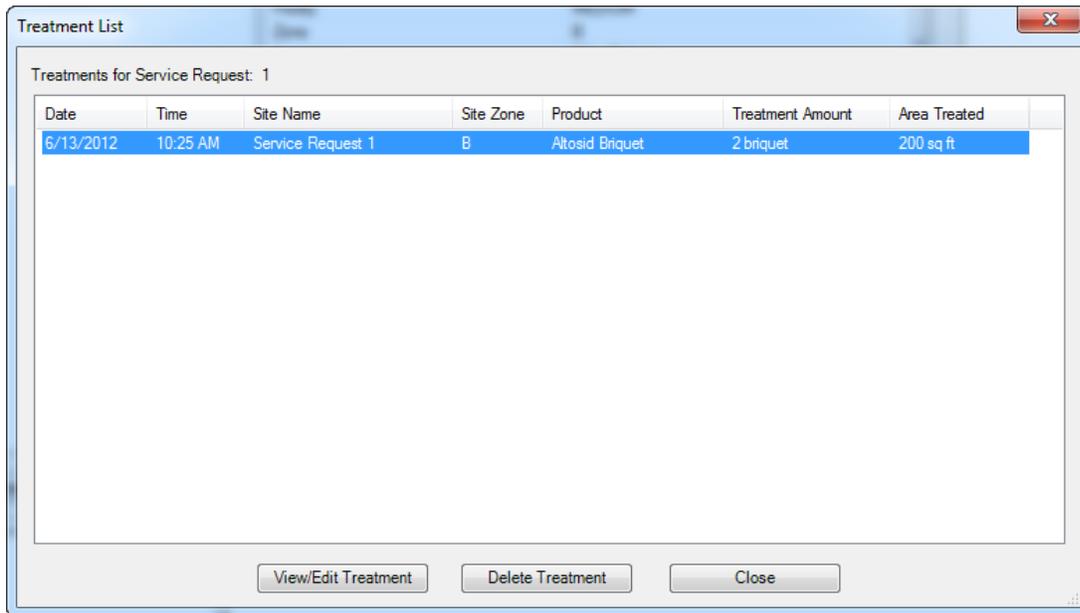
Comments

Save Close

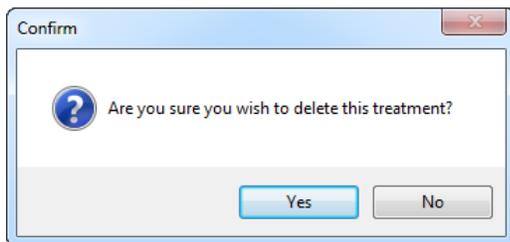
To view, edit, or delete existing treatments, right-click a request that has a treatment and select the option to View/Edit/Delete Treatment.



A treatment list displays. Select the treatment you wish to edit or delete.



If you choose to delete a treatment, you will be asked to confirm this action.



Analysis and Reporting

Web Application

Search

Search for requests based on ID, last name, phone, email, address, city, zip, field tech, supervisor, target, whether the request has a treatment, date range, priority, and status. Requests that meet the criteria are displayed.

Enter search criteria:

Service Request ID: <input type="text"/>	Last Name: <input type="text"/>	Phone#: <input type="text"/>	E-Mail: <input type="text"/>
Request Addr: <input type="text"/>	City: <input type="text"/>	Zipcode: <input type="text"/>	<input type="checkbox"/> Request has treatment (s)
Field Tech: <input type="text"/>	Supervisor: <input type="text"/>	Target: <input type="text"/>	
From Date: <input type="text"/>	To Date: <input type="text"/>	<input type="button" value="Last Week"/>	<input type="button" value="Last 2 Weeks"/>
Priority: <input checked="" type="checkbox"/> Low <input checked="" type="checkbox"/> Medium <input checked="" type="checkbox"/> High	Status: <input checked="" type="checkbox"/> Open <input checked="" type="checkbox"/> Assigned <input checked="" type="checkbox"/> Pending Review <input type="checkbox"/> Closed		

Mark Requests as Closed

Mark the check boxes for individual requests then click Mark All Selected as Closed. Or, edit an individual request and change the status.

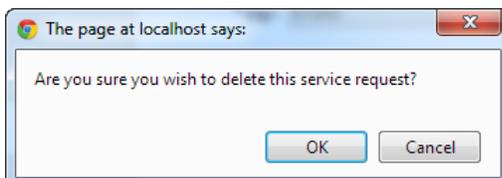
Edit a Request

To edit or delete an individual request, click on the ID.

ID	Date/Time	Priority	Status
<input type="checkbox"/> 3	6/13/2012 10:59:00 AM	MEDIUM	ASSIGNED
<input type="checkbox"/> 6	6/13/2012 11:08:00 AM	MEDIUM	ASSIGNED
<input type="checkbox"/> 12	6/13/2012 11:27:00 AM	MEDIUM	ASSIGNED

Click Edit Request to make changes.

Click Delete Request to remove it. You will be asked to confirm this action.



Creating Reports

Three reports are available. All requests displayed in the Search tab will be printed on the report.

Status Report

This report shows requests grouped by zone and date, and the field notes showing what has been done on them so far.



ID	Date / Time Received	Target	Priority	Caller Name	Date/Time Modified	Modified by Technician
ASSIGNED						
6/10/2012						
2	6/13/2012 10:51AM	Fish Request	MEDIUM	Erin	6/13/2012 10:57AM	Mike
		Fish for ponds		503-733-3333 503-733-3333 slavens rd, Warren		
4	6/13/2012 11:04AM	Fogging Request	MEDIUM	Michael	6/13/2012 11:41AM	Me
		please fog		503-733-3333 6th st, St Helens		
5	6/13/2012 11:06AM	Mosquitoes	MEDIUM	Sharme	6/13/2012 11:08AM	Mik
		check area fog as necessary		503-733-3333 Berg Rd, Warren		

Follow Up Report

This report shows what has been done on requests, and contact information to follow up with the initiator of the request.



ID	Date / Time Modified	Target	Caller Name	Phone 1	Phone 2	E-Mail Address
1	6/13/2012 10:21:58AM	Fish Request	Tim	503-733-3333		re
		Pond next to house, please add fish.		503-733-3333 Columbia River Hwy, Deer Island		?@hotmail.com
		Thomas				
2	6/13/2012 10:57:53AM	Fish Request	Erin	503-733-3333		
		Fish for ponds		503-733-3333 503-733-3333 slavens rd, Warren		
		Mike				
3	7/11/2013 3:07:23PM	Mosquitoes	Cindy	unknown		
		adults please fog		503-733-3333 503-733-3333 Neer City Rd, Rainier		
		Thomas				

Summary Report

This report shows total number of requests per month, by zone or by tech, including the number open, number closed, and the average time to close.

Name	Number of Requests	Number Open	Number Closed	Avg Time To Close (d.HH:MM:SS)
June 2012				
A				
Fish Request	2	2	0	
Fogging Request	3	3	0	
Mosquitoes	2	2	0	
A Summary	Total # Requests	Total # Open	Total # Closed	
	7	7	0	
B				
Fish Request	2	2	0	
Fogging Request	1	1	0	
Mosquitoes	3	3	0	
B Summary	Total # Requests	Total # Open	Total # Closed	
	6	6	0	
June 2012 Summary	Total # Requests	Total # Open	Total # Closed	
	13	13	0	

Print Report

To print a report, press the Print button in the upper left. Make sure pop-ups are allowed by your browser. Select the printer and printer options then print the report.

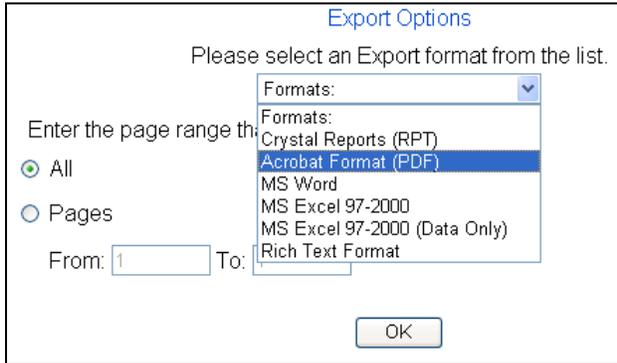


Export Report

To export a report, press the Export button in the upper left.



Select the export options and press OK.



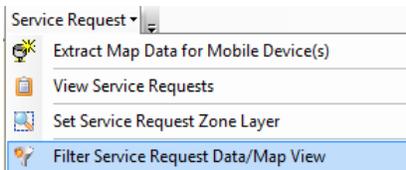
Enter the filename and press OK to save the file.

Desktop Application

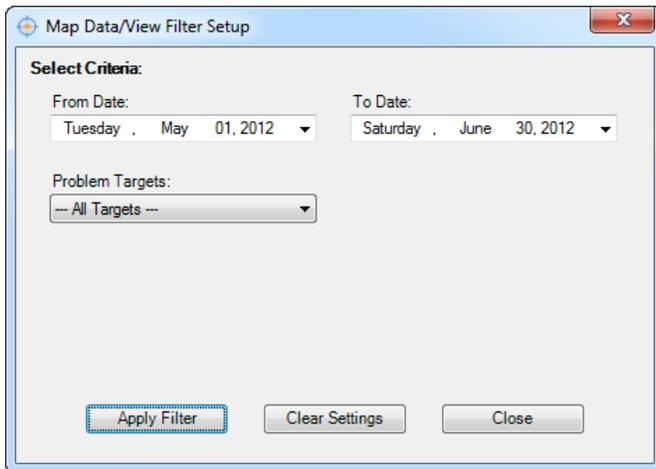
Filter Service Requests in the Map

Service requests can be filtered in the map view based on date range and problem target. This makes it easy to see the spatial distribution of problem categories for a given time period.

In ArcMap, select Service Request > Filter Service Request Data/Map View.



Specify the filter criteria by selecting the date range and the problem target.



To clear the map filter criteria select the option to Clear Service Request Data/Map View Filter. The map will display all requests.

