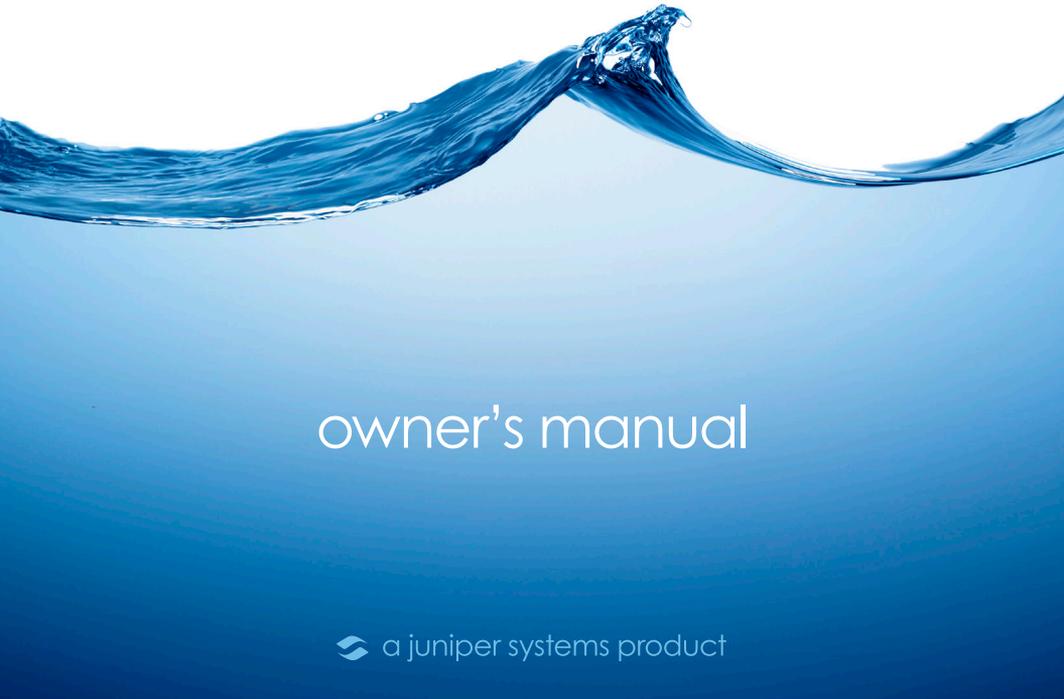


# juniperaspect™

[ field mapping solutions ]



owner's manual

 a juniper systems product

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# Chapter 1



Introduction to  
Juniper Aspect  
Field Mapping Solutions



# juniperaspect™

[ field mapping solutions ]



## Juniper Aspect Field Mapping Solutions

Juniper Aspect™ provides mobile mapping and reporting solutions for field professionals. Use Juniper Aspect to:

- Create accurate as-built maps of object locations including irrigation systems, trees and vegetation, utility meters, street and traffic signs, water coverage, repair locations, and more
- Overlay maps on aerial photographs
- Navigate to previously mapped objects
- Take geotagged photographs
- Create custom field asset documentation that includes maps, photos, object and parts lists, and notes for your company or client

## Juniper Aspect System Components

Juniper Aspect includes the following software and hardware components:

- *Juniper Aspect Software, Desktop License:* Runs on a desktop or laptop computer and is used for setting up and managing projects before and after data is collected in the field on one or more mobile computers.
- *Juniper Aspect Software, Mobile License:* Runs on the mobile computer(s) and is used to collect project data such as mapping the location of objects using GPS or manually.
- *Mobile Computers:* Juniper Aspect mobile software, runs on mobile computers from Juniper Systems, including the Mesa Rugged Notepad™ Geo model, and the Archer Field PC®.

## **What You Receive**

Juniper Aspect consists of a CD-ROM inserted into a CD sleeve. The desktop and mobile versions of the software as well as the owner's manual are located on the CD-ROM. Serial numbers are included for each license you purchased. These numbers are used to download and register your software.

The initial license fee includes software support, system enhancements, system updates and access to basemap imagery for one year from the date of activation. If you have a professional license, you are automatically notified when it is time to renew your product registration (standard licenses are not renewable). Read the product registration information for details.

## **Professional and Standard Licenses**

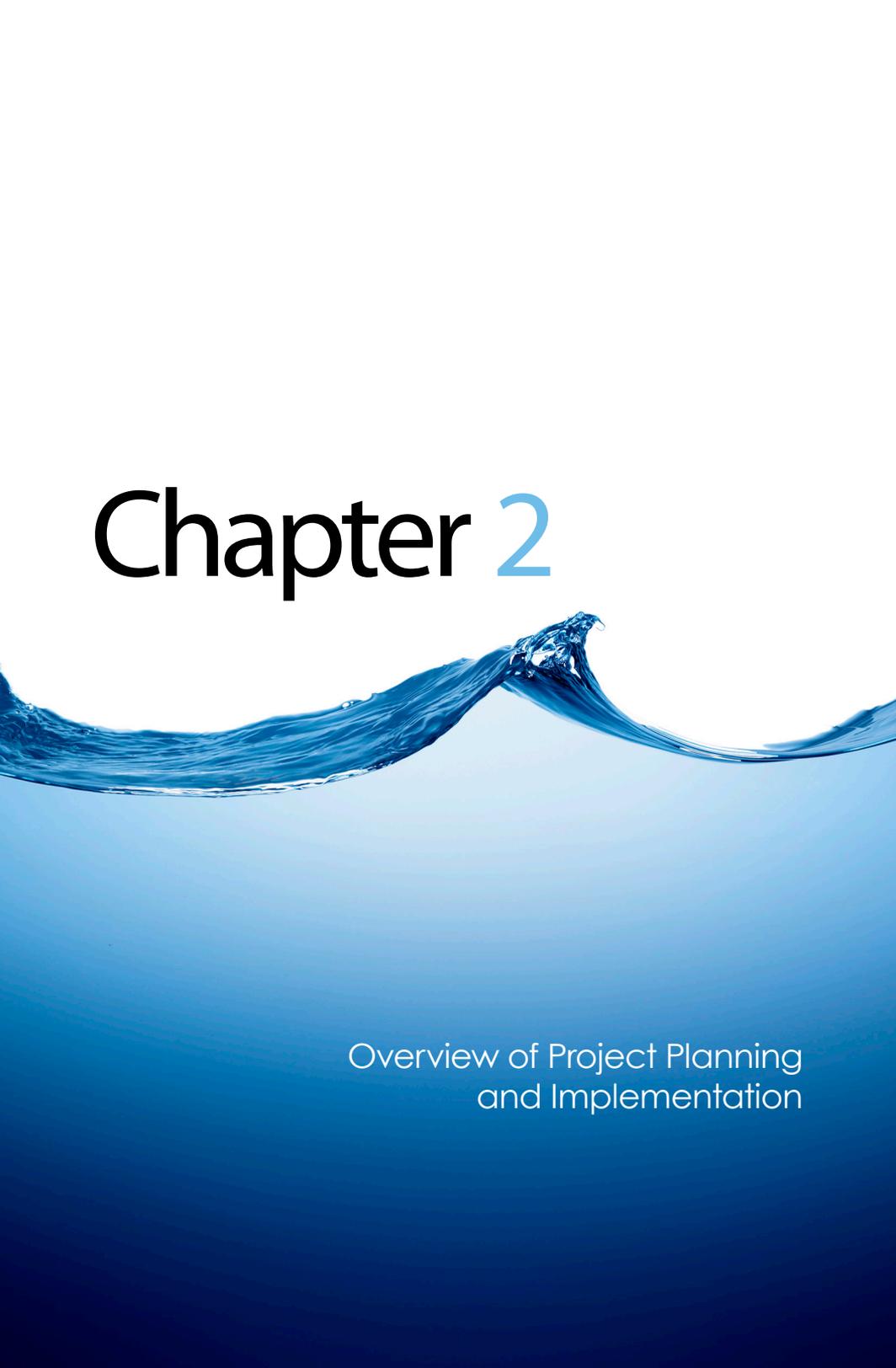
There is a professional version and standard version of Juniper Aspect. The professional edition provides the following additional features:

- Access to Bing Maps (imagery, streetmap, and hybrid)
- CAD import
- Multiple databases
- Export to File Geodatabase, Shapefile, and KML
- CSV data export
- Photo images associated with objects
- Access to online imagery through Wi-Fi or cell modem (mobile computer)
- Annual renewal option

Review Juniper Aspect features on our website: [www.junipersys.com/Aspect](http://www.junipersys.com/Aspect).

To upgrade your software to a professional license, contact our sales department. Contact options are shown on our website: [www.junipersys.com/Contact Us](http://www.junipersys.com/Contact Us).

# Chapter 2



Overview of Project Planning  
and Implementation

## Mapping Projects

Juniper Aspect gives you the power to accurately create and maintain detailed maps and reports of objects and system layouts. This information can be given to customers or government agencies, and archived for future audits, updates and maintenance.

### Terminology

In this manual, the following terms are used:

- **Project:** An entire system or a portion of a system to map and report on.
- **As-Built:** A system consisting of an existing layout or a layout that has been planned out and is in the process of being implemented.
- **Project Manager:** the person doing the project planning and creating the final maps and reports.
- **Mobile Worker:** the person in the field collecting map data and other desired information.
- **Mobile Computer:** Mesa Rugged Notepad or Archer Field PC.
- **Generate Report:** Final maps and object information.

### Workflow for Juniper Aspect Field Mapping Solutions

A typical project follows the workflow outlined in this chapter, although you will see that Juniper Aspect is flexible and some steps can occur on either the desktop computer or mobile computer. Each project is unique. A typical workflow:

1. Planning projects
2. Setting up new projects or editing existing projects
3. Collecting data on the mobile computer
4. Synchronizing data between the desktop and mobile computers
5. Managing collected data and creating reports
6. Future maintenance and inspection using reports

## Planning Projects

Ideally some planning will occur before the Juniper Aspect software is used. You may need to load the software or read this manual in order to take a look at the features provided before proceeding. Some decisions don't need to be made up-front, but it will help if you are aware of them.

As you are planning a project, keep the following items in mind:

1. Location of project: basic knowledge of where the project is located is needed so it can be located on the basemap.
2. Basemap: Is a good basemap (aerial imagery) of the project location available from the software? If not, you can import a CAD drawing that is georeferenced, create a boundary map on a mobile computer using GPS and walking the area you are mapping, or work without a background.
3. Object catalog: What object catalog do you want to use? You can use the object catalog provided with the software, load a predefined CSV (comma-separated values) file with the object information you want to use, or create one from scratch. You will also select symbology to represent objects.
4. Assigning tasks: Depending on the size of your company and the scope of individual projects, you might have one person take care of planning, data collection in the field, data management, and report generation. Or, you might have one person doing the project management on the desktop computer while one or more other people collect data in the field. Multiple mobile workers can collect data on the same project at the same time. They could have different tasks to perform for a single irrigation system layout. For example, they could each have different geographical areas or different object types to

map. When the data from each mobile computer is uploaded to the desktop computer, it is combined and synchronized under a single project name.

5. Synchronizing data: You need to determine how often you want data synchronized between the mobile computer(s) and the desktop computer. This could be several times a day or less often depending on the scope of the project.

## **Setting up Projects**

Projects are typically set up by the project manager on the desktop computer and loaded onto one or more mobile computers.

1. Set up communication between the desktop computer and mobile computer.
2. Load the Juniper Aspect software onto the desktop computer.
3. Select which object database you want to use, edit if necessary.
4. Open up a new project.
5. Find the location of the current project on the map. Add object information if desired.
6. Load the mobile software, object database, and basemap onto a mobile computer.
7. Train the mobile worker(s) on how the software works, how you want them to collect data for the project, when you want them to synchronize data, etc.

## **Collecting Data on the Mobile Computer**

Information is collected in the field by the mobile worker(s) and loaded onto the desktop computer.

1. If applicable, get basic training on the project from the project manager.

2. Map the location of objects and coverage areas based on the training given to you by the project manager.
3. Edit map data in the field if appropriate.
4. Add new objects or projects on the fly if appropriate.
5. Make notes as requested.
6. Once map data is collected and the defined time to synchronize it with the desktop computer has come, give the mobile computer(s) to the project manager. The project might be set up so you synchronize data yourself.
7. Depending on the workflow plan, the data collection process could be repeated for the project you are working on or a new project.

## **Managing Data and Creating Maps and Reports**

Collected data can be edited on the desktop computer by the project manager after it is uploaded or on the fly by the mobile worker on the mobile computer. The process will be similar to the following:

1. Edit maps for final presentation. The system allows you to manipulate the data in each layer, including: changing objects, changing labels and label colors, correcting errors, moving lines, moving points, and adjusting polygons.
2. Create an inventory list of system components to accompany maps that are created in the editing function. These reports include all objects shown on that particular map.
3. Provide the client or agency with electronic and hard copies of the entire system, including maps, component lists and photographs if they exist.
4. Store digital project files for future updating and planning.

## Maintenance and Inspections

Project data can be used for maintenance and service on existing projects. In addition, the data can be used to aid in project inspections and audits. Users can be directed to the exact locations of various components using the navigation feature.

1. Retrieve digital project files for existing projects.
2. Load the project data from the desktop computer to a mobile computer.
3. Mobile workers use the mobile computer to locate components of the project requiring repair, perform system audits, and to facilitate system inspections. Using the navigation feature they can be directed to the exact locations of various components. When components are replaced or repaired, the information can be documented.
4. Upload the new field data taken on the mobile computer(s) to the desktop computer, process the data and update the project file.
5. Produce and distribute necessary updated maps and reports to the client or agency.
6. Store updated project files and historical object data to efficiently aid in and document field service and repair.

Details on how to perform these functions can be found in this owner's manual.

# Chapter 3



Software Installation, Desktop  
and Mobile Versions

## Software Installation, Desktop and Mobile Versions

The Juniper Aspect CD-ROM includes the desktop and mobile versions of the software as well as the owner's manual.

The desktop software is installed on your desktop PC first. The mobile version is downloaded onto your mobile computer(s) from the desktop software.

### Installing the Desktop Software

Your desktop PC must be running Microsoft® Windows® XP, Microsoft® Windows® Vista, or Microsoft® Windows® 7.

Follow these steps to install the desktop version of the software on your desktop PC:

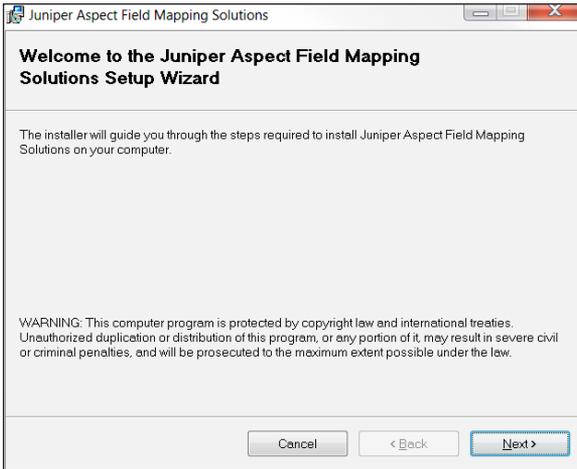
1. You need an active internet connection on your desktop PC to facilitate software registration.
2. Synchronization software must be installed on your desktop PC so it can communicate with the mobile computer. It is free from Microsoft® on their website at: [www.microsoft.com](http://www.microsoft.com). Locate the Microsoft® Download Center. In the search window, type in the name of the software you need for your computer as defined below:
  - a. Microsoft® ActiveSync® if your desktop computer is running Windows® XP
  - b. Windows® Mobile Device Center if your desktop computer is running Windows Vista® or Windows® 7

Once you find the correct software, download and install it onto your desktop PC.

**Note:** *The names, website locations and features of Microsoft's software can change over time. These instructions might vary somewhat from what you see.*

You do not need to do anything else with the synchronization software until you download Juniper Aspect to the mobile computer.

3. Insert the Juniper Aspect CD into your computer CD drive.
4. When the main screen appears, select *Juniper Aspect Installation*.
5. The software setup wizard starts. Select *Next*.



6. Screens come up asking you to review and approve the license agreement, select a folder to install the software into, and to confirm installation. Select or enter the appropriate information for each screen and select *Next*.
7. An installation screen is shown with an installation progress bar. When installation is complete, select *Close* (you have the option to run the software upon closing with a check box.)
8. The first time you run the software, you are asked to enter the serial number. The number for the desktop PC software is located on the CD sleeve.

Enter the number and select OK.



9. The *Juniper Aspect Activation* screen is shown. Fill out the registration information. Select *Activate*.



10. Once you have successfully registered the software, a registration email is sent to the email address you provided. Registration information is shown along with the software expiration date which is automatically set for one year from the registration date.

**Note:** If choose not to register the software or the registration fails (if you aren't connected to the internet, for example), Juniper Aspect shuts down and is not usable until it is registered.

11. When the software is successfully installed, a shortcut

is automatically placed on your desktop.

12. When you open the software, the following screen is shown on your desktop computer:



## Installing the Mobile Software

The mobile version of Juniper Aspect is downloaded from the desktop version of the software to a Mesa Rugged Notepad or Archer Field PC.

**Note:** *The professional edition allows you to install the software on multiple mobile computers.*

You need the following items:

- Mesa Rugged Notepad running OS version 1.1.5 or greater or Archer Field PC running OS version 3.0.6 or greater (OS upgrades are available on our website)
- Internet connection on the desktop computer to facilitate registration
- USB communication cable that came with your mobile computer
- AC wall power charger that came with your mobile computer

**Note:** *An Archer or Mesa dock accessory can be used for*

communication and charging purposes. Refer to manual for the dock or the mobile computer for details. Manuals are available on our website at [www.junipersys.com/Juniper-Systems/support/Documentation](http://www.junipersys.com/Juniper-Systems/support/Documentation).

### **Establishing Communication Between a Desktop Computer and a Mobile Computer**

Before you can download the mobile version of Juniper Aspect to a mobile computer, you need to establish communication between the desktop computer and the mobile computer.

1. Plug the AC wall power charger into a wall socket. Plug the other end into the DC power jack on the mobile computer (or dock).
2. Plug the USB cable Client end (mini B) into the mobile computer (or dock). Plug the USB cable Host end (full size A) into your desktop computer.
3. The synchronization software you downloaded while installing the desktop software automatically opens. A setup wizard asks you if you want to set up a partnership. This happens each time you establish communication between a desktop and mobile computer. You can configure a partnership between the desktop PC and a mobile computer by following the instructions on the screen, however a partnership is not required to run Juniper Aspect. For ActiveSync, select *Next* to set up a partnership or *Cancel*. For Windows Mobile Device Center, select *Set up Your Device* or *Connect Without Setting up Your Device*.

**Note:** *The names and features of Microsoft's software can change over time. These instructions might vary somewhat from what you see.*

For more information on setting up communication, refer to the Owner's Manual for your mobile computer.

## Installing Software on the Mobile Computer

Once the desktop computer and the mobile computer are communicating with each other, follow these steps to install the mobile version of the software:

1. Open the Juniper Aspect home screen on the desktop computer. When the desktop computer and mobile computer are communicating with each other, the computer graphic on the left side of the screen is shown in color with the caption “Connected to (your mobile computer’s name).” If they are not communicating, the graphic is gray and the caption says “No Device Connected.” If this happens, review the previous steps under “Establishing Communication.”
2. Hover the mouse arrow over the *Mobile Deployment* function and click *Install*.



3. The following screen is shown. To proceed with the software installation on the mobile computer click on the install button .



4. A screen asks you to review and approve the license agreement. Select *Accept*, then *Next*.
5. You are automatically connected to our website, [www.junipersys.com](http://www.junipersys.com). You are asked for the license serial number for the mobile version of the software. This number is located on a printed card included with the software. (You will receive a card for each mobile license purchased. Each license can only be

installed on one mobile computer). Enter this number. Select OK. It is automatically verified.



6. The *Juniper Aspect Activation* screen is shown. The registration information you entered when you installed the desktop version of the software (name, company, address, email address, etc.) is automatically filled in. Select *Activate*.
7. Once you have successfully registered the software, an email is sent to the email address you provided. Your registration information is shown along with the software expiration date which is automatically set for one year from the registration date (for the professional version).

**Note:** If choose not to register the software or the registration fails (if you aren't connected to the internet, for example), *Juniper Aspect* shuts down and is not usable until it is registered. If the serial number has been used previously, you are given a warning. You will have a unique serial number for each license.

8. As the Juniper Aspect software components are installed, the following screen is shown:



Do not disconnect the mobile computer from the desktop computer while the installation is going on. When the software is initially installing, it can take up to ten minutes.

9. When the software is successfully installed, a shortcut is automatically placed on your mobile computer.

10. When Juniper Aspect software installation is complete on the mobile computer, click *Finish*. The following screen is shown on the desktop computer:



Select the menu button  in the lower right-hand corner to return to the home screen.

## Mobile Computer Home Screen

Once you have successfully installed the mobile software, a screen similar to the following is shown when you open the program on your mobile computer:



The functions of the mobile software are described later in this manual.

## Software Updates

In the *Tools* menu is an option called *Check for updates*. When you select it, the software automatically goes to our website to see if a software update is available. If an update is available, it is listed on the screen as shown below. If you want to install the update, select *Download Update*, then *Install Update*. We recommend that you check for updates periodically.



## Upgrading Software Editions

If you have the standard edition of Juniper Aspect software on your desktop computer and mobile computer(s), you can upgrade to the professional edition which has additional features. Contact our sales department to purchase the upgrade. Contact options are listed on our website at [junipersys.com/Contact Us](http://junipersys.com/Contact Us).

### Desktop Software Upgrade

When you purchase an upgrade, you are given a new serial number. Select *Tools* on the Juniper Aspect main menu and then choose *About*. Select the *Change* button to the right of the serial number and enter the new serial number. Additional features are automatically activated.



### Mobile Computer Upgrade

You are given new serial numbers for each mobile computer that is upgraded. Connect the mobile computer(s) to the desktop computer (see *Installing Software on the Mobile Computer* earlier in this chapter for details), select *Mobile Deployment* from the home screen, then *Install*. Select the *Change* button to the right of the serial number and enter the new serial number. Additional features are automatically activated.

# Chapter 4



Introduction to Juniper Aspect  
Desktop Software

## Introduction to Juniper Aspect Desktop Software

The desktop version of Juniper Aspect software is used for setting up projects for mapping, managing the object database, loading software to the mobile computer(s), synchronizing data between the desktop computer and mobile computer(s), checking for software and documentation updates, and creating maps and reports with the collected data.

### Home Screen Functions

When you open the program on the desktop, the following home screen is shown:



When the desktop computer and mobile computer are communicating with each other, the mobile computer graphic on the left side of the screen is shown with orange bumpers with the caption "Connected to (your device name)." If they are not communicating, the graphic is gray and the caption says "No Device Connected."

Four main functions are accessed from this screen: *Projects*, *Objects*, *Mobile Deployment*, and *Tools*.

## Projects

The *Projects*  function is used to set up and manage projects, synchronize data between the desktop computer and the mobile computer(s), and create final maps and reports. When you select *Manage Projects*, you can create new mapping projects or view and edit existing projects. If a mobile computer is connected to the desktop computer, projects from both computers are shown. Symbols inform you if an update is available for either the mobile computer or desktop computer. Below is an example project list:



Select the *Open Project* symbol  for a new project to show a basemap on the map screen. Once map data is collected and downloaded onto the desktop computer, you can return to the map screen to edit the map as needed and select *Generate Report* to create final maps and reports.

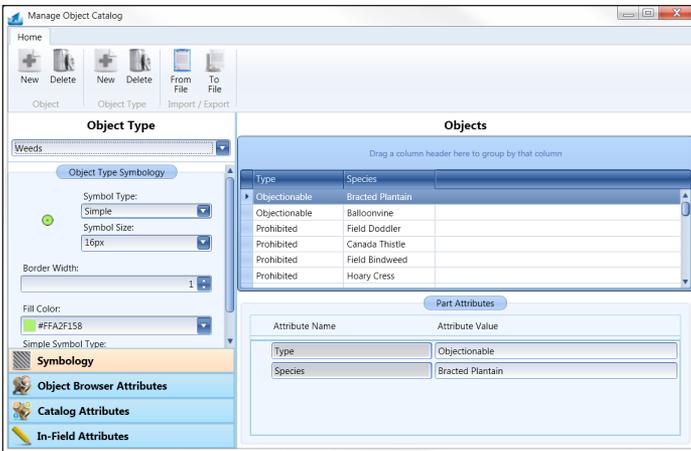
See *Chapter 5, Creating a New Project on the Desktop Computer*.

## Objects

The *Objects*  function is used to manage object catalogs. Select *Objects* then *Manage Object Catalogs* and a list of object catalogs is shown. A *Default Object Catalog* for irrigation mapping is provided with Juniper Aspect. Other catalogs can be loaded.



Select the open object catalog  symbol to open the *Manage Objects* window. You can create object types, symbology, and attributes. An example is shown below:



## Mobile Deployment

The *Mobile Deployment*  function is used to install the Juniper Aspect software onto a mobile computer. Set up communication between the desktop computer and mobile computer and select *Install*. Follow the instructions on the screen to install the software.

During the process you will see a screen similar to the following:



See *Chapter 3, Software Installation*.

## Tools

There are four categories under the *Tools*  function: *Check for Updates*, *Preferences*, *About*, and *Help*.

- *Check for Updates*: searches our website for new software updates.
- *Preferences*: select whether or not you would like units of measurement to be feet or meters.
- *About*: Information about Juniper Aspect software is shown including which version number is installed, product edition (professional or standard), the serial number, and contact information. The screen will look something like the following:



- *Help*: Shows the Juniper Aspect Owner's Manual in a PDF. (A PDF viewer, such as Adobe Acrobat Reader, must be installed on your computer.)

# Chapter 5

Creating a New Project on  
the Desktop Computer

## Creating a New Project on the Desktop Computer

The *Projects*  function is used for setting up mapping projects, editing map data as needed, and creating maps and reports.

This chapter discusses mapping project creation on the desktop computer. Mapping projects can also be created on the mobile computer.

There are several informative and action symbols to be aware of when creating and managing projects. Refer to the following chart,

|   |   |
|---|---|
|    | Desktop computer and mobile computer have the same updated project file                                       |
|    | Desktop and/or mobile computer need updates from each other   |
|    | Project error   |
|    | Project is currently synchronizing between desktop and mobile computer  |
|    | Delete project (large projects can take 2-3 minutes to delete)  |
|   | Project properties, view or edit  |
|  | Refresh synchronization status  |
|  | Synchronize basemap from the desktop computer to the mobile computer (only active if computers are connected) |
|  | Synchronize the project (only active if computers are connected)  |
|  | Open project and reports (for basemap creation and editing, map and report creation)                          |
|  | Repair corrupted file (appears when the project has an error or is corrupted)                                 |

|   |   |
|---|---|
|  | Create new project                        |
|  | Main menu (goes to the desktop home page) |
|  | Save                                      |
|  | Close or cancel                           |

## Creating a New Project

Select *Projects*  from the desktop home screen, *Manage Projects*, then the  symbol. The following project properties screen is shown:



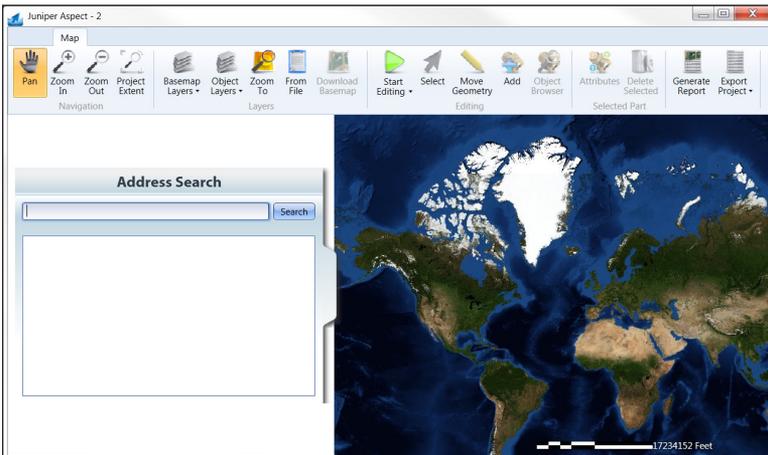
Fill it out with the requested information for the project. Press the disk  symbol when you are finished. Press the close  symbol to cancel.

The new project is shown in a list similar to the following:



## Setting up a Map

To set up a map for a new project, click on the *Open Project* symbol . When the new project opens, the World Imagery basemap is displayed showing the entire Earth.



To find the project location, you can use the address search function or load existing location data.

## **Address Search Function**

To search for the area of your project extent, type in the address of the area into the “*Address Search*” bar on the left hand side of the map. As you type, information below the text box provides suggestions to help you find the address. Once the address has been typed in, click on one of the search results in the list below the text box to zoom to that area. The map will zoom in to the area of interest and the search box will hide itself.

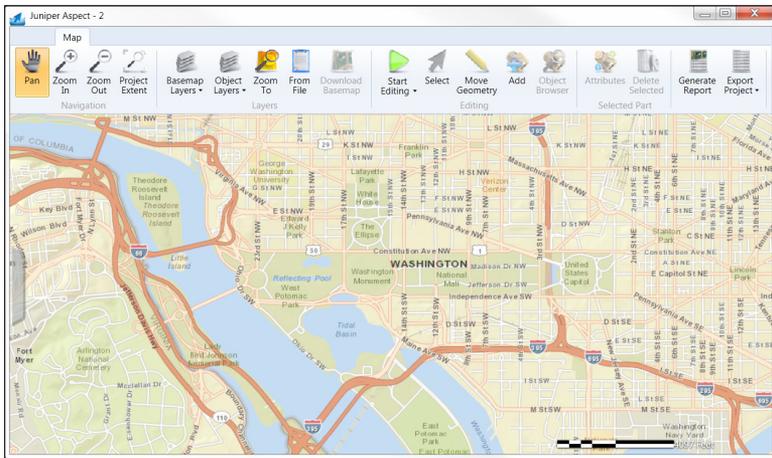
You can choose which basemap you want shown in the background by clicking on the “*Basemap Layers*” drop down list and selecting your basemap. You have access to basemaps from ArcGIS Online (including World Imagery, World Streetmap, and World Topography). Users with the professional license of Juniper Aspect can use Bing Imagery in addition to the ArcGIS Online imagery (including Bing Road, Bing Aerial, and Bing Hybrid).

To search for an address again, click on the tab on the left hand side of the screen. This brings the “*Address Search*” box out again.

## **Zooming and Panning to Fine Tune Your Search**

After you click on a search result in the box, the map zooms in to that area. You can zoom in and out on the map by using a scroll wheel on a mouse (scrolling up zooms in on the location of the mouse cursor while scrolling down zooms out), using the plus (+) key to zoom in and the minus key (-) to zoom out, or by selecting the zoom in and out buttons in the upper left corner of the map window. You can also draw a box around the area of interest using your cursor to zoom in on it.

As the map zooms in, the detail becomes greater and more features are revealed.



Always wait for the basemap and/or streetmap to completely draw before performing any mapping. When you pan or the map zooms in or out, a progress bar appears at the bottom of the screen and grows. The map is completely drawn when the progress bar at the bottom hits 100% and then hides again.

**Note:** Be aware that map data for specific locations is not always available, might not be available at the highest resolution, and can be outdated. Professional license users can switch between basemaps to get better imagery.

### **Navigating to a Location by Loading Existing CAD Data**

Another way to get to a desired location is by loading existing data. If you have the professional edition of Juniper Aspect, you can load CAD data that has been georeferenced correctly onto the project map.

CAD data has to be created from ArcGIS or referenced properly in AutoCAD® using the ArcGIS for AutoCAD® extension. In ArcGIS, if you have GIS files that you want to use and they are properly adjusted spatially, go into ArcToolbox and export the GIS files into CAD (any version

of the dwg file extension will work). In AutoCAD®, load the ArcGIS for AutoCAD® extension and load a reference basemap. Move the drawing to the proper area geographically and then give the drawing a projection and coordinate system.

Click on the *From File*  button to load in the CAD layers. Once the CAD file loads, click on the *Project Extent*  button to zoom to the extent of the CAD file.

### **Adding Features to the Basemap**

On the desktop computer you can choose to put in some known features on the map (like sprinkler heads, valves, etc) by starting an editing session and adding objects. These can be added to places that are clearly seen on the basemap imagery or to places on a properly referenced CAD file. Details about the *Map* window functions are in *Chapter 8, Map Functions*.

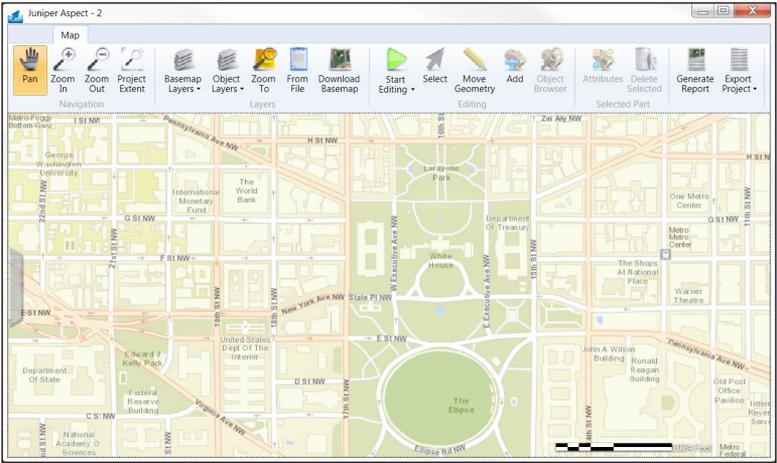
Typically objects are added to a basemap on the mobile computer while a project is being mapped in the field.

### **Downloading the Basemap to a Mobile Computer**

Once you get to the desired location, define the extent you want for use on the mobile computer(s). When the area of interest has been chosen, you need to zoom in to a map extent of 3,000 feet to be able to download the basemap.

Once you are at this extent or closer, the *Download Basemap* button becomes active. Select this button to download the basemap imagery from the desktop computer to the mobile computer(s). (See *Chapter*

3, *Software Installation*, for details on establishing communication between a desktop computer and a mobile computer.) The current basemap that is in view is downloaded. (Basemaps can be cached on the desktop computer with the professional edition of Juniper Aspect.)



### Map Window Functions

You will return to the project map window when you upload map data from a mobile computer, you want to review or edit the map, or you are ready to create reports.

# Chapter 6



Object Database  
Management

## Object Database Management

The *Objects*  function is used to manage the object database which is made up of one or more object catalogs. You can manage object catalogs by creating object types, symbology, and attributes from the *Manage Objects* screen. The standard license provides a *Default Object Catalog* and the ability to add one more catalogs. The professional license allows you to have unlimited catalogs

A *Default Object Catalog* is for irrigation applications. It consists of over 1,900 commonly used irrigation parts (objects) from manufacturers such as Hunter™, Rain Bird®, Irritrol, Toro, Watts, Wilkins and Charlotte. The attributes for each object include *Object Type*, *Geometry*, *Manufacturer*, *Object Number*, *Object Description*, *Schedule Description*, etc. Other catalogs can be loaded from the *Manage Object Catalogs* screen.

## Manage Object Catalogs

When you select *Objects*  then *Manage Object Catalogs*, a list of object catalogs is shown. You are given the status of the catalogs and have the option of deleting a catalog, viewing catalog properties, synchronizing a catalog between a desktop PC and mobile computer, and opening an object catalog for editing. A sample object catalog list is shown below:

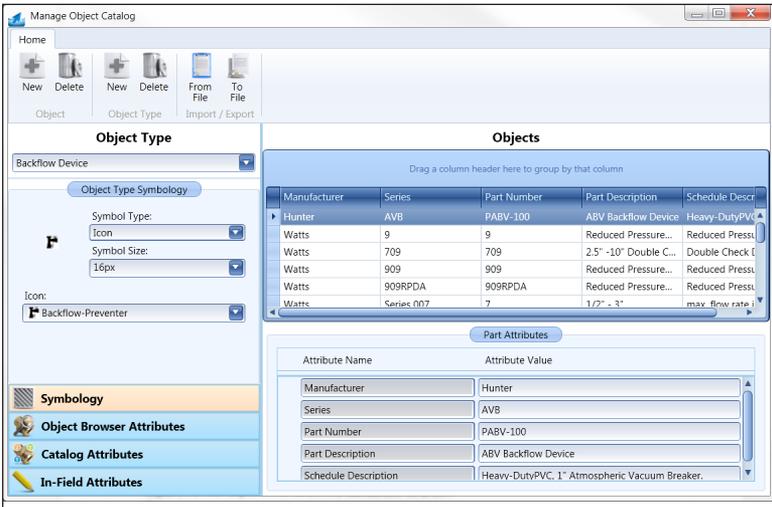


There are several informative and action symbols to be aware of when are managing object catalogs. Refer to the chart below:

|   |  |
|---|--|
|    | Desktop computer and mobile computer have the same updated object catalog                  |
|    | Desktop and/or mobile computer need updates from each other                                |
|    | Object catalog error   |
|    | Object catalog is currently synchronizing between desktop and mobile computer              |
|    | Delete object catalog  |
|    | Show object catalog properties   |
|    | Refresh the object catalog synchronization status  |
|    | Synchronize the object catalog (only active if desktop and mobile computers are connected) |
|   | Open the object catalog for editing  |
|  | Repair corrupted file (appears when the project has an error or is corrupted)              |
|  | Create new object catalog  |
|  | Main menu (goes to the desktop software home page)   |
|  | Save   |
|  | Close or cancel  |

# Manage Object Catalogs Screen

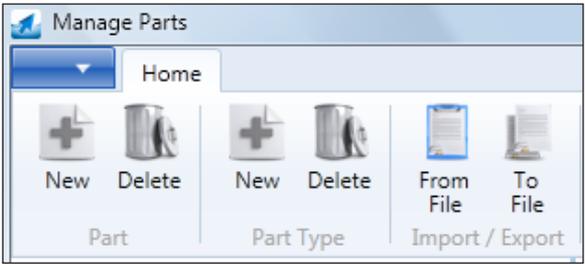
The *Manage Object Catalog* home screen tab is accessed from the *Manage Object Catalogs* screen. Select *Objects*  , find the object catalog you want to use, then click the open object catalog  symbol to open the *Manage Object Catalog* screen. A screen similar to the following appears:



You can upload your own objects database from an existing CSV file (more details are given later in this chapter), create an object database by manually keying it in, and manipulate the database you are using by creating object types, symbology, and attributes.

Object management functions are shown across the top

of the screen. See the chart that follows for descriptions of these functions.



|   |   |
|---|---|
|    | <p>Object, New: add a new object to the selected object type. Select an object type from the database first by dropping down the Object Types list. The new object will be auto selected in the grid view and object view screens.</p>        |
|    | <p>Object, Delete: delete the currently selected object from the object list. Select an object to delete and click on the delete button. (The object that is selected to be deleted is shown in the object view in the bottom right box.)</p> |
|    | <p>Object Type, New: add a new object type to the existing database. A dialog box comes up called "Add New Object Type." Fill in the name, geometry type, and catalog attributes.</p>   |
|  | <p>Object Type, Delete: deletes an object type and all associated objects. <b>Warning:</b> there is no undo option when you delete an object type.</p>  |
|  | <p>Import, From File: Import an existing object database from a CSV file.</p>   |
|  | <p>Export, To File: Exports the selected database to a CSV file.</p>  |

There are two sections to the *Manage Object Catalog* screen: *Object Type* and *Objects*.

## Object Type

Select an object type from the *Object Type* pull down list. The following functions can be selected:



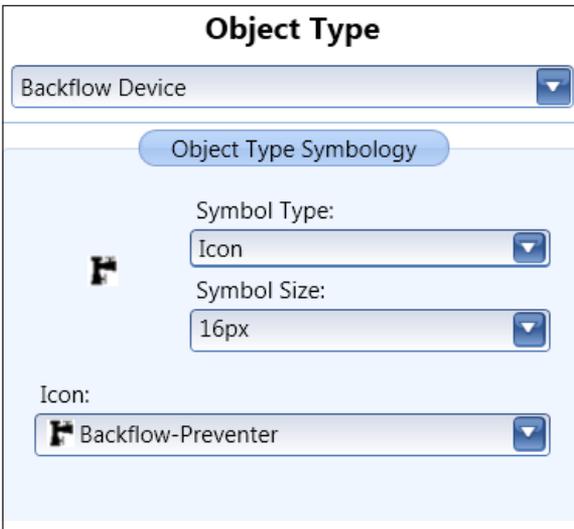
The area above the list of functions changes depending on which function is selected. In the above example, *Symbology* is selected (box is orange instead of blue).

### Symbology

Choose how an object type is symbolized. Options: *Icon*, *Simple*, and *Custom*.

### Icon Object Type Symbol

Select a predefined *Icon* from the drop down list to represent an object type. You can also select the symbol size. Here are sample settings for backflow devices:



### Simple Object Type Symbol

For the *Simple* symbol type, simply choose a color from the drop down list to represent an object type. You can also choose to use a square or circle for symbology as well as change the border width of the symbol.

### Custom Object Type Symbol

For the *Custom* symbol type, choose your own icon for that particular object type. Click the *Select* button to browse to the icon (file type must be png, jpg, gif, or bmp). Images used for the custom symbology can be any size but when they are brought into Juniper Aspect, they are resized to 48x48 pixels.

### Object Browser Attributes

The object browser attributes section lists the three attributes that will show up on the mobile computer.

**Object Type**

Backflow Device

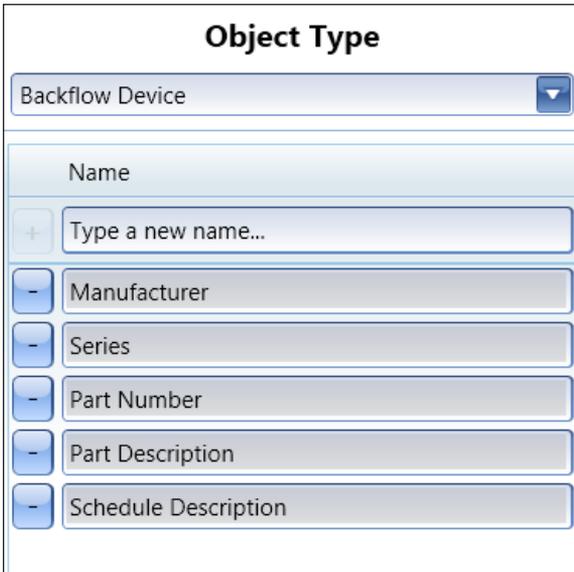
Manufacturer: Hunter  
Series: AVB  
Part Number: PABV-100

Manufacturer  
 Series  
 Part Number  
 Part Description  
 Schedule Description

Select the three you want to appear on the smaller mobile computer screen.

## Catalog Attributes

In *Catalog Attributes*, add or delete attributes for each object type.



The screenshot shows a window titled "Object Type". At the top, there is a dropdown menu with "Backflow Device" selected. Below this is a section labeled "Name" containing a text input field with the placeholder "Type a new name..." and a plus sign (+) to its left. Below the input field is a list of five attributes, each with a minus sign (-) to its left: "Manufacturer", "Series", "Part Number", "Part Description", and "Schedule Description".

To add a new attribute, type in the box that says "Type a new name..." and click on the plus (+) sign next to it or press *Enter*.

**Note:** if the (+) sign is not clicked or you don't press *Enter*, the attribute won't be added. To delete an existing attribute, click on the minus sign (-) next to the attribute to be deleted. You receive a warning before an attribute is deleted.

## In-Field Attributes

Click on the button that says *In-Field Attributes*.

**Object Type**

Backflow Device

User Entered Attributes

| Name                 | Data Type |
|----------------------|-----------|
| + Type a new name... | Text      |

Selectable Attributes

Name

### User Entered Attributes

To add an in-field attribute type in the name of the attribute and choose the data type from the drop down list. Possible types are:

- Text: for any string of characters
- Number: for integers
- Decimal: for floating point numbers
- Date

When you have typed a name and selected a data type, click the plus (+) sign.

You can populate the field of the attribute while mapping in the field. Example: for sprinkler heads, an *In-Field Attribute* could be "Condition." You can manually type in the current condition of each sprinkler head. Or for an object type like water meters, an *In-Field Attribute* could be "Size." You can manually put in the pipe size for the meter (as a number).

## Selectable Attributes

The *Selectable Attributes* option provides a drop down list of selectable attributes you define. Traditionally you create an in-field attribute and then in the field you type in the value for the attribute. For example, if the attribute is *Age* you could type in *Old*. Now, with *Selectable Attributes*, you can pre-define values for the in-field attribute of *Age* using *Old* and *New*. These attributes show up in the drop-down box.

## Objects

### Objects Grid

The *Objects* grid appears in the upper right section of the *Manage Object Catalog* screen. When an *Object Type* is selected, the grid is automatically populated with the objects of that *Object Type*. Here is an example:

| Drag a column header here to group by that column |                       |             |        |  |
|---|-----------------------|-------------|--------|--|
| Manufacturer                                      | Description           | Part Number | Cost   |  |
| ▶ Rainbird  | ESPLX 8 STATION...    | ESPLXMSM8   | 129.00 |  |
| Rainbird  | SST 4 Station Indo... | SST4I       | 126.95 |  |
| Rainbird  | ESP-8LX Modular...    | ESPLXMOM8   | 341.90 |  |
| Rainbird  | ESP-8LX Modular...    | ESPLXMOM82  | 486.95 |  |
| Hunter  | SRC-900i Hunter S...  | SRC-900I    | 165.00 |  |
| Hunter  | Hunter I-Core 6 St... | IC-600PL    | 208.91 |  |
| Hunter  | Hunter I-Core 6 St... | IC-600PM    | 418.35 |  |

The headers in the grid are dynamically movable. Click on one of the headers and drag it to the left or right to rearrange the order of the headers. When the up and down arrows appear, release the dragged header for placement.

| Drag a column header here to group by that column |                       |             |        |  |
|---|-----------------------|-------------|--------|--|
| Manufacturer                                      | Description           | Part Number | Cost   |  |
| ▶ Rainbird  | ESPLX 8 STATION...    | ESPLXMSM8   | 129.00 |  |
| Rainbird  | SST 4 Station Indo... | SST4I       | 126.95 |  |
| Rainbird  | ESP-8LX Modular...    | ESPLXMOM8   | 341.90 |  |

The header can be hidden by moving it off of the header list. A red circle with white appears. Release the dragged object and the column will be hidden.

Drag a column header here to group by that column

| Manufacturer | Description           | Part Number | Cost   |
|--------------|-----------------------|-------------|--------|
| Rainbird     | ESPLX 8 STATION...    | ESPLXMSM8   | 129.00 |
| Rainbird     | SST 4 Station Indo... | SST4I       | 126.95 |
| Rainbird     | ESP-8LX Modular...    | ESPLXMOM8r  | 341.90 |
| Rainbird     | ESP-8LX Modular...    | ESPLXMOM82  | 386.95 |

To sort the objects list by header, drag the header into the light blue box above the headers. White up and down arrows appear. Release the dragged header.

Part Number      Drag a column header here to group by that column

| Manufacturer | Description           | Part Number | Cost   |
|--------------|-----------------------|-------------|--------|
| Rainbird     | ESPLX 8 STATION...    | ESPLXMSM8   | 129.00 |
| Rainbird     | SST 4 Station Indo... | SST4I       | 126.95 |
| Rainbird     | ESP-8LX Modular...    | ESPLXMOM8   | 341.90 |

After the header is released, you can chose to sort headers ascending or descending by clicking on the header again. Each record can be expanded by clicking on it to show the details of that record.

Part Number ▲

| Manufacturer            | Description        | Cost   |
|-------------------------|--------------------|--------|
| Part Number: ESPLXMOM8  |                    |        |
| Rainbird                | ESP-8LX Modular... | 341.90 |
| Part Number: ESPLXMOM82 |                    |        |
| Part Number: ESPLXMSM8  |                    |        |

If a header is hidden and you want it back, drop down the object type list, switch to a different object, and then go back to the desired object.

## Object Attributes

Editing object attributes is done in the *Object Attributes* section located on the bottom right of the *Objects* window. Here is a sample list of attributes for a backflow device:

| Part Attributes      |   |
|----------------------|---|
| Attribute Name       | Attribute Value                               |
| Manufacturer         | Hunter  |
| Series               | AVB   |
| Part Number          | PABV-100                                      |
| Part Description     | ABV Backflow Device                           |
| Schedule Description | Heavy-DutyPVC, 1" Atmospheric Vacuum Breaker. |

Object attributes are used as follows:

1. When you select an object from the *Objects* grid table above, the object is displayed in the *Object Attributes* section and you can edit the existing attributes.
2. When a new object is created in *Object Types*, it automatically appears in the *Object Attributes* section so you can fill in the fields with information about the object.

**Note:** *Everything you type in Object Attributes is automatically saved. There is no save button.*

## Importing and Exporting CSV Object Catalogs

You can import an object catalog into Juniper Aspect using CSV files. The CSV import method allows you to define object types, symbology and other attributes. You might find it easier to manage object catalogs by exporting them and editing the CSV files, then importing them back into Juniper Aspect.

Juniper Aspect uses a two file system for flexibility in editing both object types and individual objects separately. An "Object Types.csv" file contains information specific to an Object Type (i.e. Colors, Icons, Object Browser Attributes etc.). The object type file maintains the symbology data defined for an object type even when importing into a new catalog or when importing data into another copy of Juniper Aspect on a different computer. Additionally, you create a second CSV file containing object data for individual objects in the catalog. The CSV file will have a filename that matches the name of the catalog being exported.

**Note:** *The single file method found in previous versions of Juniper Aspect is still supported, but we recommend you familiarize yourself with the two file system for easier maintainability and expanded functionality.*

### Exporting and Viewing An Example CSV File

One way to easily see an example of how the CSV file should look is to export the *Default Object Catalog* to a CSV file. Select **Objects**  from the Juniper Aspect home screen then *Manage Object Catalogs* and a list of object catalogs is shown. Select the *Default Objects Catalog*. The *Manage Object Catalogs* screen is shown. Select the *To File* button located near the top of the screen on the left-hand side in the *Import/Export* section of the *Manage Object Catalog* screen. Browse to the location you want to export the CSV data to. Click the *Export* button to begin the export of the *Default Objects Catalog*. Windows Explorer automatically opens to the directory you selected. Open the newly created folder

(which should be named *Default Objects Catalog* for this example). View the two exported CSV files:

- *Default Objects Catalog.csv* contains the individual objects contained in the catalog.
- *Object Types.csv* contains data specific to the object types contained in the catalog.

**Note:** *If you plan on importing this data back into Juniper Aspect it works best if you do not rename the “Object Types.csv” file. Otherwise, you have to specify the object types file manually as the importer will not be able to automatically detect which CSV file contains Object Type data and which contains Object data.*

You can now see what the *Default Object Catalog CSV* file looks like and use it as an example as you create your own.

### **CSV File Formatting Requirements**

A CSV file must be formatted properly before it can be imported.

An acceptable *Object Types.csv* file requires the following format

1. A header row (the first row in the CSV file) containing the following
  - a. Column 1 must be “Object Type”
  - b. Column 2 must be “Geometry”
  - c. Additionally 1 or more of the following columns (in any order)
    - i. “BorderColor”, “BorderThickness”, “CustomImage”, “Fill”, “IconIndex”, “SimpleSymbolType”, “SimpleSymbolSize”, “Transparency”, “BrowserCategory1”, “BrowserCategory2”, “BrowserCategory3”
    - ii. A custom in-field attribute name.

Defining In-Field Attributes: To import an in-field attribute using a CSV file use the following

indicator "F:" (it must be a capital F) in the header row followed by the attribute name. ie. "F:Date mapped". The row then must specify the in-field attribute type in the corresponding cell (below the "F:" header). Valid in-field attribute types include "Text", "Decimal", "Number", or "Date" or you can leave the cell blank if you do not want that object type to have that in-field attribute.

iii. A selectable in-field attribute name.

Defining Selectable In-field Attributes: To import a selectable in-field attribute using a CSV file use the following indicator "S:" (it must be a capital S) in the header row followed by the attribute name. ie "S:Is Broken?". The row then must specify the list of selectable attribute values in the cell that corresponds to the "S:" column header. This list must be separated by comma, ie "Yes,No".

2. Each row following the header row must define the values for the attributes specified in the corresponding header. If you don't want to define an attribute for a particular object type leave the column blank for that row.

Acceptable values for the various object type attributes:

- a. "BorderColor" – A hex value representing a color for the border (for polygon object types).
- b. "BorderThickness" – An integer value representing the thickness of the border (for polygon and line object types).
- c. "CustomImage" – The filename for a file containing a custom image for the object type (acceptable file types include .png, .bmp, .jpg)
- d. "Fill" – A hex value representing the color used for a simple symbol
- e. "IconIndex" – A number representing an icon

- f. "SimpleSymbolType" – acceptable values include "Icon", "Simple" and "Custom"
- g. "SimpleSymbolSize" – acceptable values include "Size10X10", "Size16X16", "Size24X24", "Size48X48"
- h. "Transparency" – acceptable values are numbers (integers) 1-100
- i. "BrowserCategory1" – A name representing the first category to be used when viewing objects in the object browser
- j. "BrowserCategory2" – A name representing the second category to be used when viewing objects in the object browser
- k. "BrowserCategory3" – A name representing the third category to be used when viewing objects in the object browser

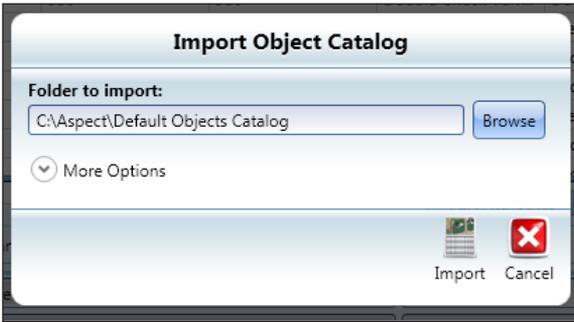
An acceptable object file requires the following format (in addition to standard CSV formatting rules):

1. A header row (the first row in the CSV file) containing the following:
  - a. Column 1 must be "Object Type".
  - b. Column 2 must be "Geometry".
  - c. Column 3 - many are used to indicate object attribute names.
2. Each row following the header row requires the following:
  - a. Column 1 must be an object type name (whatever you like).
  - b. Column 2 must be a valid geometry. Valid geometries include "point", "polygon", "line".
  - c. The number of columns in any given row must match the number of columns in the header row.

*Note; If you don't want an object (row) to have a particular attribute leave that column blank.*

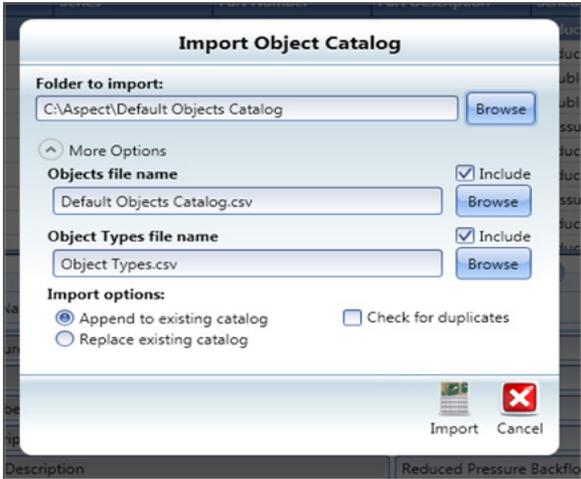
## Importing CSV Data Into an Object Catalog

You can import data into a catalog (in this example, the *Default Objects Catalog*) from CSV files from the *Import Object Catalog* screen. To open this screen click the *From File* button at the top of the *Manage Object Catalog* screen. Browse to the folder containing the CSV files to import. The folder should contain at most two CSV files and may also contain custom icon files that you want to include to define custom symbology for a particular part type.



If the folder contains more than two CSV files or does not contain an *Object Types.csv* file you have to manually specify these files in the *More Options* section of the import screen. You can additionally define *Import Options* such as appending the imported data to the existing catalog or replacing the existing catalog with the imported data. You can also have the importer check for duplicate objects as they are imported into the catalog. Note that when *Check for duplicates* is checked it does not check existing data for duplicates, but only

checks to see if the objects being imported already exist in the catalog.



## Synchronizing Object Data With a Mobile Computer

Once you are done making changes to an object database, close the *Manage Object Catalog* window.

Synchronize your changes with the database on the mobile computer(s).

Establish communication between the desktop and mobile computer. Select the object catalog you want to synchronize from the list of catalogs on the desktop computer. Select the *Refresh*  symbol for the catalog to refresh the synchronization (this updates the time stamp). Select the *Sync*  symbol to synchronize the changes with the mobile computer. Repeat this process to load additional catalogs or if multiple mobile computers are being used.

**Note:** *Changes made after objects have been mapped do not get pushed down to existing objects. The changes only occur on objects that are mapped after the database has been synchronized.*



# Chapter 7

Collecting Data on a  
Mobile Computer

## Collecting Data on a Mobile Computer

Mapping data is collected in the field by a mobile worker on a Mesa Rugged Notepad™ or an Archer Field PC® running Juniper Aspect mobile software.

### Preparing to Collect Data

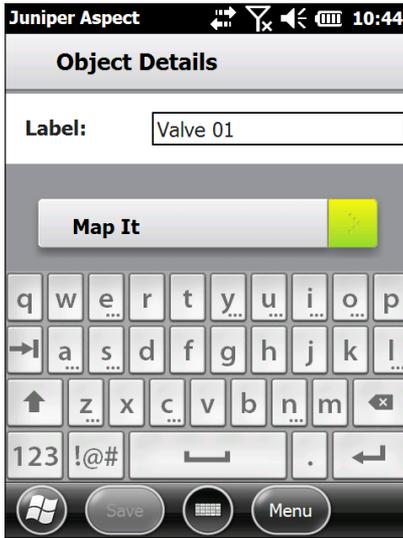
Before you go into the field to collect data, complete the following tasks:

1. Place a screen protector on the mobile computer, charge the battery pack(s), and review the owner's manual for the mobile computer so you have a basic understanding of how it works. (Manuals are available on our website at [www.junipersys.com/Juniper-Systems/support/Documentation/](http://www.junipersys.com/Juniper-Systems/support/Documentation/).)
2. Make sure the information you need from the desktop computer has been loaded onto the mobile computer, including:
  - a. Juniper Aspect mobile software. The mobile software is downloaded from the desktop version of the software (see *Chapter 3*).
  - b. Projects set up on the desktop computer.
  - c. Object catalogs to be used with the project. All object catalogs are downloaded, created and edited only on the desktop computer, including the Default Objects Catalog.
  - d. Updates made on the desktop computer to existing projects or objects since your mobile computer was last synchronized with the desktop computer.
3. Set up the GPS receiver in the software.

**Note:** *The GPS receiver used with Juniper Aspect must be configured correctly. See the Appendix for details.*
4. Understand what data you are going to be collecting and how the software works on the mobile computer.
5. Know when you should synchronize collected data with the desktop computer.

## Entering Information and Making Selections

To enter information and navigate around the software and handheld, tap options on the touchscreen and soft keys to select them, use the on-screen keyboard to type information, and press keypad buttons. A sample Mesa keyboard follows:



**Note:** To toggle between the numbers and letters on the keyboard, tap on the “123” button.

### Soft Keys

The bar at the bottom of each screen has soft keys that vary depending on which handheld you are using and which screen you are on. On the Mesa, this is called the tile bar.



Soft keys include:

- **Start:** Takes you to the Windows *Start* menu.
- **Close and Back:** Close the current screen and take you to the previous screen.

- *Cancel*: Closes the current screen and takes you back to the previous task.
- *Save*: Saves new settings and project information and returns you to the previous screen.
- *Keyboard*: Brings up an on-screen (SIP) keyboard.
- *Menu*: Options include *Cancel* which closes the current screen and takes you back to the previous task, *Enable* or *Disable GPS*, and open the *Field Guide*.
- *Field Guide*: Depending on the page you are on, this function could be available as a soft key or available from the *Menu* button.
- *Create*: Create a new project.

### **Project Screen**

The features of a project screen are shown in the following example:



## Juniper Aspect Mobile

Start the Juniper Aspect mobile application on your mobile computer. For the Mesa, select *Start > Juniper Aspect*. For the Archer, select *Start > Programs > Juniper Aspect*. A splash screen is shown for a moment while the program loads, then the Juniper Aspect home screen appears:



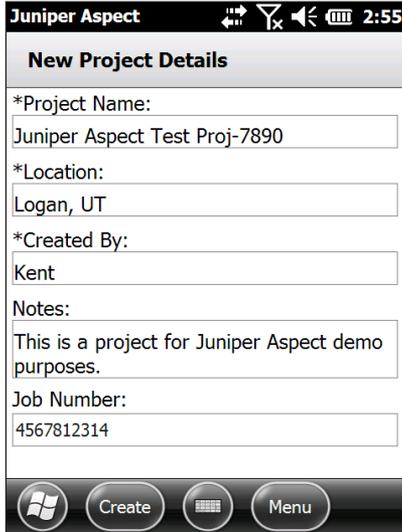
Four main functions are accessed from this screen:

- *New Project*: Create a new mapping project.
- *Open Project*: Open existing mapping projects.
- *Settings*: Set up the *GPS* and *Geometry Collection*. The *About* option provides information such as the software serial number.
- *Exit*: Close the software and return to the home screen.

**Note:** In this manual, screen shots are shown on a Mesa Rugged Notepad in the portrait screen orientation. Juniper Aspect does not run in a landscape orientation.

## New Project

Select the *New Project* symbol on the home screen. The *New Project Details* screen is shown. Enter the requested information as shown in the example below:



**Juniper Aspect** 2:55

### New Project Details

\*Project Name:  
Juniper Aspect Test Proj-7890

\*Location:  
Logan, UT

\*Created By:  
Kent

Notes:  
This is a project for Juniper Aspect demo purposes.

Job Number:  
4567812314

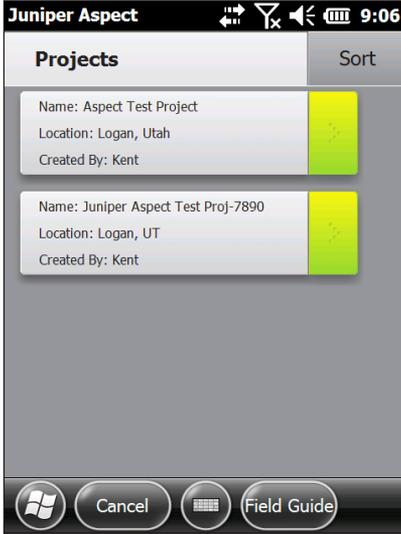
Windows, Create, Menu

Select the *Create* soft key. The new project mapping screen is opened. Mapping is described in this chapter.

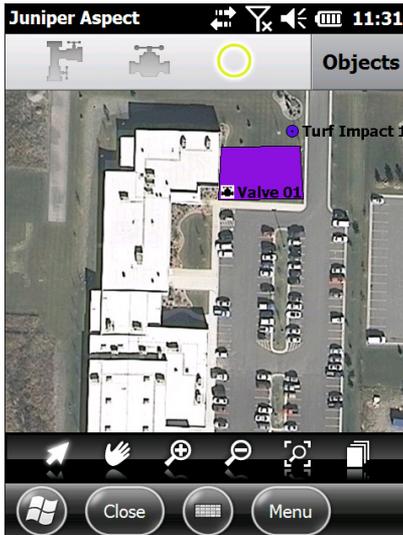


## Open Project

Select the *Open Project* symbol on the home screen to view a list of existing projects. A *Projects* screen is displayed. Tap on the project you want to open:



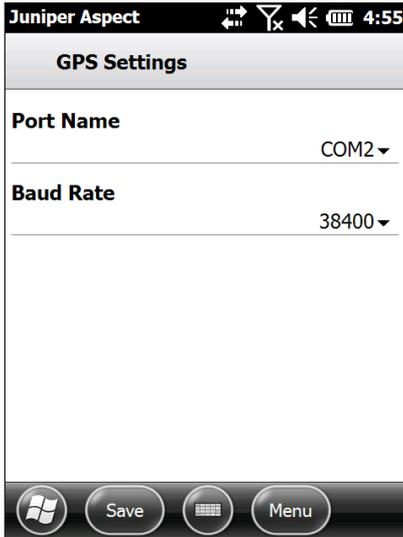
An example of an irrigation project is shown below. You can review or continue working on the project.



## Settings

### GPS

Select the *Settings* function on the Juniper Aspect home screen to configure the GPS. From the *Settings* screen, select *GPS*. The following screen is shown:



Tap the current setting to see a list of settings to select from. Tap the down arrow ▼ to select a setting.

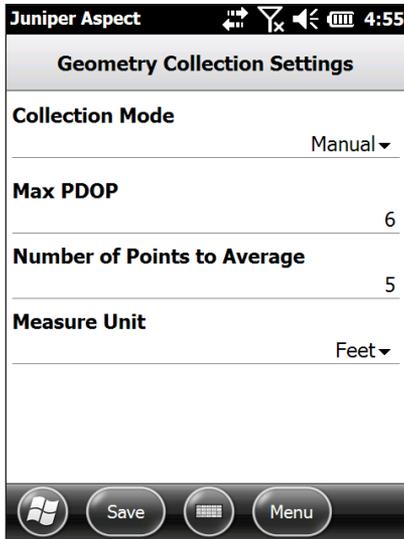
- **Port Name:** The port name for your GPS receiver can vary based on the model of mobile computer, the GPS receiver and how the GPS receiver and mobile computer have been configured.
- **Baud Rate:** The baud rate is normally set in your receiver. Typical setting:

|                      | <u>Port Name</u> | <u>Baud Rate</u> |
|----------------------|------------------|------------------|
| Mesa, integrated GPS | COM2             | 38,400           |

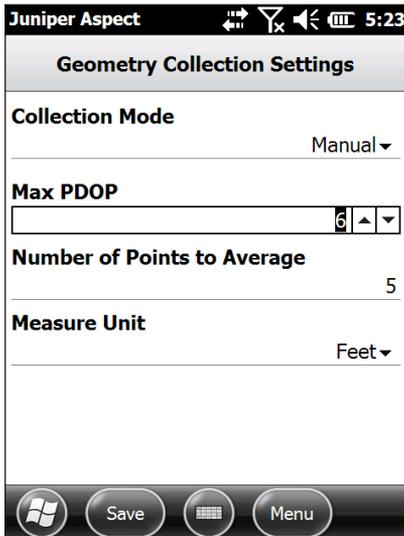
Tap *Save* when are done. The *Settings* screen is shown.

## Geometry Collection

From the *Settings* screen select *Geometry Collection*. The following screen with default settings is shown:



Tap the current setting to see a list of settings to select from. Tap the down arrow ▼ to manually enter a setting. See the following example for Max PDOP:



- **Collection Mode:** Select from Manual, Time, and Distance.
- **Max PDOP:** PDOP stands for Positional Dilution Of Precision. It indicates the quality of the GPS position solution. Low PDOP values are best, and generally a PDOP of 6 or less will provide adequate accuracy. This setting tells the software to discard GPS data when the PDOP is higher than this threshold to help insure the accuracy of the points that are mapped. Although setting Max PDOP to a lower value may improve the accuracy of the points that you map, it may increase the time that it takes to map the point.
- **Number of Points to Average:** Points to average is the number of GPS data points that you want to average when mapping a point. Depending on the GPS that you are using, you may be able to achieve reasonable accuracy by only averaging a few points (less than 10). Some GPS receivers may work better when averaging more points. The more points you choose to average, the longer it will take to map an object. Typically, each point takes one second, so 10 points would take 10 seconds to finish (this is dependent on good PDOP, etc).
- **Measure Unit:** Select the type of units you prefer for distance.



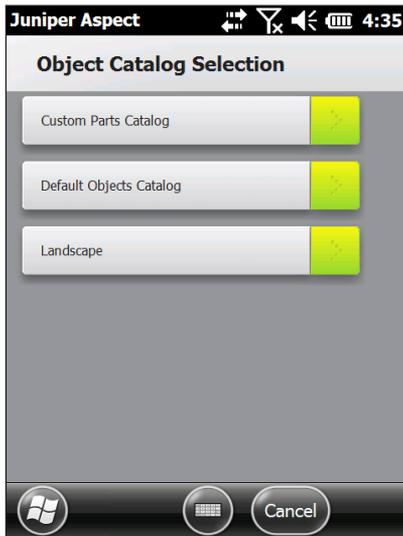
### **Exit**

Select Exit to close Juniper Aspect mobile and return to the home screen.

## Object Catalogs

Each Juniper Aspect mobile license includes a *Custom Objects Catalog* and *Default Objects Catalog* (for irrigation objects). One or more additional catalogs can be downloaded from the desktop software (depending on which Juniper Aspect software license you have).

From the project screen select *Objects*. The *Object Catalog Selection* screen is shown. The available object catalogs are shown as illustrated in the following example:



### Custom Objects Catalog

A *Custom Objects Catalog* provides a way to create new objects and new object types in the field so that items that do not exist in another object catalog can be mapped.

Select the *Custom Objects Catalog* then the *New Object* button at the top of the screen. Define a new object by selecting an object type, or you can create a new object type by selecting the + button. Enter the appropriate information to define the new object or new object type.

**Note:** A Custom Objects Catalog exists only on mobile computers. Custom objects are not synchronized to the desktop or to other mobile computers. They are unique to each mobile computer. The objects show up in reports generated on the desktop, but must be manually added to an object catalog on the desktop computer if desired.

## Mapping Objects Using GPS

Objects are typically mapped using GPS, although they can be added manually (instructions on how to do this are given later in this manual).

### Mapping Tools

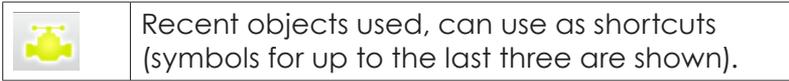
Mapping tools are in a bar above the tile bar. The following tools are available:

|   |   |
|---|---|
|    | Select: objects are selected to edit, delete, or navigate to.   |
|    | Pan: click and drag the map to view the desired area.   |
|    | Zoom In: using a stylus or finger draw a box around the area of interest to zoom to it.   |
|    | Zoom Out: using a stylus or finger draw a box in which the current screen will fit. A large box will zoom out a small amount, and a small box will zoom out a long way. |
|   | Zoom to Project Extent: Click to zoom to the combined extent of all the project layers.   |
|  | Layers: toggle the layers you want to show on and off.  |

|               |  |
|---------------|--|
| Delete Object | A mapped object can be deleted by selecting the object and choosing the <i>Delete</i> option from the context menu that appears. |
|---------------|--|

|                  |  |
|------------------|--|
| Pause and Resume | While mapping a line or polygon, tap on <i>Stop</i> to pause mapping. To resume, tap on <i>Capture</i> to continue the mapping of the line or polygon. |
|------------------|--|

At the top of the map screen on the left, you might see up to three symbols like the following:



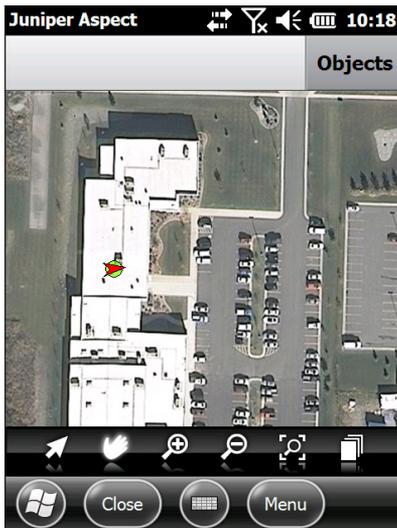
### Mapping a Project

Open the new or existing project you want to map. Select *Menu*, then *Enable GPS*.

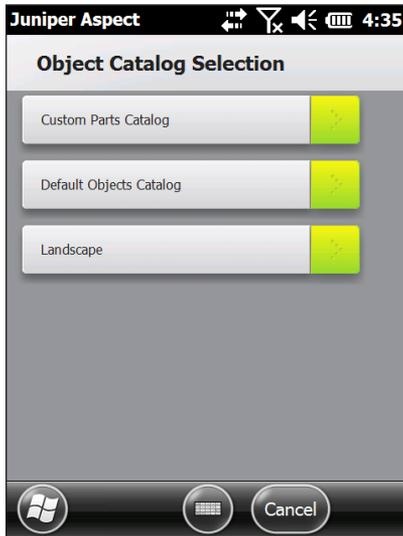
You can see the status of the GPS based on the icon that is shown in the center of the mapping area of the screen. A green circle indicates that the GPS receiver is working and that Juniper Aspect is receiving data from the GPS receiver. A red circle with a “!” symbol indicates that Juniper Aspect has attempted to activate the GPS receiver and that you are either in a location where the GPS cannot acquire a position fix or that the program is not receiving data from the GPS.

Once the GPS is working and you have a position fix, select an object to map. Follow these steps.

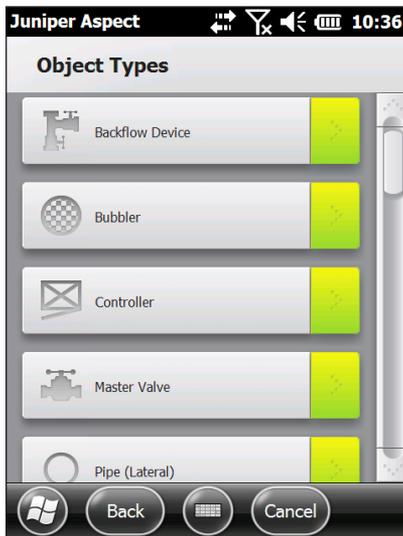
1. Tap the *Objects* button near the top of the screen on the right to open the *Object Catalog Selection*.



2. Select the *Object Catalog* you want to use. The *Default Objects Catalog* is shown for this example.



3. The *Object Types* screen is shown. Select the object type you want to view.



4. The *Remaining Categories* screen is shown. To see all the objects of that type, select *Show Matching Parts* at the bottom of the list. An *Objects* screen is shown.

You can select an object to map from this screen. Or, you can further filter the objects by a category such as *Manufacturer*. Select the desired category.

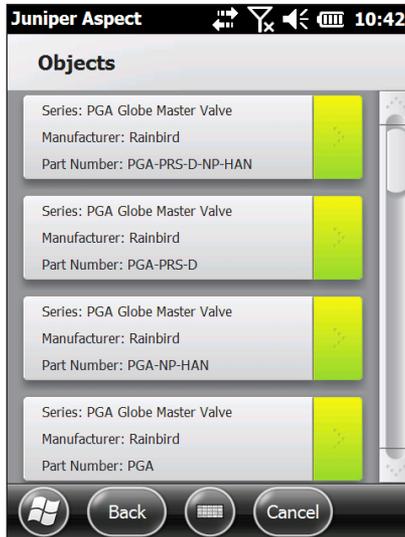


Manufacturer is shown for this example.

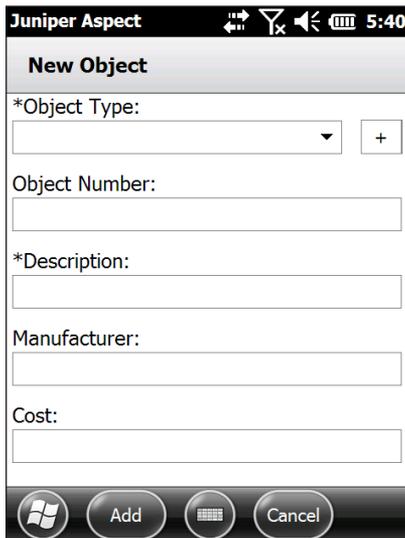


5. Depending on the category you select, you will see additional screens with options to select from. Keep

making selections until you get to an *Object* screen. Select the object that you want to map.

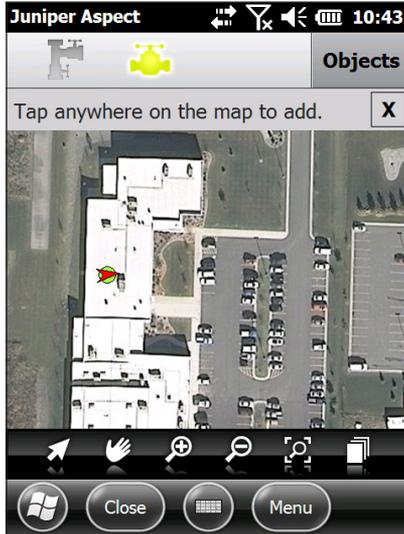


To map an object that is not in a catalog, go to the *Object Catalog Selection* screen and select *Custom Objects Catalog*. The *Objects Types* screen is shown. Select *New*. Fill out the *New Object* screen shown below using the keyboard and select *Add*.



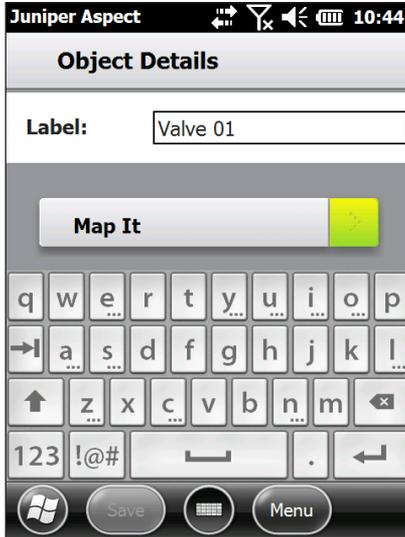
6. Now that you have selected a part to map, the main project screen with a display of the mapping area is shown. Tap anywhere in the mapping area to map the object.

**Note:** Up to three of the last used parts are shown in the upper left-hand corner of the screen. You can select these icons for quick access to an object.



7. You are prompted for the *Object Label*. The *Object Label* is a name or identifier that you want to use to identify this specific object, similar to an inventory

number or serial number. Enter the desired label for this object.



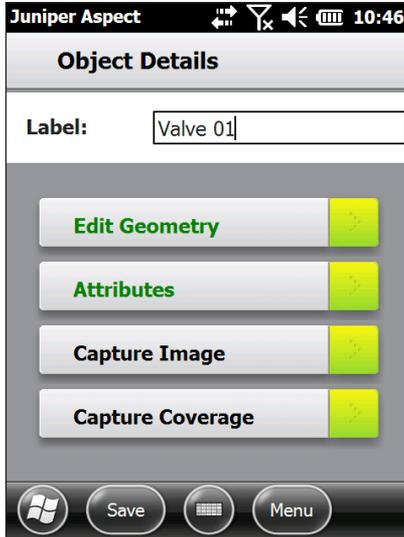
8. Select the *Map It* option to start mapping the object. A progress bar indicates when the program has captured enough information from the GPS to map the object.



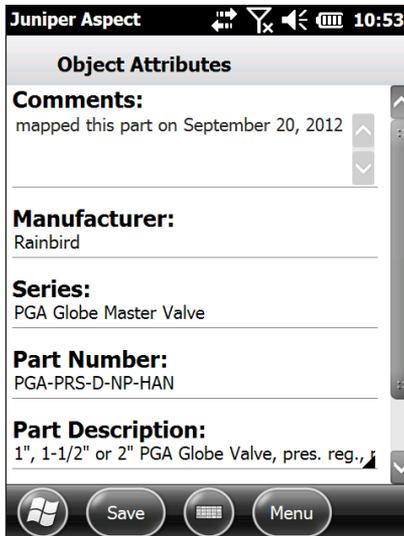
9. If you are mapping an object like a pipe or wire, you need to map two or more points to show where the pipe runs. Additional points for an object are mapped by selecting the capture button at the bottom of the screen. Each time you tap the capture button it will map another point, and you will see a progress bar while information is acquired from the GPS receiver.
10. When you have captured enough points to map the object, select *Finish*. You are returned to the *Object Details* screen.



11. To record additional notes, select the *Attributes* from the list.

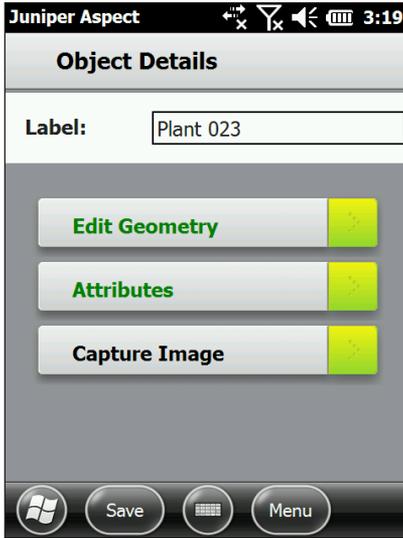


12. Enter notes in the *Comments* field if desired, then select *Save* to return to the *Object Details* screen.



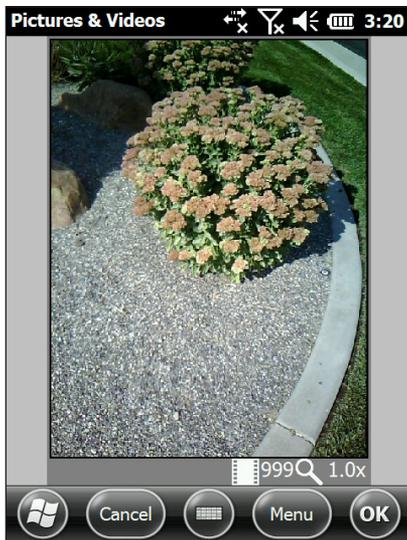
13. Up to 5 images of an object can be taken if you are using a Mesa Geo with a camera. Tap the *Capture Image* option on the *Object Details* screen.

**Note:** The Mesa camera resolution is set to 640 x 480. Higher resolutions are not supported and may cause unexpected problems.



The camera turns on and the *Pictures and Videos* application opens. Select the *Menu* soft key for a pull-down list of options. (See the Mesa Owner's Manual for more details regarding the camera.)

Once you have the camera options set up, take a picture by pressing the camera button .

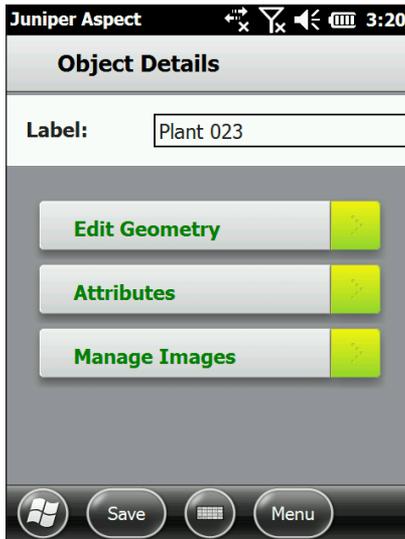


Pictures can be geotagged, showing the date, time, latitude, and longitude either embedded or embossed into the file. (See the Mesa Owner's Manual for more details on the camera.)

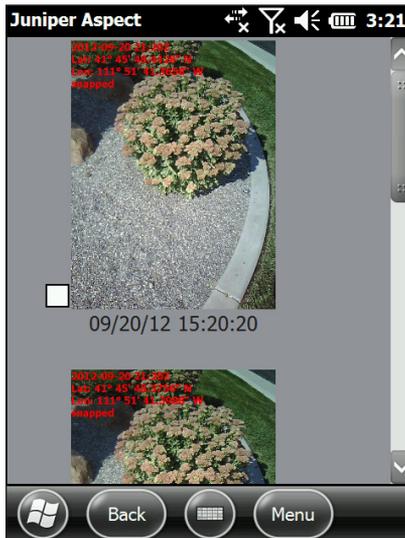


When you are done, tap **OK** to return to the *Object Details* screen.

Images can be added or deleted by selecting the *Manage Images* option on the *Object Details* screen.

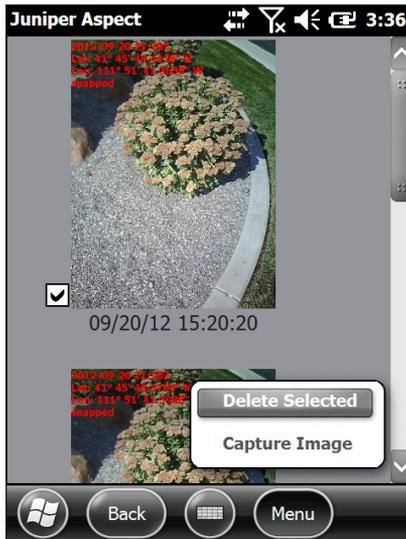


To add another image, select the *Menu* soft key and choose the *Capture Image* option. Repeat the steps outlined earlier in this step.

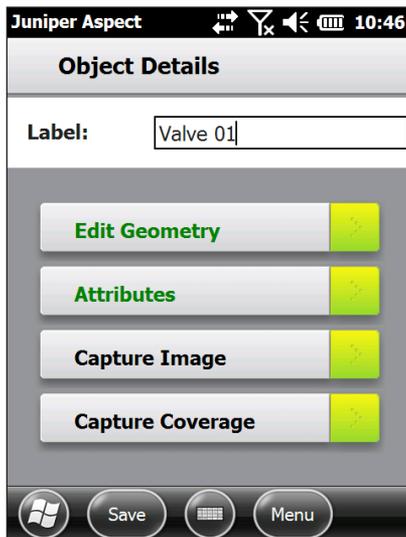


Tap *OK* to return to the *Manage Images* screen.

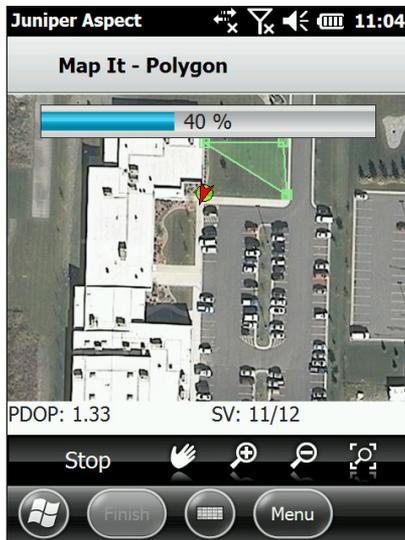
To delete images, select the checkbox next to each image to be deleted. Select the *Menu* soft key and choose *Delete Selected*.



14. To map the coverage area for an object like an irrigation valve, select *Capture Coverage*, then start walking.

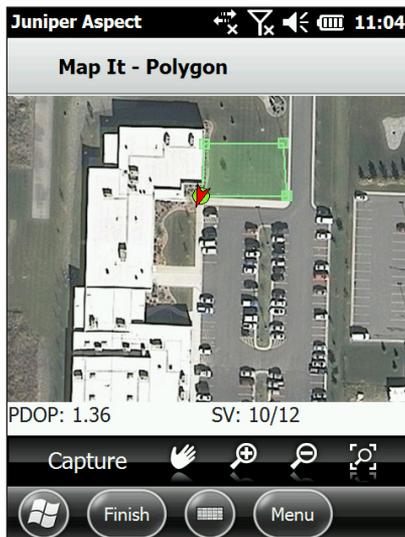


Always walk/map a polygon in a clockwise or counter-clockwise fashion. Avoid walking in a zigzag line or crossing over the desired area.

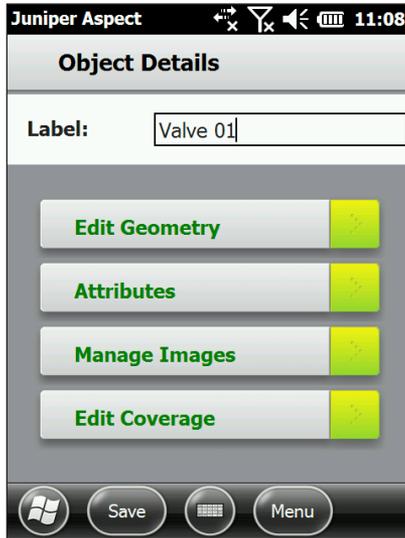


If the polygon you create does not look right, you can edit it later.

15. When you have mapped the coverage area, select *Finish* to return to the *Object Details* screen.



16. Select the Save button at the bottom of the *Object Details* screen to map the object.



## Object Labels

If your map screen starts to get crowded, you can turn object labels off from the *Layers*  function to simplify it. The following screenshots show examples of labels being turned on, then off.

### Map with Labels On



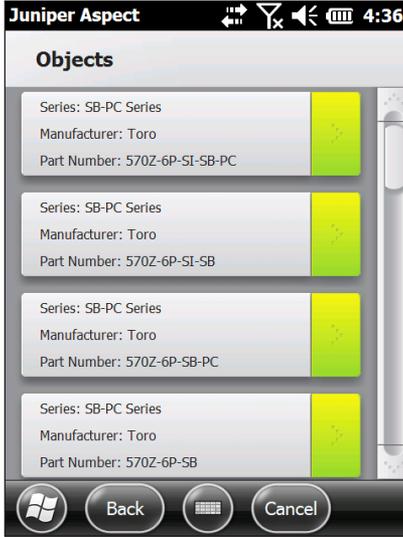
### Map Labels Off



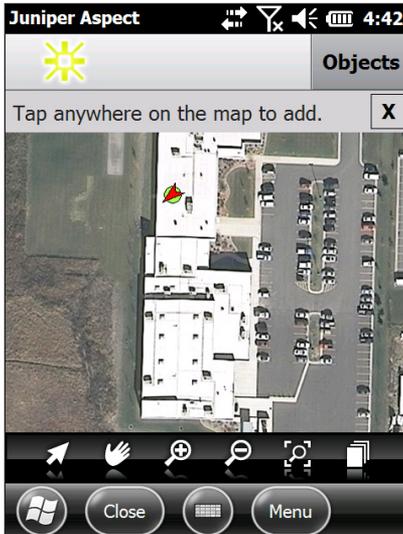
## Mapping Objects Without GPS

It is possible to add objects to the map by manually selecting the location on the screen.

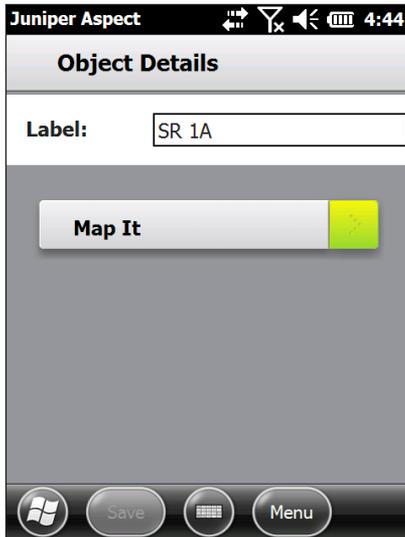
1. From the Objects Browser select an object to map.



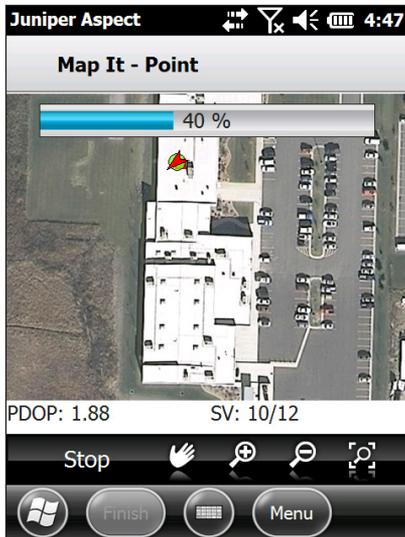
2. Tap on the map when you see the prompt "Tap anywhere on the map to add."



3. Enter an *Object Label*.



4. Select *Map It*.
5. Select *Stop* to stop the GPS point capture process.



6. Choose *Menu*, then *Add Point*.

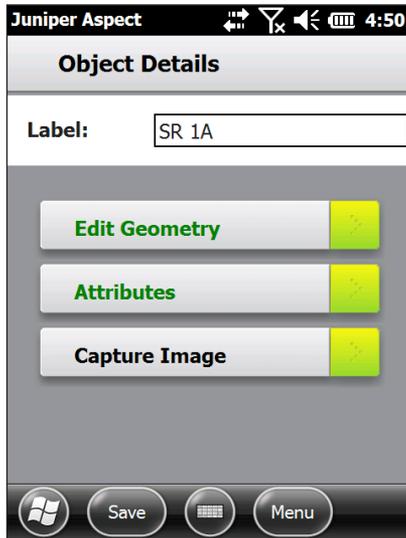


7. Tap the location on the map where you want to add the object. A marker appears on the map to indicate the location that you selected.

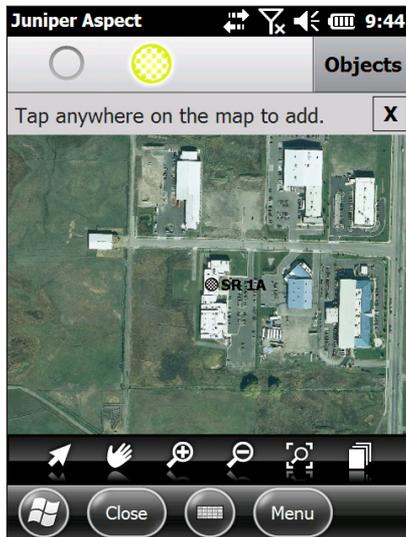


8. Choose *Finish*. (Objects can be edited without GPS. See "Moving an Object Without GPS.")

9. If needed, add or change any information on the *Object Details* page.



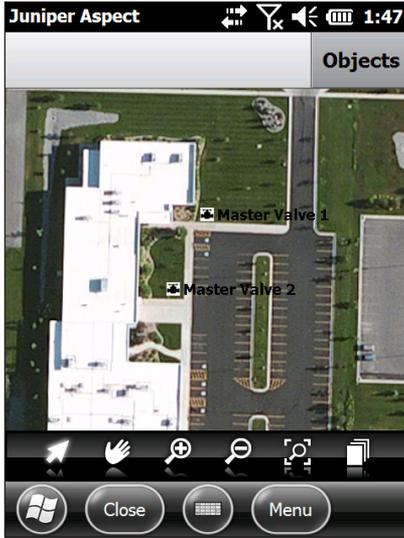
10. Choose Save. The map you created is shown.



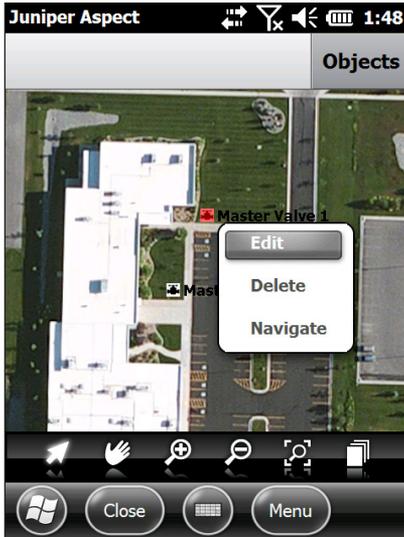
## Editing Objects

Information associated with a mapped object can be changed as follows:

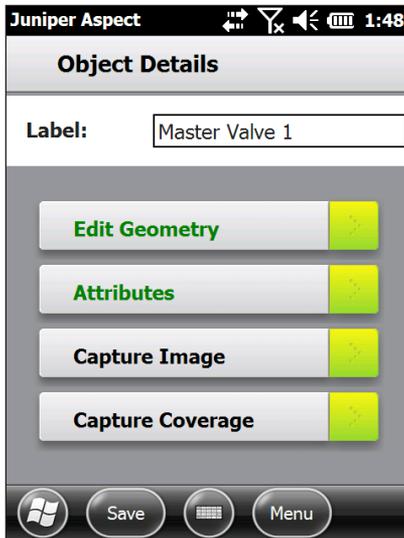
1. Use the *Select* tool to select the object to be edited.



2. Choose *Edit* from the context menu that appears.



3. The following *Object Details* screen is shown:



You can edit or add the following object details:

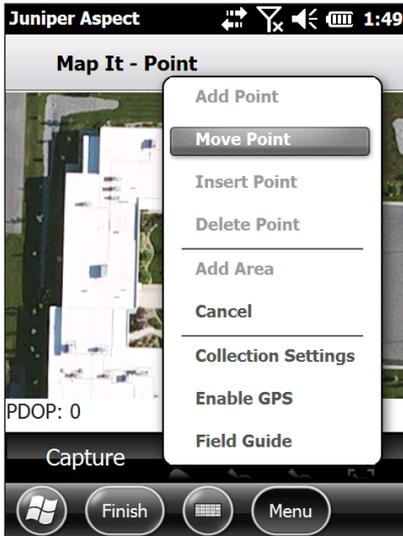
- Object Label: edit text.
  - Edit Geometry: move objects on the map, with or without GPS (described later in this chapter).
  - Attributes: change any of the editable attribute data.
  - Capture Image (Mesa only): add a picture or replace the existing picture for an object.
  - Capture Coverage: capture or edit valve object coverage, with or without GPS (described later in this chapter).
4. Choose *Save* when you are done editing the object.

## Moving Objects

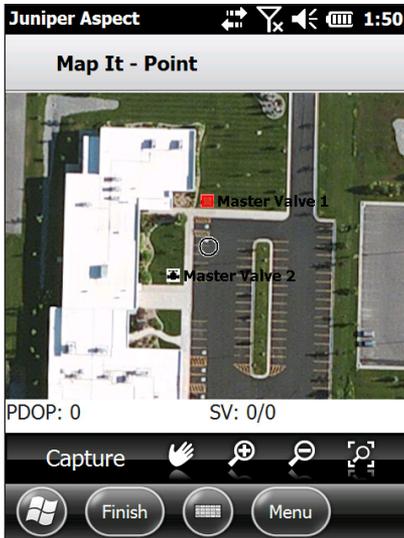
Objects can be moved with or without GPS.

### Moving Objects Without GPS

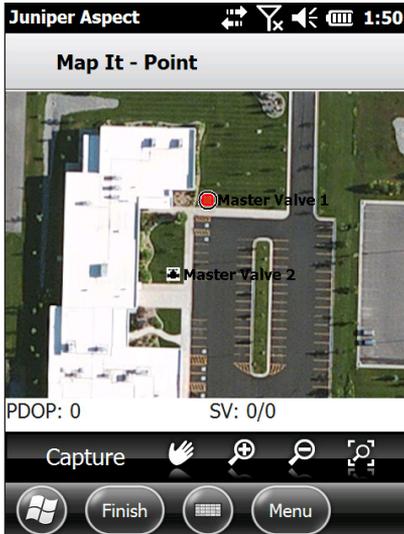
1. Use the *Select* tool to select the object to be edited, then *Edit* from the menu.
2. The *Object Details* screen is shown. Choose *Edit Geometry*. The *Map It* screen is shown.
3. Select *Menu*, then *Move Point*.



4. A circle tool appears in the center of the screen. Tap on the object that you are editing to select it with the Move tool.



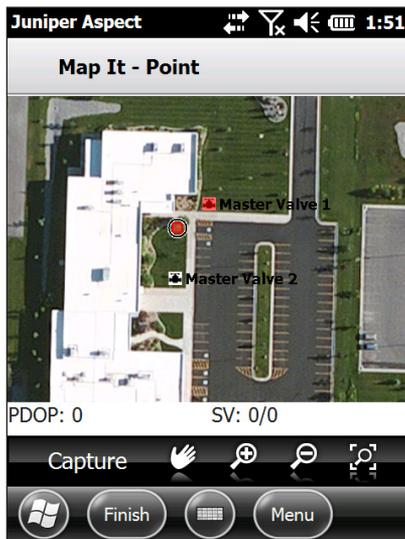
5. Tap the new location where you want to place the object.



**Note:** The icon that shows the original location of the object remains visible at the old location until the object edit is complete.

A red box appears underneath the Move tool in the new location. Because the Move tool covers the red box when it is placed at the new location, you may have to tap somewhere else on the map to verify that the red box is at the location that you selected.

6. If you need to move the object again, use the Move tool to select the red box and place it again by using the same method.



6. Select *Finish*, then *Save*.

### **Moving an Object Using GPS**

1. Use the *Select* tool to select the object to be edited, then *Edit* from the menu.
2. The *Object Details* screen is shown. Choose *Edit Geometry*. The *Map It* screen is shown.
3. Select *Capture Coverage* to collect coordinates from the GPS.

**Note:** The icon that shows the original location of the object remains visible at the old location until the object edit is complete.



4. Select *Finish*, then *Save*.

### **Editing a Coverage Area**

Coverage areas can be edited with or without GPS.

#### **Editing a Coverage Area without GPS**

1. Use the *Select* tool to select the object to be edited, then *Edit* from the menu.
2. The *Object Details* screen is shown. Choose *Edit Coverage*. The *Map It* screen is shown.
3. Choose *Menu* and then select the action you want to perform:

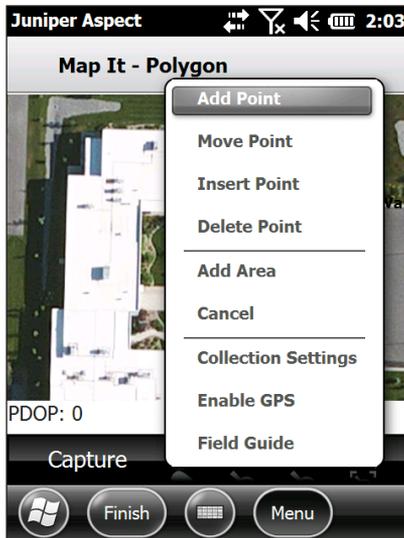
*Add Point* – Use this option to add new points to the coverage polygon. When you've selected this option tap the locations for each of the new points.

*Move Point* – Use this option to move a point that is part of the coverage polygon. When you've selected this option, tap on one of the vertices of the polygon to select that point, and then tap the new location to move it.

*Insert Point* – Use this option to add a new vertex to a line segment of the coverage polygon. Tap the line to select it, and then tap the location where you would like to place the new vertex.

*Delete Point* – Use this option to delete a vertex in the polygon. When you've selected this option, tap on one of the vertices of the polygon to remove it.

*Add Area* – Use this option to start another coverage area associated with the same object in a different location. For example, this could be used to map a coverage area that consisted of multiple islands in a parking lot. After you've selected this option, choose *Menu*, then *Add Point* to start placing points for the additional coverage area.



4. Select *Finish*, then *Save*.

### **Editing a Coverage Area using GPS**

1. Select an object to edit to get to the *Object Details* Screen.
2. Choose *Edit Coverage*. The *Map It* screen is shown.
3. If needed, adjust the Geometry collection settings (manual, time, distance).

4. Select *Capture* to collect coordinates from the GPS and repeat as needed.
5. Select *Finish*, then *Save*.

## **Navigating to an Object**

An object can be located by selecting the object and choosing the navigate option from the context menu that appears. You will see an indicator on the screen that shows your current position and the direction you are moving. You will also see the distance to the object near the top of the map area. The top of the screen is always north.

## **Synchronizing Data with the Desktop Computer**

When you have collected mapping data on a mobile computer, you synchronize it with the desktop computer according to the schedule you have worked out.

## **Synchronizing Multiple Mobile Computers**

Data from more than one mobile computer might be used for a project. Here an example of how the process could work (your process might be different):

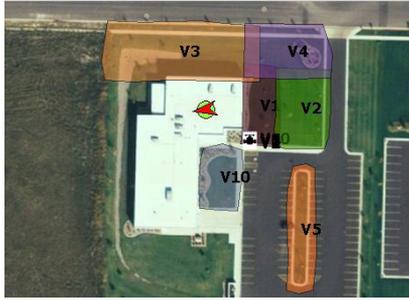
1. At the end of the day, each mobile computer is connected to the desktop computer and collected data is synchronized with the desktop project being worked on. Each mobile computer does this in turn.
2. Once the data from the all the mobile computers is synchronized with the desktop computer, each mobile computer, is connected to the desktop computer again, in turn like before, to get a complete set of data that includes updates from the other mobile computers.
3. The desktop project now has all the data from all the mobile computers.
4. The process is repeated daily or according to your schedule.
5. When the project is complete, maps and reports can be created from the desktop computer.

# Sample Maps

## Valves and Heads



## Valve Coverage



## Line (Pipe or Wire, for Example)



# Chapter 8



Map Functions on a  
Desktop Computer

# Map Functions on a Desktop Computer

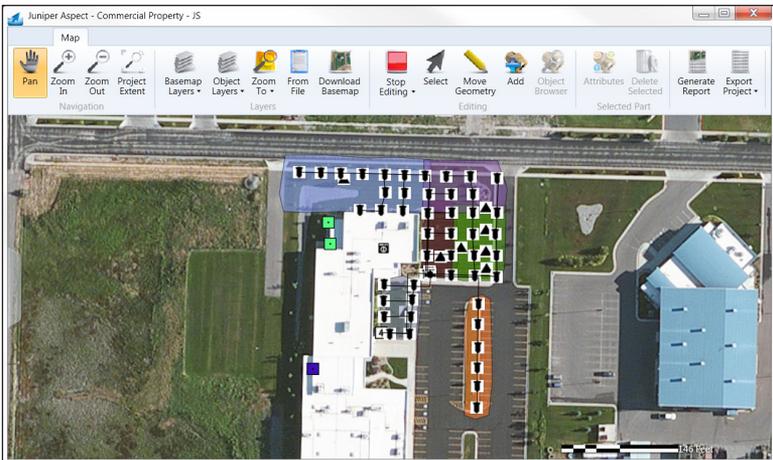
## Viewing and Editing Project Maps

Maps created on a mobile computer and synchronized with the desktop computer are typically viewed and edited on the desktop computer by the project manager. Once the information is correct, it is used to create reports (maps and objects).

The *Map* window is accessed from the Juniper Aspect home screen. Follow these steps to get to the correct map screen:

1. Select **Projects**  from the home screen.
2. Find the project you want to open from the list.
3. Synchronize data if there is a  symbol (see *Chapter 5, Creating Projects*, for information on project symbols).
4. Select the **Open Project**  symbol. The map screen for the project opens.

Here is a sample map with mapped irrigation data:



## Map Functions

The map functions on the ribbon bar are broken into five groups: *Navigation*, *Layers*, *Editing*, *Selected Part*, and *Generate Report*.

## Screen Navigation Functions

|   |   |
|---|---|
|  | <p>Pan: Click and drag to pan the map ("Ctrl" + 1 on the keyboard).</p>   |
|  | <p>Zoom In: Click and drag to select an area to zoom to (for 1-click-zoom-in, press the plus [+] key on the keyboard).</p>          |
|  | <p>Zoom Out: Click and drag to select an area to zoom out from (for 1-click-zoom-out, press the minus [-] key on the keyboard).</p> |
|  | <p>Zoom to Project Extent: Click to zoom to the combined extent of all the layers in the project.</p>                               |

## Basemap Layers



Basemap Layers: Click to open a drop down box for all available basemap layers. Only one basemap can be viewed at a time and the opacity of it can be adjusted by moving the slider bar. **Note:** *the Bing Maps layers (Road, Aerial, and Hybrid) will only be available for professional level licenses.*

| Layer Name                       | Opacity   |
|----------------------------------|---|
| Bing Road                        |   |
| Bing Aerial                      |  |
| Bing Hybrid                      |  |
| World Imagery (ArcGIS Online)    |  |
| World Streetmap (ArcGIS Online)  |  |
| World Topography (ArcGIS Online) |  |

## Layers Functions

|  | <p>Layers: Click to open a drop down box for all layers on the map. Each layer's visibility, label visibility and selectability can be toggled on and off by clicking on the check box at the top of each column. The opacity of each layer can also be selected as shown below.</p> <table border="1" data-bbox="274 402 757 643"> <thead> <tr> <th><input checked="" type="checkbox"/> Visible</th> <th><input type="checkbox"/> Labels</th> <th><input checked="" type="checkbox"/> Editable</th> <th>Opacity</th> <th>Layer Name</th> </tr> </thead> <tbody> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td></td> <td>Wire</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td></td> <td>Pipe (Lateral)</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td></td> <td>Pipe (Main Line)</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td></td> <td>Timer</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td></td> <td>Valve Box</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td></td> <td>Head</td> </tr> </tbody> </table> <p><b>Note:</b> When the visibility of an object has been turned off, you cannot add that object to the map. Turn the visibility back on by selecting the check box for that object.</p> | <input checked="" type="checkbox"/> Visible  | <input type="checkbox"/> Labels | <input checked="" type="checkbox"/> Editable | Opacity | Layer Name | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |  | Wire | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |  | Pipe (Lateral) | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |  | Pipe (Main Line) | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |  | Timer | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |  | Valve Box | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |  | Head |
|---|---|--|---------------------------------|--|---------|------------|-------------------------------------|--------------------------|-------------------------------------|--|------|-------------------------------------|--------------------------|-------------------------------------|--|----------------|-------------------------------------|--------------------------|-------------------------------------|--|------------------|-------------------------------------|--------------------------|-------------------------------------|--|-------|-------------------------------------|--------------------------|-------------------------------------|--|-----------|-------------------------------------|--------------------------|-------------------------------------|--|------|
| <input checked="" type="checkbox"/> Visible                                       | <input type="checkbox"/> Labels   | <input checked="" type="checkbox"/> Editable | Opacity                         | Layer Name                                   |         |            |                                     |                          |                                     |  |      |                                     |                          |                                     |  |                |                                     |                          |                                     |  |                  |                                     |                          |                                     |  |       |                                     |                          |                                     |  |           |                                     |                          |                                     |  |      |
| <input checked="" type="checkbox"/>   | <input type="checkbox"/>  | <input checked="" type="checkbox"/>          |                                 | Wire   |         |            |                                     |                          |                                     |  |      |                                     |                          |                                     |  |                |                                     |                          |                                     |  |                  |                                     |                          |                                     |  |       |                                     |                          |                                     |  |           |                                     |                          |                                     |  |      |
| <input checked="" type="checkbox"/>   | <input type="checkbox"/>  | <input checked="" type="checkbox"/>          |                                 | Pipe (Lateral)                               |         |            |                                     |                          |                                     |  |      |                                     |                          |                                     |  |                |                                     |                          |                                     |  |                  |                                     |                          |                                     |  |       |                                     |                          |                                     |  |           |                                     |                          |                                     |  |      |
| <input checked="" type="checkbox"/>   | <input type="checkbox"/>  | <input checked="" type="checkbox"/>          |                                 | Pipe (Main Line)                             |         |            |                                     |                          |                                     |  |      |                                     |                          |                                     |  |                |                                     |                          |                                     |  |                  |                                     |                          |                                     |  |       |                                     |                          |                                     |  |           |                                     |                          |                                     |  |      |
| <input checked="" type="checkbox"/>   | <input type="checkbox"/>  | <input checked="" type="checkbox"/>          |                                 | Timer  |         |            |                                     |                          |                                     |  |      |                                     |                          |                                     |  |                |                                     |                          |                                     |  |                  |                                     |                          |                                     |  |       |                                     |                          |                                     |  |           |                                     |                          |                                     |  |      |
| <input checked="" type="checkbox"/>   | <input type="checkbox"/>  | <input checked="" type="checkbox"/>          |                                 | Valve Box                                    |         |            |                                     |                          |                                     |  |      |                                     |                          |                                     |  |                |                                     |                          |                                     |  |                  |                                     |                          |                                     |  |       |                                     |                          |                                     |  |           |                                     |                          |                                     |  |      |
| <input checked="" type="checkbox"/>   | <input type="checkbox"/>  | <input checked="" type="checkbox"/>          |                                 | Head   |         |            |                                     |                          |                                     |  |      |                                     |                          |                                     |  |                |                                     |                          |                                     |  |                  |                                     |                          |                                     |  |       |                                     |                          |                                     |  |           |                                     |                          |                                     |  |      |
|  | <p>Zoom To: Zooms the map to the extent of the layer selected from the drop down list.</p> <table border="1" data-bbox="274 878 466 1138"> <tbody> <tr><td>Pipe (Lateral)</td></tr> <tr><td>Pipe (Main Line)</td></tr> <tr style="background-color: #ffffcc;"><td>Timer</td></tr> <tr><td>Head</td></tr> <tr><td>Valve Box</td></tr> <tr><td>Valve</td></tr> <tr><td>Valve Coverage</td></tr> <tr><td>Basemap</td></tr> </tbody> </table>   | Pipe (Lateral)                               | Pipe (Main Line)                | Timer  | Head    | Valve Box  | Valve                               | Valve Coverage           | Basemap                             |  |      |                                     |                          |                                     |  |                |                                     |                          |                                     |  |                  |                                     |                          |                                     |  |       |                                     |                          |                                     |  |           |                                     |                          |                                     |  |      |
| Pipe (Lateral)  |   |  |                                 |  |         |            |                                     |                          |                                     |  |      |                                     |                          |                                     |  |                |                                     |                          |                                     |  |                  |                                     |                          |                                     |  |       |                                     |                          |                                     |  |           |                                     |                          |                                     |  |      |
| Pipe (Main Line)  |   |  |                                 |  |         |            |                                     |                          |                                     |  |      |                                     |                          |                                     |  |                |                                     |                          |                                     |  |                  |                                     |                          |                                     |  |       |                                     |                          |                                     |  |           |                                     |                          |                                     |  |      |
| Timer   |   |  |                                 |  |         |            |                                     |                          |                                     |  |      |                                     |                          |                                     |  |                |                                     |                          |                                     |  |                  |                                     |                          |                                     |  |       |                                     |                          |                                     |  |           |                                     |                          |                                     |  |      |
| Head  |   |  |                                 |  |         |            |                                     |                          |                                     |  |      |                                     |                          |                                     |  |                |                                     |                          |                                     |  |                  |                                     |                          |                                     |  |       |                                     |                          |                                     |  |           |                                     |                          |                                     |  |      |
| Valve Box   |   |  |                                 |  |         |            |                                     |                          |                                     |  |      |                                     |                          |                                     |  |                |                                     |                          |                                     |  |                  |                                     |                          |                                     |  |       |                                     |                          |                                     |  |           |                                     |                          |                                     |  |      |
| Valve   |   |  |                                 |  |         |            |                                     |                          |                                     |  |      |                                     |                          |                                     |  |                |                                     |                          |                                     |  |                  |                                     |                          |                                     |  |       |                                     |                          |                                     |  |           |                                     |                          |                                     |  |      |
| Valve Coverage  |   |  |                                 |  |         |            |                                     |                          |                                     |  |      |                                     |                          |                                     |  |                |                                     |                          |                                     |  |                  |                                     |                          |                                     |  |       |                                     |                          |                                     |  |           |                                     |                          |                                     |  |      |
| Basemap   |   |  |                                 |  |         |            |                                     |                          |                                     |  |      |                                     |                          |                                     |  |                |                                     |                          |                                     |  |                  |                                     |                          |                                     |  |       |                                     |                          |                                     |  |           |                                     |                          |                                     |  |      |



From File: Click to import CAD layers to the project (dwg file). When the file is loaded, select which element to import from the CAD file (see below) and choose what to name the layer, or keep the default name. (This function requires the professional license.)

**Import CAD File**

File: C:\Users\Adrian Welsh\Documents\My Stuff\Juniper Sy **Browse**

Layer Name: Water\_Meters

Select layer to import. (repeat until done)

- 0
- Parcel
- Water\_Meters**
- Bldgs

**Import** **Close**



Download Basemap (from current extent): Click to download a cached version of the basemap for the area visible on the screen. This button only becomes active when the project extent scale is less than 3,000 meters. (Caching is a way to store data so that future requests for that data can be served faster).

**Creating Basemap Cache**

Downloading tiles...

Tiles remaining: 127      Tiles downloaded: 55

**Cancel** **Close**

## Editing

|   |   |
|---|---|
|  | <p>Start Editing: Click to enable editing on layers that have been set to allow editing.</p> <p> Stop Editing: Click to stop editing. If there are unsaved edits, they can be saved or ignored. This icon only appears during an editing session.</p> <p> Save Edits: Click to save edits during the current editing session. This symbol only appears during an editing session. Click on the drop down arrow under the <i>Stop Editing</i> icon to get the <i>Save Edits</i> icon. It is a good practice to save edits regularly.</p> |
|  | <p>Select: Click to select objects on the map. Once enabled, click on an object to select it ("Ctrl" + 2 on the keyboard).</p>  |
|  | <p>Move Geometry: Click to edit an object's location and its vertices if the object is a line or polygon ("Ctrl" + 3 from the keyboard). (This function is only enabled during an editing session.)</p>   |

|   |   |
|---|---|
|    | <p>Add New Object: Click to add a new object. Once enabled, an object can be selected from the object browser and added to the map (“Ctrl” + 4 from the keyboard). (This function is only enabled during an editing session. Otherwise it is grayed out.) Shown below is the object types list:</p> <div data-bbox="271 394 806 979" data-label="Image">  </div> |
|  | <p>Object Browser: Click to view the object browser. When the add tool is enabled, objects can be selected in the object browser and added to the map. When you click on this icon, the <i>Object Browsers</i> box is shown.</p>  |

## Selected Object

|   |  |
|---|--|
|  | <p>Attributes: Click to view the attributes of the currently selected object. Attributes can be edited when an edit session has been started. (This function is only enabled when an object is selected.)</p>  |
|  | <p>Delete Selected: Click to delete the currently selected object. (This function is only enabled during an editing session when an object is selected.)</p>   |
|  | <p>Label Color: Click to change the color of the selected label (this function is only enabled during an editing session when a label is selected).</p>  |
|  | <p>Add Valve Coverage: Click to add an associated irrigation valve coverage to the selected object.</p>  |
|  | <p>Add Area: Add additional areas to existing irrigation valve coverage.</p>   |
|  | <p>Symbology: Click to change the symbology of the selected object. The symbology light box appears and you can change the symbology of the attached geometry. (This is enabled during an editing session when an irrigation valve coverage is selected for editing and when it is showing its vertices). An example is shown below:</p> <div data-bbox="271 1122 657 1489" style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p style="text-align: center;"><b>Valve Coverage Symbology</b></p> <p>Line Color <input type="text" value="Black"/> ▼</p> <p>Fill Color <input type="text" value="#FF3596B0"/> ▼</p> <p>Line Width <input type="text" value="1"/> ▼</p> <p>Opacity <input type="range" value="50"/></p> <p style="text-align: right;"> OK</p> </div> |

## Editing and Fine Tuning Existing Maps

Before you create final maps and reports, you might want to edit existing map projects. Here are some examples of things you can do. Refer back to the description of the map functions on the previous pages.

Open Juniper Aspect on the desktop computer and open the project you are going to edit. Start an editing session by clicking on the green arrow  icon.

**Note:** To undo an edit, press “Ctrl” + Z. To redo an edit, press “Ctrl” + Y.

### Moving Objects and Reshaping Lines and Polygons

To move points (objects), click on the Move Geometry  tool and find the object you want to move. For single points (objects like sprinkler heads, irrigation valves, etc) click and drag on the object to move it to the desired location.

For lines (like wires) and polygons (coverages), click on the line or polygon. A small white box is shown for each vertex (corner) of that geometry type. Click on the item and drag it to move it to the desired location.

To change the shape of a line or polygon, click on the line or polygon with the Move Geometry tool and move the vertices to the desired location.

**Important Note:** If an object has over 300 vertices, you will likely see a degradation in performance. The maximum number of useable vertices is 500.

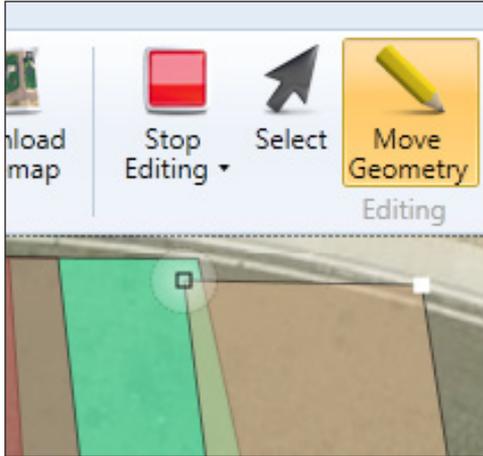
### Recording Changes to Vertice Locations

After finishing moving vertices, click on another object in order for the changes to be recorded. If you don't click on another object, the changes will not be recorded and will have to be changed again.

### Snapping

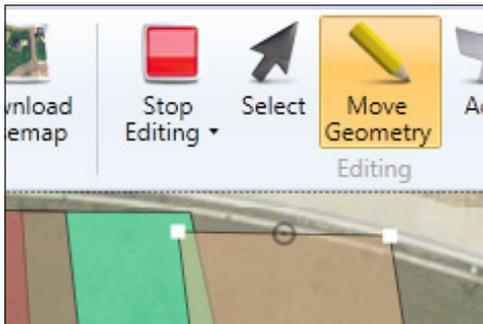
To move an object or vertex to an exact location of another object or vertex, use snapping. To do this, while clicking and dragging an object or vertex, hold down

the left control key on the keyboard. When the object or vertex being moved is near another object or vertex, a small white circle appears. Let go of the object or vertex. It should now be snapped to the selected object or vertex.



### **Adding and Removing Vertices (from lines and polygons)**

Vertices can be added and removed to lines and polygons while editing. To add a vertex, click on the *Move Geometry*  tool, then click on the object (line or polygon) to add a vertex to. A vertex can only be added directly in the middle of two existing vertices, but it can be moved afterwards. When the object is selected for editing and the mouse is hovering in between two vertices, a small hollow circle appears. Click on this circle to add the vertex.

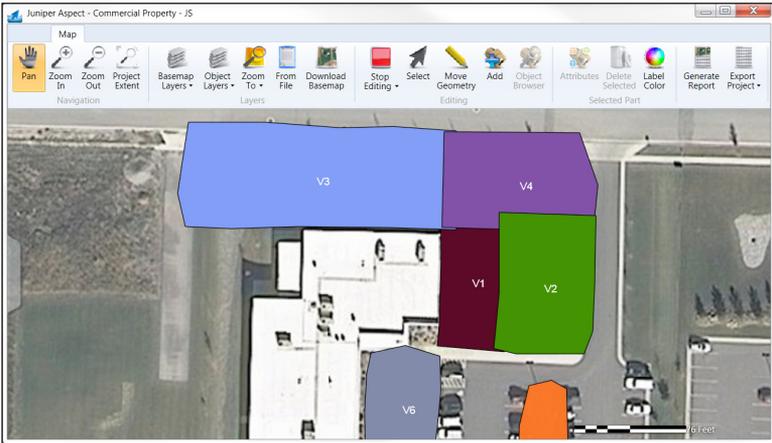


To remove a vertex, click on the *Move Geometry* tool then click on the object (line or polygon) to be edited. Choose which vertex to remove and double click on it. This removes the vertex.

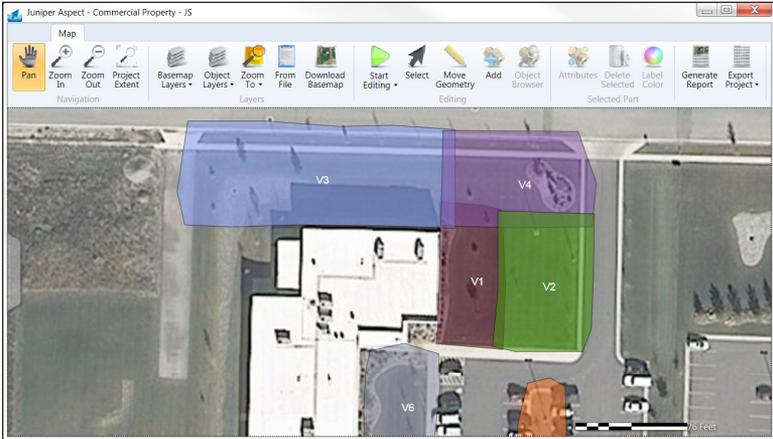
### Changing Symbology

For now, symbology (color, opacity, and outline) can only be changed for irrigation valve coverages. When an irrigation valve coverage is created, it gets assigned a randomly generated color. To change this color, while editing, click on the *Select* tool then click on the coverage to be changed. It becomes highlighted (turns red). Click on the *Symbology* function. If the *Symbology* function is not visible, then there is more than one coverage selected. Make sure you just select one coverage. Once the *Symbology* light box is opened, you can change line color, fill color, line thickness, and opacity.

When coverages are overlapping, changing the opacity gives you a better visual representation of what's going on. Below is an example with randomly generated colors:

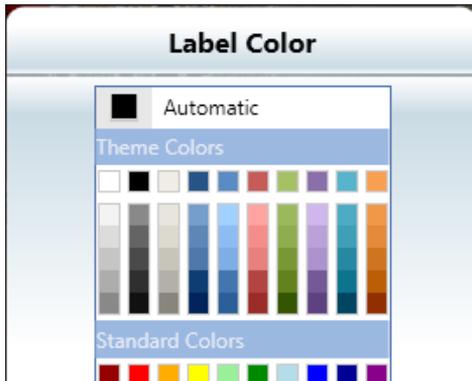


Below is an example with opacity, line thickness, and colors changed:



### Editing Label Location and Color

Object labels can be moved and their color can be changed. To move a label, start an edit session and click and drag the label using the *Move Geometry*  tool. To change the color of the label, click on the label with the *Select*  tool then click on the *Label Color*  tool to view the color palette shown below:



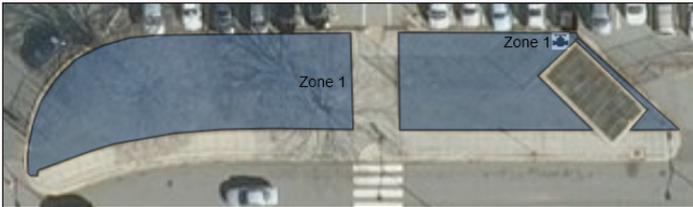
## Adding Valve Coverage

You can add coverage to an irrigation valve that does not have an existing associated coverage. Either find a valve that is already mapped or add a new valve. Start an edit session and select the valve using the *Select* tool. When the valve is selected the *Add Valve Coverage*  icon appears on the ribbon bar. Click on this icon and begin drawing your valve coverage by clicking on the map and then drawing the polygon.

**Important Note:** You must double click to finish the drawing.

## Adding Additional Areas to Existing Valve Coverages

In some cases, you may need to have more than one area for a valve coverage. An example is when a valve is watering an area in a median that is divided up into multiple areas (usually separated by sidewalks or streets).



Start an edit session then select one of the coverage areas using the *Select* tool. When just one area is selected, the *Add Area*  icon appears on the ribbon bar. Click on this icon and began drawing the added area by clicking on your map. Double click to finish the drawing.

## Generate Reports

You can use the *Generate Report* function to see how your final map will look when you create the report. If you aren't happy with it, you can go back to the map and do more editing. More details on reports are located in *Chapter 9, Generating Reports*. Sample maps are shown at the end of that chapter.



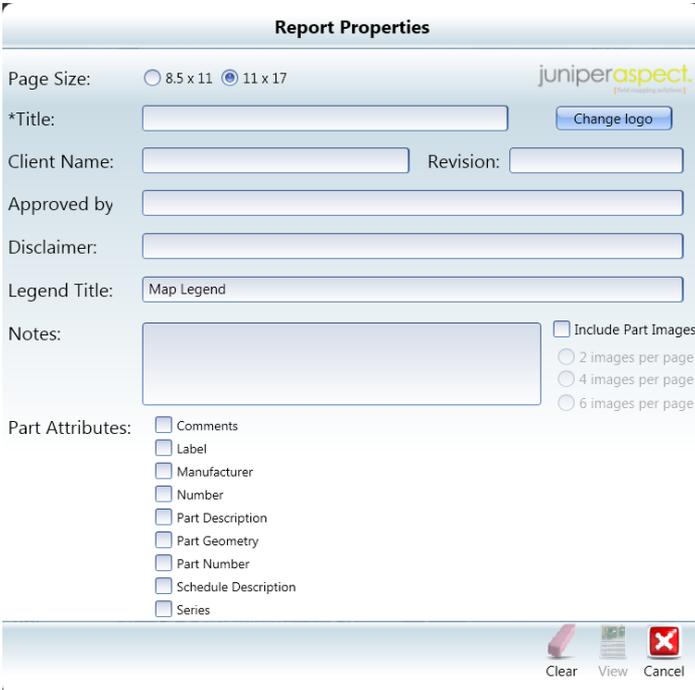
# Chapter 9



Generating Reports

## Generating Reports

To produce maps and reports for clients or inspectors, you use the *Generate Report* function on the map screen. Click on the *Reports*  function. The *Report Properties* screen is shown. As you fill it out, note that a title is required and you can use your company logo if you wish. Select *Change logo* in the upper right hand corner.



**Report Properties**

Page Size:  8.5 x 11  11 x 17

\*Title:

Client Name:  Revision:

Approved by

Disclaimer:

Legend Title:

Notes:

Part Attributes:

- Comments
- Label
- Manufacturer
- Number
- Part Description
- Part Geometry
- Part Number
- Schedule Description
- Series

Include Part Images

- 2 images per page
- 4 images per page
- 6 images per page

Select the *View*  icon in the bottom right corner of the *Report Properties* screen to see a preview of the report.

Above each page of the report preview is a toolbar.



Functions include: *Open, Save, Print, Quick Print, Zoom Out, Select Zoom Percentage, Zoom In, First Page, Previous Page, Next Page, Last Page, Export Documents (to PDF, HTML, MHT, RTF, XLS, XLSX, CSV, Text, Image, and XPS files), and Send via E-mail (PDF, HTML, MHT, RTF, XLS, XLSX, CSV, Text, Image, and XPS file types).*

On the first page is the visible map extent, a legend, north arrow, scale bar, and appropriate documentation for the properties of the document. If your report does not include attributes or images then it will only have one page. For reports with attributes, second and subsequent pages list a summary of the objects used on the project. If you chose to include object images, they will show up on the pages below the objects list. A project can have more than one set of reports, each showing different layers, objects, or locations.

### **Modify Report**

Click on the *View*  icon to change the properties of the report.

### **Close Preview**

Click on the *Close*  icon to close the preview of the report that was generated.

# Sample Reports

Sample reports are shown on the following pages. (Each report is three pages long.)

## Irrigation Valve Coverage

**Map Legend**

- Irrigation Control Valve 1
- Irrigation Control Valve 2
- Irrigation Control Valve 3
- Irrigation Control Valve 4
- Irrigation Control Valve 5
- Irrigation Control Valve 6
- Irrigation Control Valve 7
- Irrigation Control Valve 8
- Irrigation Control Valve 9
- Irrigation Control Valve 10
- Irrigation Control Valve 11
- Irrigation Control Valve 12
- Irrigation Control Valve 13
- Water Conservation Equipment

**Sample Valve Coverage Area Report**

This is a sample report showing the location of irrigation valves and their associated coverage areas.

**Project: Irrigation Association Show**  
 Location: Juniper Creek Golf Course  
 Client Name: San Diego Parks and Recreation  
 12/20/2017 11:22 AM  
 Drawn By: Jim  
 Approved By: Jim  
 Date: 01/13/17

**Parts List Summary**

| Label                          | Part Description                                   | Manufacturer | Part Number          | Series | Quantity | Coverage  | Part Number |
|--------------------------------|--|--------------|----------------------|--------|----------|-----------|-------------|
| Irrigation Control Valve 2     | plastic irrigation valve w/ pressure regulating mo | Standard     | 48927-01-01          |        | 1        | PIB-PIB-D |             |
| Irrigation Control Valve 3     | plastic irrigation valve w/ pressure regulating mo | Standard     | 45275-01-01          |        | 1        | PIB-PIB-D |             |
| Irrigation Control Valve 4     | plastic irrigation valve w/ pressure regulating mo | Standard     | 38597-02-01          |        | 1        | PIB-PIB-D |             |
| Irrigation Control Valve 5     | plastic irrigation valve w/ pressure regulating mo | Standard     | 37476-06-01          |        | 1        | PIB-PIB-D |             |
| Irrigation Control Valve 6     | plastic irrigation valve w/ pressure regulating mo | Standard     | 22864-06-01          |        | 1        | PIB-PIB-D |             |
| Irrigation Control Valve 7     | plastic irrigation valve w/ pressure regulating mo | Standard     | 22864-06-01          |        | 1        | PIB-PIB-D |             |
| Irrigation Control Valve 8     | plastic irrigation valve w/ pressure regulating mo | Standard     | 22864-06-01          |        | 1        | PIB-PIB-D |             |
| Irrigation Control Valve 9     | plastic irrigation valve w/ pressure regulating mo | Standard     | 34935-04-01          |        | 1        | PIB-PIB-D |             |
| Irrigation Control Valve 10    | plastic irrigation valve w/ pressure regulating mo | Standard     | 38725-04-01          |        | 1        | PIB-PIB-D |             |
| Irrigation Control Valve 11    | plastic irrigation valve w/ pressure regulating mo | Standard     | 38121-08-01          |        | 1        | PIB-PIB-D |             |
| Irrigation Control Valve 12    | plastic irrigation valve w/ pressure regulating mo | Standard     | 38461-22-01          |        | 1        | PIB-PIB-D |             |
| Irrigation Control Valve 13    | plastic irrigation valve w/ pressure regulating mo | Standard     | 71241-26-01          |        | 1        | PIB-PIB-D |             |
| Water Conservation Equipment 1 | Wireless Rain Sensor                               | Standard     | Wireless Rain Sensor |        | 1        | WRMC      |             |

**Sample Valve Coverage Area Report**

This is a sample report showing the location of irrigation valves and their associated coverage areas.

**Project: Irrigation Association Show**  
 Location: San Diego Conservation Center  
 Client Name: San Diego Parks and Recreation  
 07/20/2017 11:22 AM PST  
 Drawn By: Jim  
 Approved By: Jim  
 Date: 01/13/17



2012-10-02 20:44Z  
 Lat: 41° 45' 47.5272" N  
 Lon: 111° 51' 42.0978" W  
**snapped**

Remote Control Valve 1



2012-10-02 20:44Z  
 Lat: 41° 45' 47.5860" N  
 Lon: 111° 51' 41.1548" W  
**snapped**

Remote Control Valve 2

**Sample Valve Coverage Area Report**

Notes: This is a sample report showing the location of irrigation valves and their associated coverage areas.



|   |                  |
|---|------------------|
| <b>Project: Irrigation Association Show</b> |                  |
| Location: San Diego Convention Center       |                  |
| Client Name: San Diego Parks and Recreation |                  |
| DATE: 10/2/2012 12:51 PM                    | Revision: 4      |
| Created By: Jim                             | Approved By: Jim |
| Checked By:                                 |                  |
| PLT: JLT                                    | ESJ              |

## Street Sign Inventory



- Map Legend**
- No Parking Signs
  - ⊗ Speed Limit Signs
  - ⊗ Traffic Signs
  - ⊗ Stop Signs
  - ⊗ Safety Signs
  - ⊗ Refuse Signs
  - ⊗ Handicap Signs

**Street and Traffic Sign Inventory and Inspection**

Notes: This is a sample inventory and inspection report for street and traffic signs.



|  |                  |
|--|------------------|
| <b>Project: Street Sign Inspection</b> |                  |
| Location: San Diego                    |                  |
| Client Name: TDM, LLC                  |                  |
| DATE: 10/2/2012 12:52 PM               | Revision: 1      |
| Created By: Jim                        | Approved By: Jim |
| Checked By:                            |                  |
| PLT: JLT                               | CSJ              |

**Parts List Summary**

| Traffic Sign 1     | Label | Replacement Required? | Fit  | Condition? | Good | Visibility      | Painted 50% | Reflectivity | Sign             | Sign Type |
|--------------------|-------|-----------------------|------|------------|------|-----------------|-------------|--------------|------------------|-----------|
| Speed Limit Sign 1 | Yes   | Good                  | Good | Good       | Good | Good            | Good        | Good         | Painting         |           |
| Speed Limit Sign 2 | Yes   | Good                  | Good | Good       | Good | Good            | Good        | Good         | Painting         |           |
| Speed Limit Sign 3 | Yes   | Good                  | Good | Good       | Good | Good            | Good        | Good         | Painting         |           |
| Speed Limit Sign 4 | Yes   | Good                  | Good | Good       | Good | Good            | Good        | Good         | Painting         |           |
| Speed Limit Sign 5 | Yes   | Good                  | Good | Good       | Good | Good            | Good        | Good         | Painting         |           |
| No Parking Sign 2  | Yes   | Good                  | Good | Good       | Good | Good            | Good        | Good         | Loading Zone     |           |
| No Parking Sign 3  | Yes   | Good                  | Good | Good       | Good | Good            | Good        | Good         | Loading Zone     |           |
| Stop Sign 1        | Yes   | Poor                  | Good | Good       | Good | Painted 75%     | Good        | Good         | Standard         |           |
| Stop Sign 2        | No    | Good                  | Good | Good       | Good | Good            | Good        | Good         | Standard         |           |
| Stop Sign 4        | No    | Good                  | Good | Obscured   | Good | Good            | Good        | Good         | Standard         |           |
| Stop Sign 5        | Yes   | Poor                  | Good | Good       | Good | No reflectivity | Good        | Good         | Standard         |           |
| Stop Sign 6        | No    | Good                  | Good | Good       | Good | Good            | Good        | Good         | Standard         |           |
| Stop Sign 7        | No    | Good                  | Good | Good       | Good | Good            | Good        | Good         | Standard         |           |
| Warning Sign 1     | No    | Good                  | Good | Good       | Good | Good            | Good        | Good         | Standard         |           |
| Safety Sign 2      | No    | Good                  | Good | Good       | Good | Good            | Good        | Good         | Children Playing |           |
| Safety Sign 3      | Yes   | Good                  | Good | Good       | Good | Good            | Good        | Good         | Children Playing |           |
| Street Sign 1      | No    | Poor                  | Good | Good       | Good | Good            | Good        | Good         | 8 Inch Green     |           |
| Street Sign 2      | No    | Good                  | Good | Good       | Good | Good            | Good        | Good         | 8 Inch Green     |           |
| Street Sign 4      | No    | Good                  | Good | Good       | Good | Good            | Good        | Good         | 8 Inch Green     |           |
| Street Sign 5      | No    | Good                  | Good | Good       | Good | Good            | Good        | Good         | 8 Inch Green     |           |
| Street Sign 6      | No    | Good                  | Good | Good       | Good | Good            | Good        | Good         | 8 Inch Green     |           |

**Street and Traffic Sign Inventory and Inspection**

Date:   
 This is a sample inventory and inspection report for street and traffic signs.

**Project: Street Sign Inspection**

Location: Engle, IL  
 Client: Metro View Corp  
 07/2012 11:23 AM  
 Created by: Jim  
 Approved by: Jim  
 Date: 11/11/12



Traffic Sign 1



No Parking Sign 2

**Street and Traffic Sign Inventory and Inspection**

Date:   
 This is a sample inventory and inspection report for street and traffic signs.

**Project: Street Sign Inspection**

Location: Engle, IL  
 Client: Metro View Corp  
 07/2012 11:23 AM  
 Created by: Jim  
 Approved by: Jim  
 Date: 11/11/12

# Tree Inventory



### Sample Tree Inventory

Notes  
This is a sample of a tree inventory and health assessment report.



|                            |                  |
|----------------------------|------------------|
| Project: DC Test Site      |                  |
| Location: VA               |                  |
| Client Name: ABC Tree Care |                  |
| Inventory Date: 11/11/2018 | Revision: 1      |
| Created by: Jim            | Approved by: Jim |
| Developer                  |                  |
| 11/11/18                   | 1/1              |

| Parts List Summary |     |                   |                                  |                |                  |              |         |            |  |
|--------------------|-----|-------------------|----------------------------------|----------------|------------------|--------------|---------|------------|--|
| Label              | No. | Pruning Required? | Estimated Canopy Diameter in ft. | Caliper in ft. | Species          | Species Type | Health  | Condition? |  |
| CONIFERS 2         | No  | Yes               | 15                               | 2              | Austrian         |              | Dead    |            |  |
| CONIFERS 3         | No  | Yes               | 15                               | 2              | Austrian         |              | Healthy |            |  |
| CONIFERS 4         | No  | Yes               | 15                               | 2              | Austrian         |              | Poor    |            |  |
| CONIFERS 5         | Yes | Yes               | 15                               | 2              | Weeping E. White |              | Healthy |            |  |
| BROADLEAF TREES 1  | Yes | Yes               | 10                               | 1              | Lombardy/Chesne  |              | Dead    |            |  |
| BROADLEAF TREES 2  | No  | Yes               | 10                               | 2              | Yellow           |              | Healthy |            |  |
| BROADLEAF TREES 3  | Yes | Yes               | 15                               | 1              | Yellow           |              | Healthy |            |  |
| BROADLEAF TREES 4  | Yes | Yes               | 15                               | 1              | Yellow           |              | Healthy |            |  |
| BROADLEAF TREES 5  | Yes | Yes               | 15                               | 1              | Yellow           |              | Healthy |            |  |
| BROADLEAF TREES 6  | Yes | Yes               | 15                               | 1              | Yellow           |              | Healthy |            |  |
| BROADLEAF TREES 7  | Yes | Yes               | 15                               | 1              | Yellow           |              | Healthy |            |  |
| BROADLEAF TREES 8  | Yes | Yes               | 15                               | 1              | Yellow           |              | Healthy |            |  |
| BROADLEAF TREES 9  | Yes | Yes               | 15                               | 1              | Yellow           |              | Healthy |            |  |
| BROADLEAF TREES 10 | Yes | Yes               | 15                               | 1              | Yellow           |              | Healthy |            |  |
| BROADLEAF TREES 11 | Yes | Yes               | 15                               | 1              | Leucoderm        |              | Poor    |            |  |
| BROADLEAF TREES 12 | Yes | Yes               | 11                               | 3              | Silver           |              | Dead    |            |  |

Notes  
This is a sample of a tree inventory and health assessment report.



|                            |                  |
|----------------------------|------------------|
| Project: DC Test Site      |                  |
| Location: VA               |                  |
| Client Name: ABC Tree Care |                  |
| Inventory Date: 11/11/2018 | Revision: 1      |
| Created by: Jim            | Approved by: Jim |
| Developer                  |                  |
| 11/11/18                   | 1/1              |

2012-04-23 22:10Z  
 Lat: 41° 45' 48.1296" N  
 Lon: 111° 51' 42.3582" W



CONFIRM 3

2012-04-23 17:17Z  
 Lat: 38° 47' 53.2042" N  
 Lon: 77° 27' 44.2143" W



CONFIRM 4

### Sample Tree Inventory

This is a sample of a tree inventory and health assessment report.

juniperaspect  
Environmental Solutions

|                           |                  |
|---------------------------|------------------|
| Project: DC Test Site     |                  |
| Location: VA              |                  |
| Client Name: DC Test Site | Revision: 3      |
| Date: 10/20/12 4:11:18 PM | Created By: Jim  |
| Discriminator             | Approved By: Jim |
| 10/23/12                  | 103              |

## Site Inspection



### Sample Site Inspection Report

Notes:  
 This is a sample of a site inspection report showing requires that are being proposed. Contractors would outline this report with their bid.

juniperaspect  
Environmental Solutions

|                            |                  |
|----------------------------|------------------|
| Project: System Inspection |                  |
| Location: Lehigh, Utah     |                  |
| Client Name: Lehigh Campus | Revision: 1      |
| Date: 10/23/12 3:43:53 PM  | Created By: Jim  |
| Discriminator              | Approved By: Jim |
| 11/23/12                   | 103              |

**Parts List Summary**

| Location / Issue / Problem | Label     | Manufacturer | What is the condition | Part Description                                   | Part Number | Qty | Series                            |
|----------------------------|-----------|--------------|-----------------------|--|-------------|-----|-----------------------------------|
| Backflow Device Problem    | Wilcox    |              | Insulator backwards   | Inchvald Pressure Switchback Pressure, 1.1/1" x 1" | 475         |     |                                   |
| Leaking Control Valve      | Jetrol    |              |                       | 1" globe controlvalve, 1/2" threads                | 305T        | 205 |                                   |
| Controler Problem          | Hunter    |              |                       | 1" station, indoor model, 240V, for Australian use | PCC-1200A   |     | Pro-C Cont. International         |
| Lateral Line Leak          | Charlotte |              |                       | 1" PVC Schedule 40                                 | PVC 506018  |     | 1" x 20' PVC DWV Schedule 40 Pipe |
| Dry Toilet Area            |           |              |                       |  |             |     |                                   |
| Insulation Struck Sprink 1 | Hunter    |              |                       | 0" Fibreglss 1800i shock mate                      | 1801-00-01  |     | Insulation Spray                  |
| Insulation Struck Sprink 2 | Hunter    |              |                       | 0" Fibreglss 1800i shock mate                      | 1801-00-01  |     | Insulation Spray                  |

**Sample Site Inspection Report**

**Notes:**  
This is a sample of a site inspection report showing repairs that are being proposed. Contractors would endorse this report with their bid.



|                                   |                  |
|-----------------------------------|------------------|
| <b>Project: System Inspection</b> |                  |
| Location: Leppon, Utah            |                  |
| Client Name: Landscape Company    | Revision: 3      |
| Date: 2012-10-02 20:42 PM         | Created By: Jim  |
| Drawn/Checked:                    | Approved By: Jim |
| Scale:                            |                  |
| ETX-11                            | 1/3              |



Leaking Control Valve



Dry Toilet Area

**Sample Site Inspection Report**

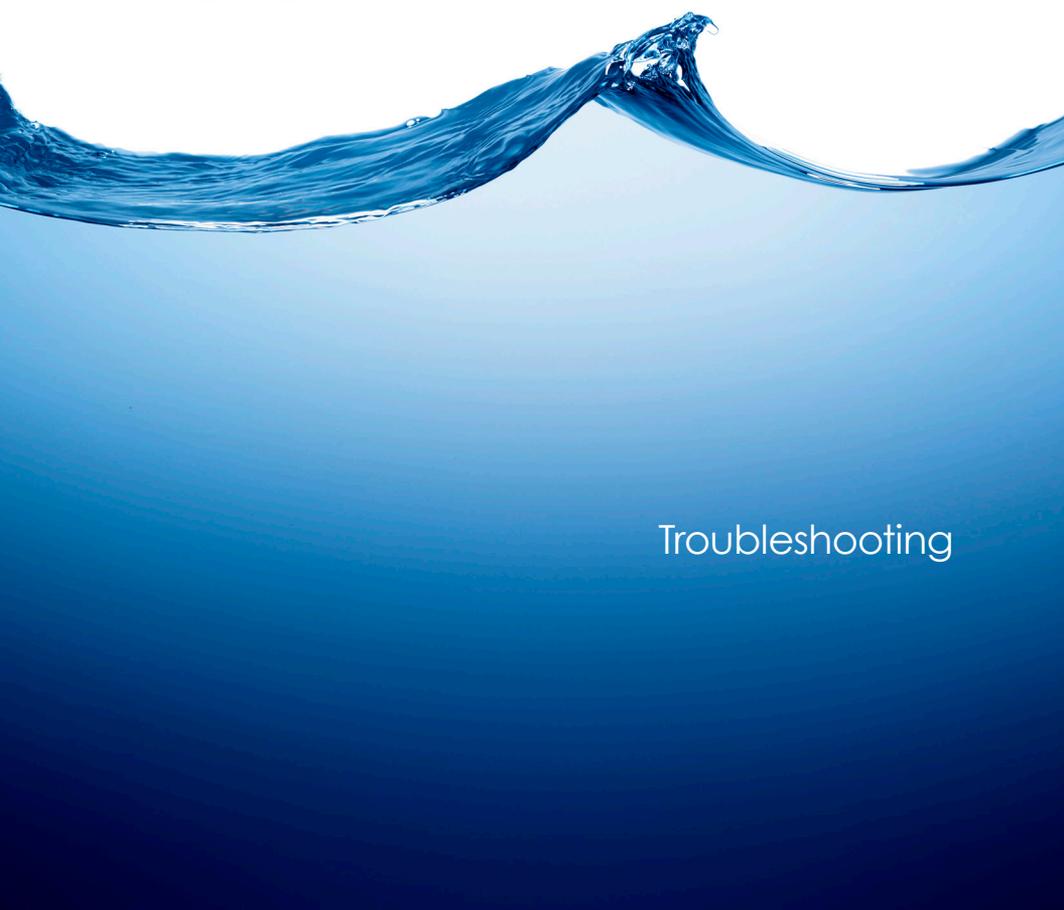
**Notes:**  
This is a sample of a site inspection report showing repairs that are being proposed. Contractors would endorse this report with their bid.



|                                   |                  |
|-----------------------------------|------------------|
| <b>Project: System Inspection</b> |                  |
| Location: Leppon, Utah            |                  |
| Client Name: Landscape Company    | Revision: 3      |
| Date: 2012-10-02 20:42 PM         | Created By: Jim  |
| Drawn/Checked:                    | Approved By: Jim |
| Scale:                            |                  |
| ETX-11                            | 1/3              |



# Appendix A



Troubleshooting

## Troubleshooting

### GPS Tips

#### Getting Good GPS Reception on the Mobile Computer

Being in an open field with no interference is the most ideal situation for GPS coverage. This won't always happen so it's good to know how to get the best GPS coverage in most situations. Things that can interfere with GPS reception are buildings, trees, your body, etc; anything that would obstruct GPS signals coming from satellites above your head. Try the following tips:

- Step away from these obstructed areas until you're in more of a clearing.
- Stand with your back to the building.
- Hold the mobile computer away from your body.
- In the Western Hemisphere, try not to face east while mapping (face west).
- Watch your PDOP settings; the lower the better.
- Try to get the most satellites visible.
- If you're near a building and you're getting 12 of 12 satellites visible, then there are some multi-path errors going on (it would appear some satellites are getting counted twice).
- Set the point averaging to collect more points (settings screen).
- For best results, let the unit sit out for awhile in the open to collect the full almanac of data before getting started on a project. Fifteen to twenty minutes is recommended.

#### GPS Starts Drifting

When you're standing still and the GPS point starts moving around, this means that there is interference nearby affecting your signal. The best way to avoid this is to walk away from overhead obstructions and try to get into more of a clearing.

## Basemap Problems

### **Map Not Showing up on Desktop Computer**

The basemaps on the PC side of the software all require an internet connection. An active license is also required. If you have a slow internet connection, these maps may take longer than usual to load. Sometimes when the map is panned around a lot, the maps have a delay with updating. If it appears the delay is permanent, try zooming out a little and then back in.

### **Map Not Showing up on Mobile Computer**

When you are out in the field with a mobile computer and there is no basemap with a loaded project, one of these issues could be the cause:

1. There will only be an option to see the Online World Imagery when there is an available internet connection. If there is no active internet connection with the mobile computer, then you will not be able to load this imagery.
2. A basemap was not cached on the desktop computer when the project was created or modified.
3. The basemap cache for the project was not synchronized with the mobile computer so it is not showing up.

## GPS Receiver Settings

The GPS receiver used with Juniper Aspect must be configured to enable these NMEA sentences:

\$GPGGA – Global Positioning System Fix Data

\$GPRMC – Recommended Minimum

\$GPGSA – Satellite status or quality

\$GPGSV – Satellites in view or signal strength

\$GPVTG – Track or ground speed

## Editing Tips on the Desktop Computer

When editing in the map window, after completing the edits, **ALWAYS** click on another object with the *Move Geometry* tool before doing anything else. By "clicking off" of the object you were editing, your edits will remain.

If you forget to click off, the edits won't remain and you'll have to do them again.

Save frequently. Before stopping the edit session, save your edits.

## Maintenance Tips for the Mobile Computer

### Cleaning the Touchscreen

Water or dirt won't hurt your Archer or Mesa mobile computer, but if you try to wipe off the screen while it's active, you may accidentally make changes on the screen. Disable the touchscreen temporarily by holding down the *Power* button on the mobile computer until the menu appears. Select *Disable TS* from the list. Clean the screen. When you are done, hold down the *Power* button again and select *Enable TS* from the menu.

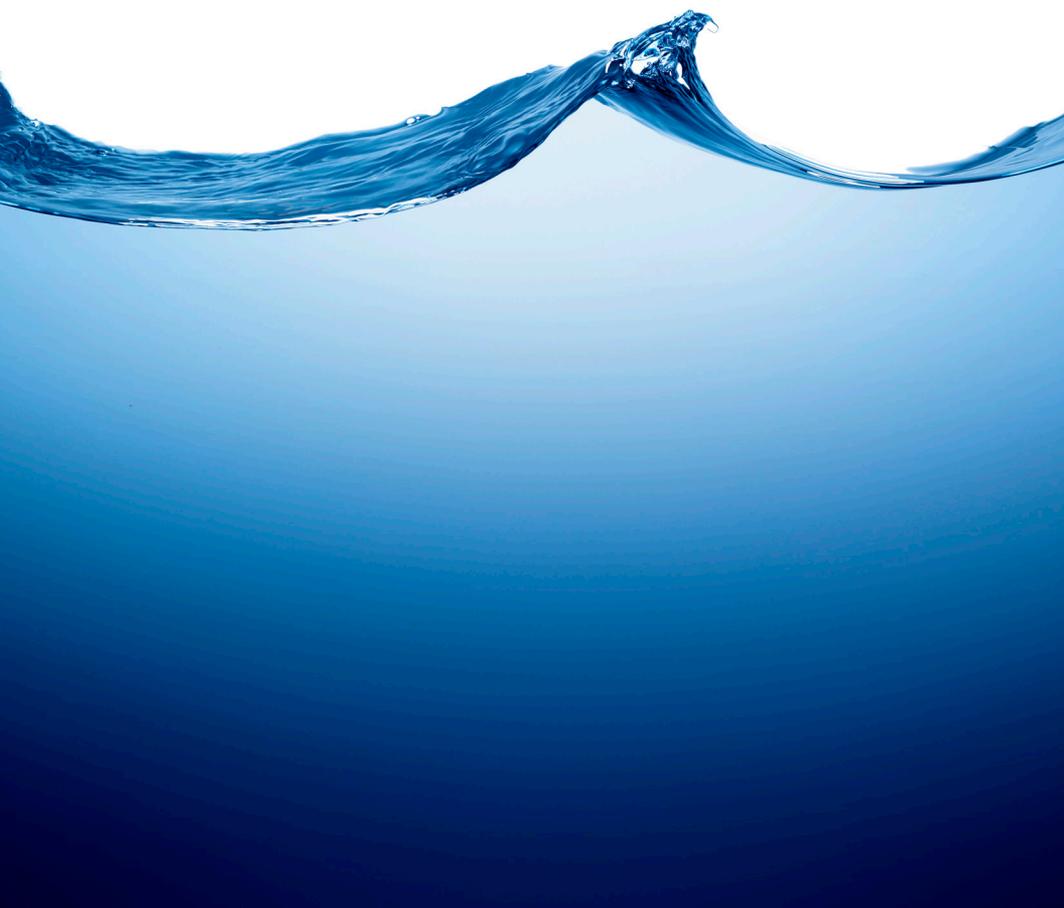
For the Mesa, you can press and hold the screen rotation button for a couple of seconds until the touch screen is disabled. Once you have cleaned the screen, do the same thing to enable the screen.

### Suspend, Reset, or Turn Off the Mobile Computer

These functions are important to understand:

- To suspend, press the *Power* button once. To resume, press the *Power* button again. Suspending the mobile computer puts it in a low power state to where it can be easily resumed (turned back on). Suspend the mobile computer when you will be using it daily.
- To reset, either hold the *Power* button down until a power menu appears and tap on *Reset* or hold the *Power* button down for 5 to 7 seconds. Resetting the mobile computer frees up any unavailable memory or COM ports. Also, if the mobile computer ever gets locked up, try resetting it.
- To turn off the mobile computer, hold the *Power* button down until the menu appears and tap on *Power Off*. This is only available when battery power is being used (not plugged into the wall). Turn off the handheld when it won't be used for a couple of days or more.

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