lucity™

TRAINING GUIDE

Mobile Intensive

Intro

Mobile Intensive - Configuration

This guide covers the Lucity Mobile 2.0 applications for Android Tablet and iOS (iPad, iPhone, iPod Touch). This is the release which support Lucity 2016 and higher. Most of this content is also relevant for Lucity 2015r2 and earlier, but there will be differences. See the ACT 2015 user guide for material applicable to that version.

The Lucity Android Tablet and Lucity iOS applications have been designed to work under the same framework as the Lucity Web application. Configuration for Lucity Web carries forward to these mobile devices automatically.

These mobile applications have 3 core components.

- Dashboard
- Views/Forms
- GIS

The goal of this session is show how to get a tablet working out in the field for online and/or offline use and assumes that Lucity Web (dashboards, views, and forms) are already configured.

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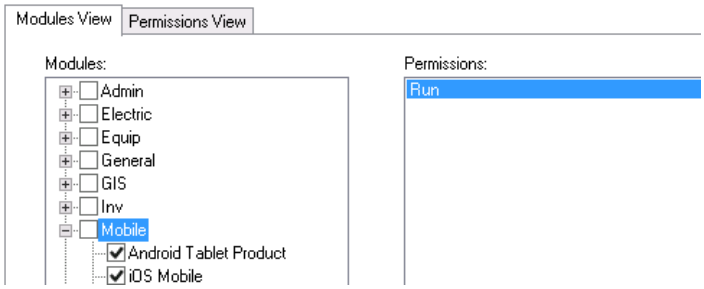
Installation and Setup

Permissions

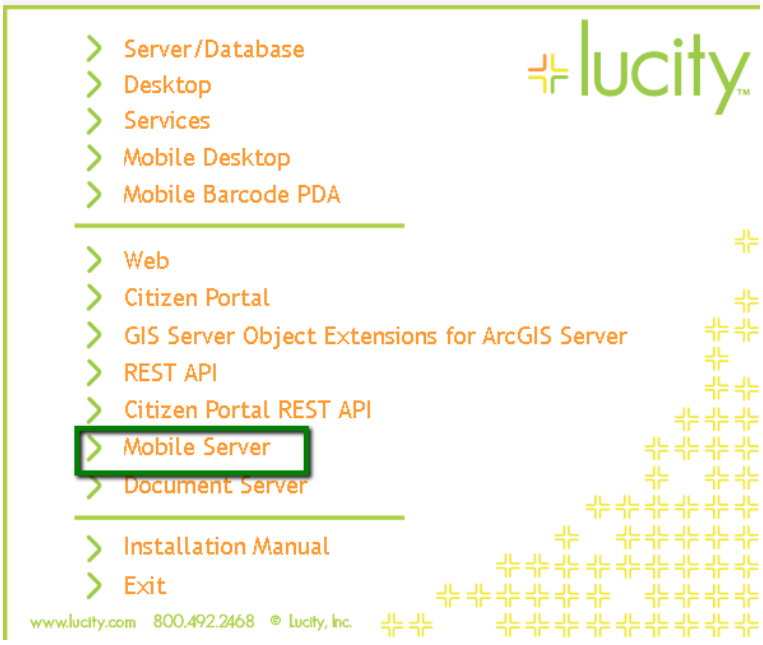
Access to the mobile apps is controlled through a permission in Lucity. In the permissions form in Lucity Security, these permissions are located under “Mobile”.



Users must have the Run permission to the mobile application they will be using. They must also have permission to any modules they need to access while in the field. For example, if users need to view Work Orders in the field, they must have Run permission to Work Orders. If they need to edit Work Orders in the field, they need permissions that permit this. This is no different than the module level permissions configured for Lucity Desktop or Lucity Web.

Installing Mobile Server

Mobile Server is available on the Lucity installation media.



It should be installed to a web server (Windows Server 2008r2+). If the tablets will be using VPN or local Wi-Fi connections, this can be an internal web server. If no, this application must be placed in the DMZ so that it is available to the tablets.

Choosing to install with SSL (https) is recommended if you will be using Android and REQUIRED if you are using iOS regardless of whether you are using a secure VPN.

In addition to the Lucity Mobile product, if you want users to be able to upload and download documents, you will also need to install the Lucity Document Server. The Document Server does not typically get installed in the DMZ, it gets installed on an internal web server which can access the network locations which contain the files to be uploaded and downloaded. The Lucity Document Server is an application used for multiple applications within Lucity including Lucity Web, Lucity Citizen Portal, Lucity Mobile Server, Lucity Citizen Portal REST API, and the Lucity REST API.

Ensure that firewall settings are configured to allow Lucity Mobile Server to make unsolicited requests to the Lucity Document Server on the port that is used for the Lucity Document Server (port 80) if the Lucity Document Server is installed on a different server.

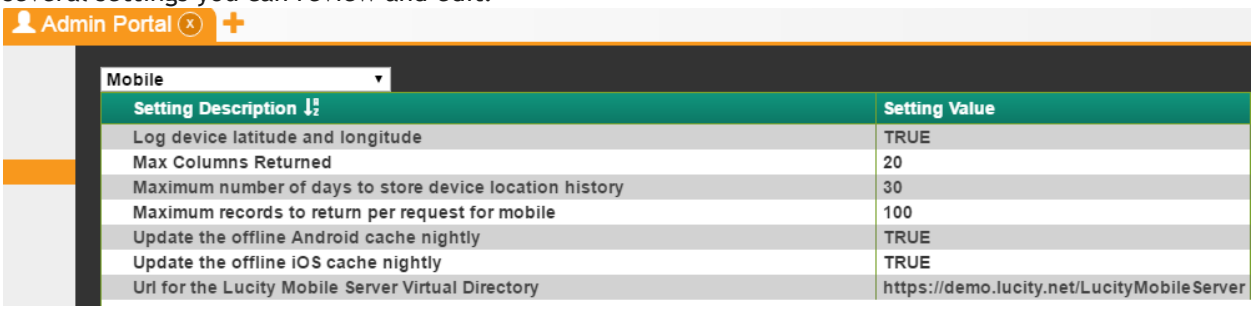
The Lucity Android and iOS tablets will not access the Lucity Document Server directly. All requests for documents (download and upload) are proxied through the Lucity Mobile Server.

Lastly you must configure your network to allow necessary access to your GIS Server. There are several ways this can be done and goes beyond the scope of this session. Regardless of whether you are hitting the primary ArcGIS instance or you are using an ArcGIS web adapter, the following requirements must be met:

- The mobile devices must be able to connect to the ArcGIS web services. GIS web service access is not proxied through Lucity Mobile Server
- **The Lucity Mobile Server host must be able to connect to the ArcGIS web services.** Lucity Mobile Server connects to these servers to get metadata about the layers (what layer is the sewer pipe layer, what layer is the water hydrant layer, etc). If Lucity Mobile Server cannot access to the web services, the maps will show up on the tablets but any attempts to do Show in Map, create work orders or inspections or other Lucity specific functions in the map will fail. This is discussed more in the GIS setup later in this session

System Settings for Lucity Mobile

It is not required to configure anything in System Settings for mobile to work. However, there are several settings you can review and edit.



Log Device Latitude and Longitude configures whether the mobile tablets will send tablet location information to Lucity Server for logging. Maximum number of days to store the device location history allows you to configure how long you want that information stored.

Max Columns Returned allows you to increase how many columns a grid can display in mobile (more columns requires more memory in iOS and more vertical space in Android).

Maximum number of records to return per request for mobile allows you to limit the view page size for mobile users to a specific cap. Do not reduce this below 15.

Update the offline…cache nightly allows you to configure which types of offline caches you need the system to generate. If you are not using offline, set both of these to FALSE. Offline caches are resource intensive on the server although they only happen at night (unless a cache is forced). It is a good idea to only enable the caches you need.

Downloading and Installing

Lucity distributes all mobile applications via the standard app stores (Apple App store and Google Play store). Search Lucity and the app is generally easy to find in the search results.

We recommend configuring automatic updates for the Android application.

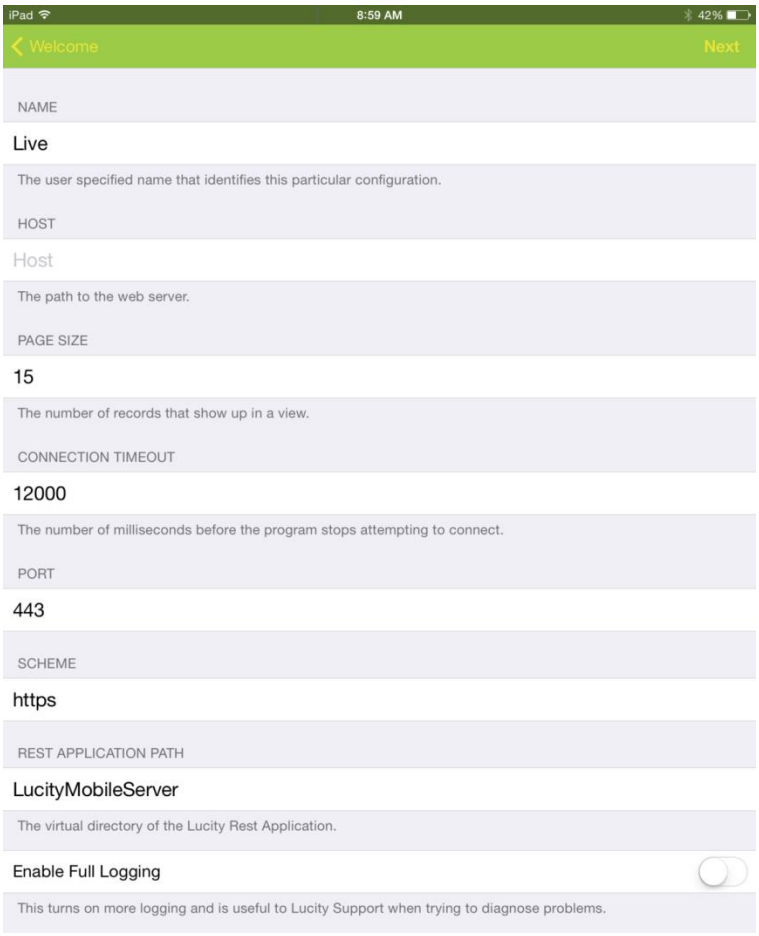
Configuring the application for first time use

Once installed, tablet users (or whoever will be configuring the tablets) will need the following information:

- The host name you want the tablets to use to connect to the server.
- The name of the virtual directory used during the install. If the default was left, this is LucityMobileServer.
- The port used for the installation. The default port is 443. If SSL was not chosen as an option during the Lucity Mobile Server installation, the default port is 80.
- Whether or not SSL was used.

For Android:

For iOS:



Name is a user friendly name for the dataset you are logging into. We commonly call this the client. If you have a training/test and a production environment, your tablet can point to both environments. You can use the Name to help distinguish between these environments.

The Host is the name of the server where the Lucity Mobile Server product is installed. This may be a server name, it may be an IP address, or it may be an alias. For example, your server might be called JARVIS but your alias might be "mobile.cityOfLucityKS.gov", or if you do not have an alias or public DNS, your server name may be the externally routable IP address of the server.

For Android the hostname also needs to include a port (for non-default ports only). If the port is 80 or 443 this is not necessary. If you installed Lucity Mobile Server to port 8081 on a server called CityOfLucityServer, the host would be "CityOfLucityServer:8081".

The scheme identifies whether http or https are being used. These are the only 2 schemes supported.

For iOS, there is a separate port field. The default value, 443, is for https installations on the default SSL port.

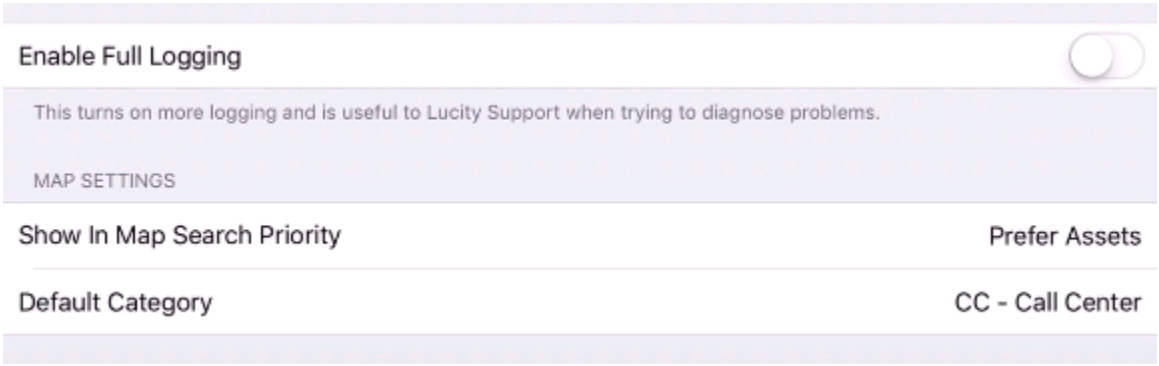
The REST application path is the name of the virtual directory used when installing the software. By default this is LucityMobileServer.

Once the host, scheme, application path, and possibly port are set, click the save in Android or the

in iOS.

Additional Recommended Configuration

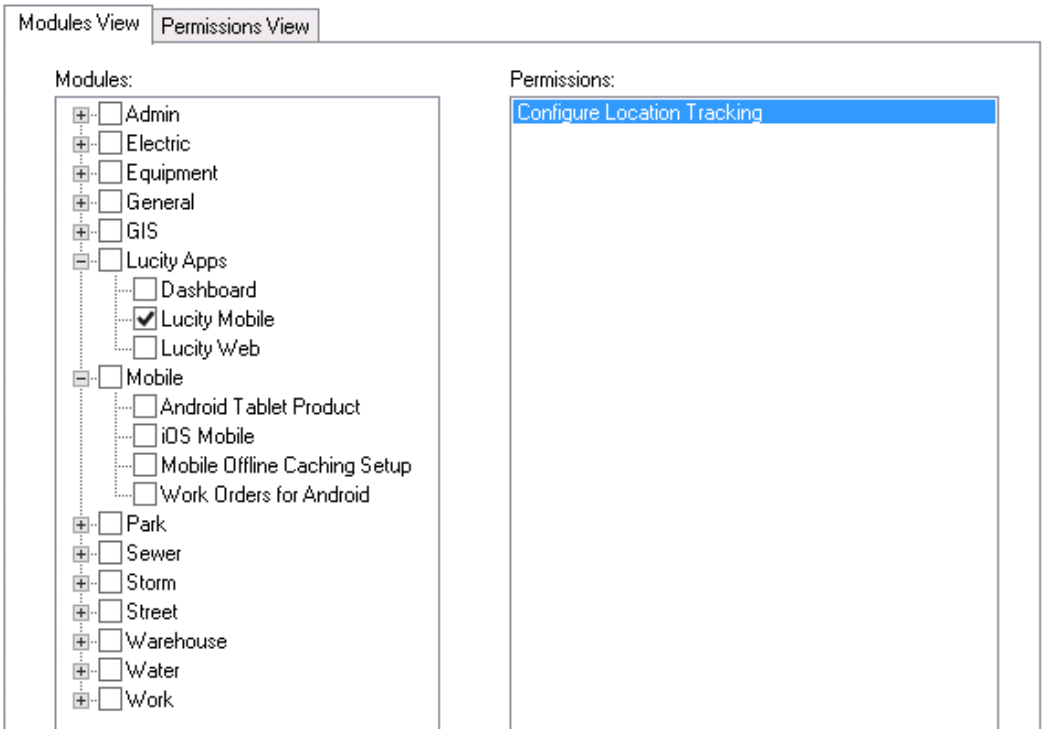
There are several other configuration items that should be reviewed and set:



DEVICE IDENTIFIER (ANDROID ONLY): The device identifier is used to identify the device in server logs and in activations if licensing is a per device license. By default this is populated with the first user that logged in combined with the model of the device. This can be edited as needed. If device licensing is in use, you may want to delete the activation that is tied to the old name (if it exists). It is against the Lucity license agreement to use this bypass Lucity licensing. The device identifier for Apple devices cannot be changed.

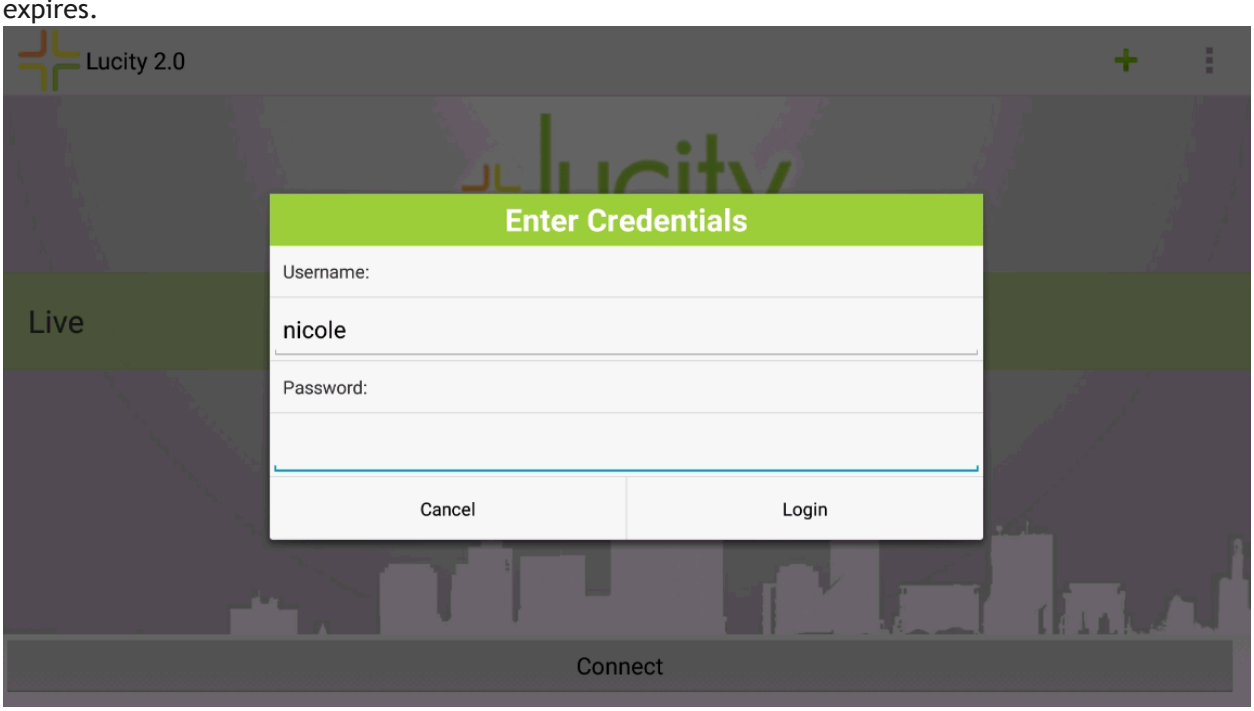
DEFAULT CATEGORY: This is the category that will be used as the default category for requests and work orders generated from an address or XY in the map from the tablet. This is stored per tablet per login. This means you can have your graffiti crew and your sidewalk crew share a tablet. But it also means this must be set for each user. Once set, it will remember it for the next login.

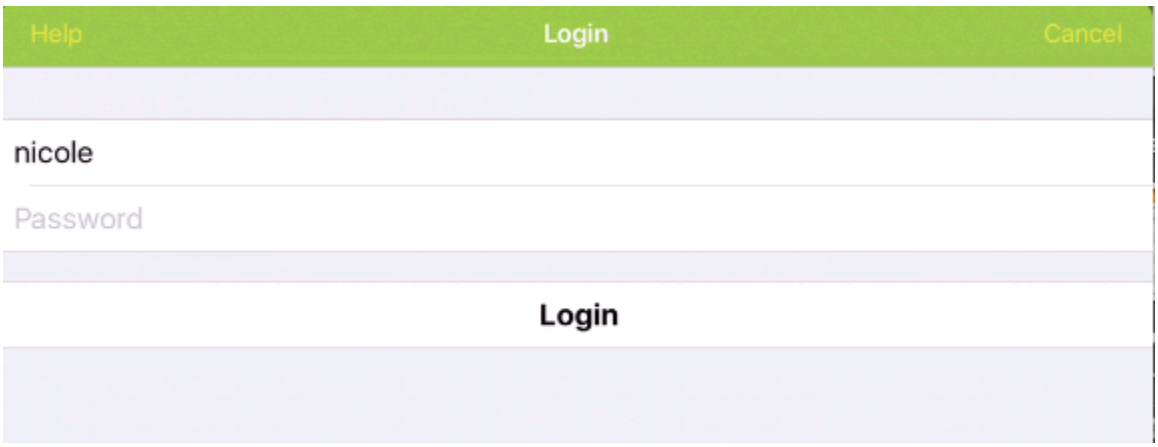
ENABLE LOCATION TRACKING: Lucity allows you to configure your tablets to send their location periodically to the Lucity Server. You can enable or disable this feature on a per user basis. Users can also enable and disable this but only if you have granted the Configure Location Tracking permission for the user. By default location tracking is enabled. Location tracking is not yet available for Apple devices in the current release but will be added Fall 2016.



Logging in

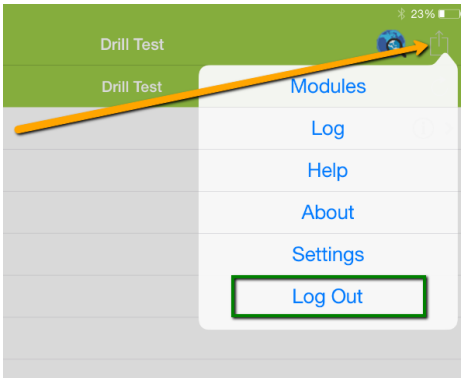
Once the user logs in they are kept logged in until they explicitly log out again or until their token expires.





Logging out

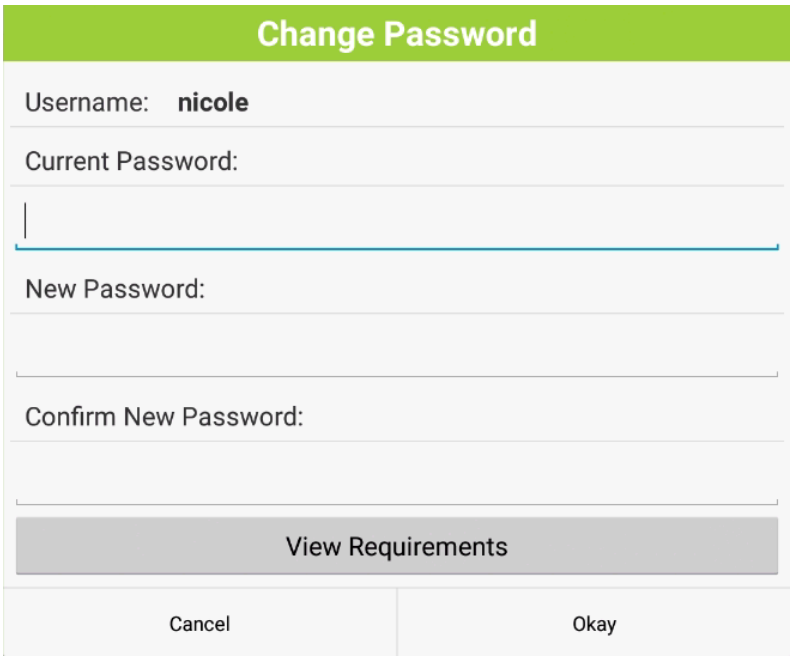
To log out of the device, select “Log Out” from the menu. Logging out will prevent unauthorized users from getting access to modify the data in the Lucity Mobile application. If the Android or iOS application is in an offline state, it is not possible to logout. It is particularly important for devices which are using the application offline to use additional layers of security for device access such as a device passcode or other protection.



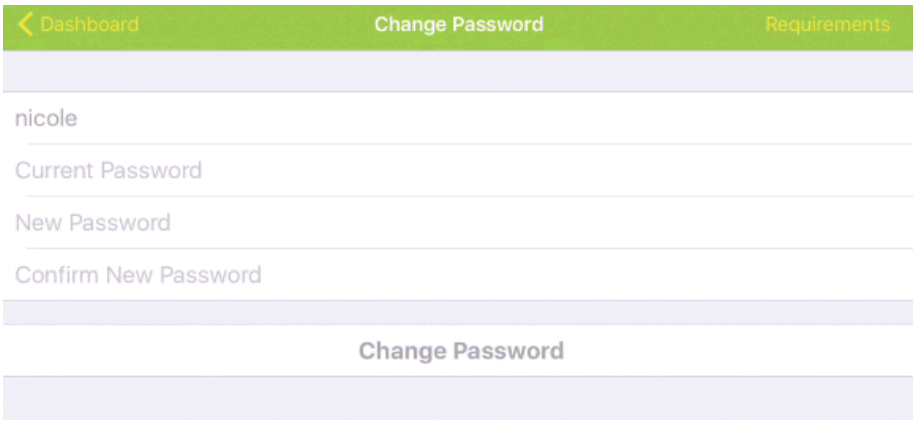
Changing Password

Users can change their password directly from the mobile applications but only if they are able to successfully login with their current password. To change a password, select “Change Password” from the dashboard menu in iOS or Android.

Android

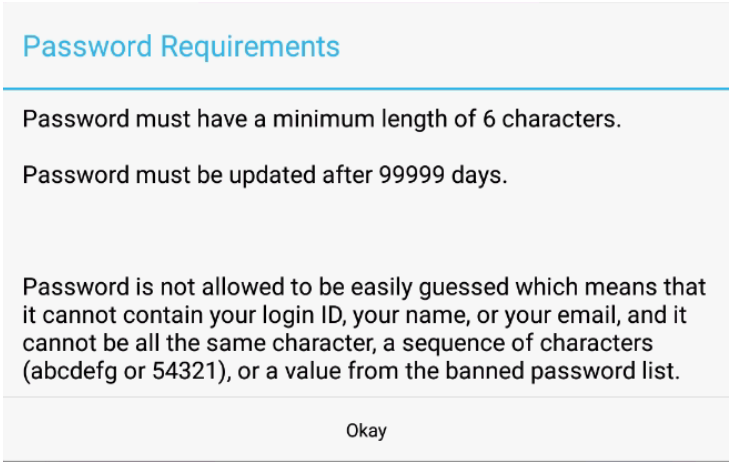


iOS

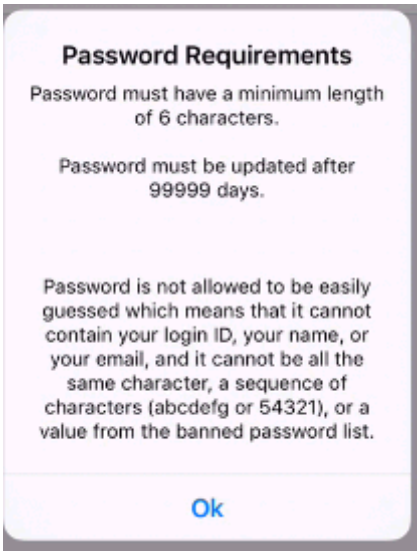


Users can also view the password requirements.

Android



iOS



Troubleshooting login

Typically the initial hurdle in a tablet implementation is getting the devices logged in. It can be challenging to know what to put in the setup when configuring it, users may not have the password right, or may have the username or activation wrong potentially. You also may have problems with the network or firewall or VPN (if applicable) not being configured properly.

There are 3 sources to use when troubleshooting the devices.

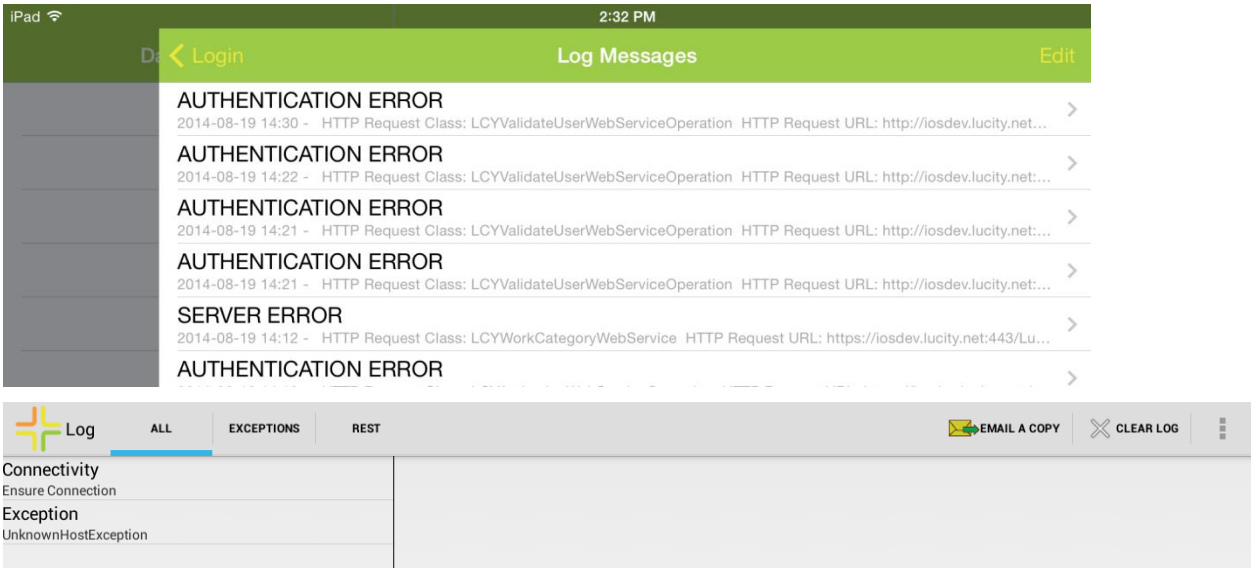
Warning Prompts

If there is a problem with the username and password, the user will be notified that the credentials are wrong "Invalid username or password". They will also get told if their password is about to expire on Android (and will on iOS Fall 2016).

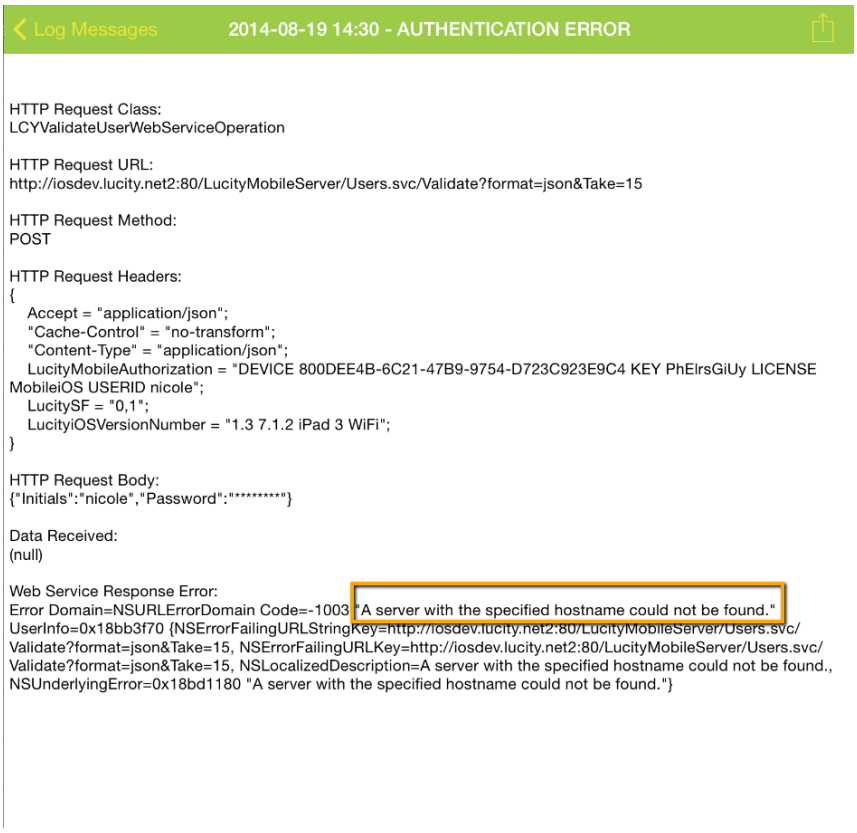
Local Tablet Log

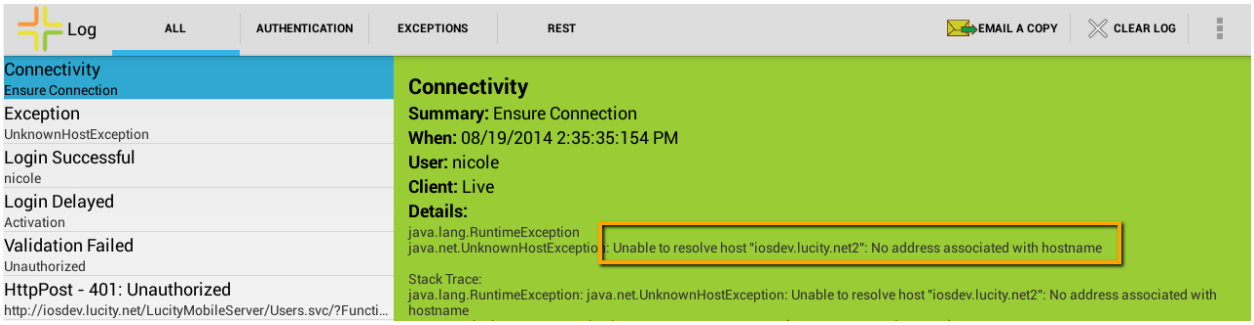
There is a local log on the tablet which will log errors. If logon fails, you can refer to this log for more details on the failure. The log is accessed from the client setup screen (it is not accessible in the login screen any longer).

The log shows the most recent entries at the top of the list



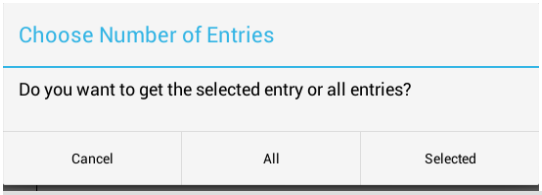
Select an entry summary to view the extended details in the log.

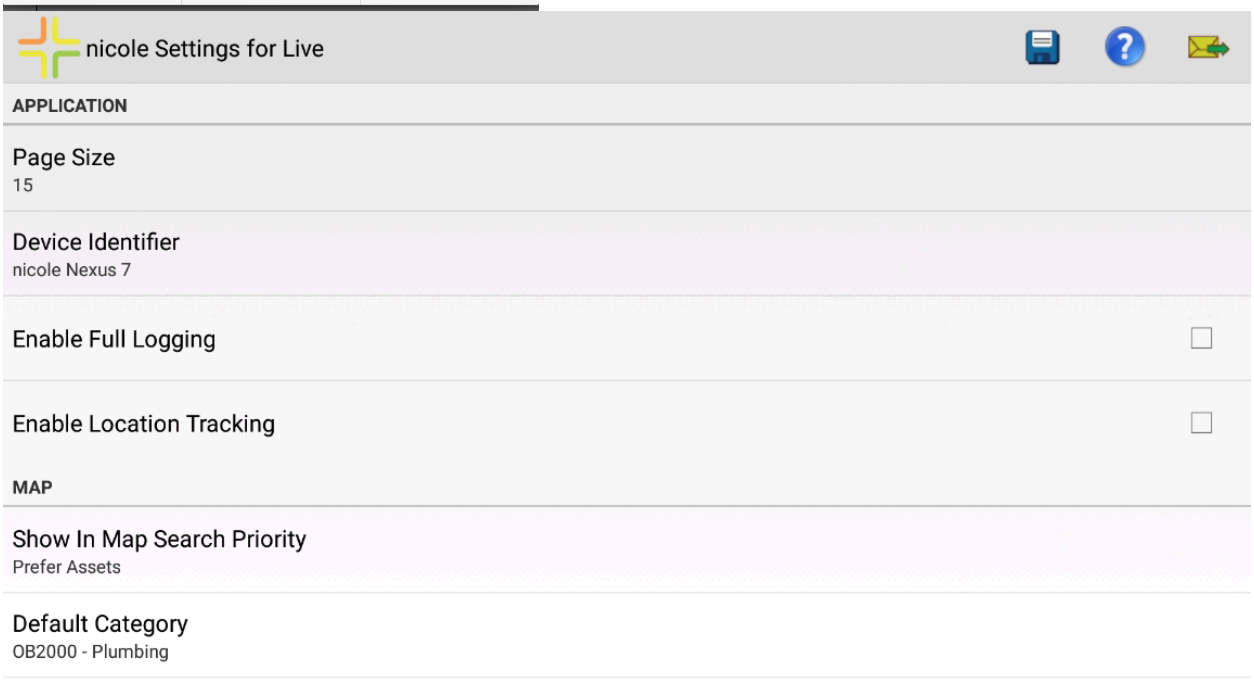




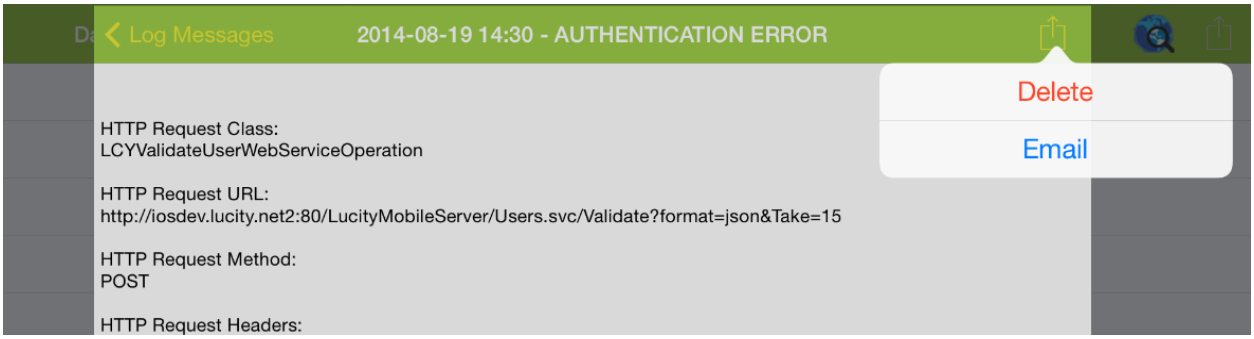
Frequently a failure will be logged in more than one log entry depending on the cause of the failure. Sometimes the log is helpful, other times you may need to resort to additional troubleshooting measures.

If you are working with support or want an email of the log, you can email one entry or an entire log. In Android, to email log entries select the entry, then click “Email a Copy”. It will ask you whether you want to email just one entry or all entries.

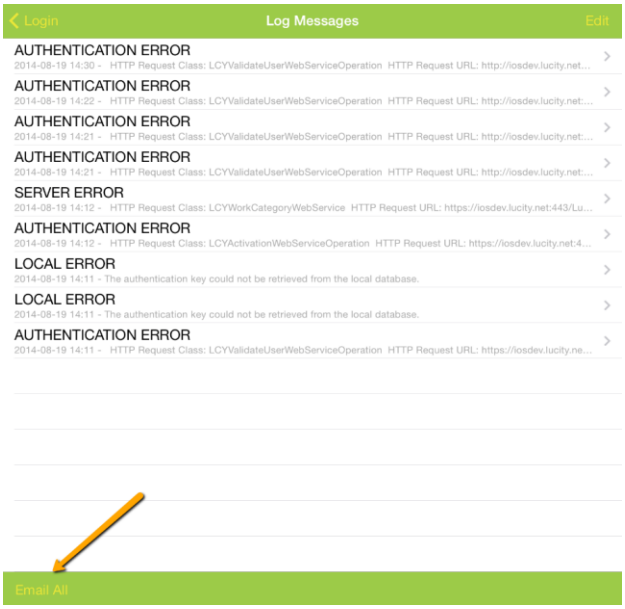




In iOS to send one log entry, click the menu and select Email.

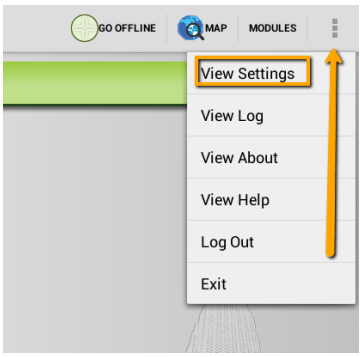


To email an entire log in iOS, navigate back to “Log Messages” and Click Email All at the bottom of the screen



If error logging is not providing enough information, logging can be increased. This is done in settings.

In Android, full logging can only be enabled after logging in. It is reached by clicking the menu and selecting “View Settings” from Android.



In this dialog, toggle Enable Full Logging On

Full logging is a time forward setting.

Server Log

In addition to the tablet log, it may be helpful to view server logs. Server logs may provide more information about why a tablet will not activate. The two recommended server logs to review are the rolling log located in the installation directory of Lucity Mobile Server (under a folder called Logs) and the Application Event Viewer logs on the web server.

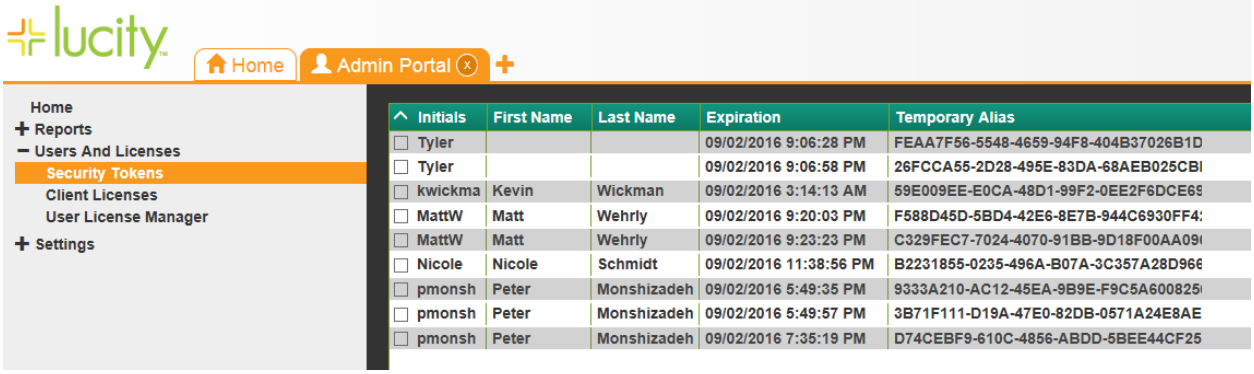
Server logs are where you would find out of licenses are not available, a user is not configured properly, or if something else was misconfigured on the server.

Managing Logged in Users

When a user logs into the tablet, they will be able to continue using the app until their login token expires. By default this is 10 hours. After the 10 hours (or right before the 10 hour window) they will be prompted to login again to continue using the application.

If you think a device has been compromised and need to revoke access to the currently logged in user immediately, you can do that through the Security Tokens interface in Lucity Web. If the user's password has been compromised you also should change their password.

To revoke a token, select the user in the Security Tokens of the admin portal



And click the Delete Selected Alias button

Final Configuration Consideration

If tablets are in your office for configuration, and if users will be going offline with maps. It is a good idea to load offline basemap tile packages to the device. Lucity does not current support downloading tiled base map packages (tpk) over WIFI or over 3G. They must be present and available on the device to be used.

Offline Basemap Configuration and installation will be covered with Offline content in this session.

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Mobile Intensive
Dashboard and Views

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Mobile Intensive – Dashboards, Views, and Forms

User Interface - Dashboard and Views

There are 3 major components to mobile. These correlate to the 3 portions of the Lucity Web application. These 3 components are the dashboard, views and forms, and GIS.

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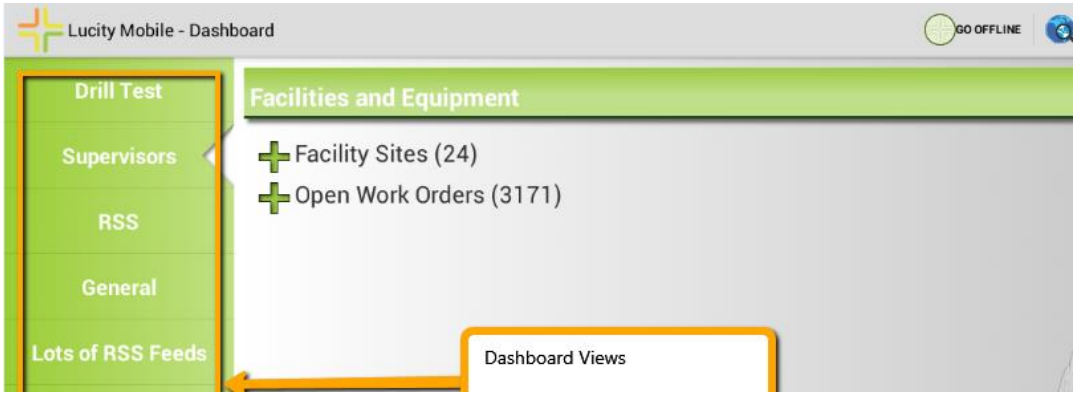
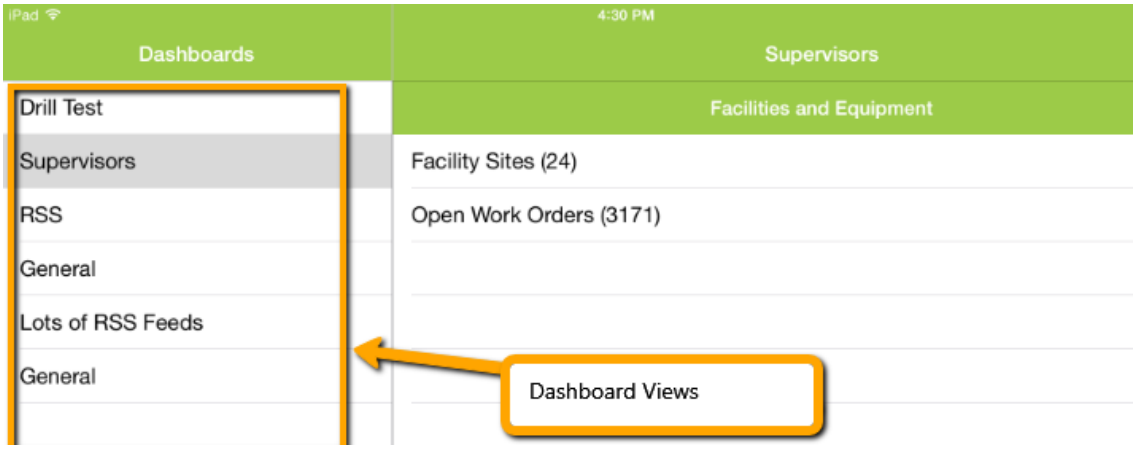
Dashboard

The dashboard is comprised of multiple dashboard views which appear on the left side of the page:

Android

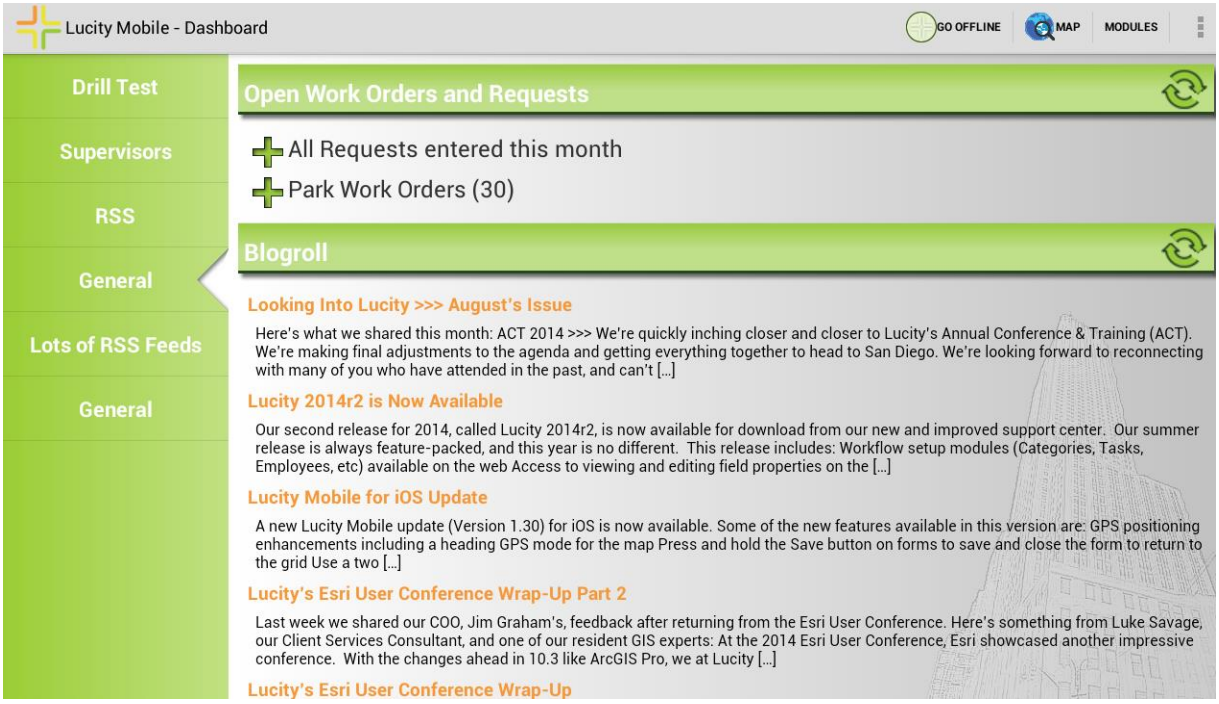


iOS



Selecting a view from the left side will display the dashboard view.

Android


Lucity Mobile - Dashboard
GO OFFLINE
MAP
MODULES
Drill Test
Supervisors
RSS
General
Lots of RSS Feeds
General
Open Work Orders and Requests
All Requests entered this month
Park Work Orders (30)
Blogroll
Looking Into Lucity >>> August's Issue
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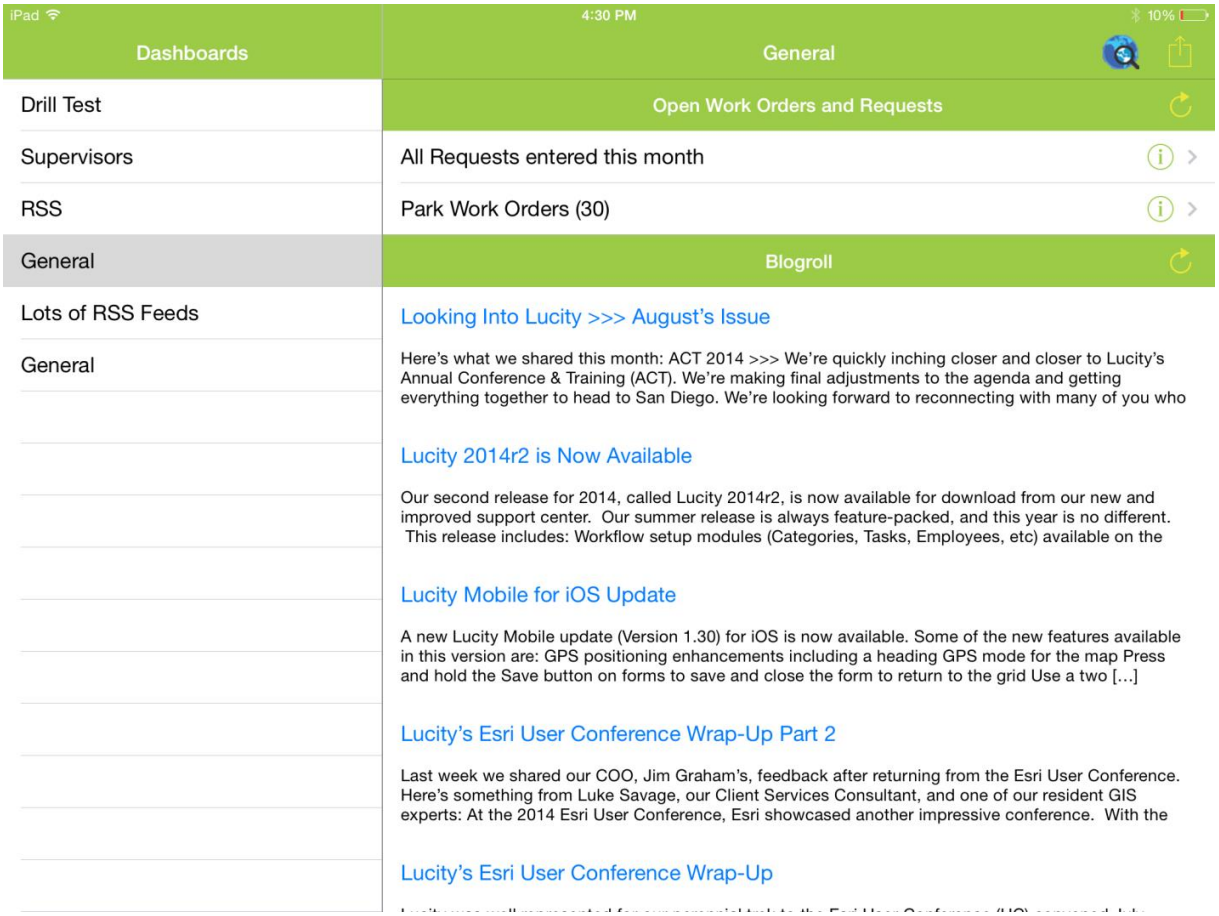
Lucity's Esri User Conference Wrap-Up

iOS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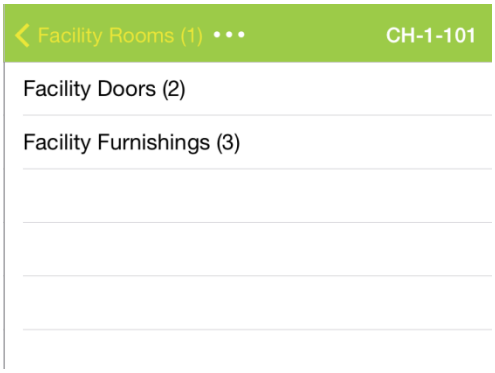
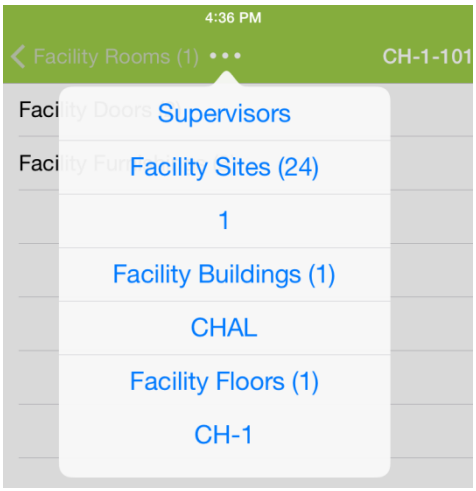
Dashboard views can contain Asset Trees, Data Drills, Quick Lookups, or RSS feeds. Reports, links, maps, and embedded urls are not supported in the mobile dashboards. Quick lookups are available now in Android and are coming this Fall for iOS.

Asset Trees and Data Drills

In the Lucity Mobile Android application, asset trees and data drills are displayed in a tree format.

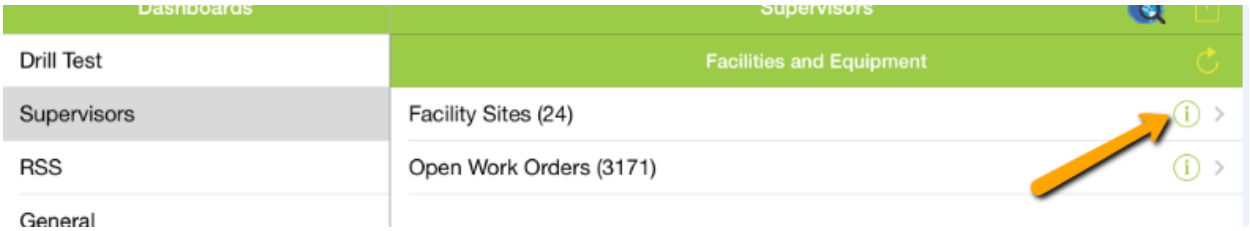
In iOS tables and phones, asset trees and data drills are show in hierarchical views.





To drill into a data drill or asset tree item to see its children on Android, tap the ✚. It will expand into a tree format which can be collapsed and expanded by tapping on the Plus or Minus.

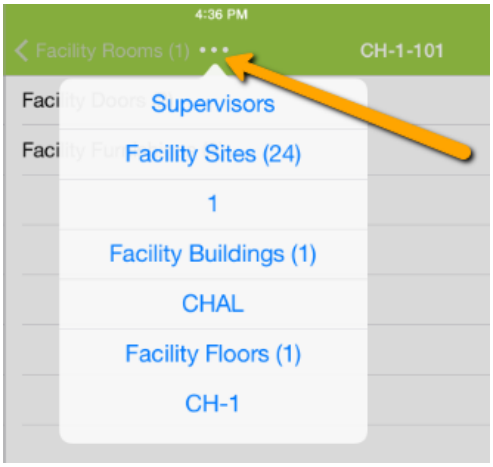
To drill into a data drill or asset tree item in iOS, tap the ⓘ. This varies based on iOS version. Some older (6.x) iOS versions use a blue arrow. It is likely that future iOS versions (iOS 8+) may also vary.



iOS only shows one level at a time. The parent level (Facility Rooms) is displayed here:

To navigate back up to the parent, tap on this parent navigation item. In the above screen capture "Facility Rooms (1)".

If you are nested several levels deep in the asset tree in iOS, a "…" will display. Tapping the "…" will display the entire parent hierarchy to make it easier to jump up to grand parent or great grandparent levels:



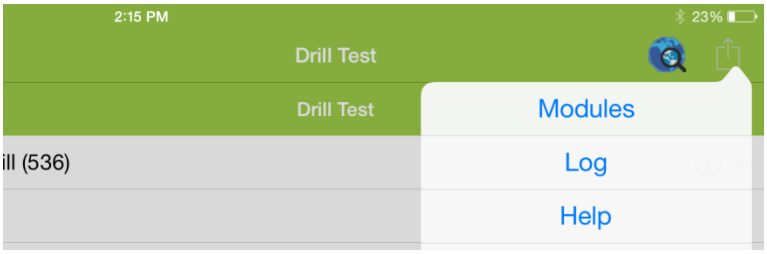
To launch a view from an asset tree or a data drill, tap the item (anywhere but the ✚ or ⓘ). This will open a view (grid) to show the relevant records.

Modules Menu

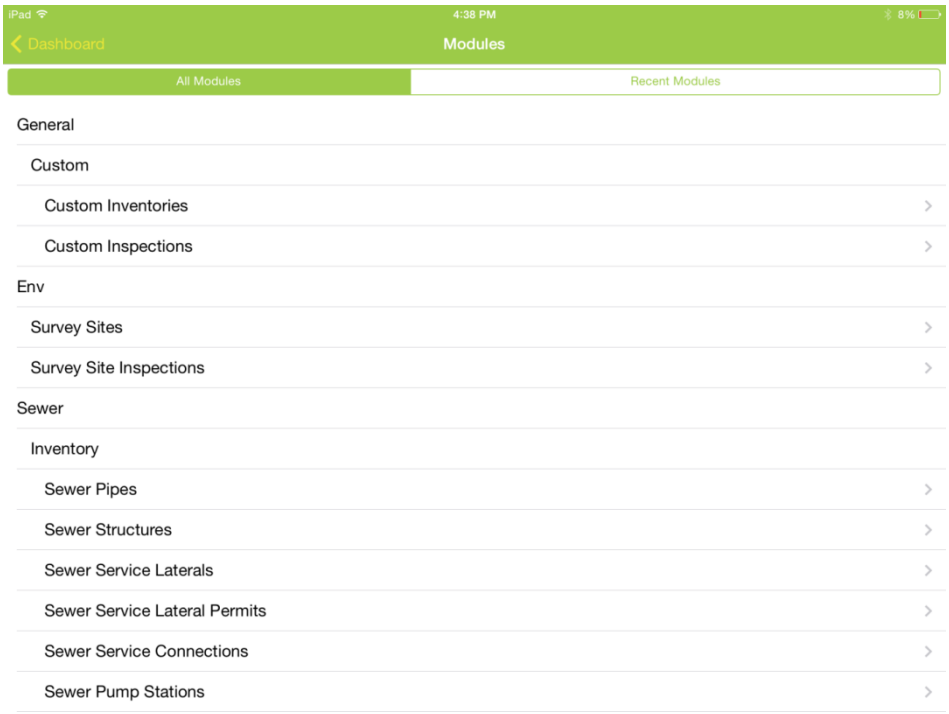
It is a good idea to configure user's dashboards to show the modules they typically will be accessing out in the field. It is a fast way to launch views to the pre-filtered relevant data for that user. To access views that are not in the dashboard or to access view data that is not in a dashboard frame, you can open the modules menu. This is accessed from the menu button on the dashboard.

Android

iOS



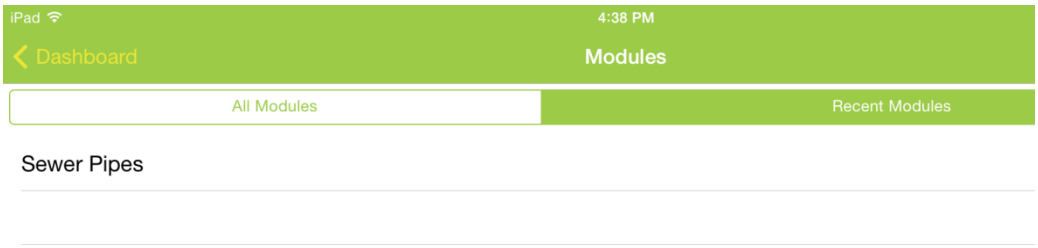
The modules menu screen will show all modules which the user has available to them. If the user has Run permissions to the module and belongs to a group that has permissions to the default view for the module, it will be available in the menu.



The user can also access the recent modules to quickly jump into modules that have recently been opened. On Android this shows recent modules opened from the modules menu or from the dashboard. On iOS this shows the recent modules opened from the modules menu.

Android

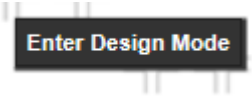
iOS



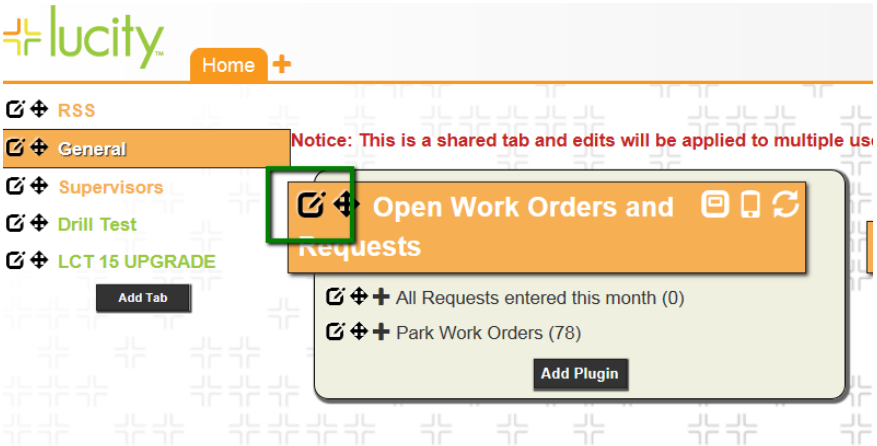
Configuring Dashboards for Mobile Use

Configuring dashboards for use in the field is very similar to configuring them for use within Lucity Web. Configuring dashboards is beyond the scope of this session, but we will cover some topics specific to mobile (particularly offline mobile).

Users will use the same dashboard for Lucity Mobile that they use for Lucity Web, but you can configure individual frames to be accessible in the web or be accessible in mobile (or both). By default new frames are used by both mobile and web.

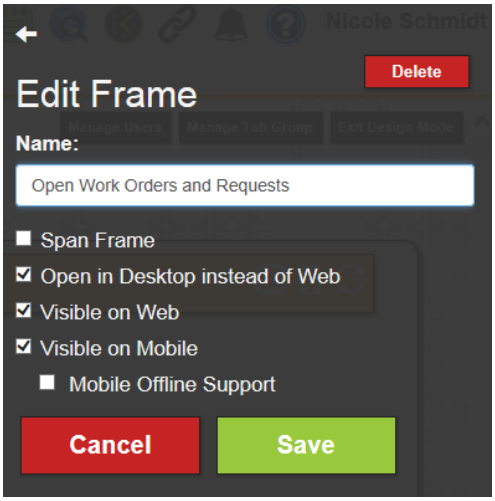
To edit your own dashboard, click Enter Design Mode 

and click the edit button for the frame you want to edit:



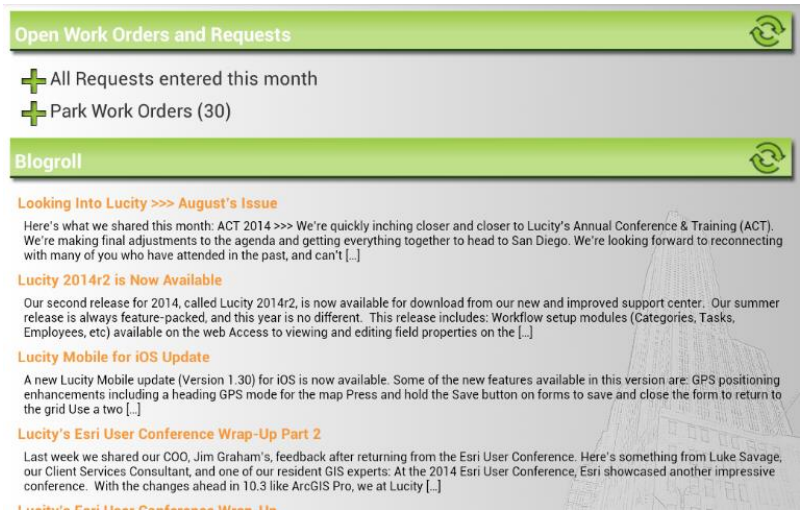
Be aware that if you are changing a shared tab, you will be changing this setting for all users of that shared tab.

Change the setting to make it hidden or visible on the mobile device.

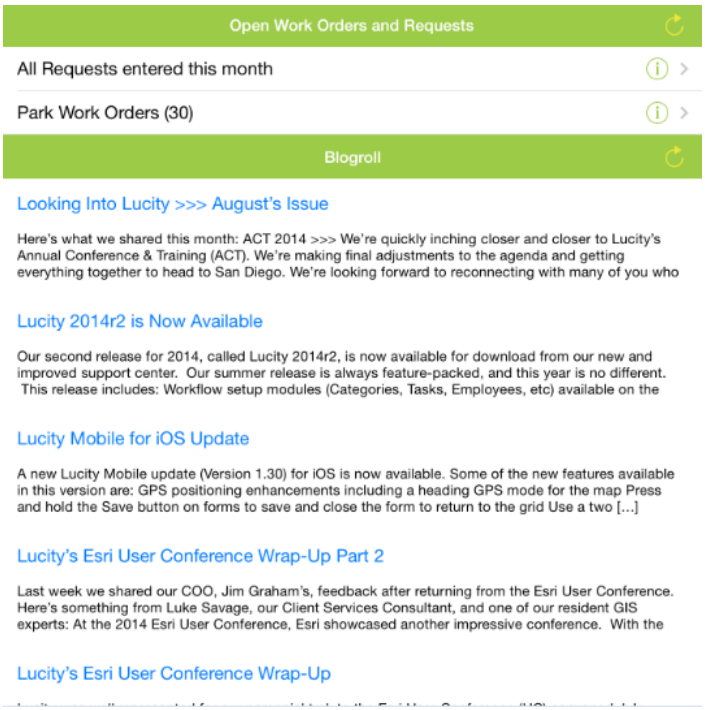


Dashboards will lay out differently on mobile than they will on the web application. Span Frame, for example, is not relevant on the dashboard. All dashboard frames will appear stacked in a single column for each dashboard view.

Android

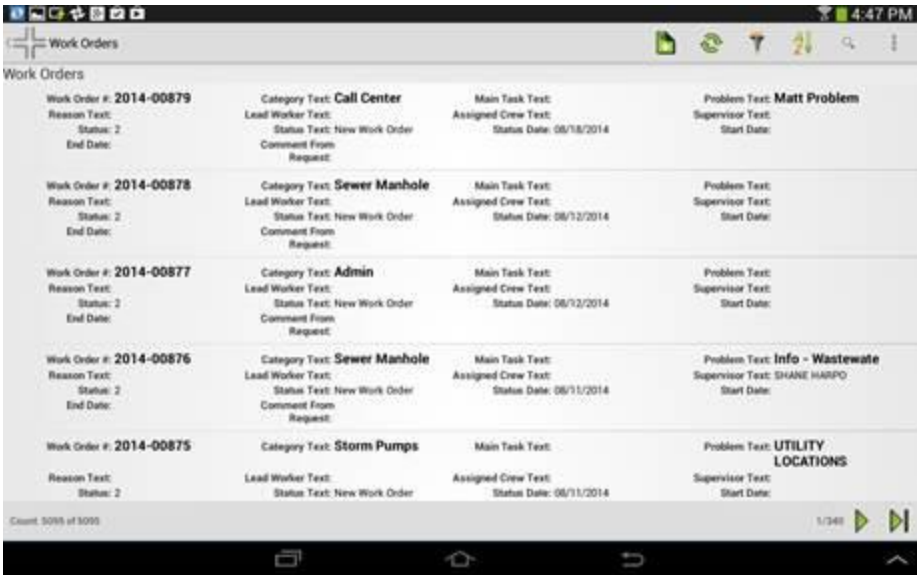


iOS

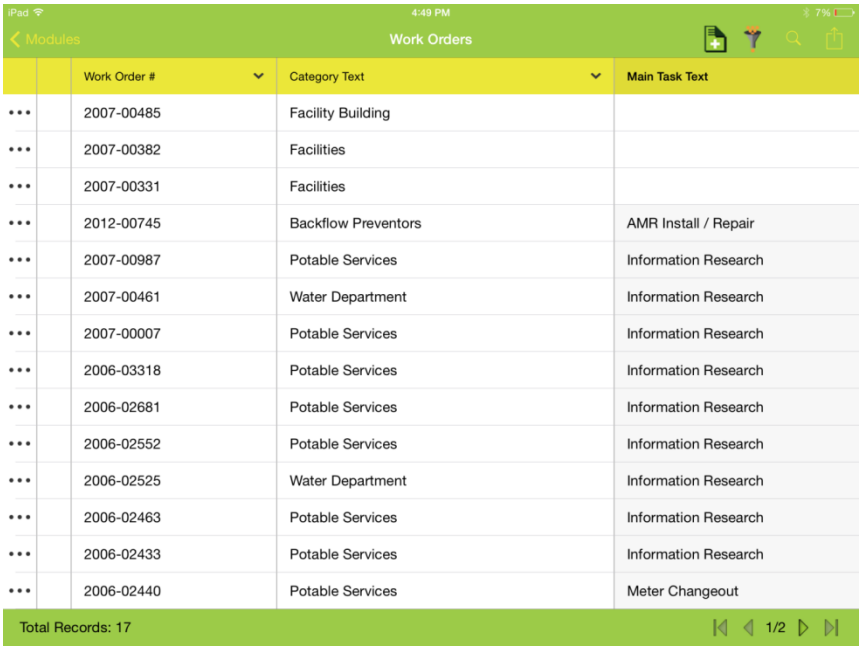

Open Work Orders and Requests
All Requests entered this month
Park Work Orders (30)
Blogroll
Looking Into Lucity >>> August's Issue
Here's what we shared this month: ACT 2014 >>> We're quickly inching closer and closer to Lucity's Annual Conference & Training (ACT). We're making final adjustments to the agenda and getting everything together to head to San Diego. We're looking forward to reconnecting with many of you who
Lucity 2014r2 is Now Available
Our second release for 2014, called Lucity 2014r2, is now available for download from our new and improved support center. Our summer release is always feature-packed, and this year is no different. This release includes: Workflow setup modules (Categories, Tasks, Employees, etc) available on the
Lucity Mobile for iOS Update
A new Lucity Mobile update (Version 1.30) for iOS is now available. Some of the new features available in this version are: GPS positioning enhancements including a heading GPS mode for the map Press and hold the Save button on forms to save and close the form to return to the grid Use a two [...]
Lucity's Esri User Conference Wrap-Up Part 2
Last week we shared our COO, Jim Graham's, feedback after returning from the Esri User Conference. Here's something from Luke Savage, our Client Services Consultant, and one of our resident GIS experts: At the 2014 Esri User Conference, Esri showcased another impressive conference. With the
Lucity's Esri User Conference Wrap-Up

Mobile Views

Views in the iOS and Android application contain the same data as views defined in the web application. The Android application shows the data in a single page list view that requires no scrolling:



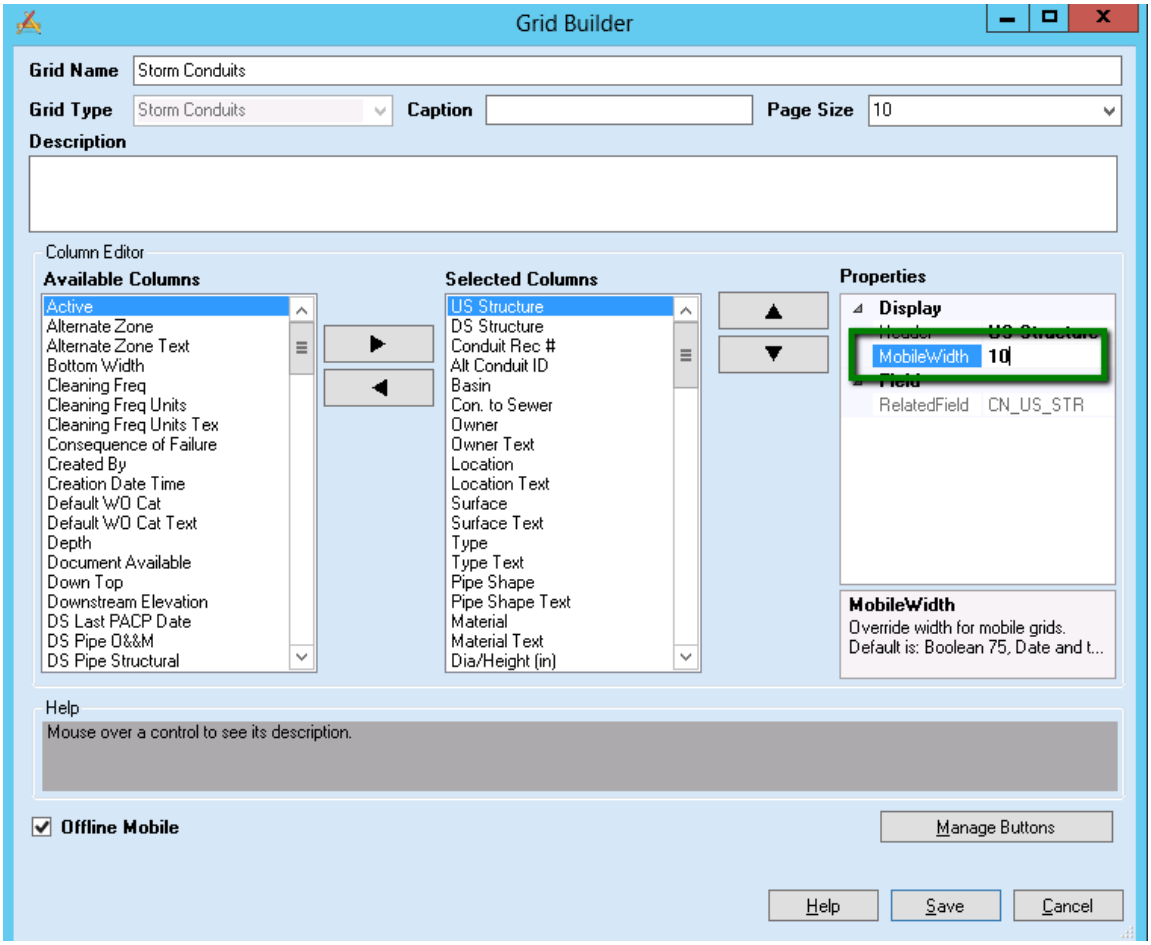
The iOS app is a grid that scrolls up and down/left and right:



Work Order #	Category Text	Main Task Text
2007-00485	Facility Building	
2007-00382	Facilities	
2007-00331	Facilities	
2012-00745	Backflow Preventors	AMR Install / Repair
2007-00987	Potable Services	Information Research
2007-00461	Water Department	Information Research
2007-00007	Potable Services	Information Research
2006-03318	Potable Services	Information Research
2006-02681	Potable Services	Information Research
2006-02552	Potable Services	Information Research
2006-02525	Water Department	Information Research
2006-02463	Potable Services	Information Research
2006-02433	Potable Services	Information Research
2006-02440	Potable Services	Meter Changeout

Total Records: 17 1/2

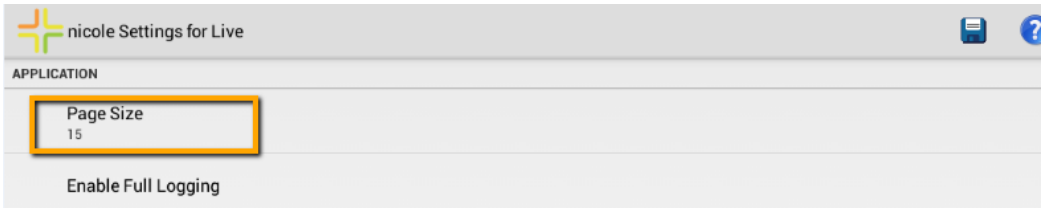
The width of columns in the iOS application can be customized when designing grids. By default the application uses the length of field as calculated from the maximum number of characters allowed. For date time fields it uses a value of 100. For Booleans the default is 75. In the above screen cap you may choose to make the category text and work order field smaller through this configuration to allow for more columns to display at any one time on the grid. This is accessed from the forms>>Grid Manager menu in Lucity Administration tools or by clicking Edit when editing the View from the Forms>>View/Form Manager dialog



Changes to these settings require a cache reset.

Both applications use paging and will only show a certain number of records at a time. The number of records shown can be modified in the settings:

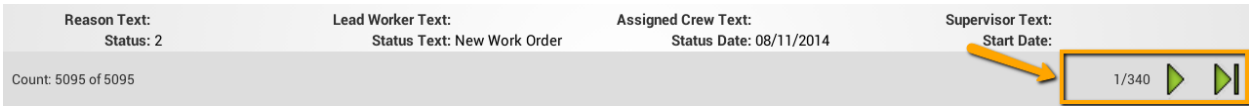
Android



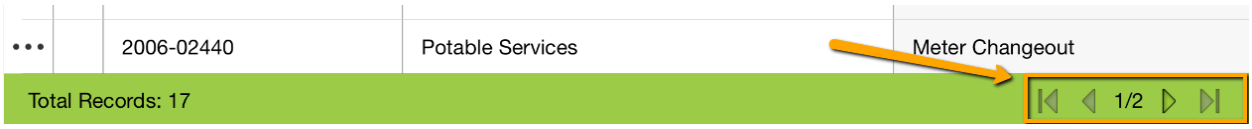
iOS

To page through records, use the paging navigation on the lower right hand side. The iOS client also supports paging using a two-finger swipe.

Android



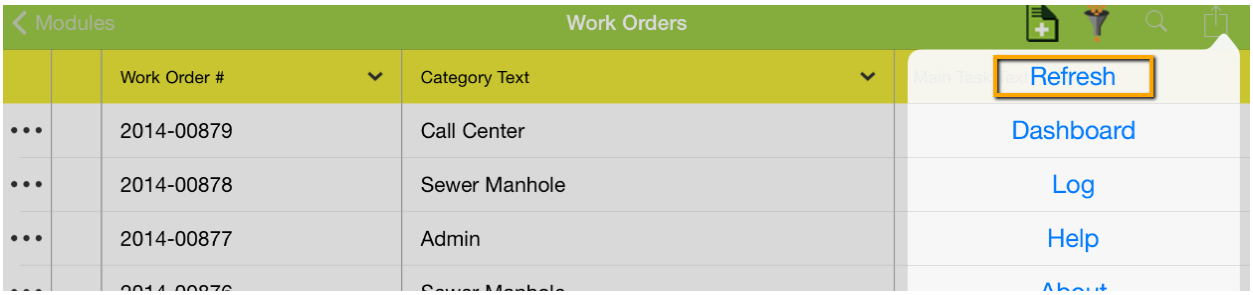
iOS



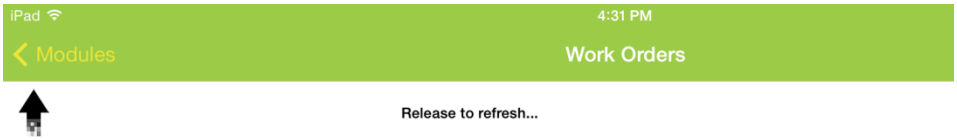
To refresh the current data and get any new records that may have been added on the server since the view was opened, tap the refresh button.

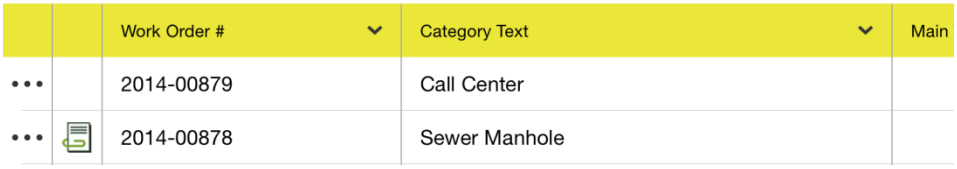
In Android this is a refresh button on the toolbar

In iOS, the refresh is in the view menu.



iOS also supports a pull down refresh.



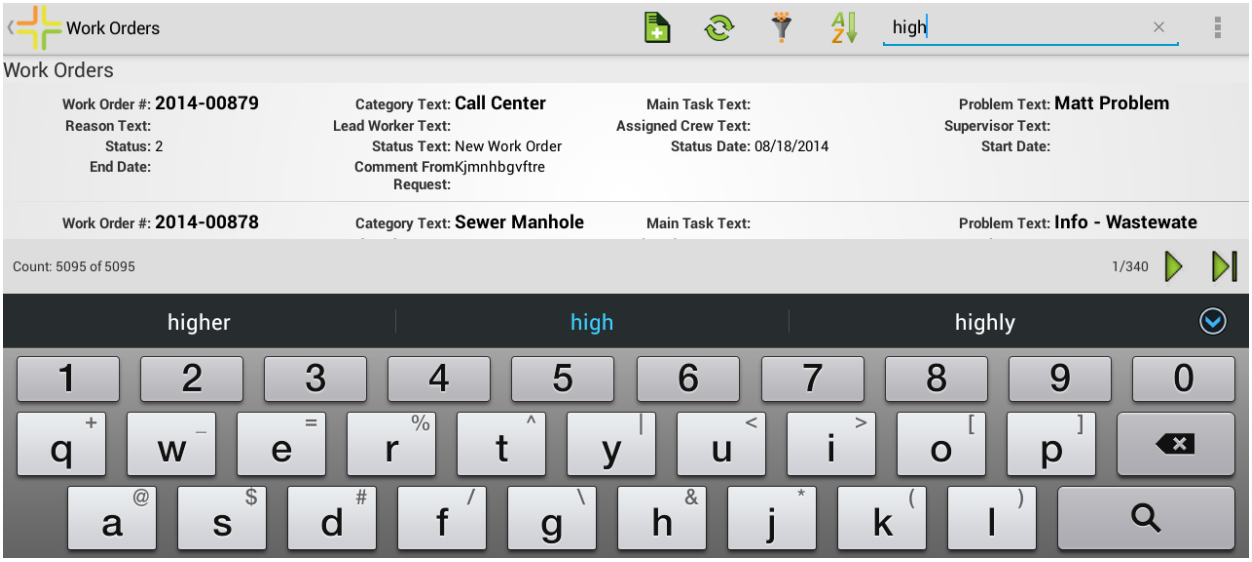


To quickly search for information, each view supports a search function. The search searches all visible columns in the view for all records in current context. This context may be records returned from a dashboard data drill or asset tree, or may be from a filter, or may be all records.

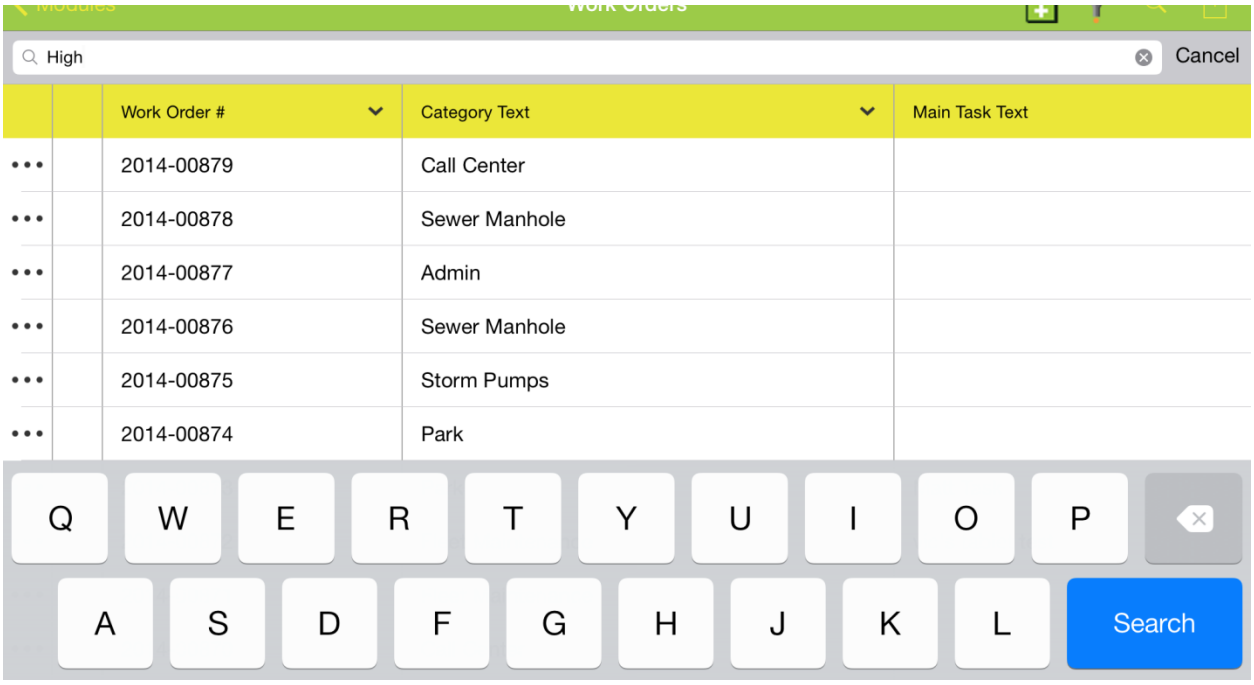
The search button is a magnifying glass in both applications

Once the desired search text is entered, tap the Search button or the magnifying glass on the keyboard to initiate the search.

Android



iOS

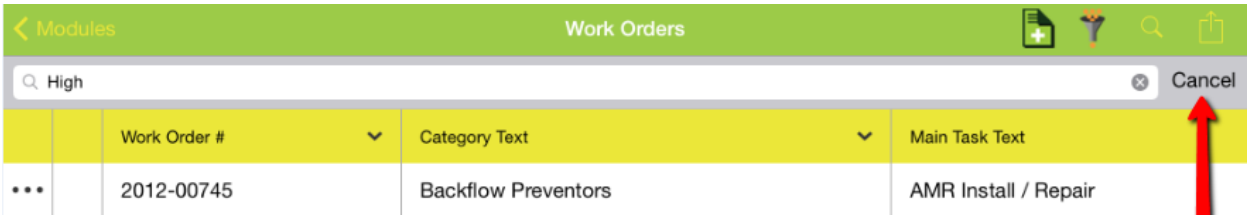


The paging works the same for both filtered and unfiltered data. To page through the filtered records use the record navigation at the lower right hand side of the form.

To clear a search in Android, tap the "X"

Tapping the "X" again will close the search prompt and display the search button again.

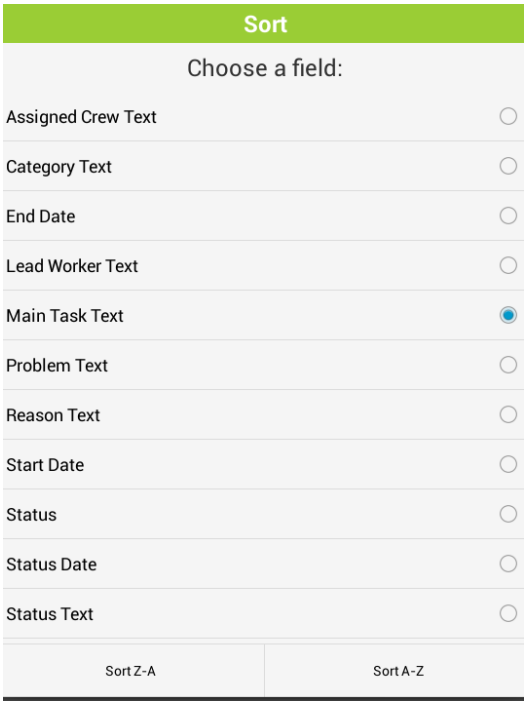
To clear the search in iOS, tap the search button again . This will re-open the search prompt:



Tap Cancel. This will clear the search and will close the search prompt.

Sorting

To sort data in the grid in Android, tap the . Select the desired sort column:

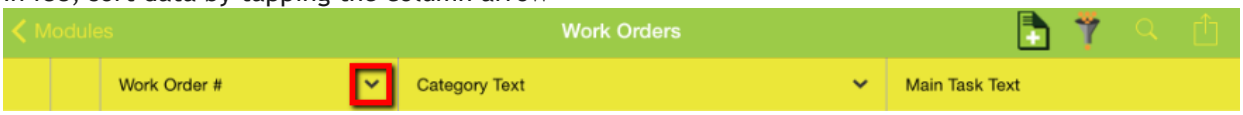


And tap the Sort Z-A or Sort A-Z button depending on whether you want the data sorted ascending or descending.

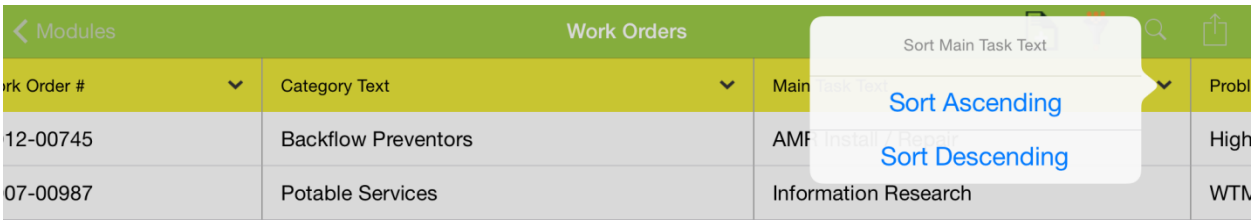
To view the current sort column, tap the sort button. It will display the current sort column. Sorts are only supported for only column at a time. Selecting a new sort will clear the existing sort.

To clear the sort, tap the Clear Sort button.

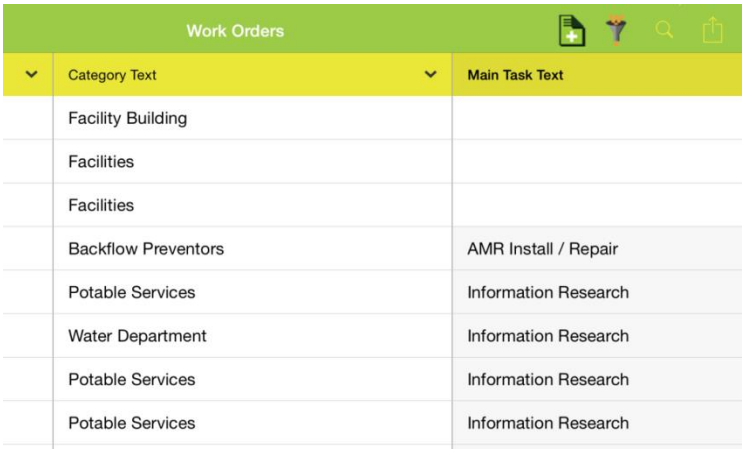
In iOS, sort data by tapping the column arrow



and select Sort Ascending or Sort Descending



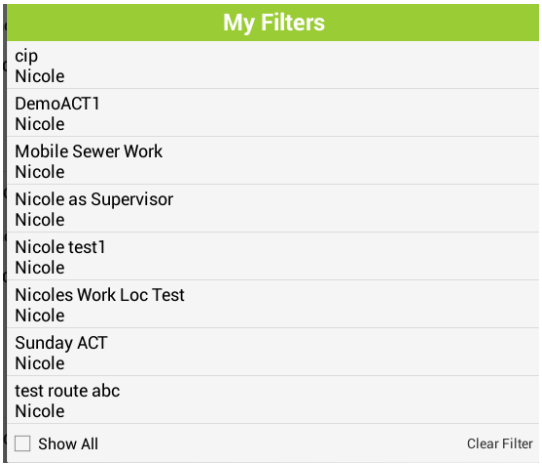
When a column is sorted, the column header text appears bolded and the column has a slightly darker color than the rest of the display



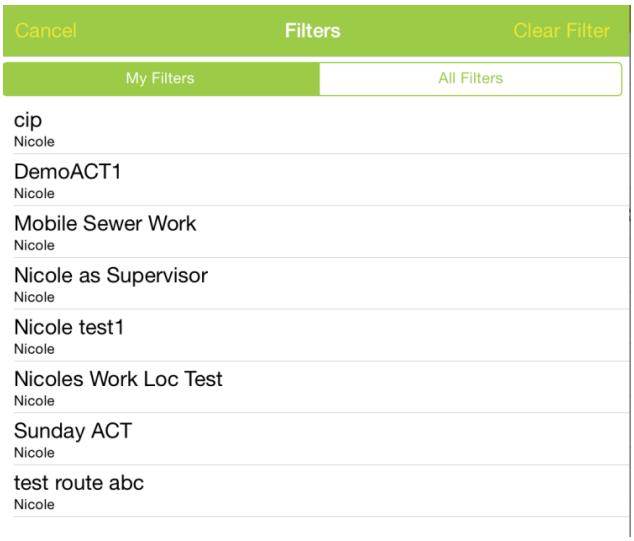
Filters

Both the Android and iOS application support loading existing filters created in the web app. To load an existing filter, tap the filter button. By default the filters displayed will be the currently logged in user's own filters.

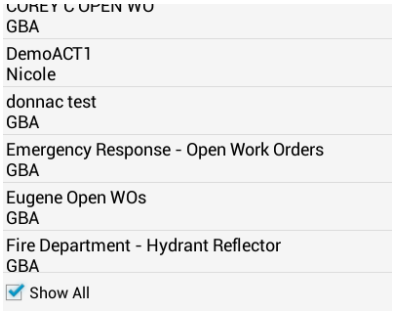
Android



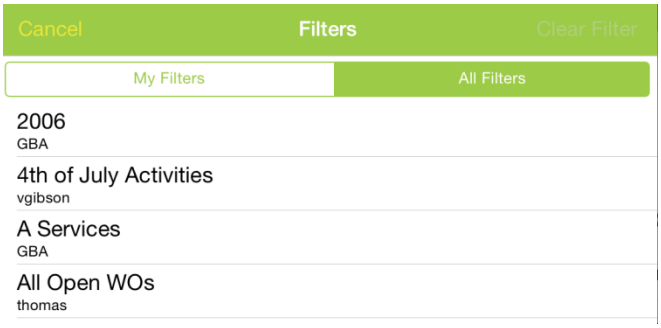
iOS



In Android you can see all filters by tapping the Show All button.



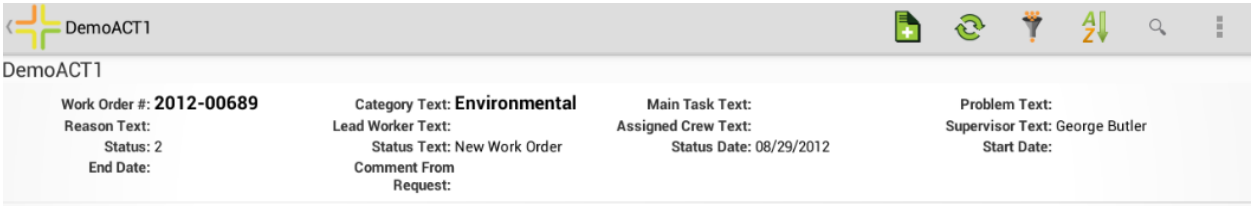
In iOS you can see all filters by tapping the “All filters” tab



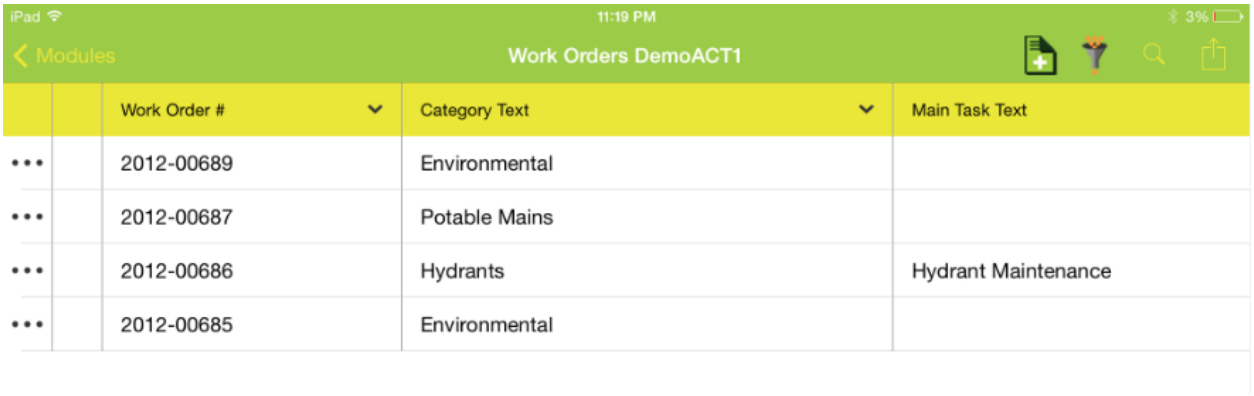
Selecting the filter closes the prompt and loads the filter. Paging and record counts work the same as they do for the find functionality.

The name of the filter selected will appear in the title bar of the view when there is a filter loaded.

Android

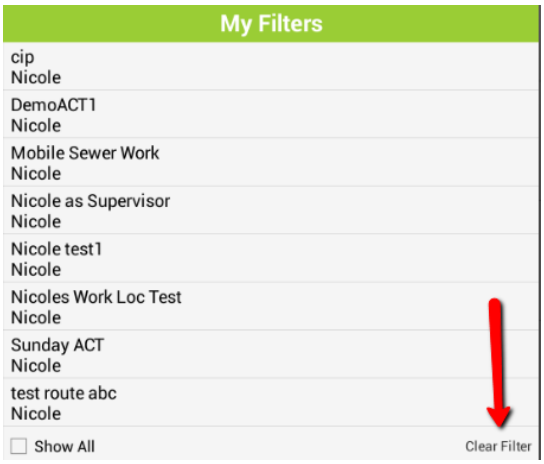


iOS

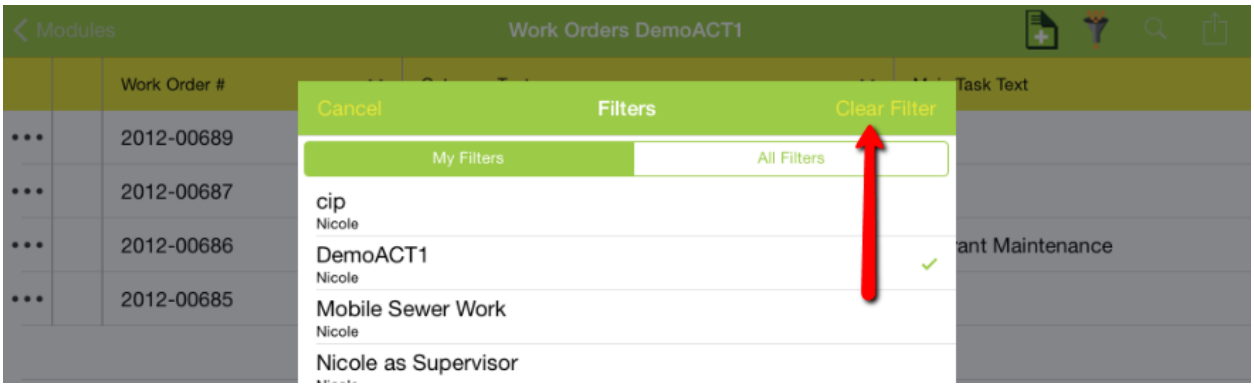


To clear a filter, tap the filter button again and tap Clear Filter:

Android



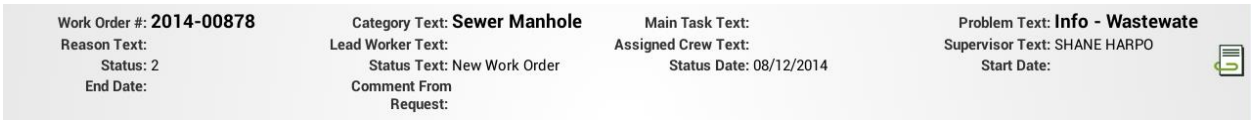
iOS



Viewing attached documents

Records with documents attached will include a documents button. Tap this button to view any documents attached to a record.

Android



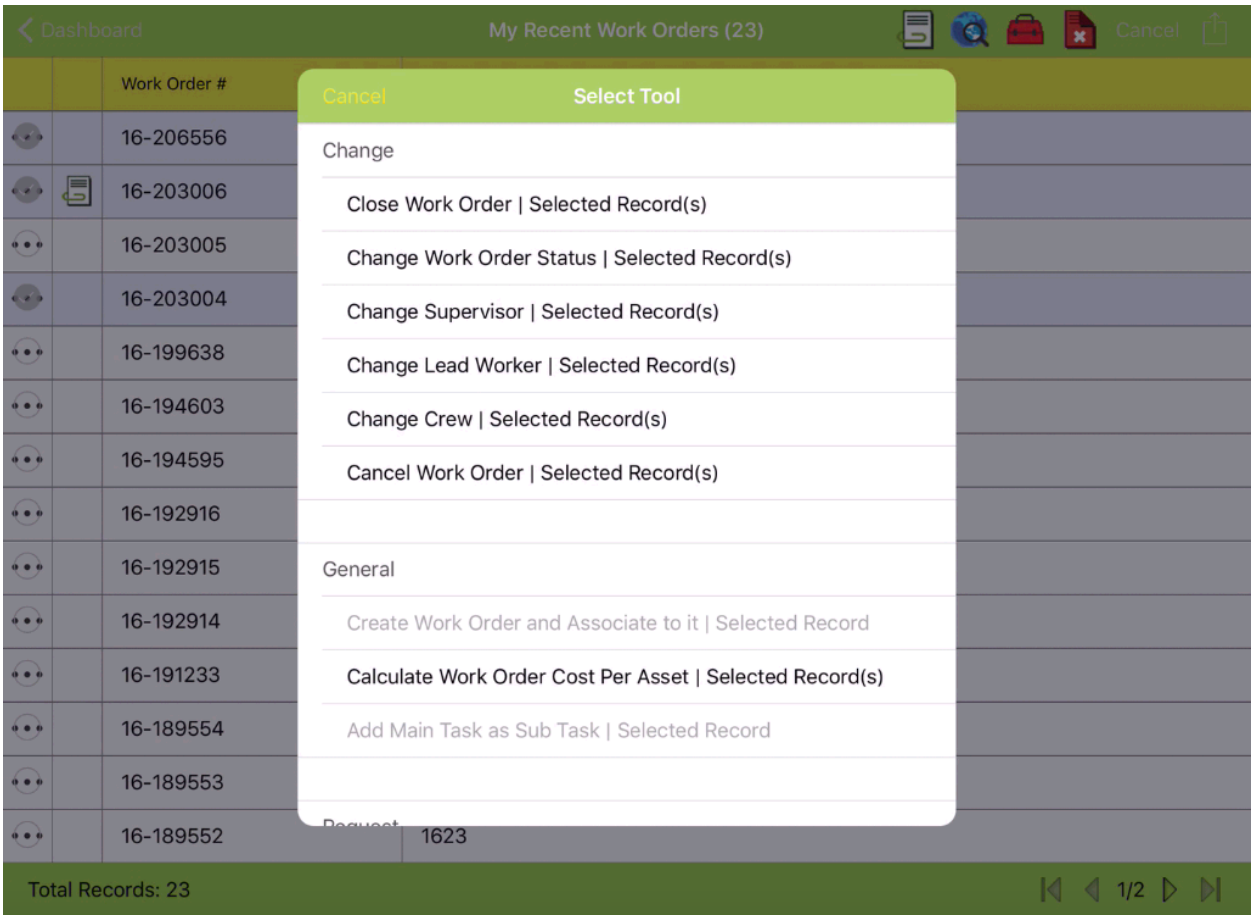
iOS

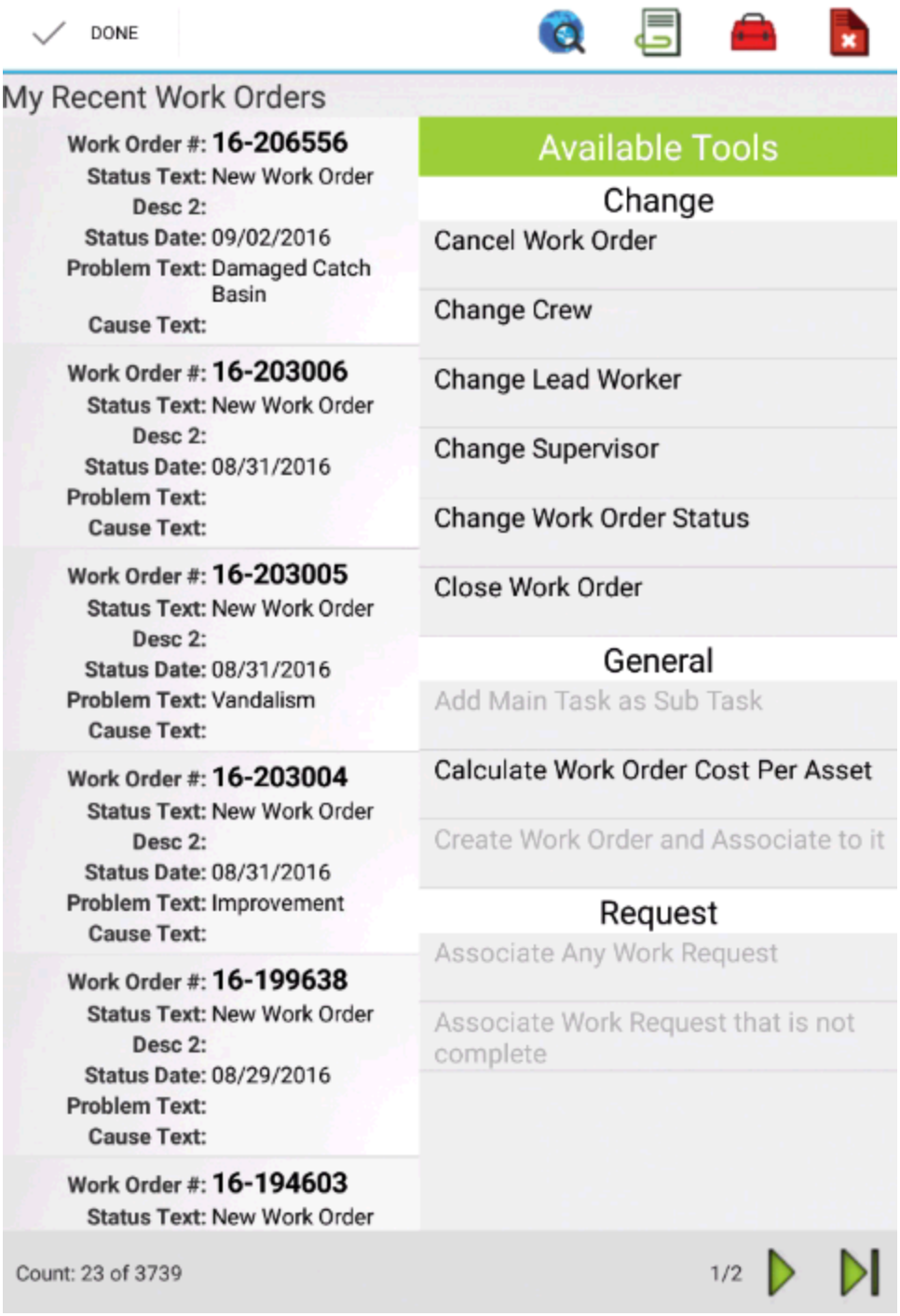
Documents are discussed further later in the session.

Toolkits

Select toolkits are currently available in the mobile app. Some toolkits work on selected records and some toolkits work without a selection. Which toolkits are available will depend on the Lucity server version you have installed. Lucity is adding more toolkits with each server release.

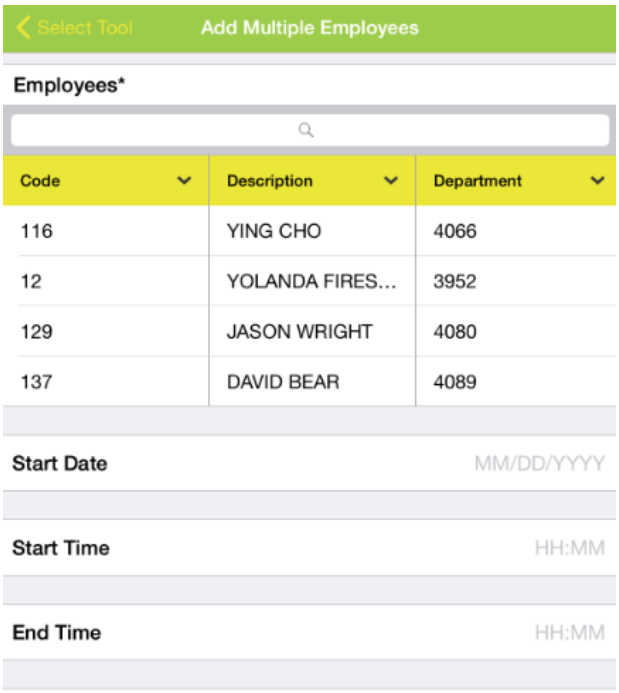
Here is an example:





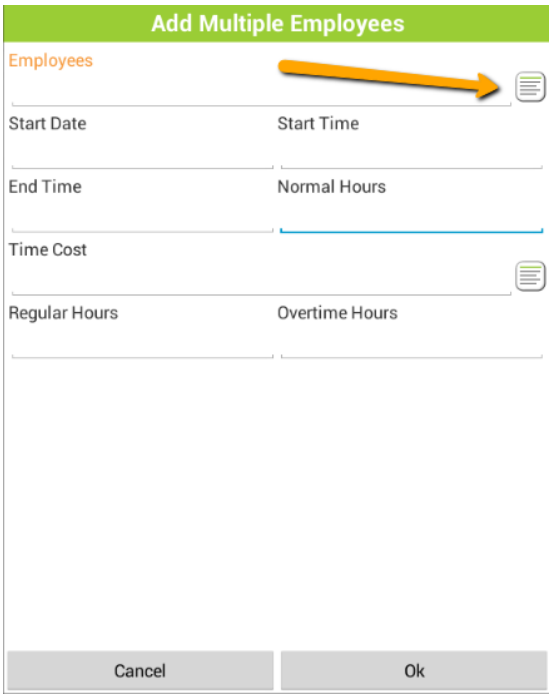
The list can also vary based on which records are selected and the permissions of the currently logged in user. This is the same behavior as the Lucity Web application.

Some toolkits may show a list:

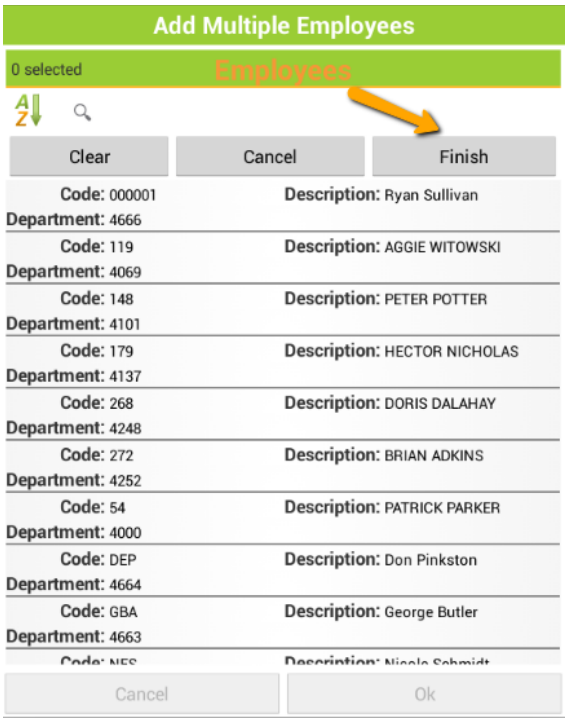


Search is supported in these lists and will find all records that contain the text entered. Select a record and click Okay.

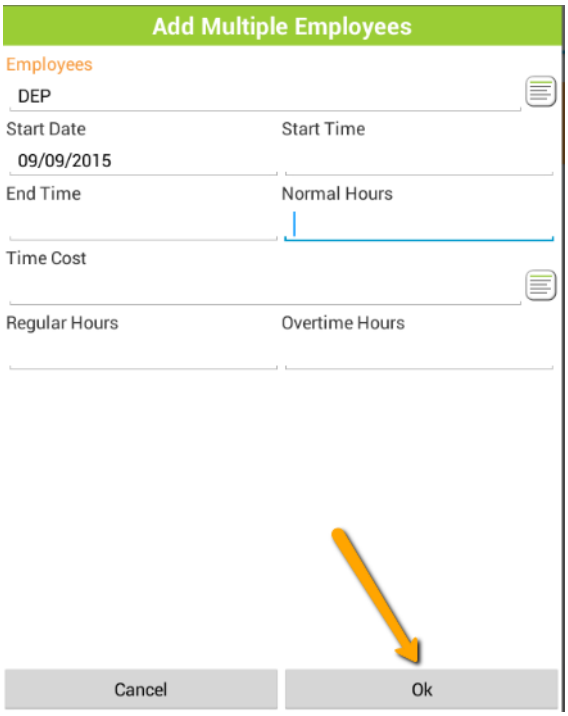
For Android, lists are shown in a window which overlays the toolkit window. To pick from the list, select the button.



The list of items will overlay the toolkit form. Select an item and click finish.



This will select the item(s) and take you back to the toolkit form to finish entering data.

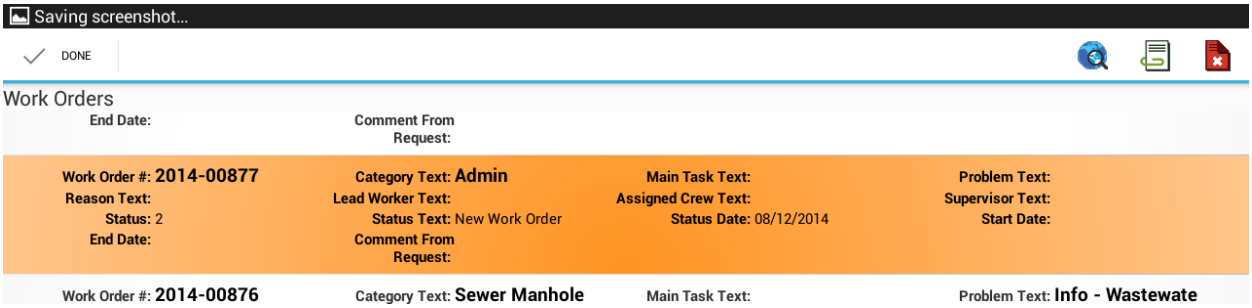


Required toolkit fields are marked with an *. These values must be populated before you will be allowed to execute the tool.

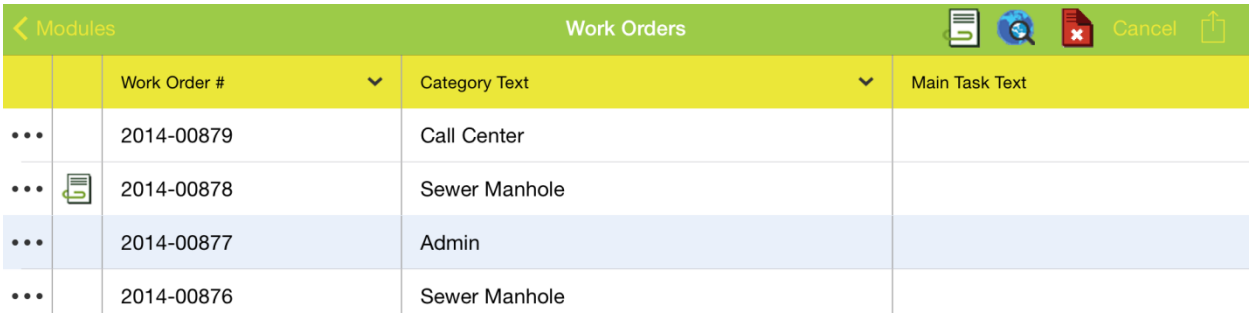
Selection Mode

There are several tools and functions that are only available or may function differently when records are selected in the grid. In both Android and iOS, records are selected by pressing and holding the record (or one of the records) you are interested in. When you press and hold a record for a moment, you will notice the toolbar changing and the record color changes. In Android it changes to orange, in iOS it changes to a light blue or grey color.

Android

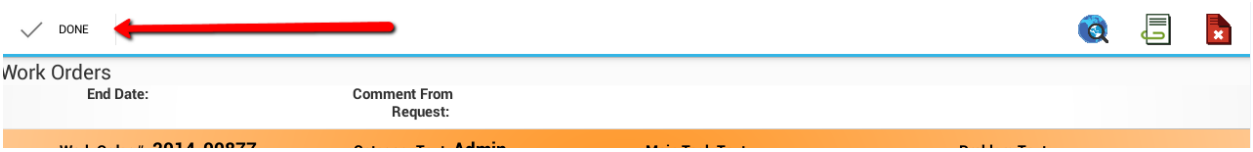


iOS

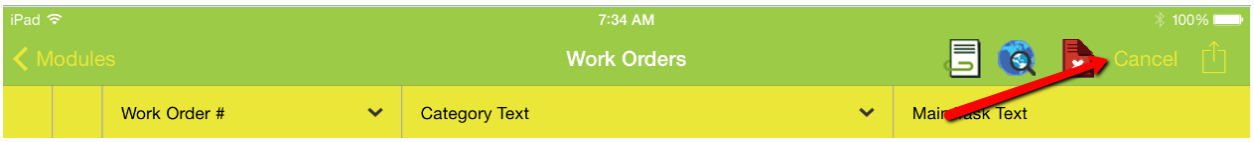


To leave selection mode, tap the Done in Android or the Cancel in iOS in the title bar of the application.

Android



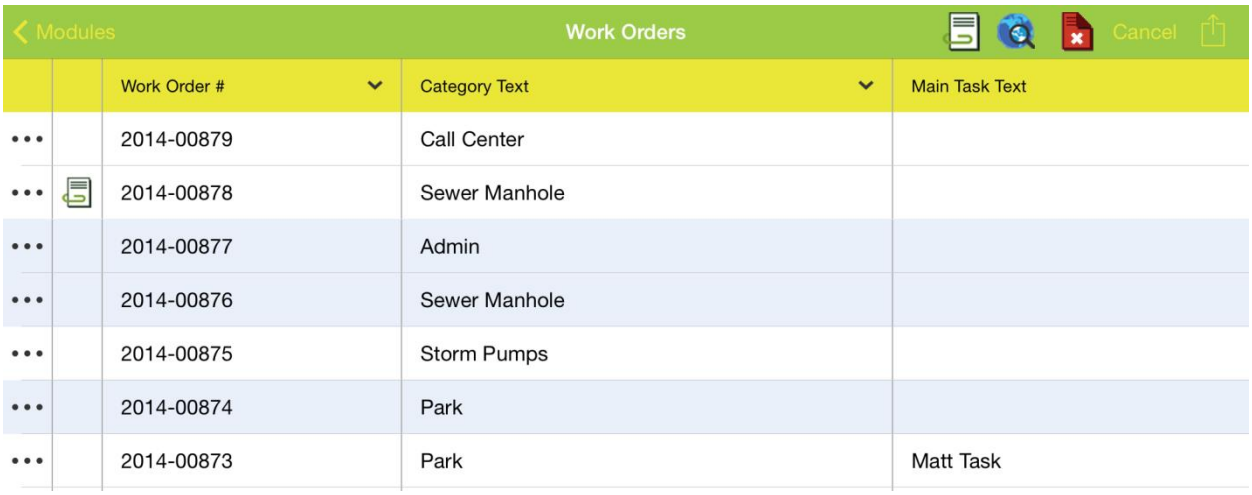
iOS



Once one record is selected and the application is in selection mode, additional records can be selected by tapping the record. It is not necessary to press and hold to select additional items.

Android

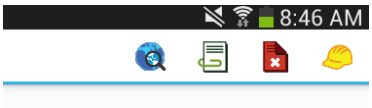
iOS



Note: Not all tools work on multiple selected items. Tools which only support a single selected item will prompt the user that the tool cannot be used on multiple items.

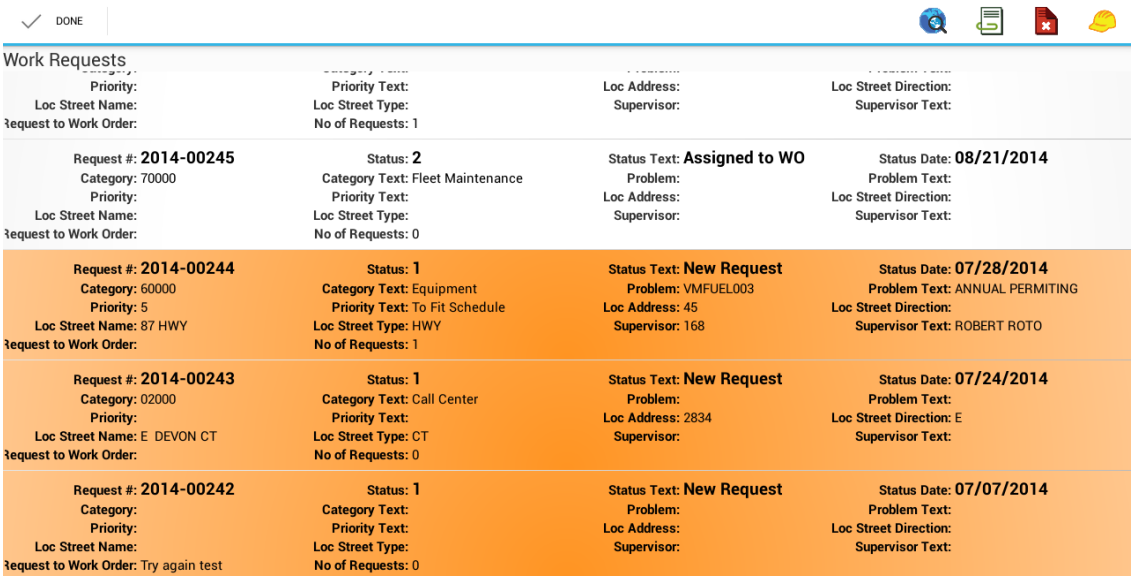
Create Work Order

An additional tool available on requests and some inventory and inspection modules is Create Work Order. This tool is available when one or more records are selected.

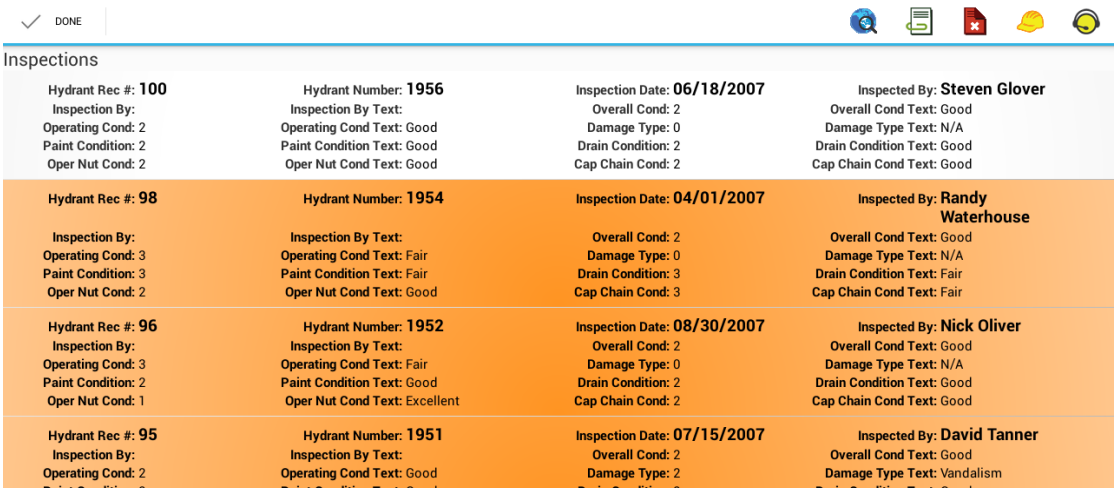


Tapping on the work order button generates the work order and opens a work order view to display the newly created work order

To create a work order from multiple requests, select all of the desired requests in the list (you can only choose requests from a single page) and tap the Create Work Order button. This will create one work order and associate all requests to that work order.



To create a work order from multiple inventory items or inspections, select all of the items and tap Create Work Order. This will create a work order and include all of the selected assets on the work order.



Create Request

Creating a request can be done from inventory and inspection modules. Creating a request only works with a single selected item.

The iOS application works identically to the Android application for creating work orders. Select one or more requests or inventory items or inspections and tap the Work Order button:

When the work order is created, a work order view is opened showing the created work order.

Creating Requests in iOS also behaves the same as the Android application. Select the record you want to create a request for and tap the Create Request button. This tool only works on one selected record.

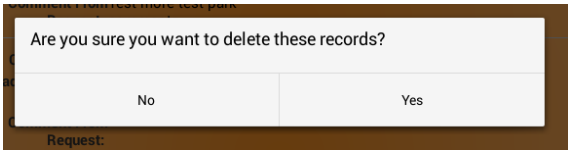
When the request is created a view will be opened displaying the created request.

Deleting records on the tablet

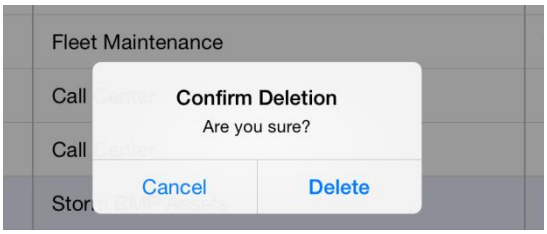
Deleting records on the iOS and Android tables can be done from selection mode as well. Historically more than one record could be deleted at a time. However, the latest versions of the tablet have restricted it to single record deletes. Press and hold a record to enter selection mode (if not already in selection mode)

Tap the delete button.

Android

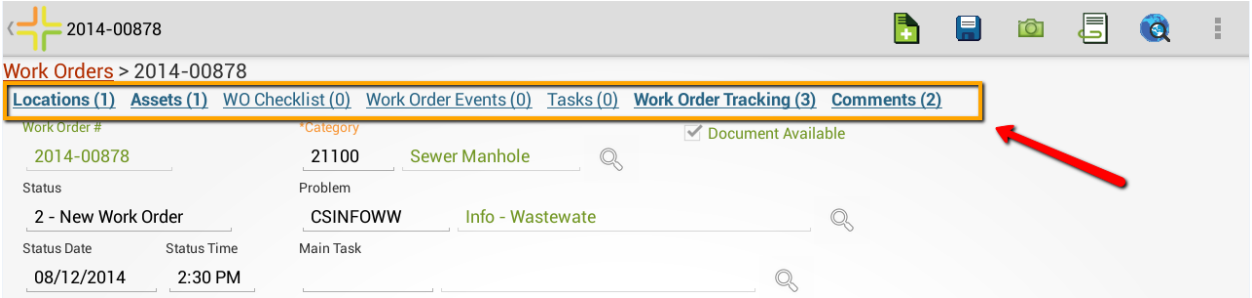


iOS



Navigating child records

In Android, child records are accessed by tapping on the row to open the form. The available child views appear across the top of the form with the child view record counts.



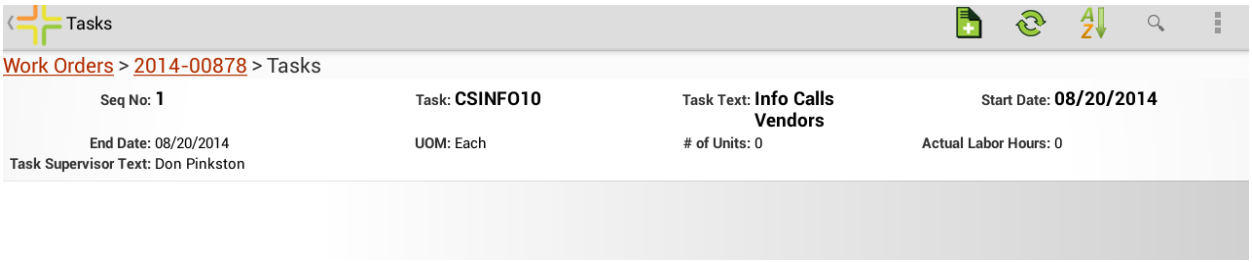
In iOS, child records are accessed with the ••• which will display a list of available child views.

In older versions of the iOS tablet application, if you selected a child view from the childview list with no rows, it would immediately launch a data entry form. The current version of the application does not do this because it prevented access to the toolkit button for empty grids which we felt was more important than jumping into the data entry screen.

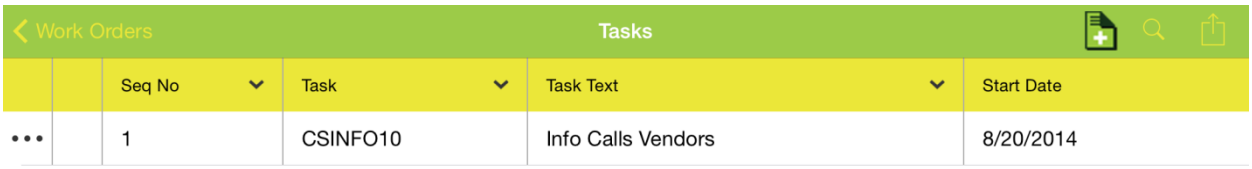
Child views behave very similar to root level views but do not support filter and in some cases may not support adding or deleting depending on the child and the user's permissions.

This is the task child grid of work orders:

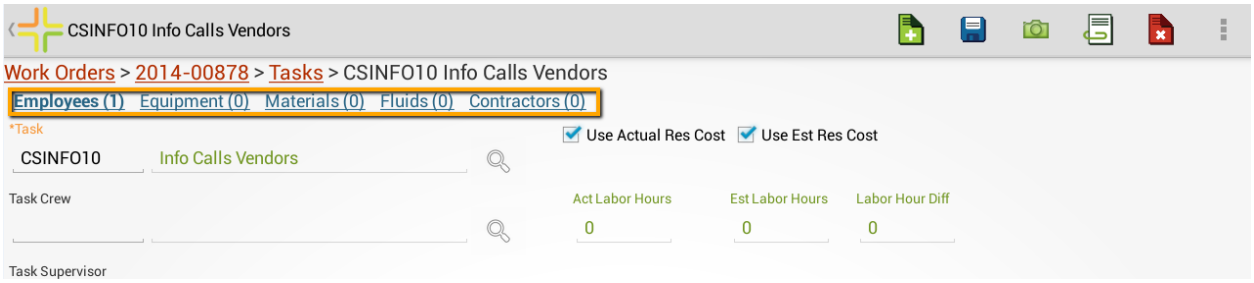
Android



iOS



Child views of tasks can be accessed the same way. In Android this is done by selecting the record to open the form and selecting the desired child view.

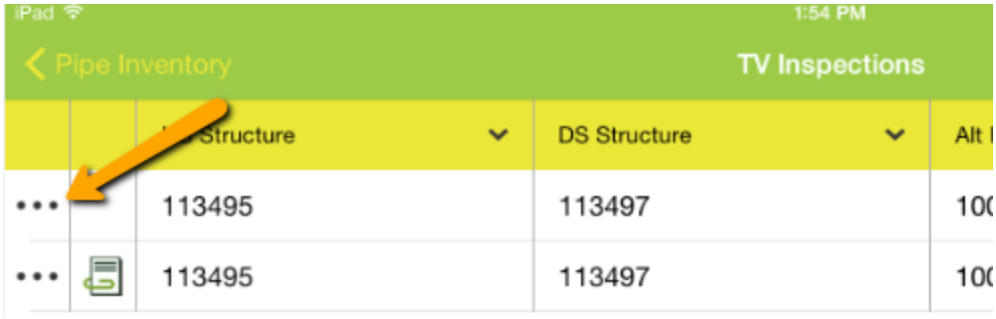


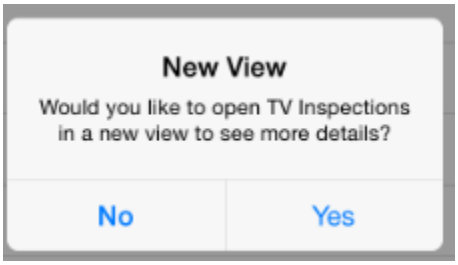
In iOS, child views are accessed with the • • • button inline in the row.

Open in a New View

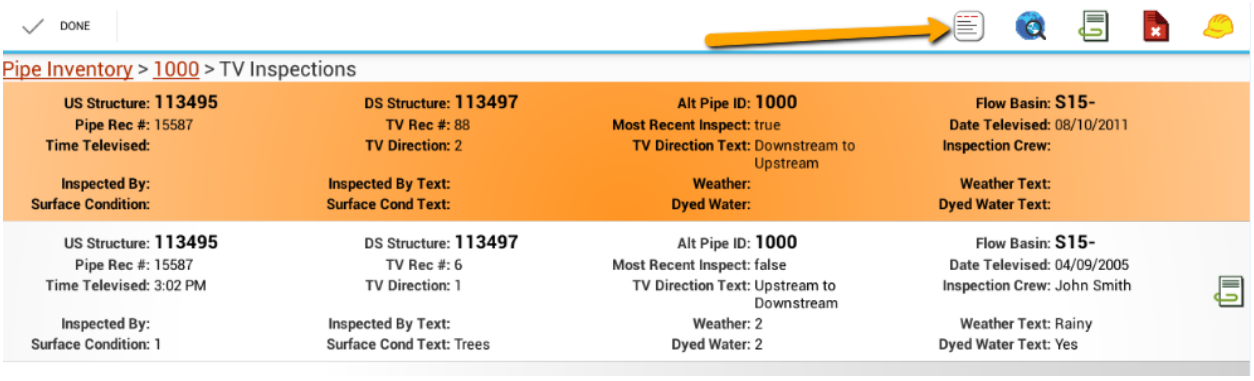
Both applications support opening root level items in a new view. For example, if you want to open up and view TV inspection observations from the Pipe Inventory module, you can go to the TV inspection you are interested in and open it in a new view. The new view will allow you to view the TV observations.

In iOS, you can open in a new view by selecting the "…" button on a root level view item. This will prompt you for whether you want to open the item in a new view:





In Android, select the record you are interested in seeing in a new view and select the Open in a New View button:

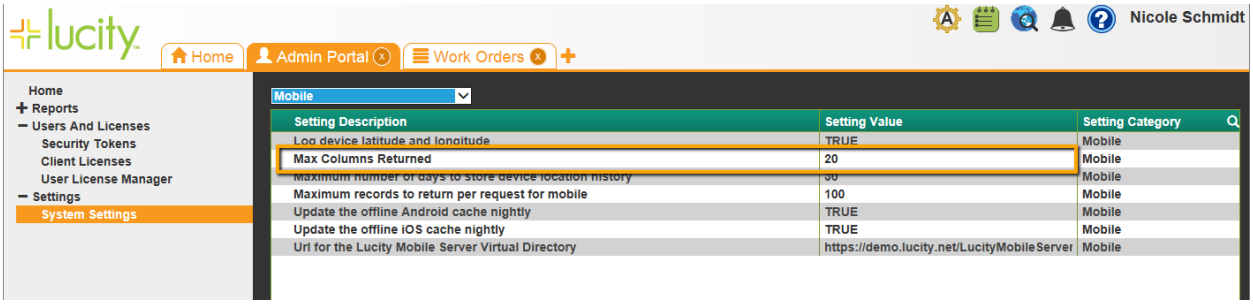


Configuring Views for mobile

Views configured for the Lucity Web application will automatically be used by the tablet application. The system will automatically use the same views configured for the users in the mobile application that are used for the user in the web application.

Refer to documentation from a Lucity Administration session for how to customize views and configure views for users.

In system settings you can configure the maximum number of columns shown in mobile for a view.



Views with more than 20 or 30 columns do not work well in the mobile application. They take too much display memory to render and take up too much space. This limit allows views to be defined for desktop usage with many columns, but still work well in mobile by only showing the first X columns.

How user permissions affect views

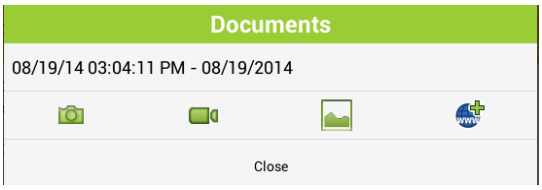
The user used for this training has full permissions to all modules. Users without delete permissions will not have a delete button. Users without permissions to add and edit documents may also see slightly altered screens in the documents dialogs.

Documents

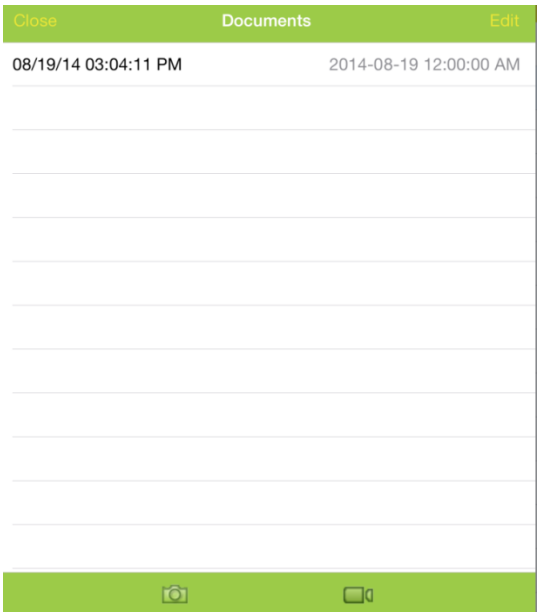
Working with Documents in Views

Documents can be viewed or added while in selection mode. Select a record and tap the Documents button in the toolbar. This will open up a dialog displaying all existing documents attached to the record.

Android



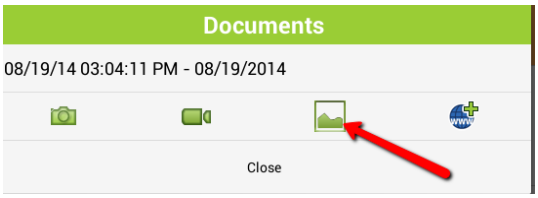
iOS



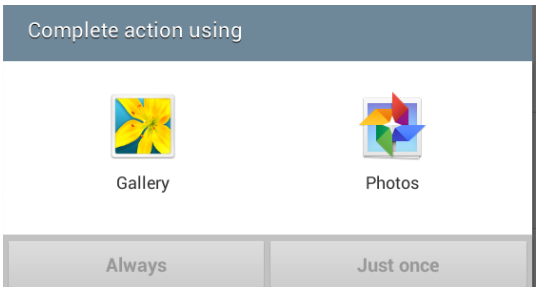
Documents and web links can be opened by tapping on the item in the document list.

Android supports adding images, videos, or web url attachments. The iOS application supports adding images and videos. Both mobile applications support taking a new picture/video or selecting an existing image/video from the gallery.

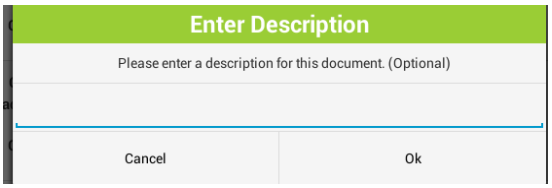
In Android, to attach an image or video from the gallery, tap the gallery button on the documents dialog:



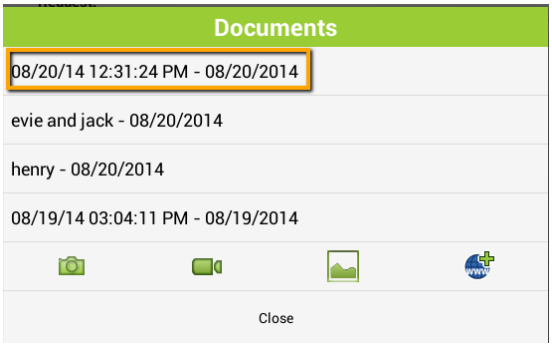
Depending on what apps are installed on the device, you may get prompted for which application to use for the gallery. In the case of this device, there are 2 possible image sources (gallery and photos). Gallery is available on every android device that has a camera installed. Many installations include the photos app as well and depending on what other apps are installed, there may be even more choices in this dialog:



Once you select a photo from the gallery or photos, you will be prompted for a description.

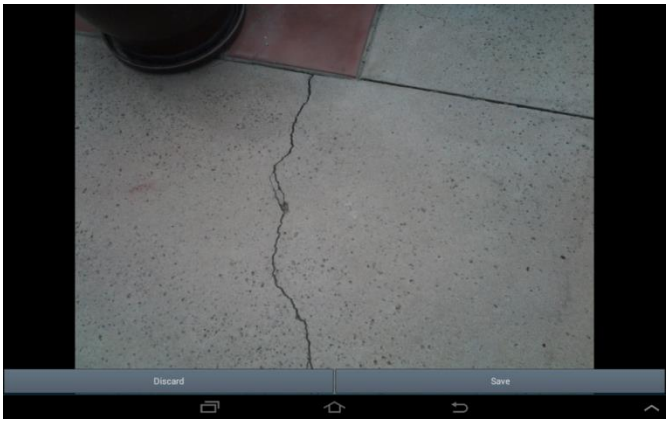


If you do not enter a description, the upload will have a description of the current date and time.

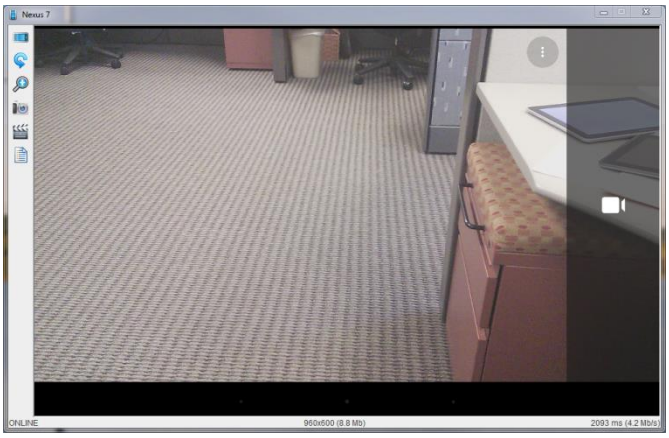


The document is uploaded to the server and is now available to all Lucity systems (web, mobile, desktop).

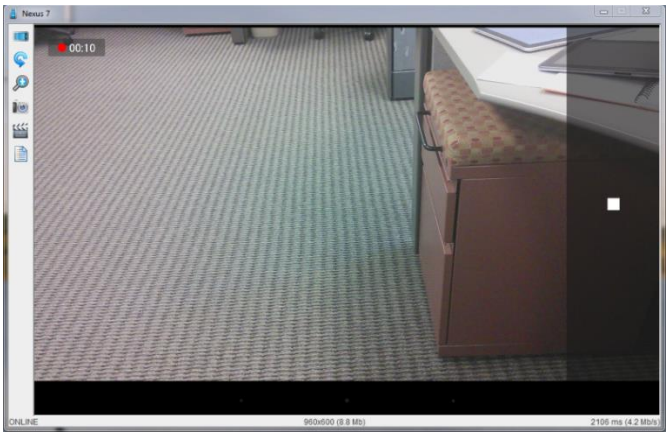
To take a new image to attach to the record, tap the button. This will open the camera. Once the picture is taken, you will be prompted whether to discard or save the image. Tapping save will prompt for the optional description.



Tap Ok on the description to upload it to the server. Images captured directly are not saved to the device; they are uploaded directly to the server. To attach a video, tap the video button which will open the video recorder.



Tap the video button to record and when done, tap the stop button:

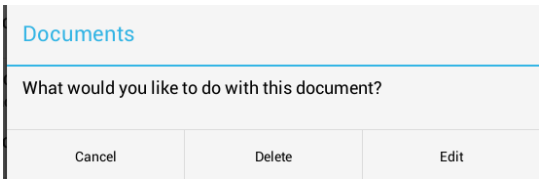


If you are satisfied with the video, tap the checkmark:

The system will prompt for an optional description.

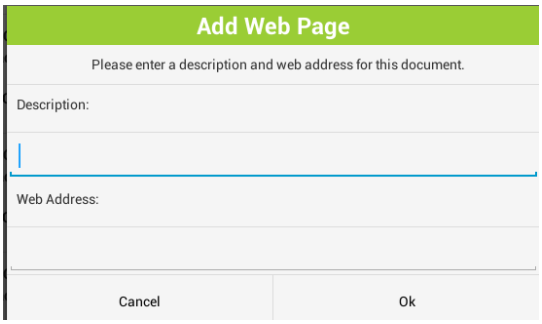
Editing and Deleting Documents

To edit or delete a document, press and hold the document in the document list. This will prompt:



Editing allows you to edit the document description.

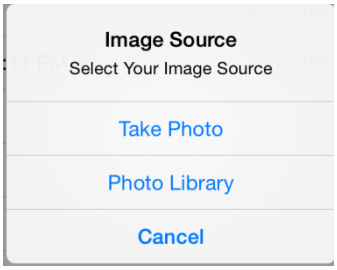
In Android you can also attach web urls to documents. Tap the button to open a dialog to add a url to a document.



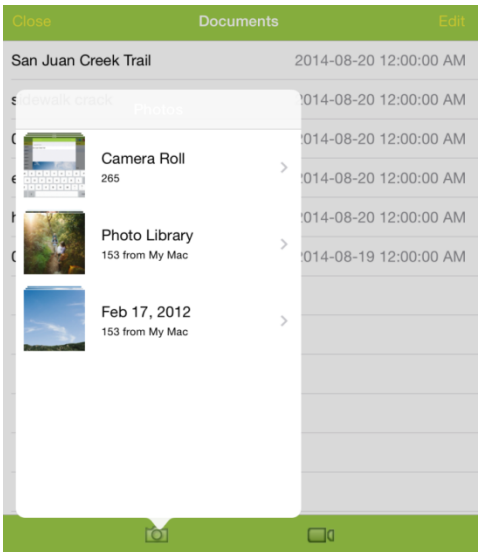
Documents can also be viewed and attached from forms as well. This is covered later in this session.

In iOS, to attach an existing image or movie, tap on the movie or camera button.

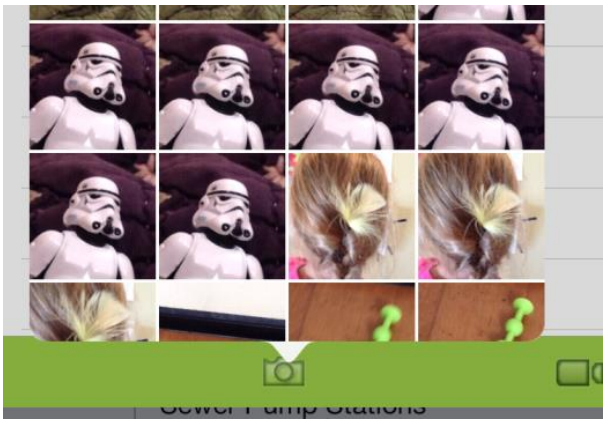
The application will prompt for whether you want to take new media or use existing from the Photo Library or Video Library.



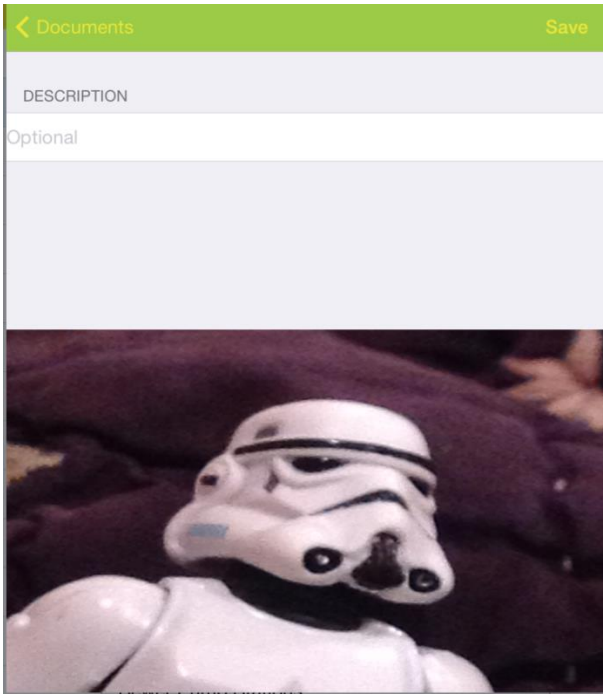
If there are multiple galleries defined, you will choose the gallery, and then choose the photo



Selecting the photo will display it and prompt for description (the photo may appear distorted in the preview; it is not uploaded like this).



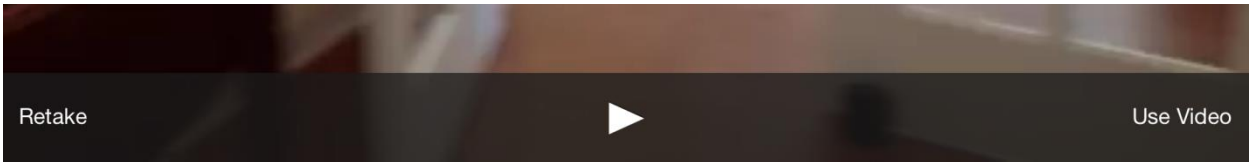
The description is optional. If a description is not entered, the system will automatically add a description that shows the current date and time of the upload.



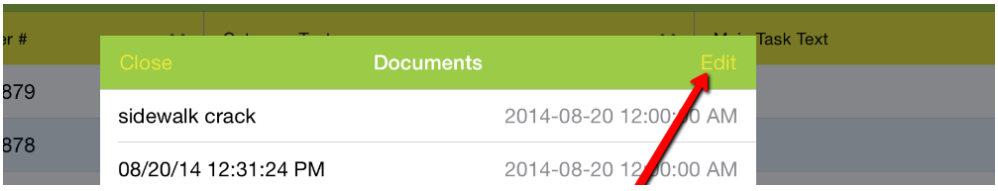
Tap Save to upload the photo.

To attach a new photo or video, tap the Photo or the Video button and select “Take Video” or “Take Photo”

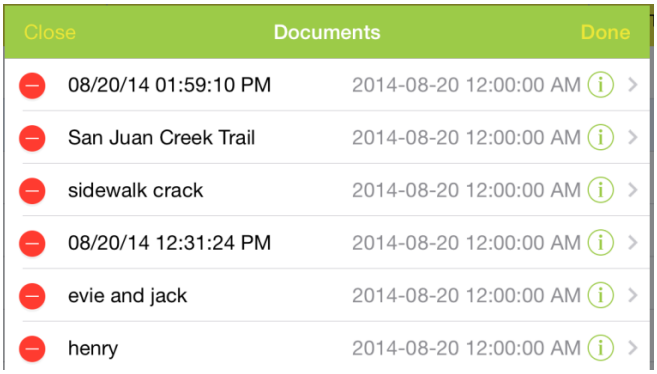
When the photo or the video has been taken, the display will allow you to preview the photo/video, retake the photo or video, or use the photo or video. These options are at the bottom of the screen.



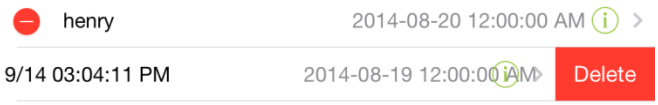
Optionally enter a description and tap Save to upload the photo or video to the server. To edit or delete attachments, tap the Edit button



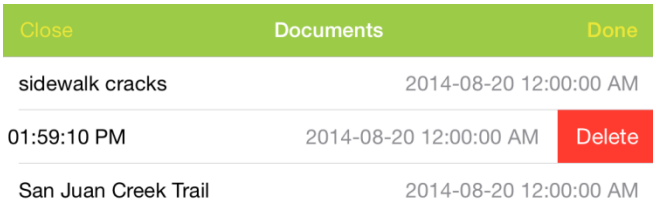
This will change the mode of the documents dialog into edit mode.



To delete a photo or video, tap the red minus. Then tap delete. This removes the photo from the record and deletes the source document from the server.



It is also possible to delete a document by swiping a document item from right to left. This will slide the text to the left and will display a delete button:



To edit a description on a document tap the

Change the description and tap save.

When done editing in the documents dialog, tap the “Done” button which will return to standard view mode on the list of available documents. You can then close the dialog by tapping “Close”.

Forms Introduction

Views and child views and grandchild views (etc) may each have attached forms. These forms are accessible in the tablet application by tapping on a record in a view. Tapping on a record will open the form in both iOS and Android to allow for editing and viewing information on the form. Additionally, new records can be added in the tablet with the Add button which opens up a blank form (pre-populated with defaults).

Prior to going into detail on forms, it is helpful to review methods of navigating in the tablet application between views, forms, the dashboard, etc.

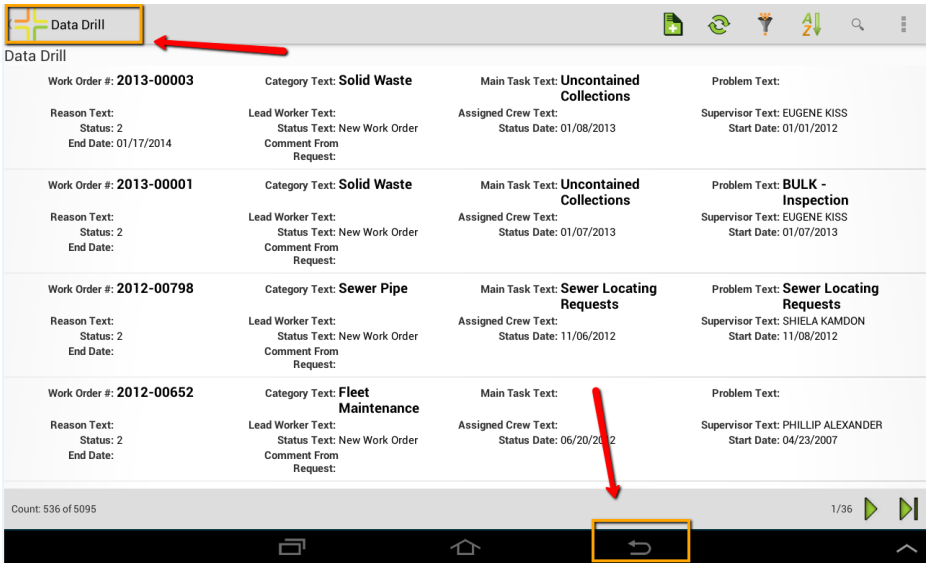
Navigation

Navigation in Android

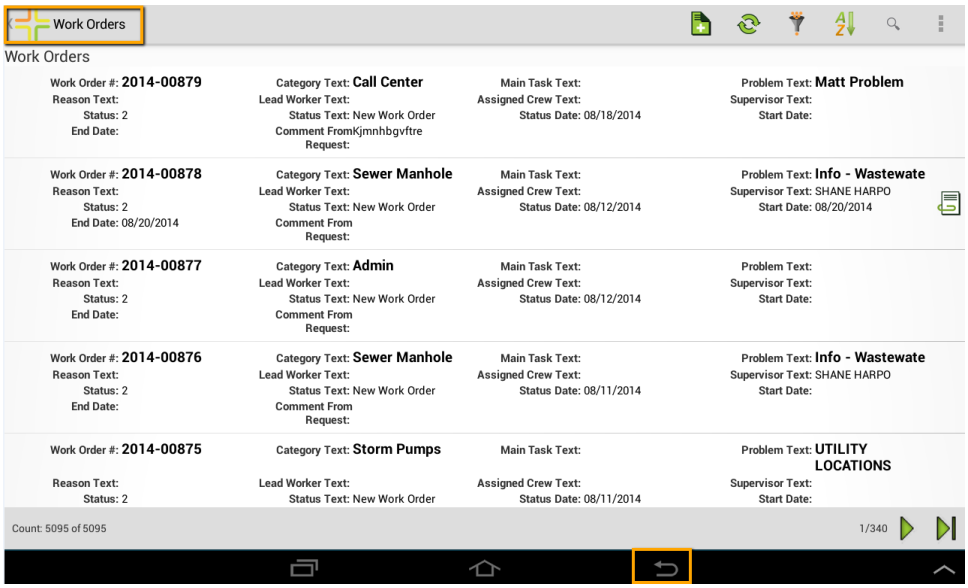
In Android, navigation options are available in the menus, as well as in cookie trails, and by using the Android system back button (on the device or on the display).

From the dashboard, there are buttons to get to GIS, a menu option to open the modules menu, and many links within the dashboard frames themselves to open up an alternate area in the Lucity Mobile application.

Once in a view from the dashboard frame link, navigate back to the dashboard by tapping the Lucity dashboard navigation button on the upper left. This will take the user back to the dashboard to the frame the user was on when launching the view. Alternately the system back button will also return the application to the dashboard. The location of the system back button can vary slightly between devices.

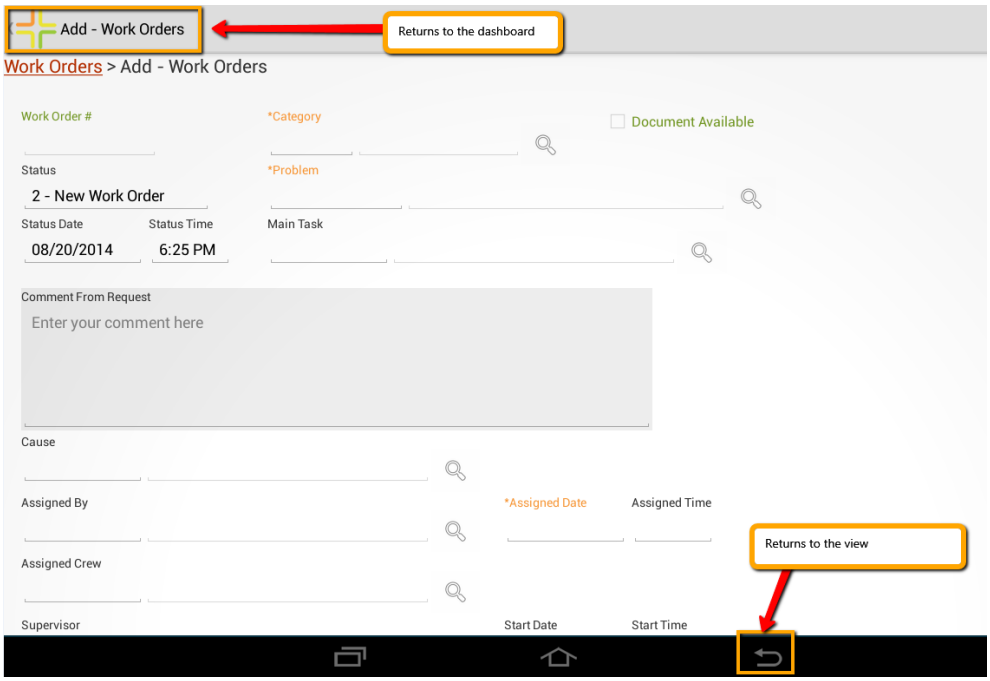


Views opened from the modules menu also support navigating back to the dashboard in the same way.

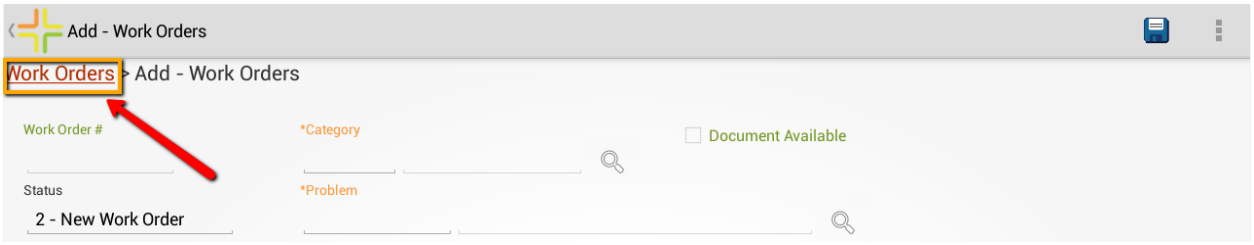


In most cases, the system back button will also close and cancel any open prompts like the documents list, or the filter list and is an alternative to tapping cancel or close.

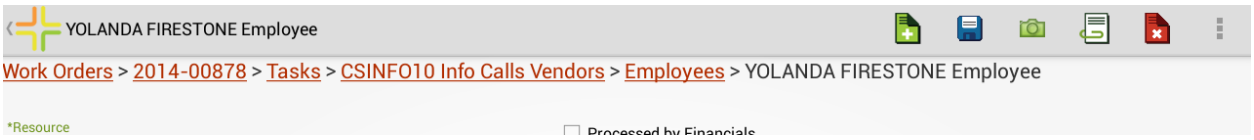
When adding a new record from a view, the system will display a defaulted empty form. From the add form, the upper left navigation button will cancel the add and take the user back to the dashboard. The system back button will cancel the add and return to the view. Both of these will prompt if there are unsaved changes.



Additionally, a cookie trail is provided on forms to facilitate faster or more direct navigation. The case of a new work order it provides a link to go back to the work order view.



In more nested or complex navigation scenarios, it provides access all the way up the object tree for rapid access to parent or grandparent data. From this employee record, links are provided to look at the employees child view, the CSINFO10 task form, the work order task view, the work order form, or the work orders view.

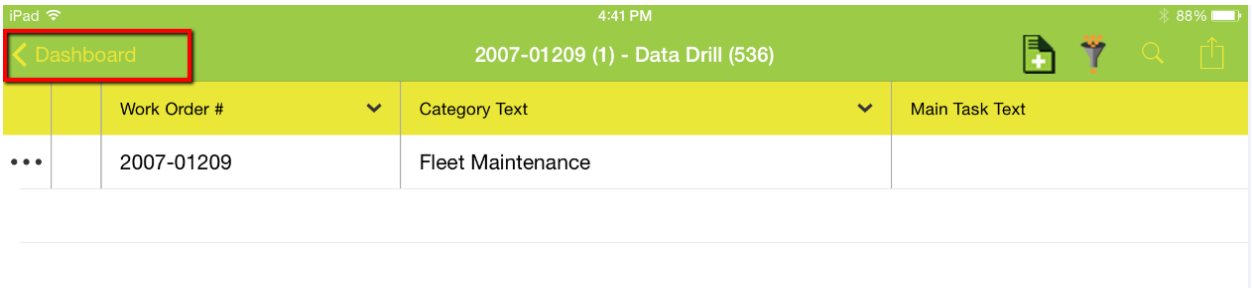


In the above highly nested object, the Lucity navigation button in the upper left corner still returns the application to the dashboard.

Navigation in iOS

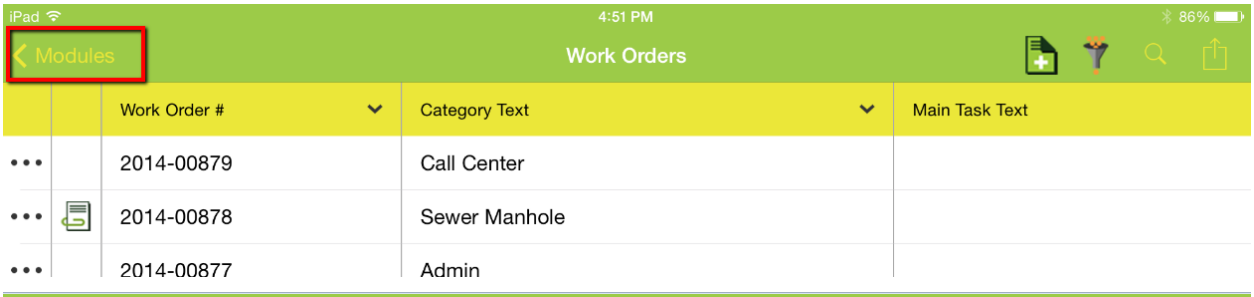
The navigation in iOS is similar, but there is no system back button. Additionally, there is not a go to dashboard Lucity icon in the upper left hand corner. However, most screens in the iOS application provide a menu option to allow a user to easily jump back to the dashboard.

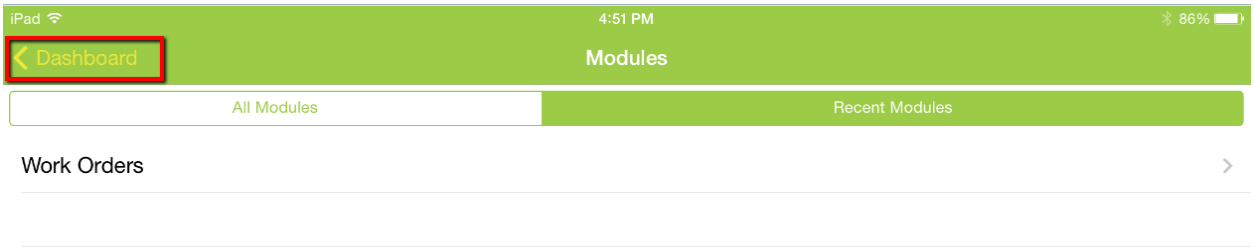
From the dashboard, views can be launched from dashboard items such as asset trees or data drills. When launched from an asset tree or data drill, the upper left navigation returns to the dashboard.



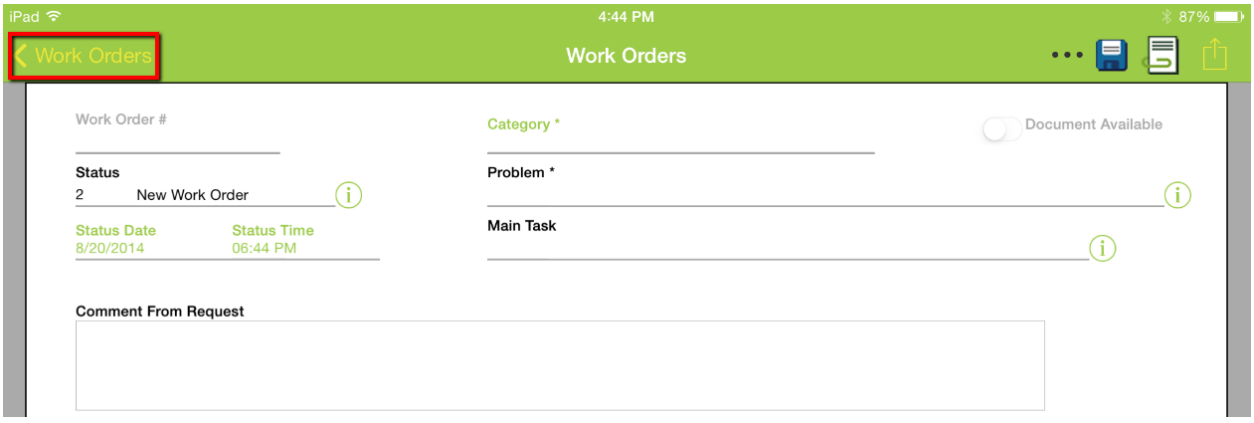
Additionally, all views have a “Dashboard” option in the menu.

When a view is opened from the modules menu, the upper left navigation returns to the modules menu. Then from the modules menu, the upper left navigation returns to the dashboard



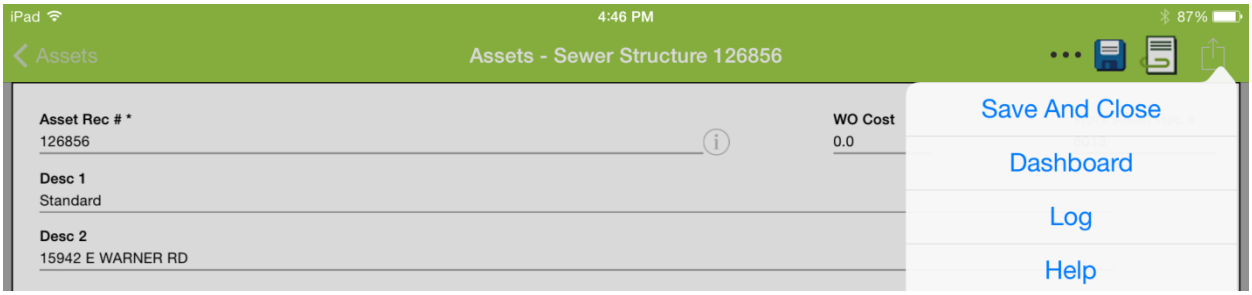


When in a form, the upper left navigation returns to the parent view.

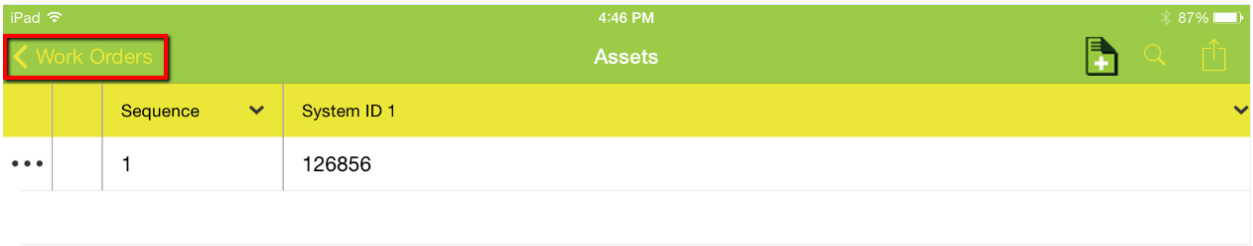


Additionally, in iOS you can page through individual records while on a form. Instead of navigating back to the parent view to select a new record, you can use a two finger swipe from right to left to move forward records (and a two finger swipe from right to left to move back).

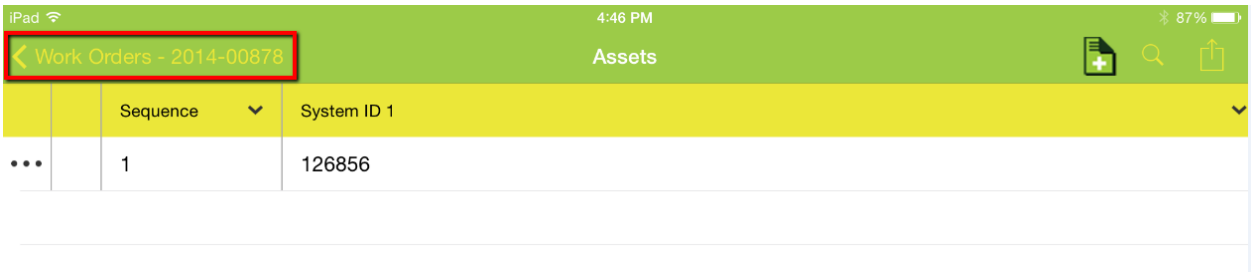
All forms also include the Dashboard link in the menu.



When in a child view, the navigation button returns to whatever the previous screen was. If the child view was opened from a parent view it will open the parent view.



If the child view was opened from a parent form, it will open the parent form.

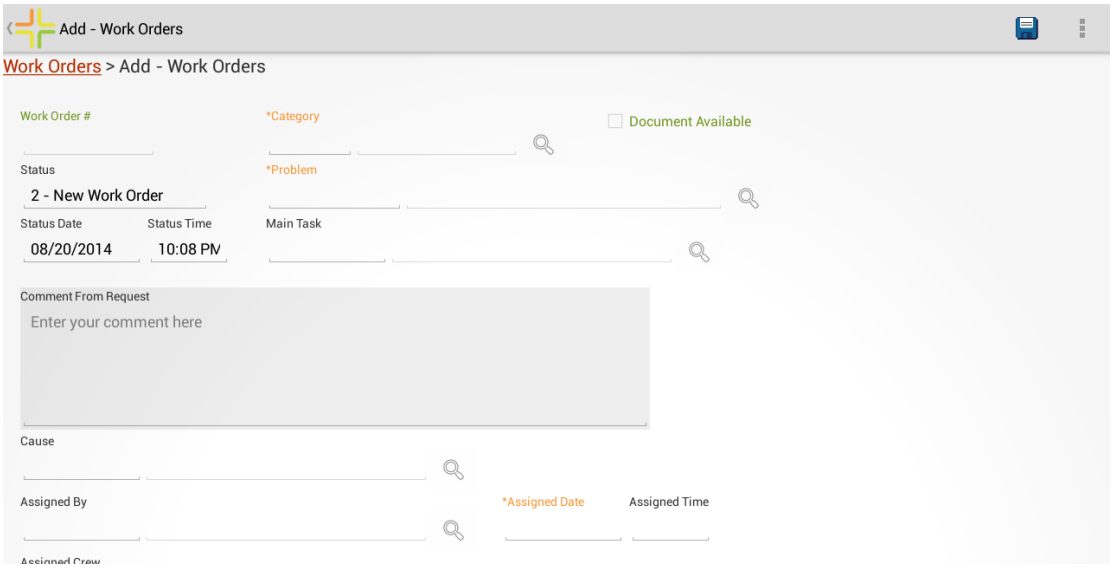


Forms in Detail

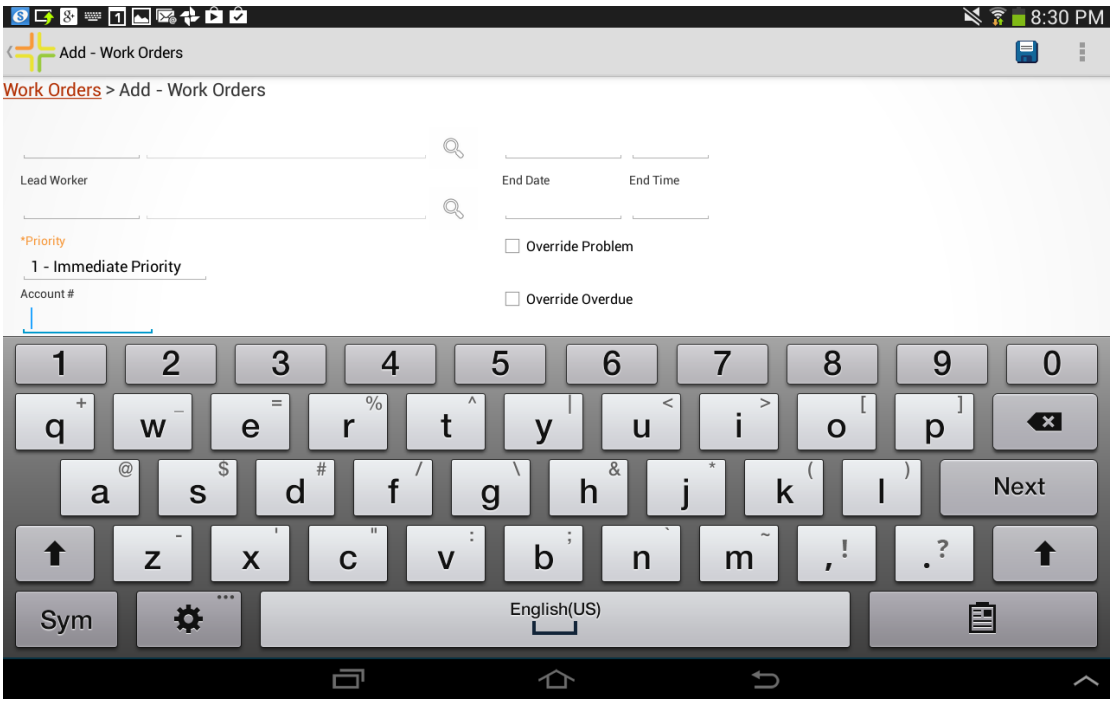
In the mobile applications forms are only accessed from views. There is no “menu” in mobile where forms can be launched directly.

Adding Records

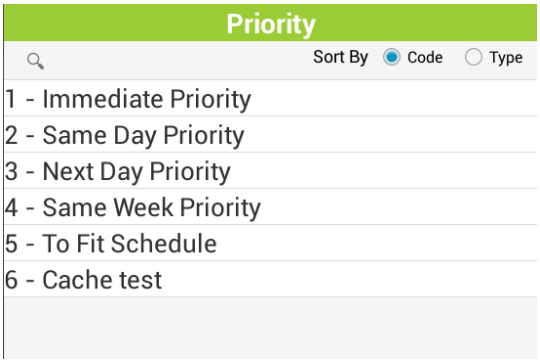
Views that support “Add” will include a button on the view. This will launch a form with any default values already populated. For example, on work orders the status will be defaulted to 2 New Work Order. Any system defaults that are configured or form level defaults will also be populated on the form. Read only fields are labeled in green. Required fields are labeled in orange.



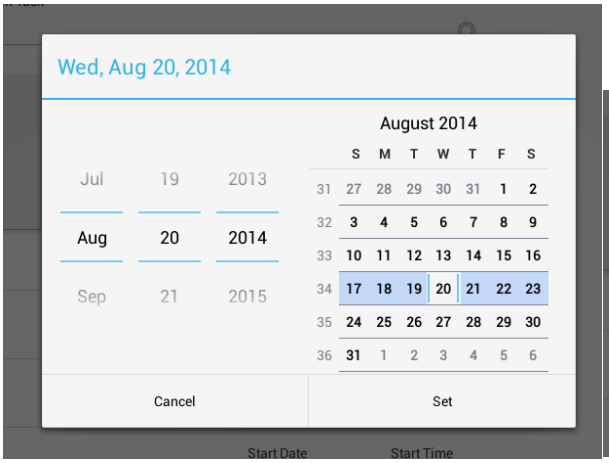
In Android, most fields support manually typing into the field if desired. Tap into the field area. This will bring up a keyboard to start typing.

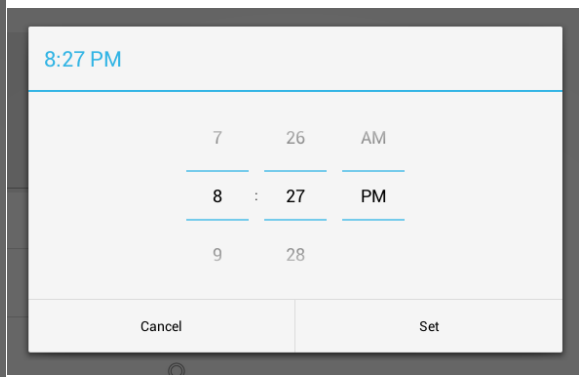


Fields which only support picking values from a picklist (like simple code/type fields) will pop up a picklist when the field is tapped.



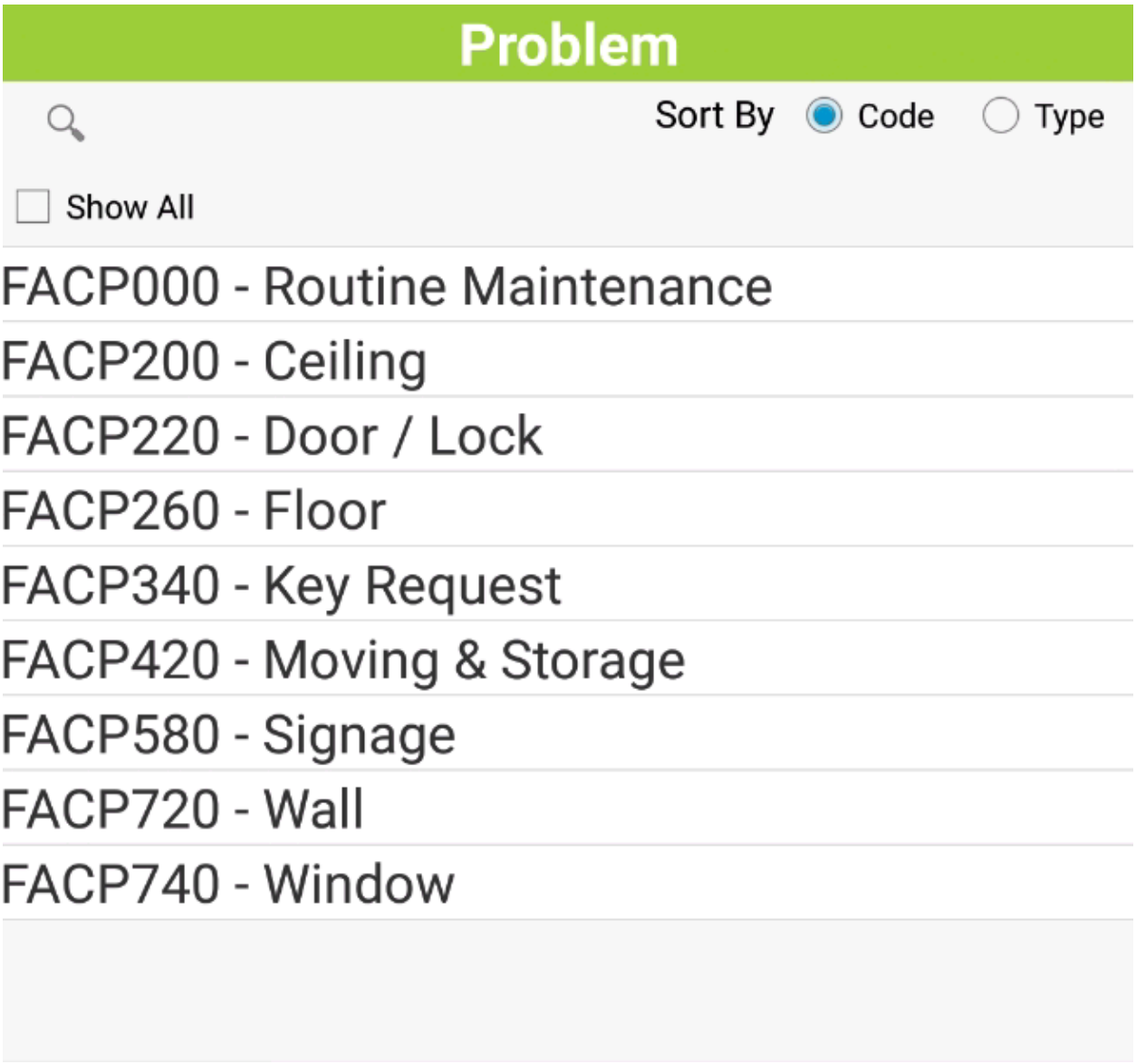
Date fields pull up a calendar to pick a date. Time fields pull up a time picker.





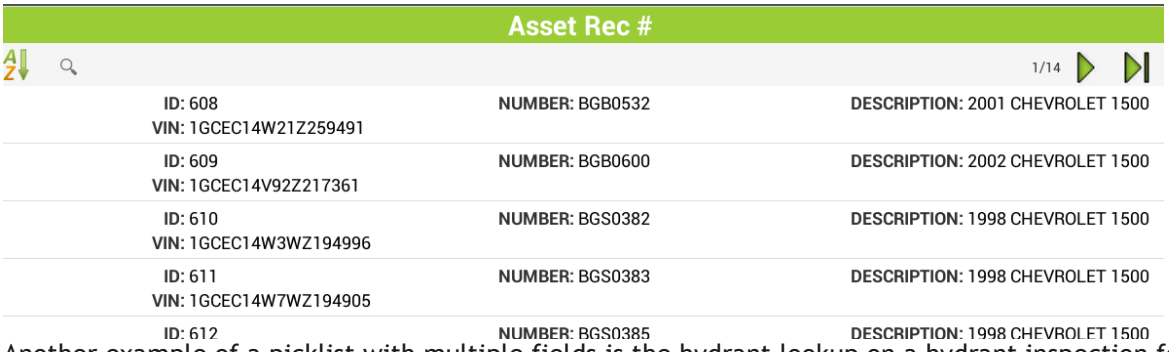
Some fields support picking values from a list and manually typing data into the field. These fields have a search button .

Tap on this search button to pick a value from a list.

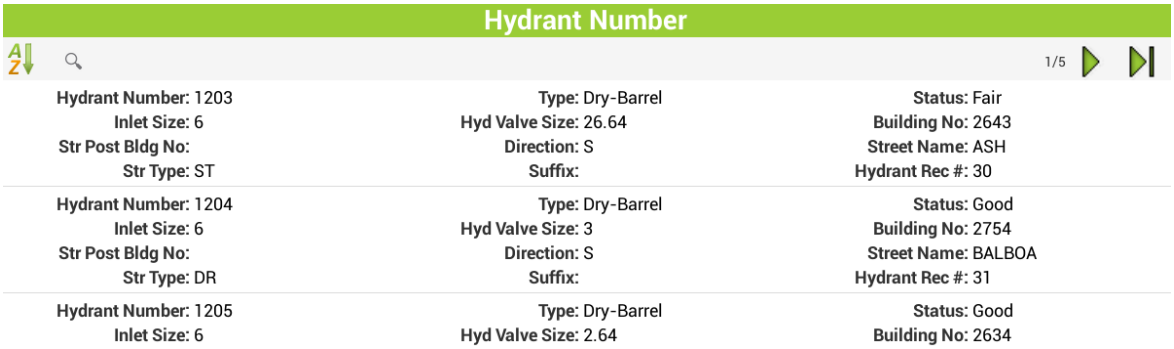


Currently only Android supports Show All. This Fall (2016) we will be adding support for this feature to iOS.

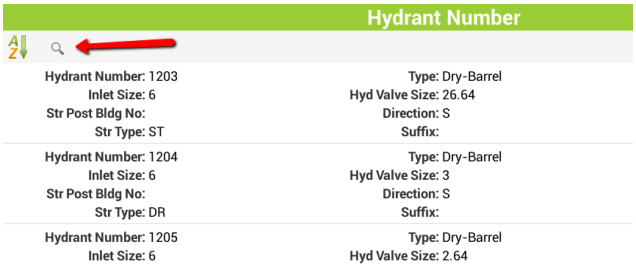
Some picklist fields have multiple fields, such as the work order asset child asset rec # picklist:



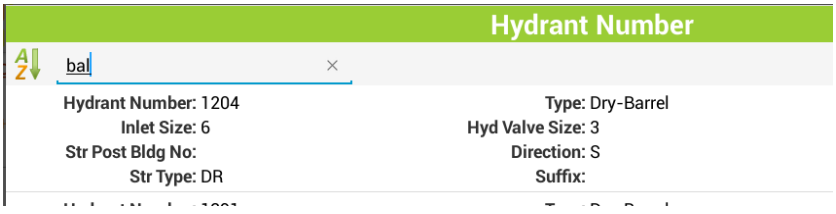
Another example of a picklist with multiple fields is the hydrant lookup on a hydrant inspection form. (Sometimes these are referred to as value lookups in Lucity)



Searching for data in these picklists can make it easier to find the record you are looking for.



To search, tap the search button and type a full or partial search term.

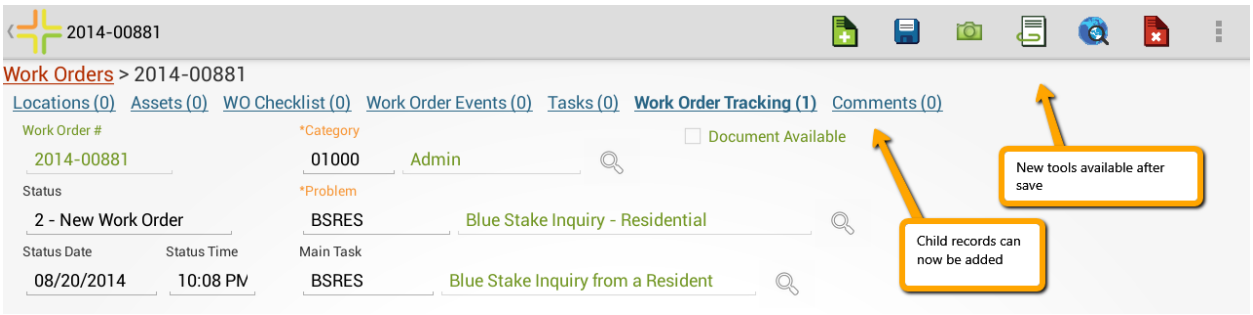


The search will look for any columns which include that text. Searches in the work order asset picklist work on limited columns (they do not work on description). Searches in other picklists will search all visible fields that contain the text such as the hydrant picklist shown above.

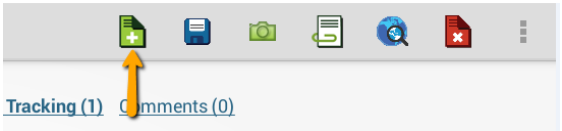
Street list is another large picklist where searching may be helpful to quickly find the desired street. For example, the Street Name field in the Work Order Location child

The application gets intermittent updates from the server when users tap in a new field or fill out values in certain fields. For example, when the problem is selected, main task will be filled in. This is done with continual communication with the server, but none of the edits made on the tablet are persisted until the Save button is tapped.

Tap the Save button to save changes. This will save the changes to the database and will update the form to show available child items which can be added

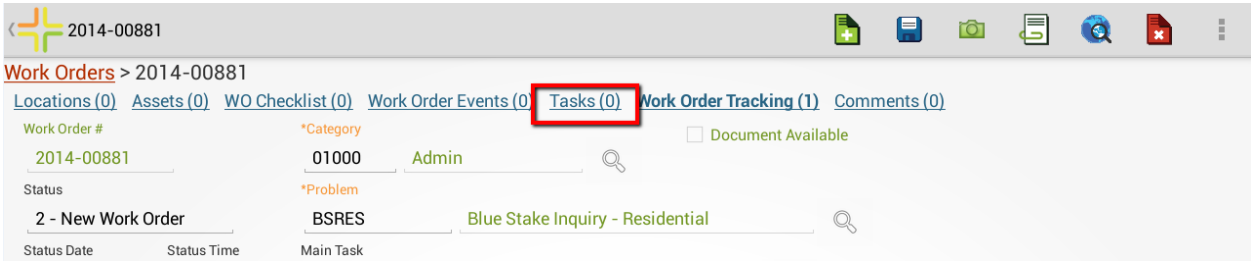


Additional records can be added directly from the form if multiple records need to be created. This is faster than navigating back to the view to add a new record.

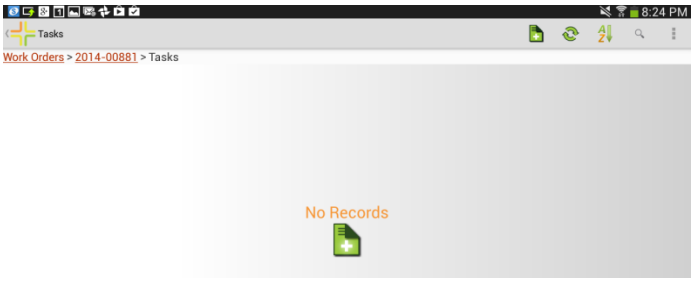


Adding Child Records

To add a child record, tap on the desired child in the cookie trail:



This will open a view with 0 or more records. If there are 0 records, it will look like this:



Records can be added by tapping on the in the middle of the form or the on the toolbar:

Tools available on forms

Once a record is saved, additional tools are available on a form:

Documents can be viewed and edited (the workflow for the forms document control and views document control is the same, see details earlier in this guide).

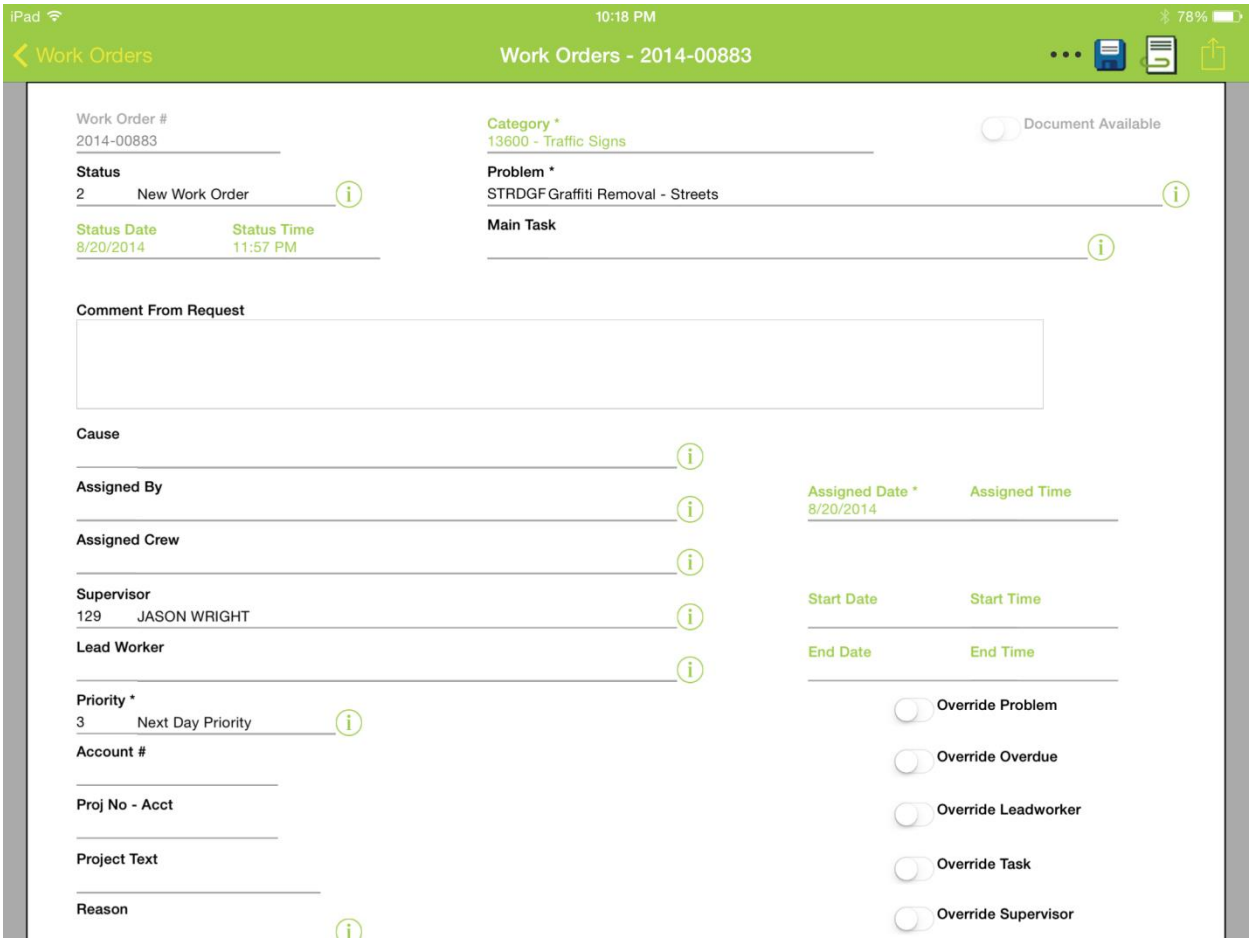
The document tool works the same, but an additional button for capturing a new image is available to allow users to rapidly attach a new photo to a record. Tap the button and proceed with photo capture.

Records can also be deleted directly from a form

Using Forms in iOS

Forms in iOS provide the same basic functionality as Android forms. Adding a record will automatically default values based on Lucity business rules, defined global defaults, as well as form level defaults. For example, the work order status is automatically defaulted.

Fields on the form which are readonly are greyed out. Fields on the form that are required are marked with an asterisk. Fields which support manually entering text are black, and fields which may only be populated by picking a value are green.

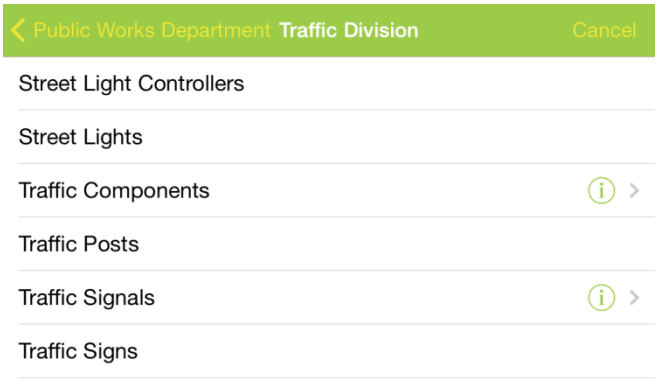


These forms support a pinch zoom feature allowing a user to zoom in and out of a form in iOS. This is particularly helpful when dealing with forms on an iPhone.

The category field in iOS can only be picked from the tree. It does not support manual typing:

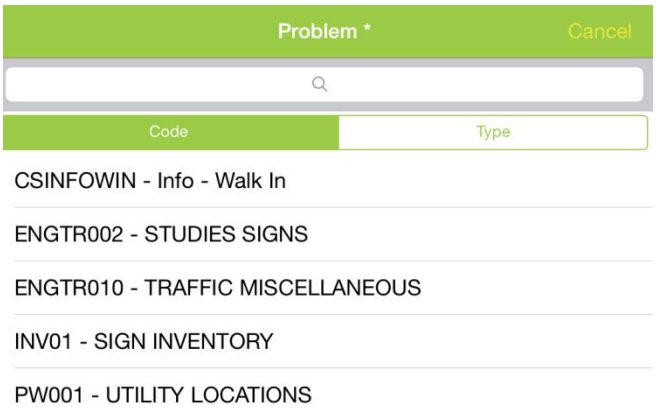
To drill into category child items in the category tree tap the ⓘ button.

Category items with child items will have the ⓘ button.

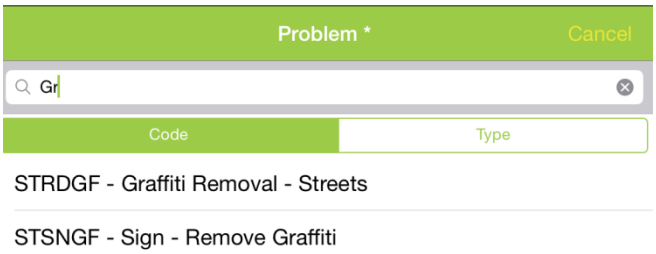


To navigate back up the tree use the navigation in the upper left corner of the category picklist dialog.

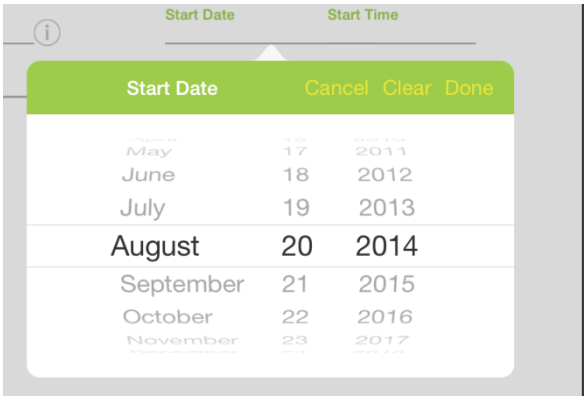
Work flow setup picklist items other than Category support manually entering data or picking the value from a list. To select a value from a list, tap the ⓘ. This list will only show values that are associated to the category already selected.

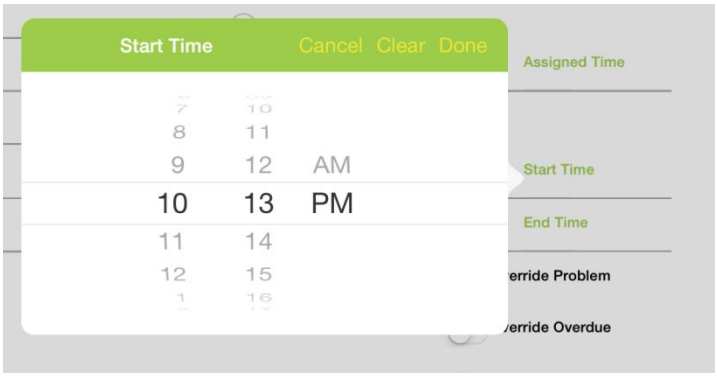


These picklists support searching which can be helpful in very long lists such as material lists. Searches use contains and will find all items which have the text entered anywhere in the code or text portion of the code/type combination.

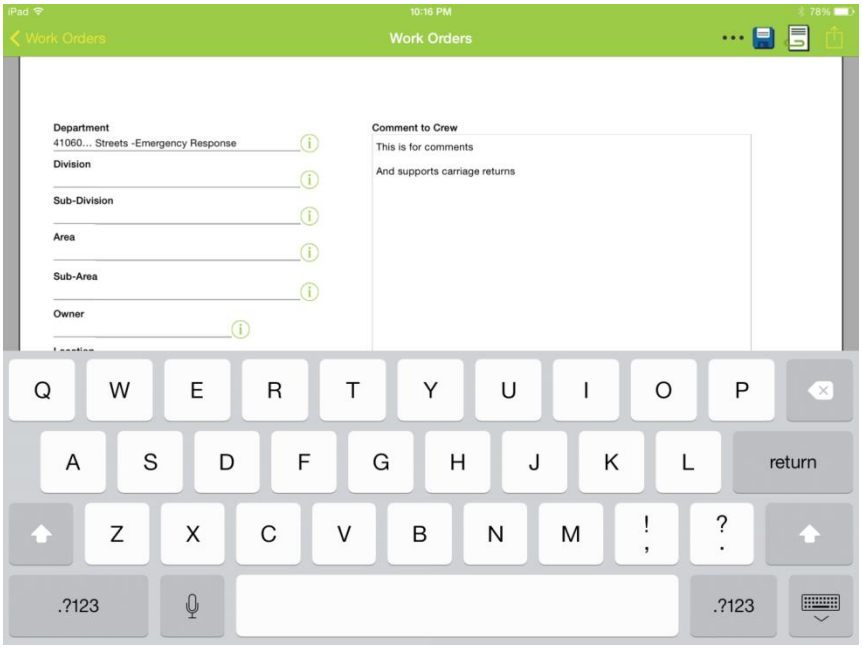


Date fields display a date select prompt. This opens when the field is tapped.

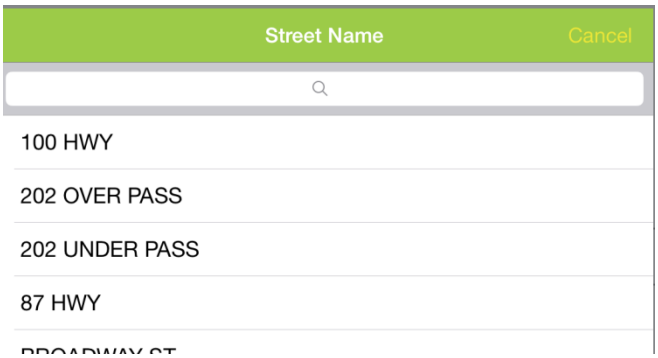




Comment fields support multiple lines and carriage returns. The standard keyboard includes a “return” key for inserting carriage returns.

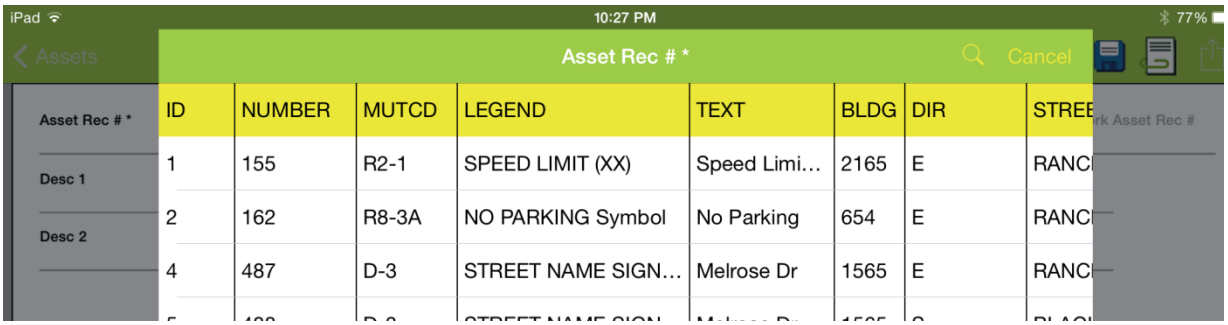


The street list control supports both manually typing a street as well as choosing one.

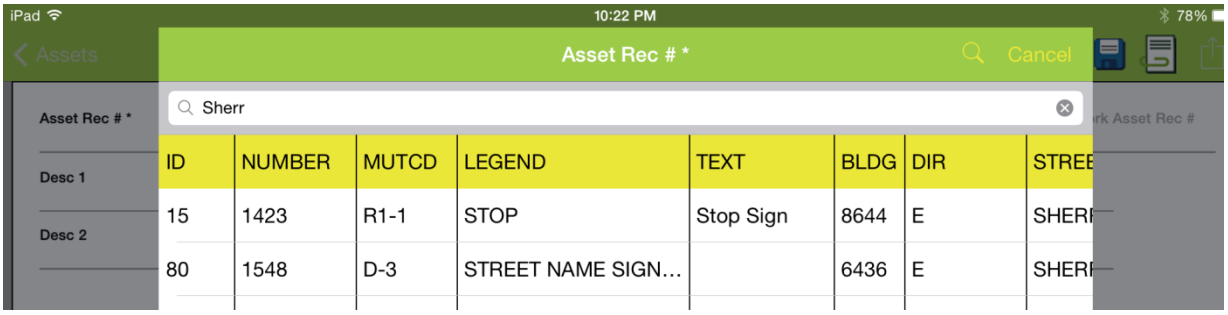


To search in the street list, enter a partial text. The control will search while typing.

The Asset Rec # in work order asset also supports manually typing or choosing from a picklist.

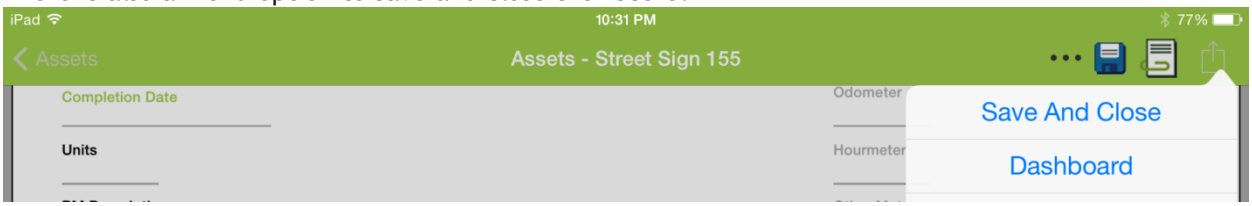


This picklist scrolls left/right and up/down and supports paging. To search in the work order asset list, tap the search button and type in the search prompt and tap the Search button on the keyboard.



Other lookups such as the hydrant lookup on the hydrant inspections form behaves the same way.

Once all of the data is filled in, tap the savebutton to persist the data to the server. To save and close a form and return to the parent view, press and hold the save button to save and close the form. There is also a menu option to save and close the record.



Adding Child Records and Available Tools in iOS

Once the data is saved, the Child Views and Documents buttons on the toolbar may be used.

Note: Delete is not supported from forms in iOS; delete is only supported in the views.

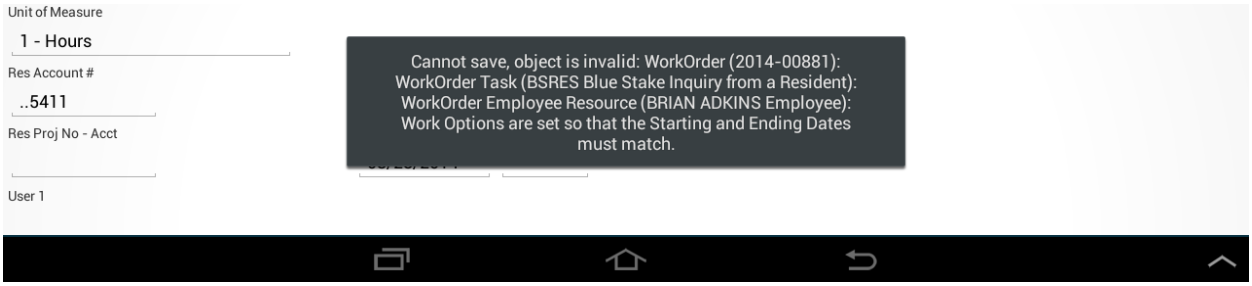
To continue adding child information, after saving the record, tap the Child Views tool and select a child from the list. Continue adding information until all desired information is entered. Data is saved to the server immediately upon tapping save on each form. It is not possible to leave a form without either canceling and discarding changes or saving them.

This varies from Android slightly. Android will, in some cases (such as edits to existing records) allow navigating away from a record (to add child records for example) without saving the parent. Before leaving the object tree Android will prompt about unsaved changes.

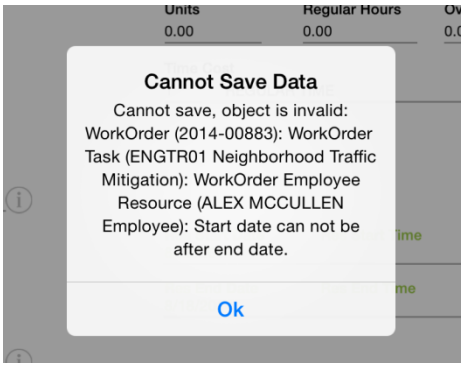
Errors displayed on save

Both Android and iOS will display messages when a user tries to save a record with invalid data.

In Android these appear as toast messages:



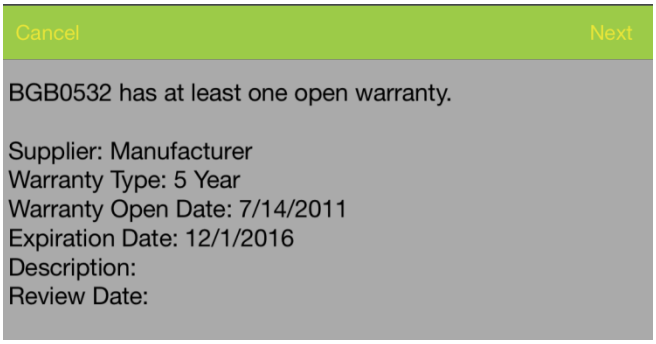
In iOS they are prompts

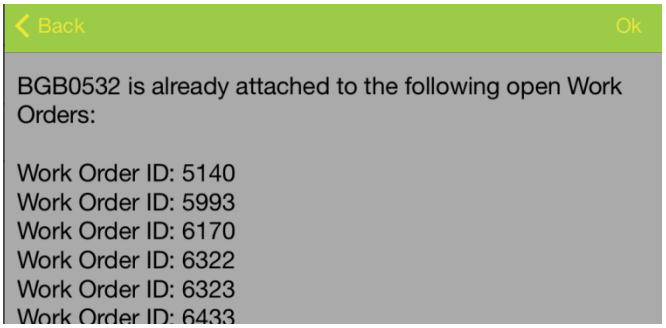


In both cases the record is not saved. The user must correct the problem and try the save again.

Warning Prompts

In addition to errors, the iOS application supports warning prompts. Warning prompts will display after tapping the save button. If there is more than one warning, they will be displayed one at a time with a Next button.





Once the full series of warnings is reviewed, an Ok button will be available. Tapping Ok will finish the save. Tapping cancel (or back and Cancel) will cancel the save.

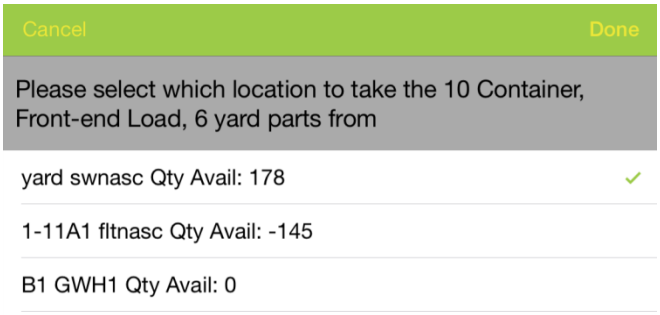
The Android application will display a toast message with any warnings which will automatically fade away after displaying for a few seconds.

Parts Inventory Prompts

Both Android and iOS support parts inventory prompting when required. The parts prompt is displayed when a record is saved.

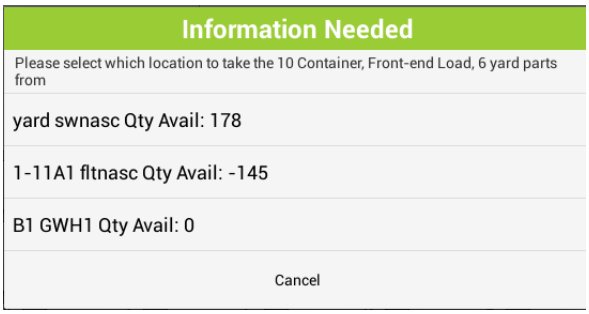
For this example, part 16775 Container, Front end Load, 6 yard is in parts inventory. Entering 10 units and tapping save prompts for which location to take the parts from:

The mobile application does not support designating multiple part locations for a single save. Tapping on a location will select it.



Tapping done will continue with the save and return to the form with the data saved.

Android works in an almost identical manner except that selecting a location from the parts prompt will immediately save and return to the saved data form. It is not necessary to tap done.



Tapping cancel will cancel the save and return to the unsaved form.

Configuring Forms

Most forms configured for use in the web will be effective in the mobile without modification. Frames are not displayed in mobile.

It may be a good idea to review the number of fields on forms that will be used heavily in the field. If fields are not used and are only on the form because they were imported with a template, consider removing these. It requires time and memory to render forms. Forms with upwards of 200 fields will draw slower on the device and panning around a form will be slower and may not be smooth if there are too many fields present.

In some cases, certain fields may scrunch up and overlap slightly on the mobile device. An algorithm is used by the mobile applications to convert form position defined in the web into form position in iOS and Android. In some cases the width differences of labels and special fields like date/time and Boolean fields may cause fields to not line up nicely on the form. In this case the solution is to adjust the form design in Lucity Administration Tools in the form designer.

lucity™

TRAINING GUIDE

Mobile Intensive
GIS

Tablet Intensive - GIS

One of the critical components of mobile is the GIS piece, and also can be the most complex. The mobile GIS maps are designed to consume the same maps that are defined for use on Lucity Web.

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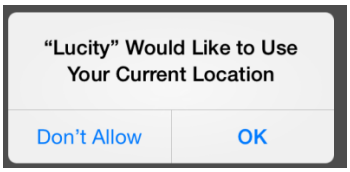
GIS in iOS

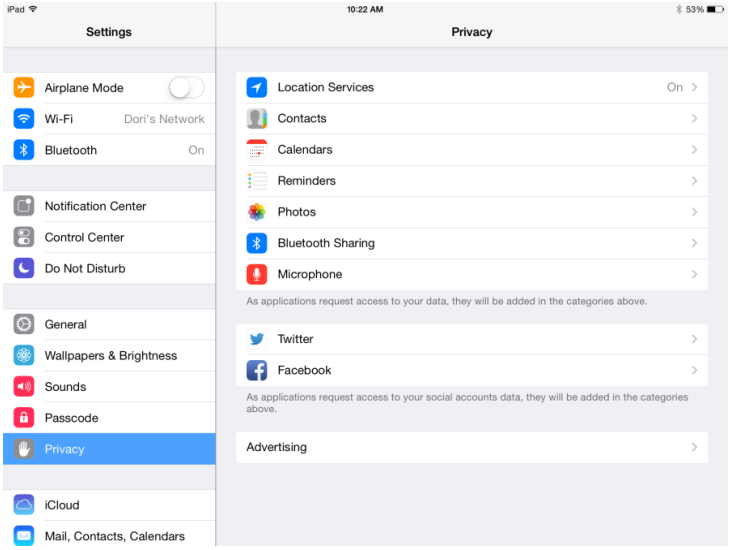
GIS from the Dashboard

When GIS is launched from the dashboard it opens the map to the last used map in the last extent. The first time the map is opened, users may get a prompt for whether to allow Lucity to access the user's location:

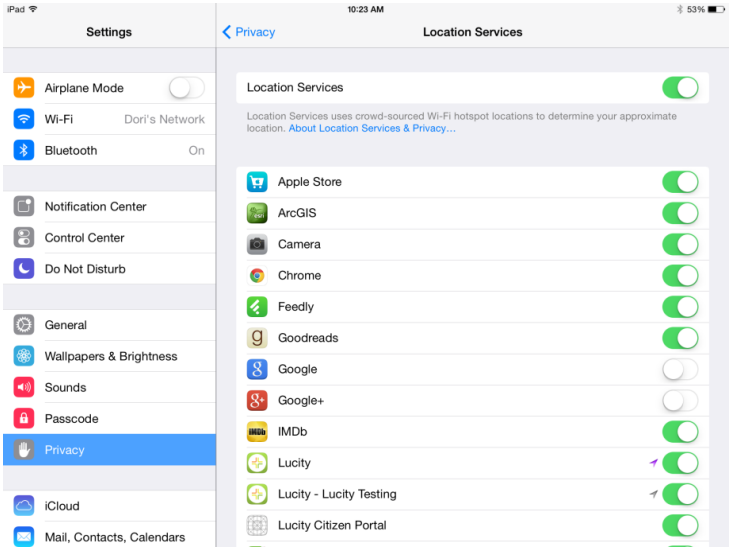


(Note: This prompt may happen when the user logs in instead of when the map is opened).

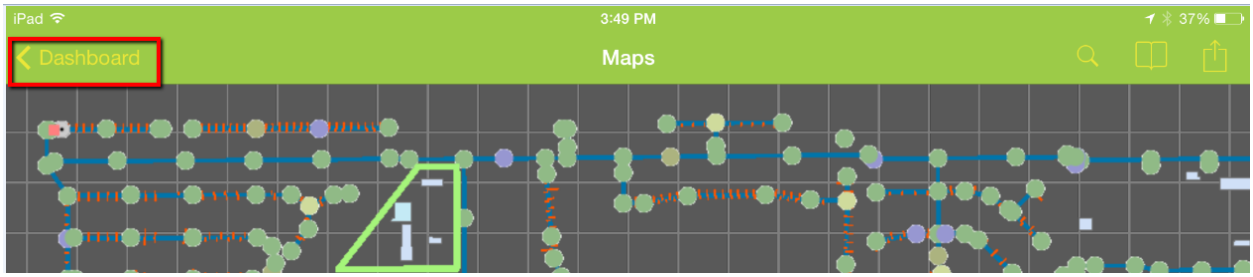
If don't allow is selected, the GPS zoom functions will not work. The option selected is remembered and the system does not prompt again. To make changes to whether Lucity is allowed to access the device location, go to Settings on the iOS Device, go to Privacy, and select Location Services.



Find Lucity in the application list and toggle on or off the location services permission as desired:

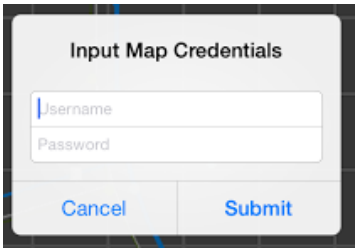


Once in the map, the navigation button in the upper left will return to the previous screen (which will be the dashboard for this scenario).



There are 2 toolbar areas and a menu in the map. Several of the toolbars open panels with more options. In the iPhone, there is only one toolbar area (at the bottom) and a menu.

If a map has any secured services that do not have credentials pre-configured in Lucity Admin, the user will be prompted to log in when the map is opened.



The map will prompt for the secure credentials for each layer but will only prompt once. Subsequent map opens will use the saved credentials. If you log out of the app or close it (by restarting the device or killing the running app), the credentials are cleared and the user will be required to re-enter them.

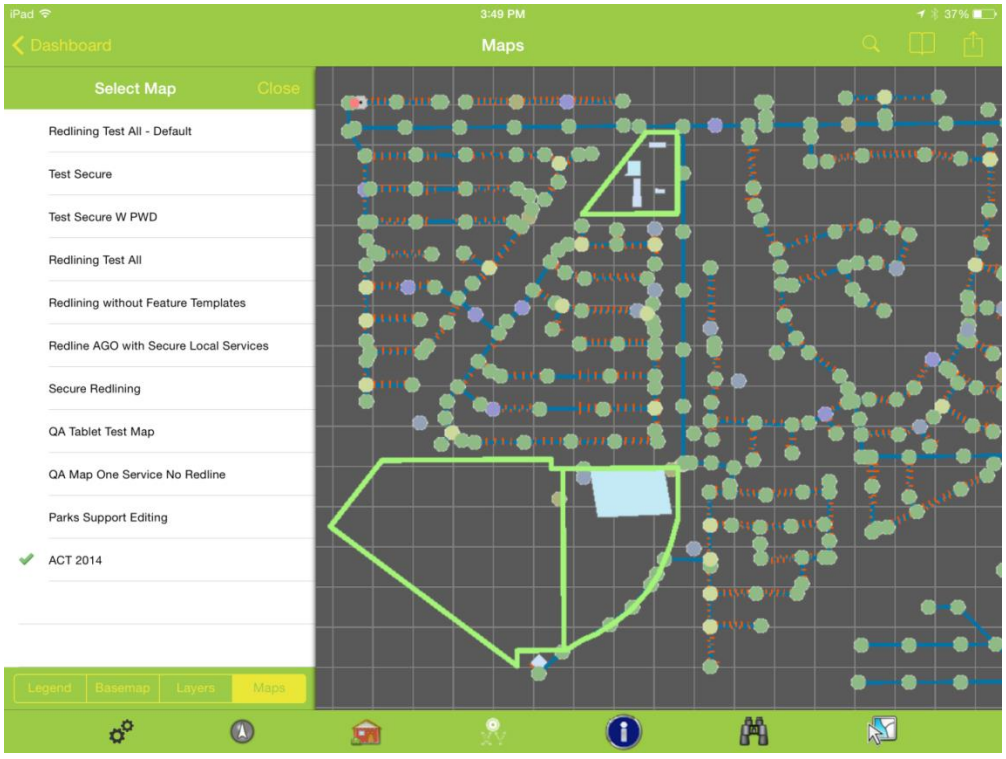
Viewing and Changing Map Information

The very first time the map is opened, it will attempt to use the map that is configured by default for the user. It is common to want to use an alternate map while in the field. This can be done by selecting the alternate map within the tablet. The tablet will remember the alternate map for the user logged in.

Changing maps

To change the map, click on the Maps Panel button . This will open a panel on the left hand side (or full screen for iPhone).

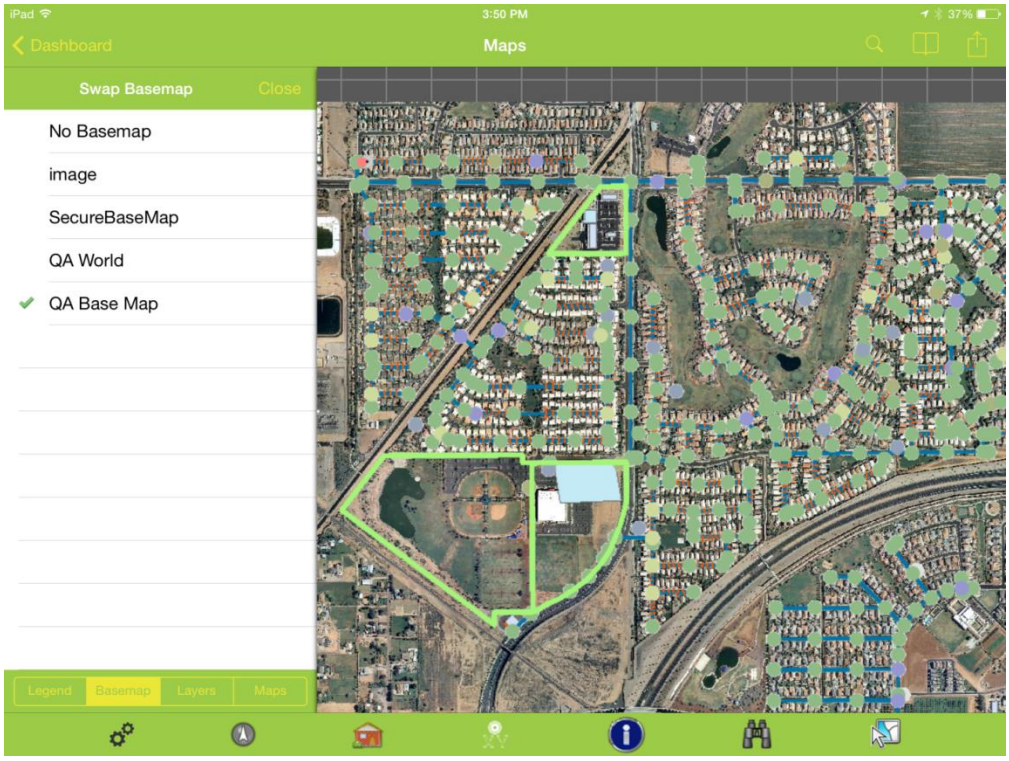
There are 4 sections in the map panel: Legend, Basemap, Layers, and Maps. Go to the Maps tab. All available maps will be listed. The currently loaded map is checked with a green checkmark.



To switch to a different map, select the alternate map in the list. The map will immediately redraw. The application will remember the new map selected for the next time the map is opened.

Changing the Base Map

To change the base map, select the base map tab. The existing base map will be selected. Tap a new basemap to select it. The change is effective immediately.

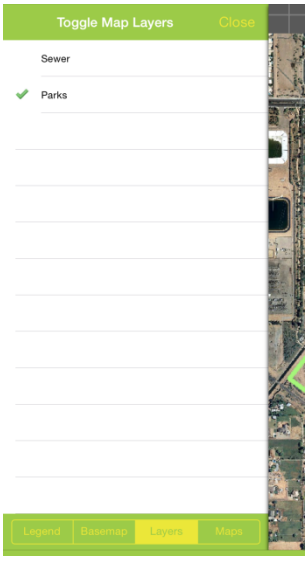


If the new basemap is in a different spatial reference than the original map, the map will zoom to the full extent. It is best if all base maps share the same spatial reference. For compatibility with Esri ArcGIS Online applications, using Web Mercator is a good idea for base map deployment.

The new basemap is remembered so that when the map is re-opened, it will use the newly selected basemap.

Turning Map Services On/Off

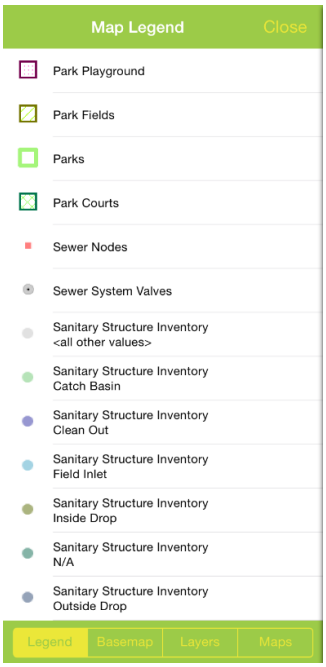
The application does not allow turning off individual layers in a map service, but it is possible to temporarily turn off an entire map service on the layers tab.



When the map is reopened it will reset the layer visibility.

Legend

A legend is available for the map as well. It is accessed on the Legend tab of the map panel.



Show In Map

The Show in Map function is available for many modules and can work on one or more selected records. By default it will first try and find assets. If it does not find any assets on the selected record, it will plot points and addresses.

Performing a show in map will plot the feature and label the feature based on the configured display field for the layer.

Configure the display field in ArcMap before deploying the service so that you don't also end up with OBJECTID as the display field as shown above.

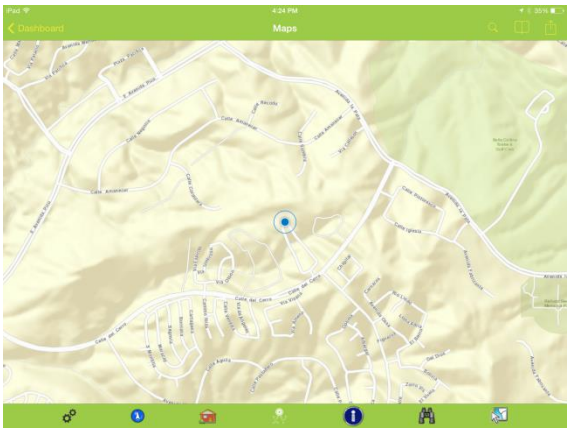
Map Navigation

Zooming and Panning

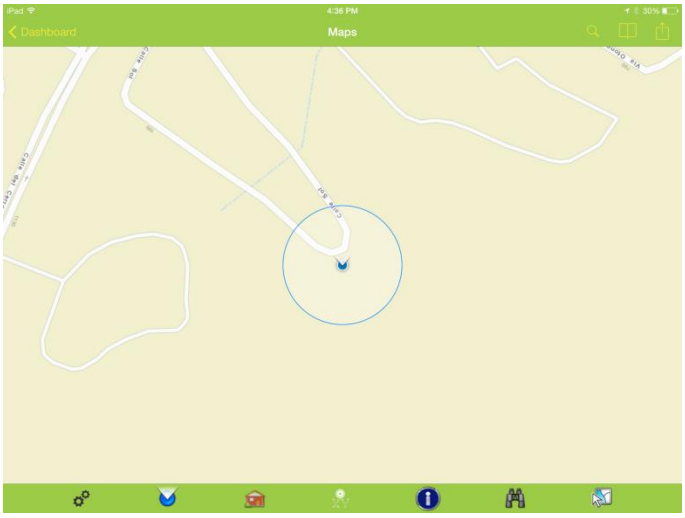
The map supports drag pan navigation, flick pan navigation, and pinch zoom. Double tapping the map zooms as well. Double tapping zooms in centered on the current extent; it does not zoom in to the spot you double tap.

GPS Location

The map has a GPS location tool which will zoom and plot the current location if location services are enabled for the Lucity app. Click the to activate the GPS. The map will display a blue dot with a blue circle around it to indicate the current accuracy of the position. As you drive or move the map display will automatically pan to keep the current location within the extent.



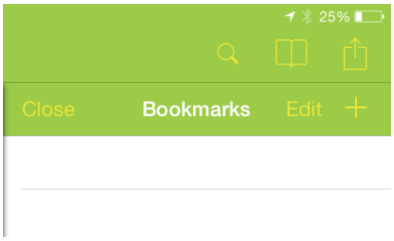
Click the GPS button again to change to a heading mode which will show the location and compass bearing.



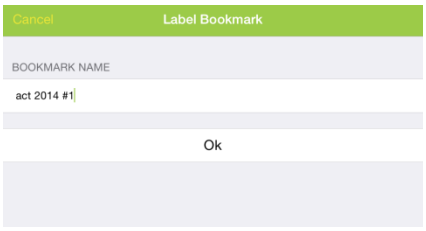
To turn off the GPS, click the GPS button again, which will change it back to grey and turn off the GPS location.

Bookmarks

Bookmarks are an easy way to save an extent of a map to get back to it easily. The Bookmarks panel is accessed from the upper right toolbar . This opens a panel displaying all of the existing bookmarks.

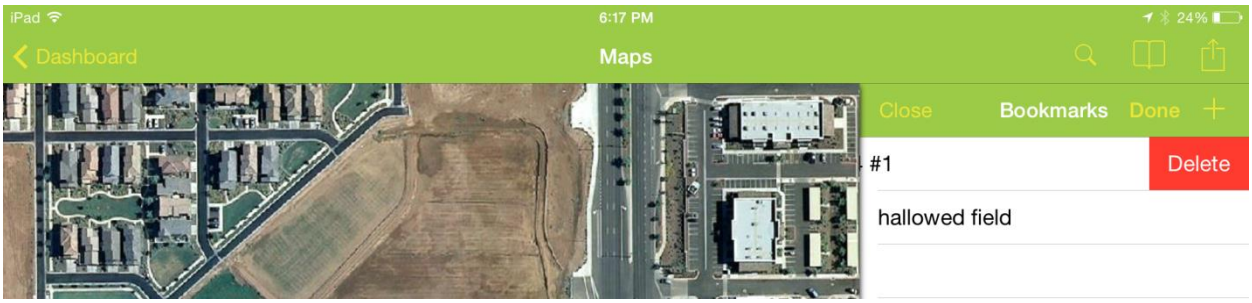


To add a bookmark for the current extent, click the "+" and give the bookmark a name.



To zoom to a bookmark, select it from the list.

Book marks can be deleted by swiping the bookmark entry to the left.



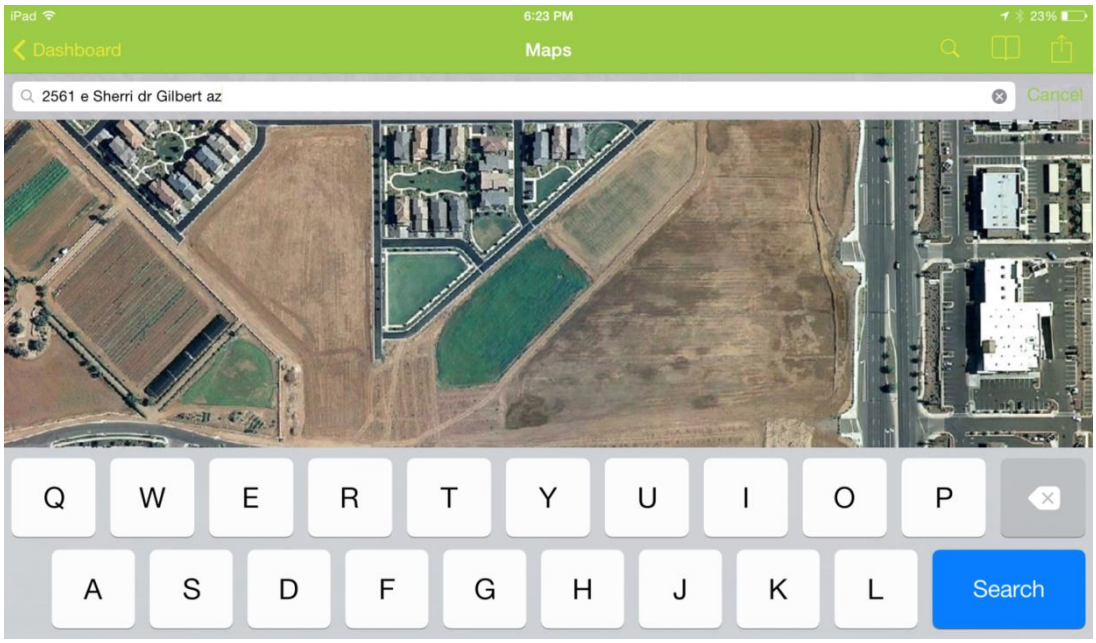
They can also be deleted by clicking the edit button, then clicking the red minus and click delete. Click Done to exit edit mode for the bookmarks

Searching in the map

Searching for Addresses

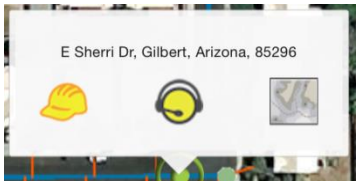
To search for an address in the map, click the search button in the upper right toolbar

This opens this search bar:



Tap into the search area and type the address and click Search. If the address is found, a green dot will be placed on the map at the calculated address location. Tap on the dot for more options including driving directions, creating a request for the selected address, and creating a work order for the selected address.

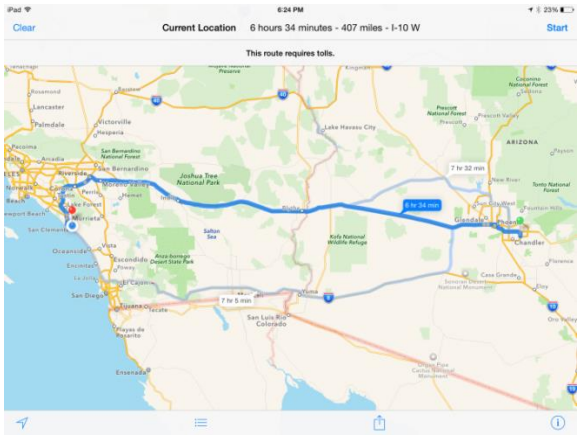
Notice in the following case it did not find an exact match.



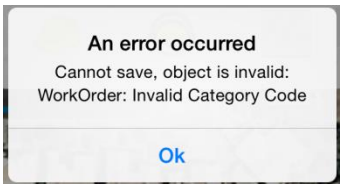
This address search will use your custom geocoder. It will not work with geocoders that are not at least 10.2.2. If you are still on ArcGIS Server 10.1, you may need to temporarily switch to the Esri geocoder http://geocode.arcgis.com/arcgis/rest/services/World/GeocodeServer until you can get upgraded to a more recent ArcGIS release.

It is also important to configure the system default extent because this will be used to limit the address search context to only your agency's extent. This is done in GIS>>MapSetup in Lucity Administration Tools.

Driving directions will open the Apple Maps app and show driving directions from the current location (if available) to the searched address.

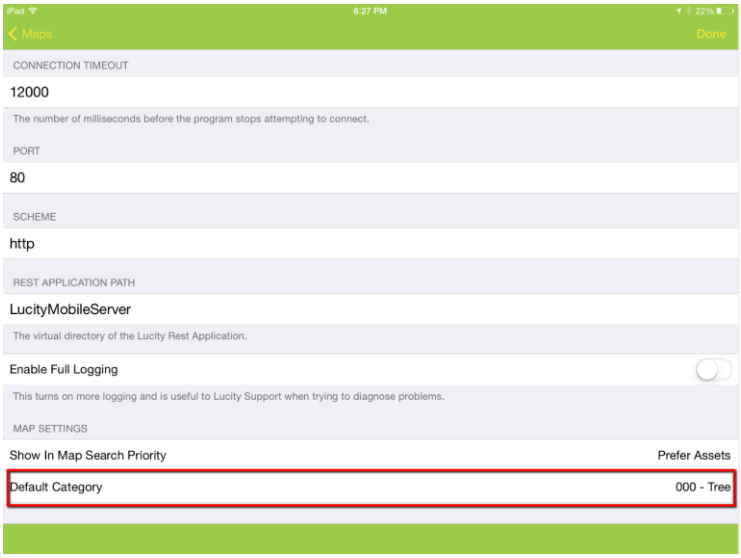


Creating a Work Order will create a work order using the default tablet category and will attach the address as a location on the work order. The following error indicates that the default category for the tablet is not configured yet.

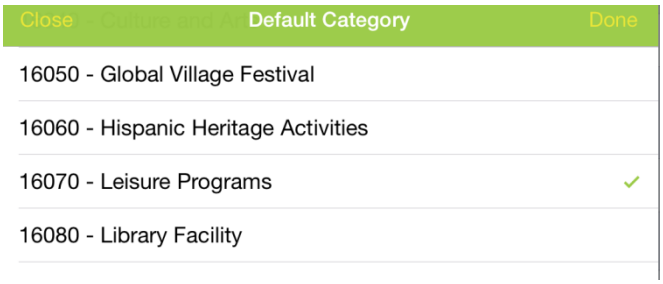


To configure the category, click the menu button and select “Settings”.

Scroll to the bottom of the settings form and select a Default Category

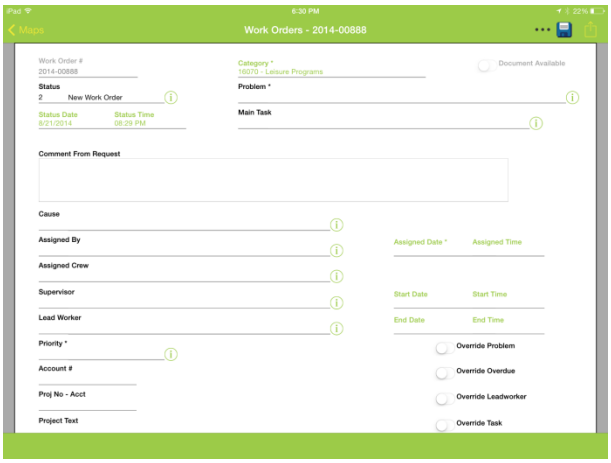


Tapping the category value will open a category prompt



Find the category you want to use as a default for this user on this tablet for this client and tap it to select it.

Now when the work order button is clicked, a work order is created, the address is added to the work order, and the work order is opened in a form.

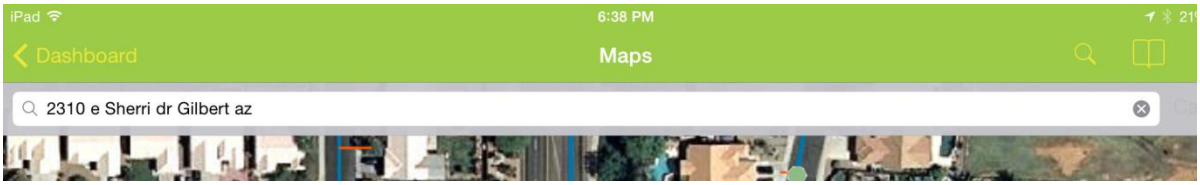


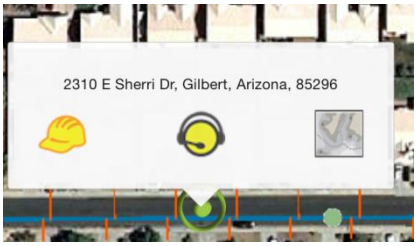
At this point the work order can be filled in (and category can be changed, if desired). To view the location added to the work order, click the "…" child views button and select "Locations"

The address added to the work order is the located address, it is not the address searched. It is possible that the address locate may not find an exact match, but it will select the closest match. The match returned on the geolocate is what is placed in the work order location field.

The work order is saved to the server before a form is displayed. Navigating away from the work order at this point will not cause the work order to be discarded.

This address does find an exact match. When the green dot is tapped, the address shown is the address that was searched.



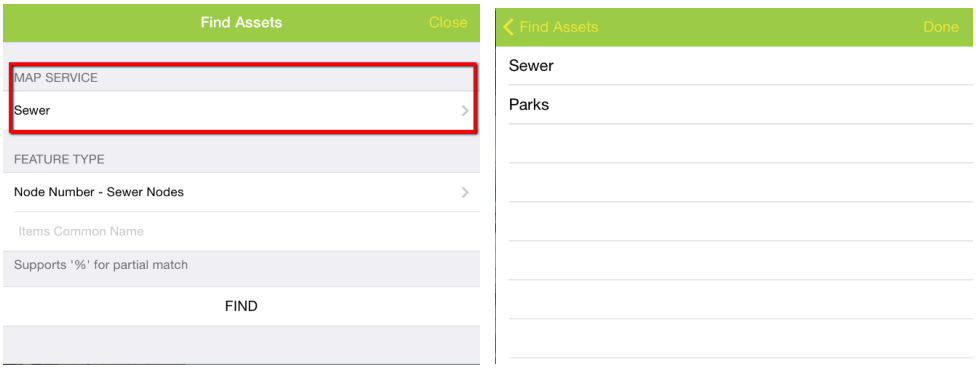


Creating a request from an address search will create the request, default the category, and assign the location address of the request to the address from the search results. The form is opened so that any further edits can be made:

Searching for Assets

The Lucity iOS map application also allows searching for an asset based on full or partial common Id of the asset. To search for an asset, click the Find button located on the bottom toolbar.

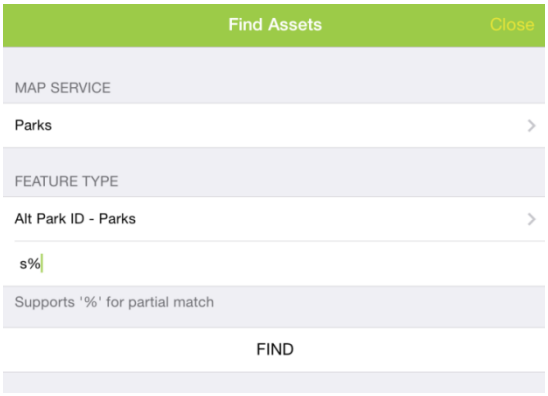
If there is more than one operational map service in the map, the dialog will allow you to select which map service the information is in.



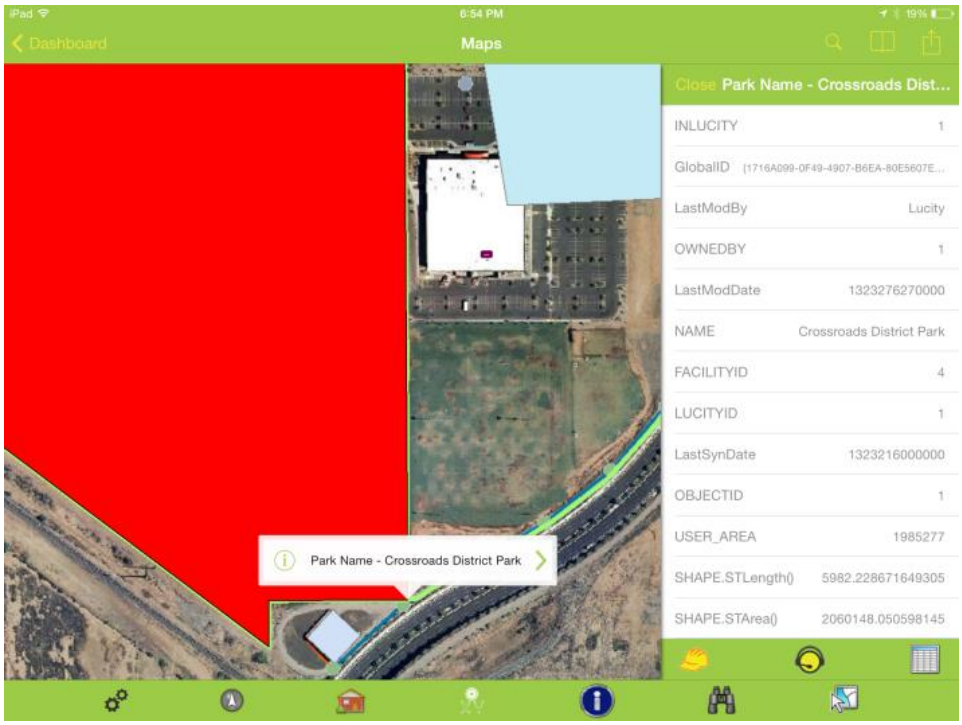
Then select the type of feature to find. The Feature type picklist shows both the common name of the asset type as well as the name of the field in that layer that will be searched.

Enter the text to search for. Include a % as a replacement for any character. For example to search for everything with the name South anywhere in the common id, enter %South%.

Click Find.

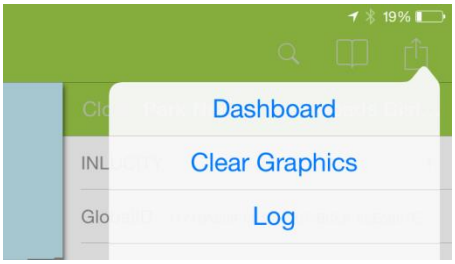


If features are found they will be selected and the map will zoom to the first feature.



Tapping on the Arrow will show more features that were found from the search. Tapping the "i" will open the panel and show the details about the item that was found. If the panel is already open, it will update the panel to show details about the currently selected item in the popup.

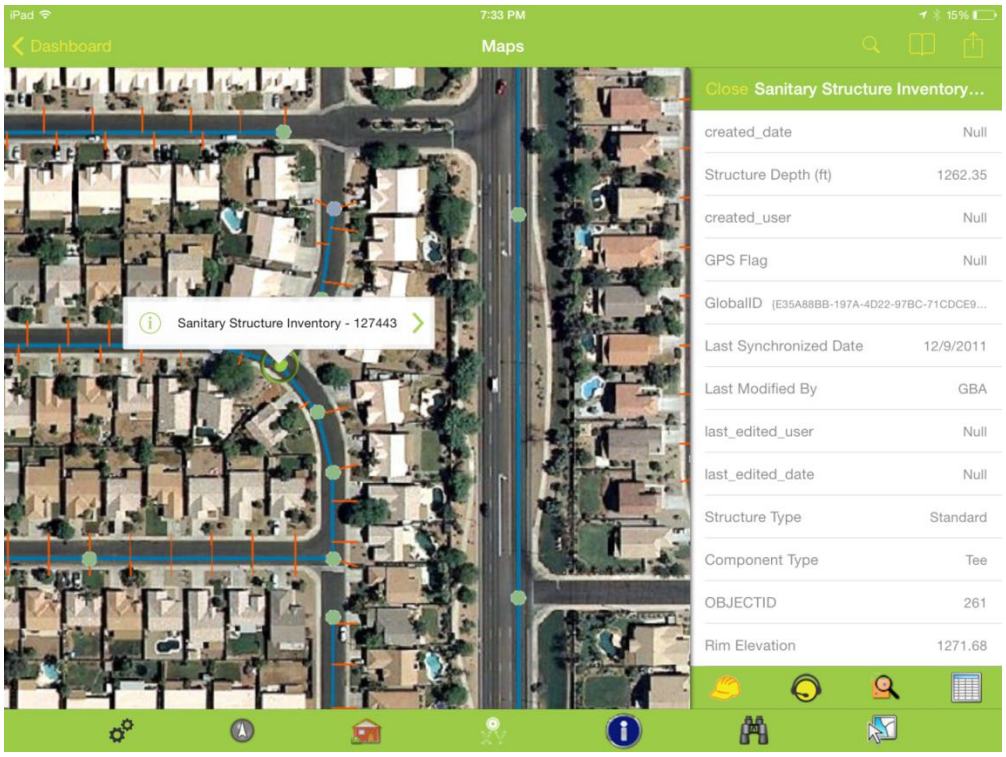
Selections or graphics can be easily cleared using the Clear Graphics option in the menu



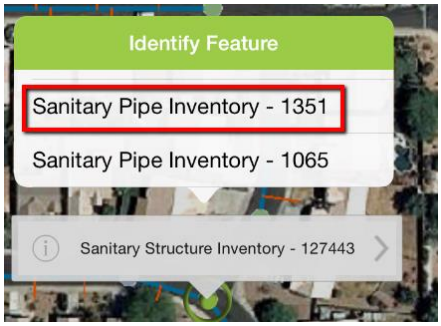
Inspecting and Selecting

To inspect or identify a feature in the map, use the identify button . When the tool is selected it will have a grey background.

Tap the feature you want details on. This will pull up a popup with the type of feature as well as the display field for the feature. Additionally, a panel will open with the extended details about the feature.

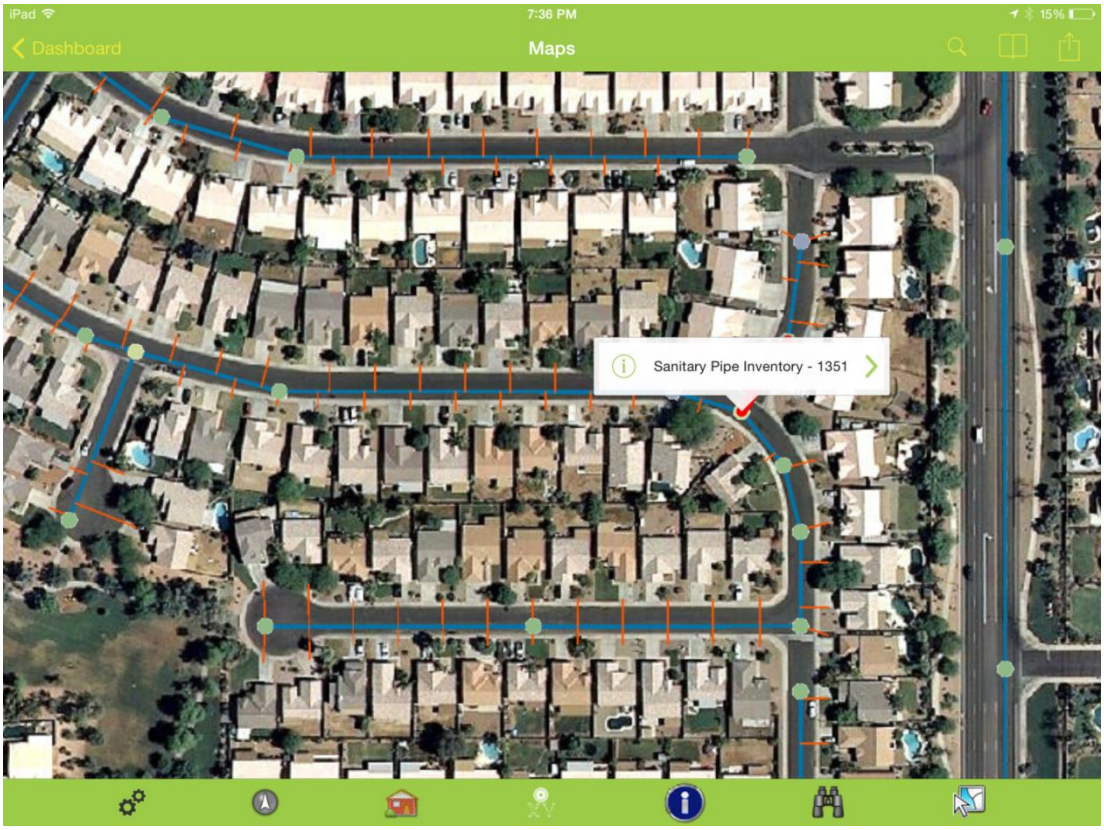


There may be more than one feature at that location. To view other features at that tap point, click the green arrow to pull up a list of all features found. The popup is a scrollable list. Find the item you are interested in and select it from the popup list.



This will change the popup to show the new feature and will select the feature in the map. It will also update the details panel with information about the new feature.

At any time the details panel can be closed.



To get it back, click the “i”.

The details panel provides a scrollable list with access to all of the attributes deployed for that feature in the map service and provides the ability to create a work order, a request, or an inspection on a feature, as well as view the Lucity feature relationships.

To create a work order for the current feature, click the Work Order button. This will create a new work order and attach the asset to the work order, and open the work order for further edits.

The category for the work order is assigned based on the default category defined in Lucity for the selected feature.

If there is no default category defined, the system finds the first available category in the category list with the correct asset type.

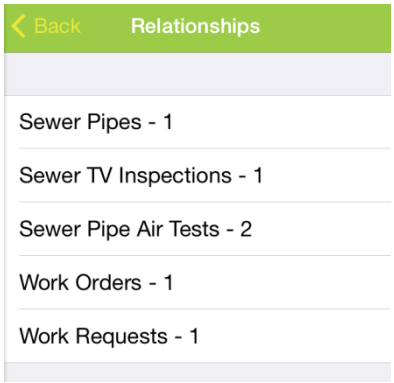
Creating a request works the same way as a work order from the identify dialog. Click the Create Request button and it will create the request for the asset, place the asset on the request and assign a category to the request based on the selected asset. The request form is then opened for any further edits.

Creating an inspection from the identify dialog will create an inspection for the current feature for the current date and time. If there is more than one possible inspection type, the user is prompted for which type of inspection to create:

The created inspection is opened for further editing in a form.

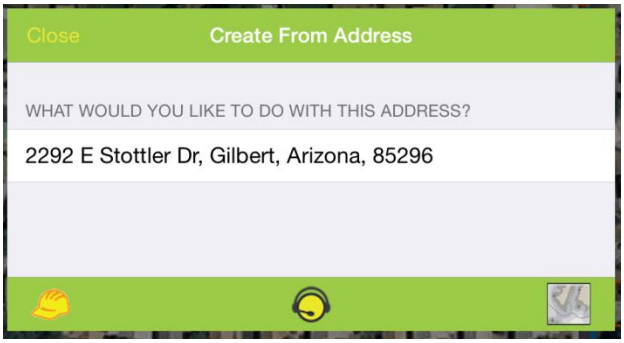
In all of these actions, the upper left navigation will return to the map to continue working within the map.

Clicking the relationships button opens a panel showing all relationships to the current feature. Clicking on one of the relationships in the list will open a view which contains all of the items for the selected relationship.



Point to address

One of the other tools provided in the tablet map is the ability to tap a point on the map and have the map attempt to calculate what the address is for that location. To use this, click the tool on the bottom toolbar and tap a location on the map. This will bring up a prompt showing the approximated address:

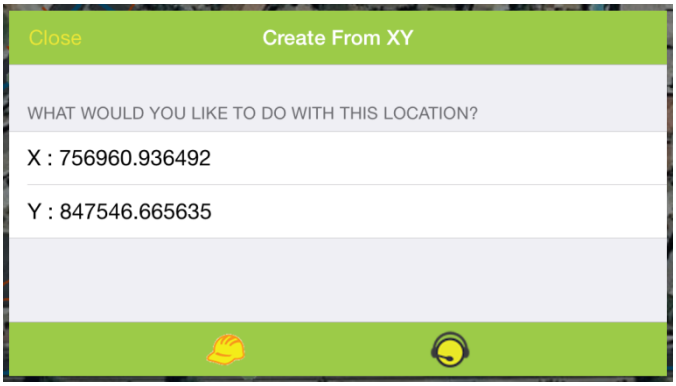


The work order, request, and driving directions tools on this dialog work the same as the address search dialog discussed earlier in the session.

This tool uses only the ArcGIS Online geocoder for the reverse lookup: http://geocode.arcgis.com/arcgis/rest/services/World/GeocodeServer . It is not possible to customize this.

Creating Requests or Work Orders at a Specified Point

If a work order or request is not being performed at a specific address or on a specific asset, using the XY tool is a good way to identify the location of the work being done. Tap the location on the map where the work is. This will prompt for what to do with the specified point.

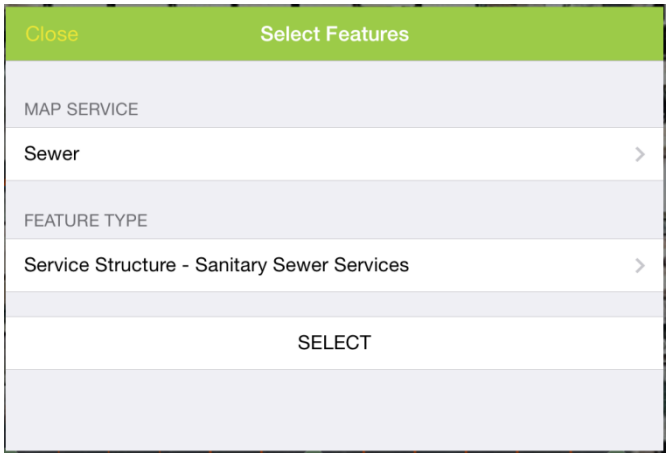


Creating a work order will create a new work order using the defined default category and add a location record with the specified XY. Creating a request will create a new request using the default category for the user/tablet and will put the XY on the request as the request location.

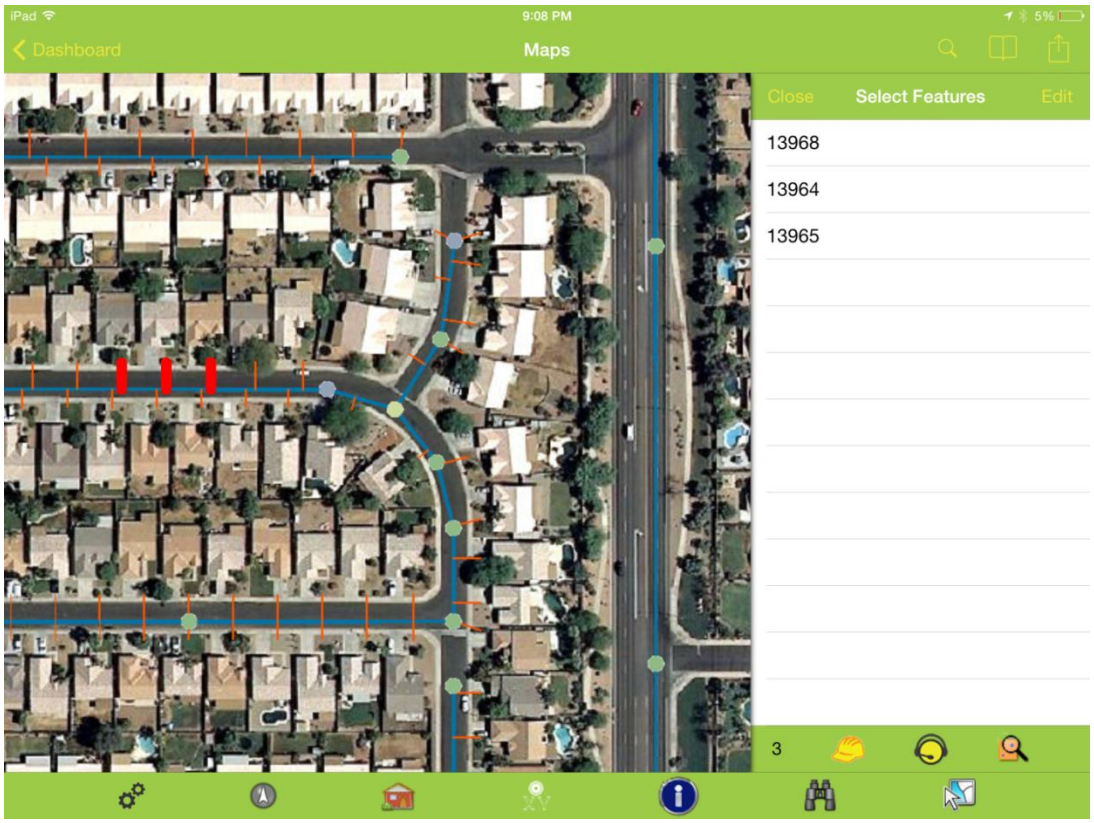
The coordinates displayed in the prompt are in the local defined coordinate system. This may vary from the map coordinate system. The Lucity mobile application automatically projects these coordinates into the operational coordinate system defined in the system settings.

Multiple select

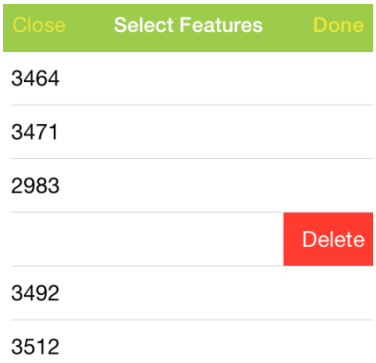
It is possible to select and work with multiple assets at a time. This is done using the tool on the lower toolbar. The tool prompts for which map service and layer you want to select features from:



Clicking Select returns you to the map to start tapping the desired features to be added to the multi-select. Each feature in the selected layer that is tapped will be highlighted and the identifier will be added to the list of features in the Select Features pane.



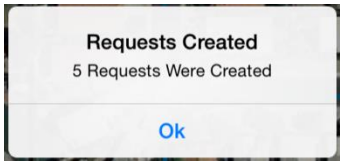
To unselect a feature, swipe the identifier to the left in the select features list or click the edit button and tap the red minus. Then click delete.



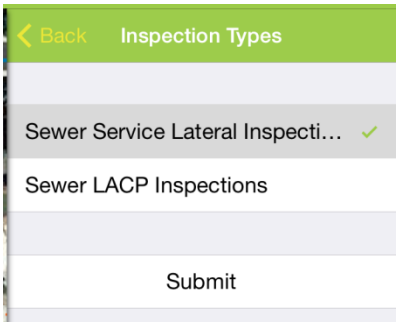
A running count of features is show at the bottom along with tools to create work orders, requests, and inspections on the selected features.

Creating a work order creates one work order and attaches all assets to the work order. The work order form is opened for further editing.

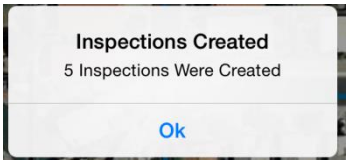
The Create Request function creates one request for each item. The system will prompt and display how many requests were created. No view or form is opened.



Create inspections will create an inspection for each feature on the list for the current date and time. Some features support multiple types of inspections. These features will have an additional prompt for which type of inspection to create.



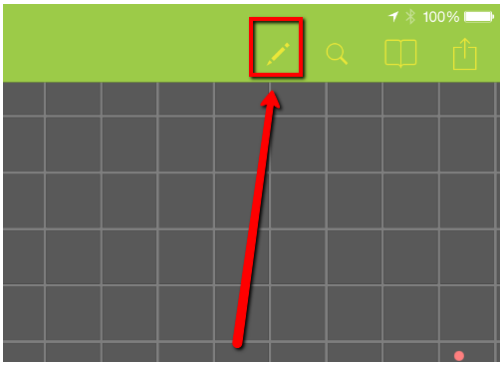
The inspections are created and a prompt is displayed.



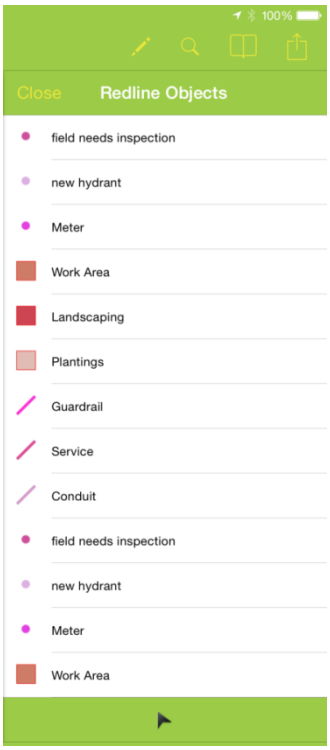
Redlining in the map

Maps can be configured to allow users to redline graphics and make notes directly in the map. Redlining is different than editing because it is not designed to work with Lucity features. It is designed to provide a way to communicate with back end GIS staff or other agency staff about something in the map. Redlining uses feature services with ArcGIS Server or on ArcGIS Online.

Maps which have a layer which is compatible with redlining will have a pencil in the upper toolbar:

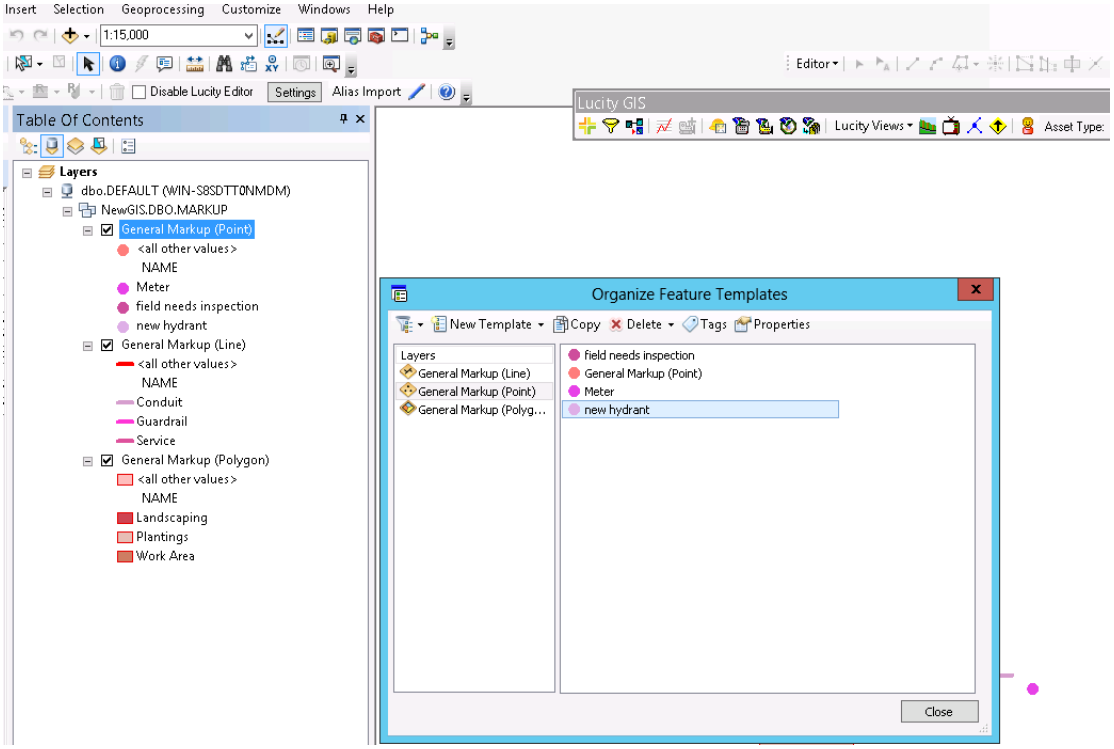


Tapping this tool will open a redline objects panel which displays all available redlining objects that may be added in the map and includes a tool which allows existing redlining objects to be selected at the bottom of the panel.

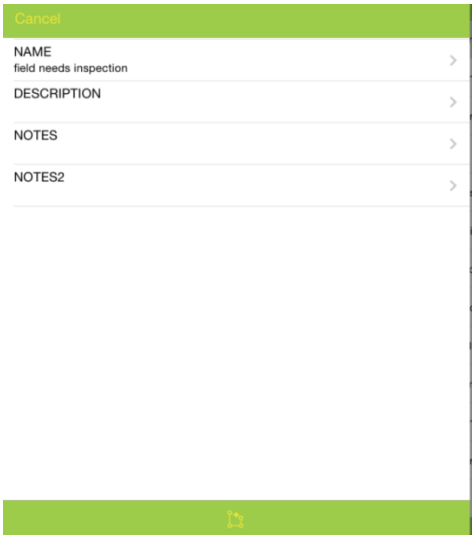


Up to 3 possible redlining layers may be configured for a map; one point layer, one polyline layer, and one polygon layer. These correspond to 3 layers in a single feature service. Within each layer, multiple feature templates or types can be defined. This is done in ArcMap.

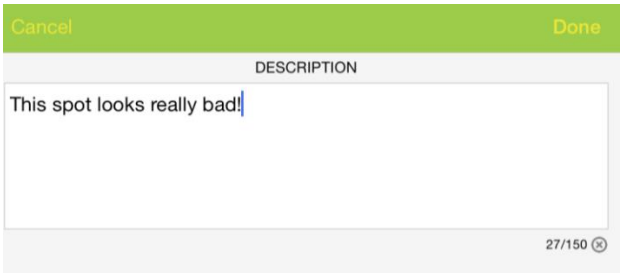
This example has 3 layers and each layer has multiple feature templates configured. This is a screen shot of these configured templates in ArcMap. It is not required to use feature templates.



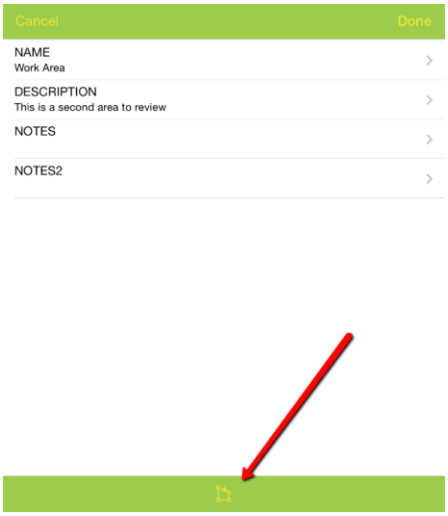
To create a new feature, select the feature from the redline objects list. The application will prompt for attributes for the feature.



To enter data in these fields, tap the item, enter text or select from the picklist, and click Done.

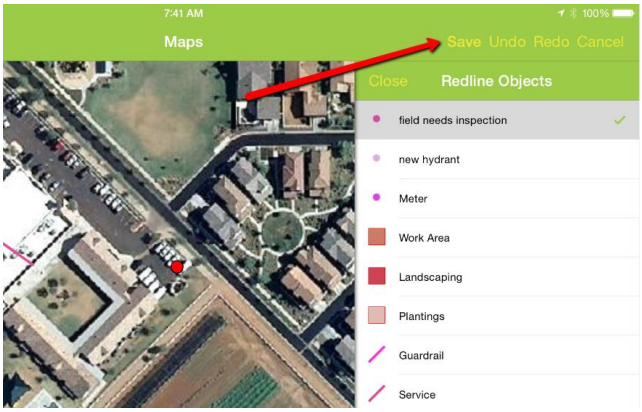


When done editing the fields, click the draw icon at the bottom of the form



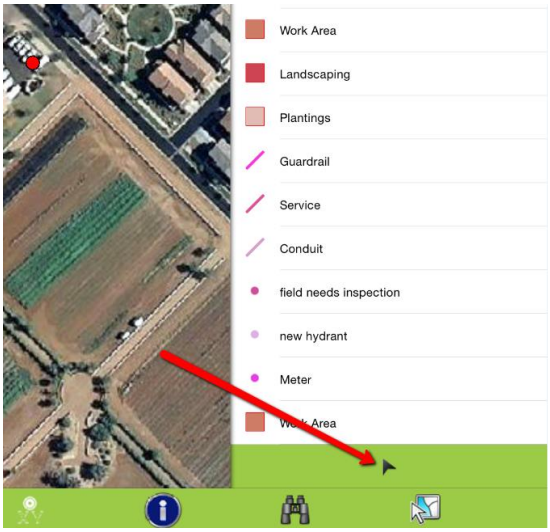
This will redisplay the map and will change the upper right toolbar to add tools which support the current redlining operation.

The map can still be panned and zoomed while in the redlining operation is active. Once the feature is drawn in the map, click the "Save" button to persist it.



This will show the attribute dialog again for final review. Click Done to close the dialog.

To edit the attributes or shape of an existing feature, use the select button and tap on the feature. This re-opens the attributes dialog so that attribute or feature edits may be made.

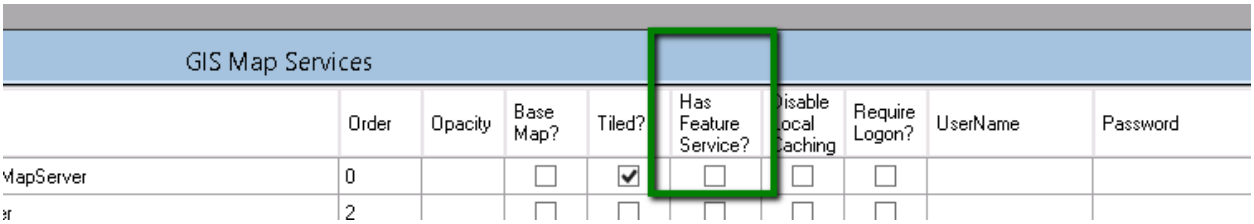


To leave redlining mode, close the redlining pane.

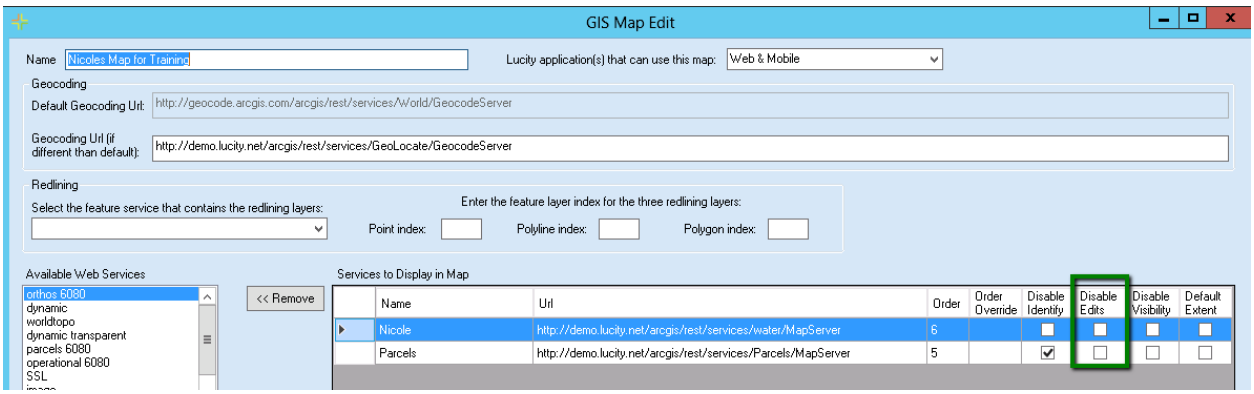
Editing in the map

Editing is also supported in the Lucity iOS map. Edits made while out in the field are made directly to the Esri geodatabase using feature services. You should not allow users to edit in the field if you are still using the Lucity GIS SOE for your GIS edit maintenance. You should only enable this feature if you have switched to using feature services for GIS edit maintenance.

To enable feature editing, check the "Has Feature Service" checkbox in the Map services setup.

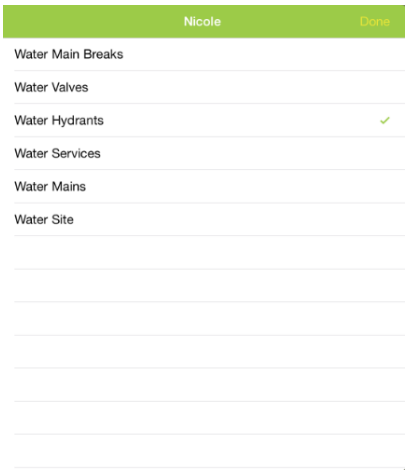


To disable editing on a service in one specific map, check the "Disable Edits" checkbox in the Map setup dialog.

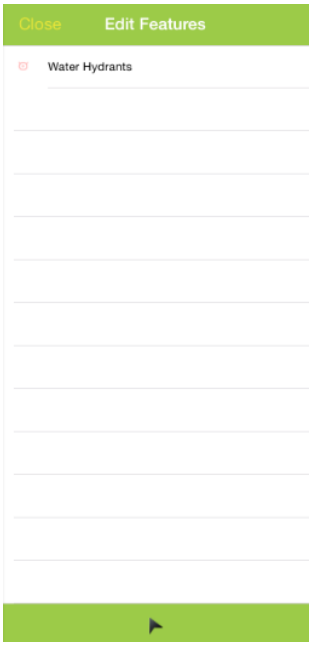


If a map has layers which are editable, an additional icon will be displayed in the upper right toolbar:

Clicking on this will prompt you for what layer you want to edit. If you have multiple map services in the map that support feature editing, you will first be prompted which service the layer is in.



Once you select a layer, a feature pane will be displayed and it will show all available feature templates for that layer. For the layer I have selected (Water Hydrants) I only have one feature template defined:

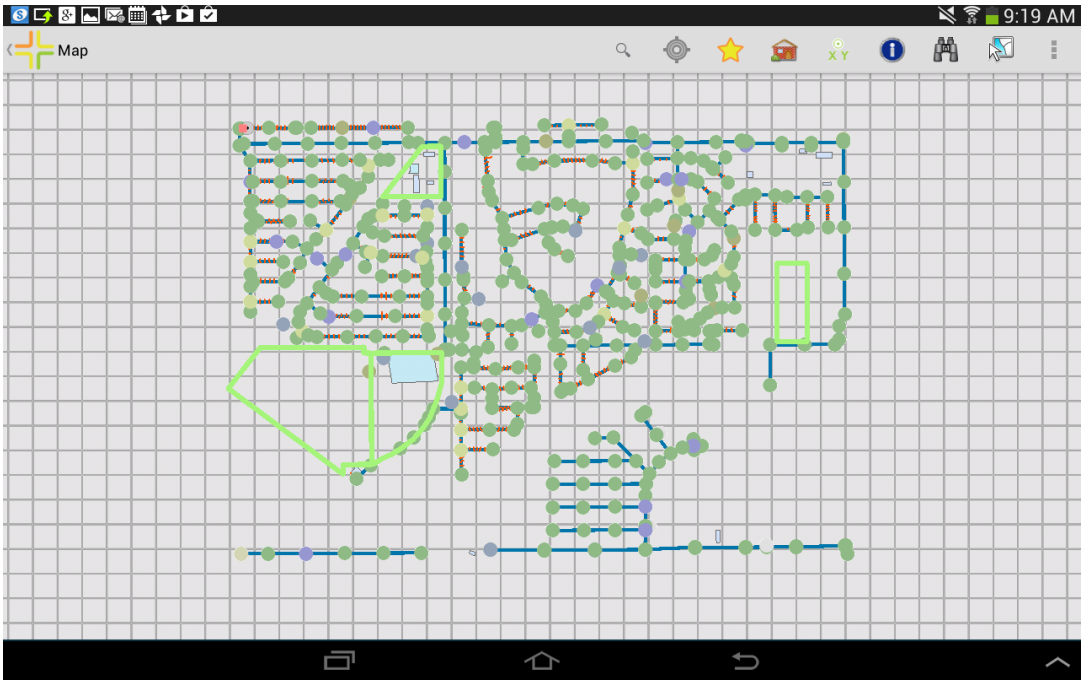


The editing process works the same for these features as the redline editing once a target layer is selected.

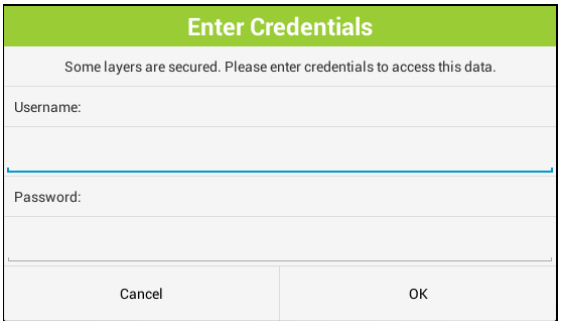
Android GIS

GIS from the Dashboard

When GIS is launched from the dashboard it opens the map to the last map in the last extent.



If a map has any secured services that do not have credentials pre- configured in Lucity Admin, the user will be prompted to log in when the map is opened.

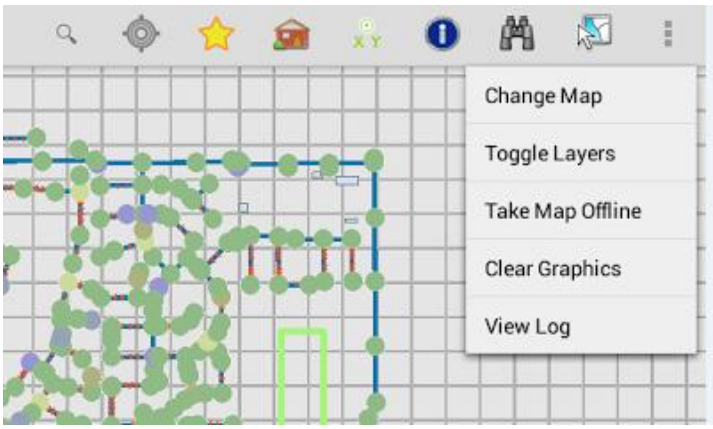


Viewing and Changing Map Information

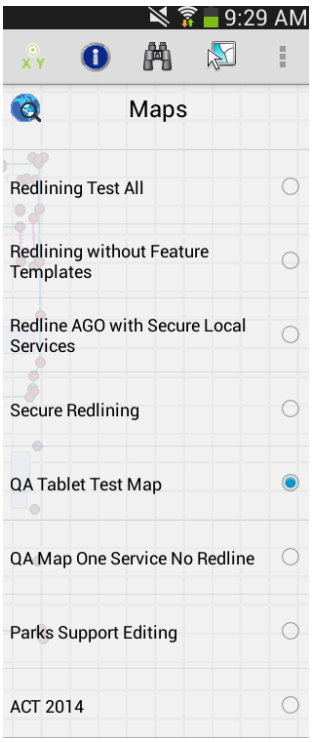
The very first time the map is opened, it will attempt to use the map that is configured by default for the user. It is common to use an alternate map while in the field though, and this can be done by selecting the alternate map within the tablet. The tablet will remember the alternate map.

Changing maps

To change the map, select change map from the menu.



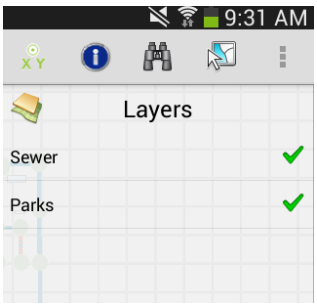
This will open a maps panel to select a new map. To close the maps panel, select Change map from the menu again. The menu option works like a toggle. All available maps will be listed. The currently loaded map is selected. To switch to a different map, select the alternate map in the list. The map will immediately redraw. The application will remember the new map selected for the next time the map is opened.



Base maps are not currently supported in the Android tablets. Take this into consideration when designing maps. If both Android and iOS applications are used at the agency, it may be a good idea to design separate maps for iOS and Android use.

Turning Map Services On/Off

The application does not allow turning off individual layers in a map service, but it is possible to turn off an entire map service on the layers tab. To open the layers panel, select Toggle Layers from the menu. This will open up a layers panel.

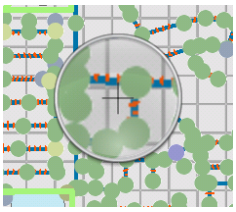


Turn off or on any layers desired and close the toggle layers panel by selecting Toggle layers from the menu again. When the map is reopened it will remember the layer visibility.

Map Navigation

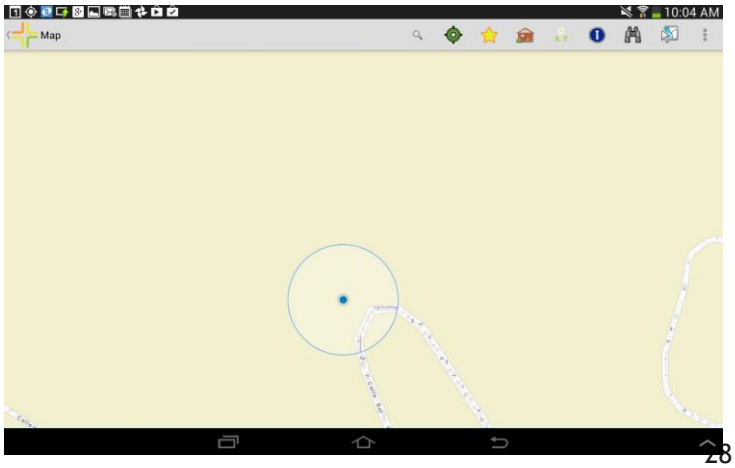
Zooming and Panning

The map supports drag pan navigation and pinch zoom. It also supports a press and hold magnifier. To activate this, tap and hold on the map until the magnifying glass shows up. The magnifier can be dragged around the screen as needed. To close the magnify window, drag it then release your finger and it will disappear.



GPS Location

The map has a GPS location tool which will zoom and plot the current location. Click to activate the GPS. The map will display a blue dot with a blue circle around it to indicate the current accuracy of the position. As you drive or move, the map display will automatically pan to keep the current location within the extent.



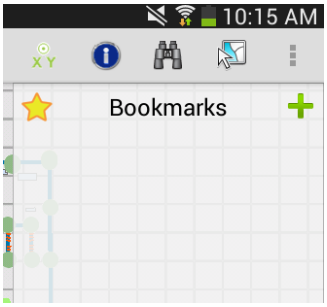
Click the GPS button again to change to a heading mode which will show the location and compass bearing.

To turn off the GPS, click the GPS button again, which will change it back to grey and turn off the GPS location.

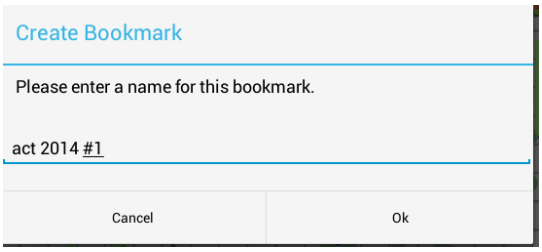
Bookmarks

Bookmarks are an easy way to save an extent of a map to get back to it easily. Bookmarks are also important for the go offline process for maps. The Bookmarks panel is accessed from the upper right toolbar

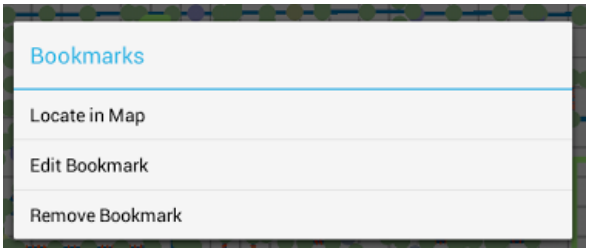
This opens a panel displaying all of the existing bookmarks.



To add a bookmark for the current extent, click the "+" and give the bookmark a name.



To zoom to a bookmark, select it from the list. To edit or remove a bookmark, press and hold on the bookmark.

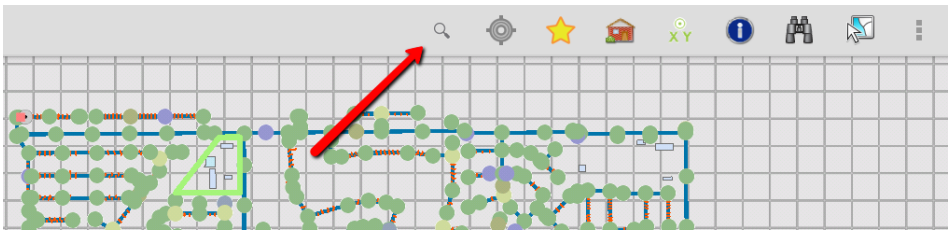


Tap the bookmark star tool to close the bookmarks pane.

Searching in the map

Searching for Addresses

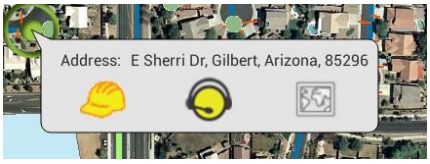
To search for an address in the map, click the search button in the upper right toolbar



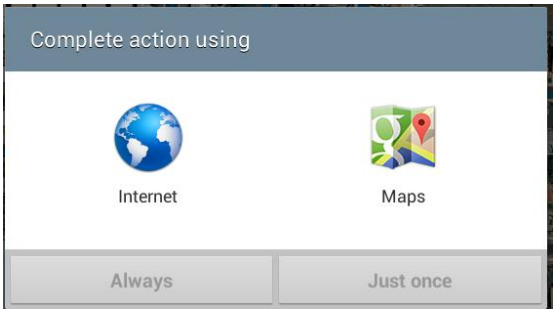
Tap into the search area and type the address and click the search icon on the keyboard. If the address is found, a green dot will be placed on the map at the calculated address location. Tap on the dot for more options including driving directions, creating a request for the selected address, and creating a work order for the selected address.

Address searches will use your own geocoder. If you are not on ArcGIS 10.2 or higher, we recommend using the ArcGIS Online geocoder:
http://geocode.arcgis.com/arcgis/rest/services/World/GeocodeServer

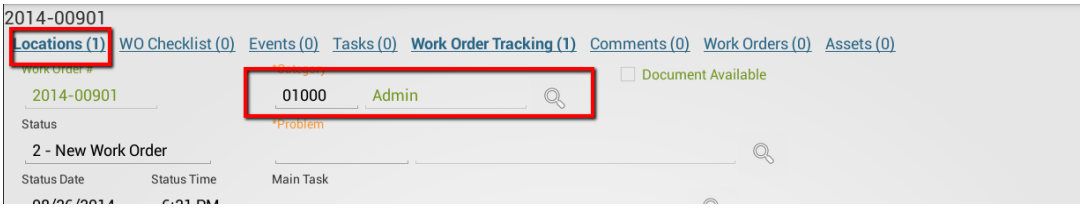
Notice in the following case it did not find an exact match.



Driving directions will open the available routing apps and show driving directions from the current location (if available) to the searched address.



Creating a Work Order will create a work order using the default tablet category and will attach the address as a location on the work order.



To configure the category, click the menu button on the Dashboard and select “View Settings” from the dashboard.

When the work order button is clicked, a work order is created, the address is added to the work order, and the work order is opened in a form. At this point the work order can be filled in (and category can be changed, if desired).

The address added to the work order is the located address, it is not the address searched. It is possible that the address locate may not find an exact match, but it will select the closest match. The match returned on the geolocate is what is placed in the work order location field.

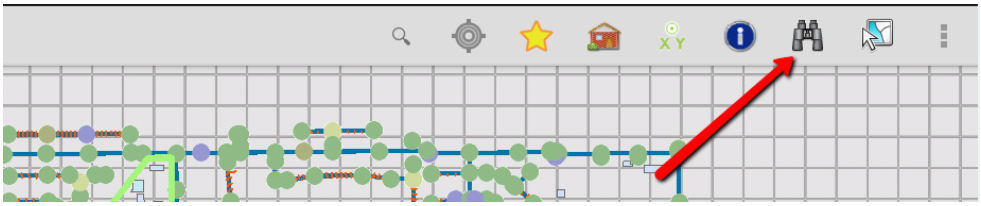
The work order is saved to the server before a form is displayed. Navigating away from the work order at this point will not cause the work order to be discarded.

This address does find an exact match.

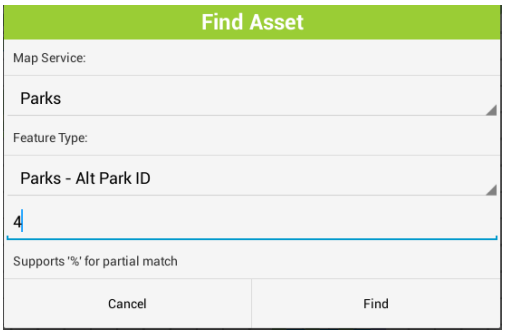
Creating a request from an address search will create the request, default the category, and assign the location address of the request to the address from the search results. The form is opened so that any further edits can be made.

Searching for Assets

The Lucity Android map application also allows searching for an asset based on full or partial common Id of the asset. To search for an asset, click the Find button.



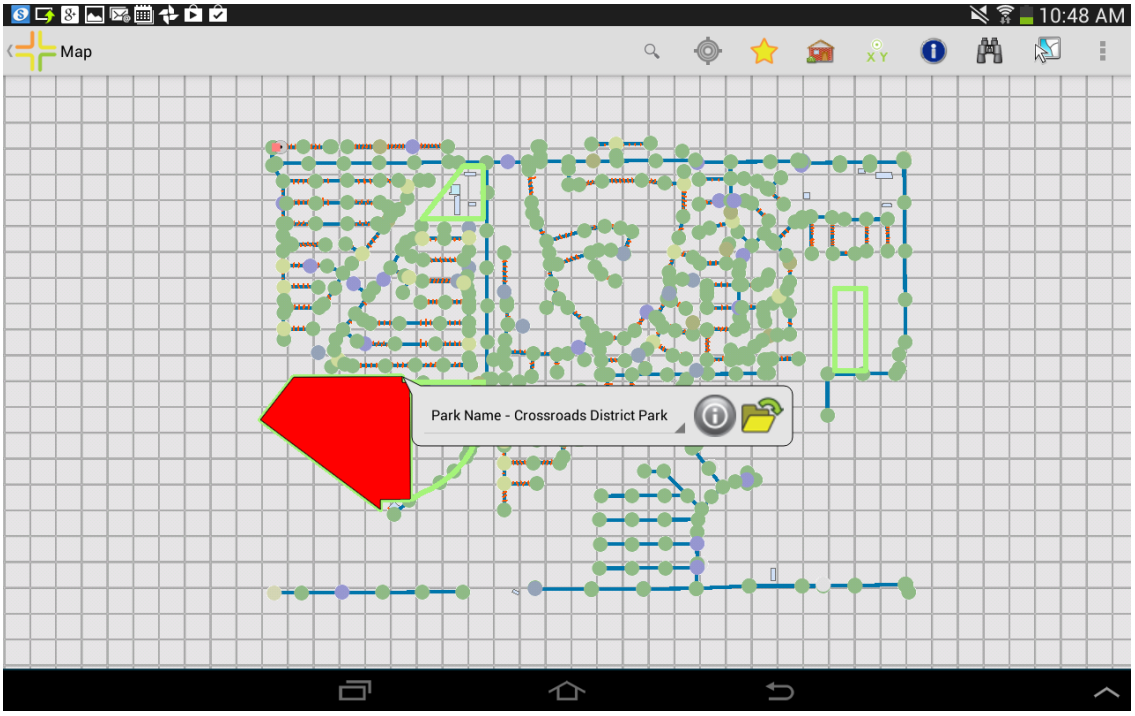
If there is more than one operational map service in the map, the dialog will allow you to select which map service the information is in and the type of feature to find. The Feature type picklist shows both the common name of the asset type as well as the name of the field in that layer that will be searched.



Enter the text to search for. Include a % to search for any character. For example to search for everything with the name South anywhere in the common id, enter %South%.

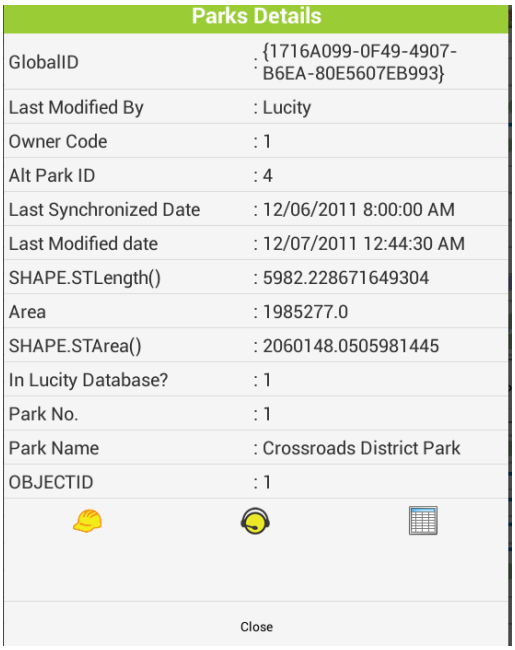
Click Find.

If features are found they will be selected in the map.



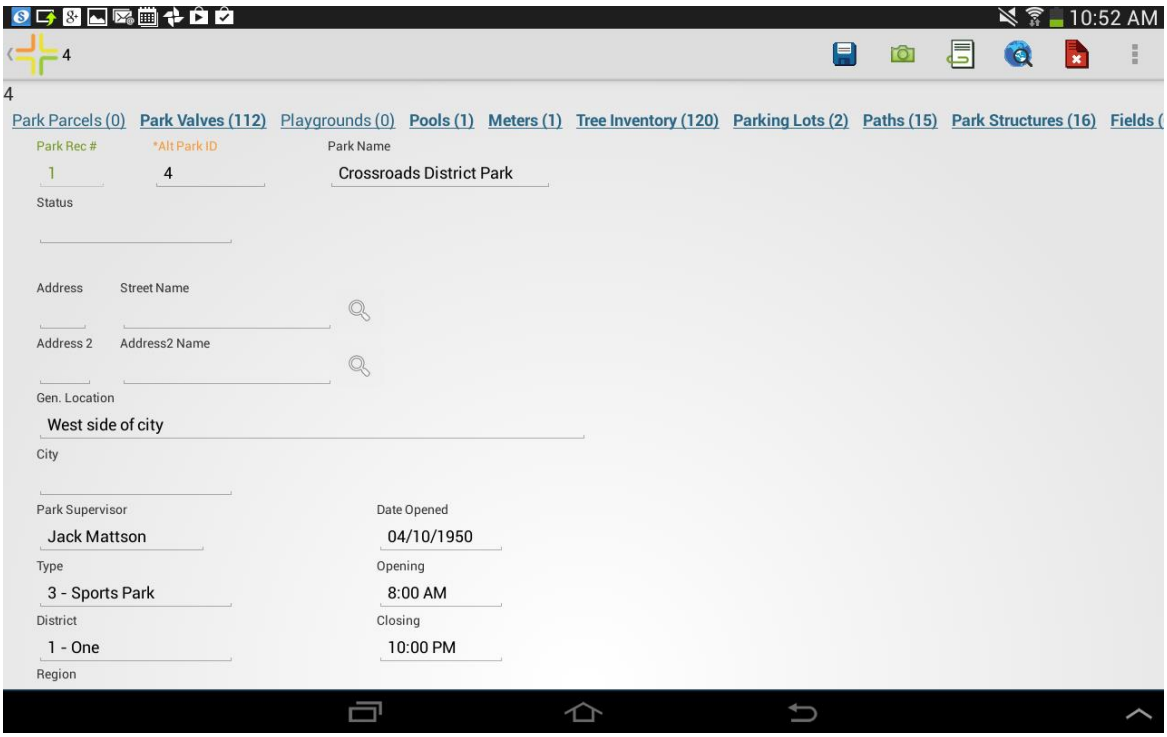
Tapping on the item will show more features that were found from the search. In the above example, only one feature was found.

Tapping the will open a popup and show the details about the item that was found.



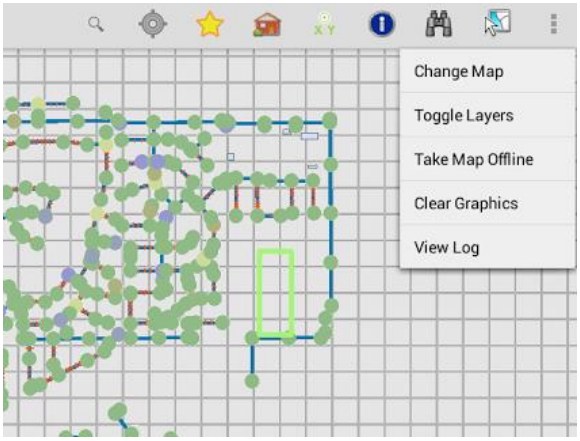
Tap the back button to close the popup.

Tapping the will open the Lucity form for the current feature.



Hit back to return to the map.

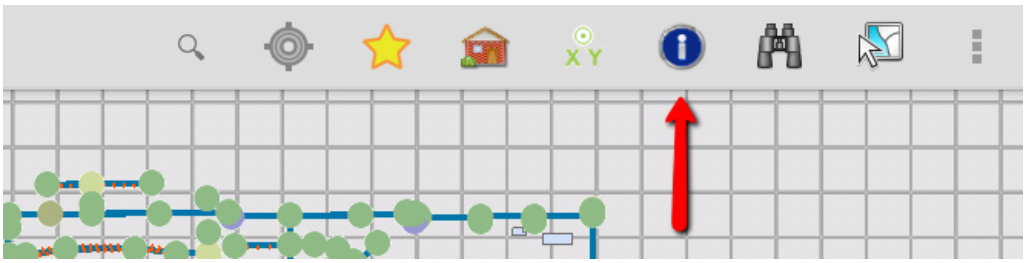
Selections or graphics can be easily cleared using the Clear Graphics option in the menu



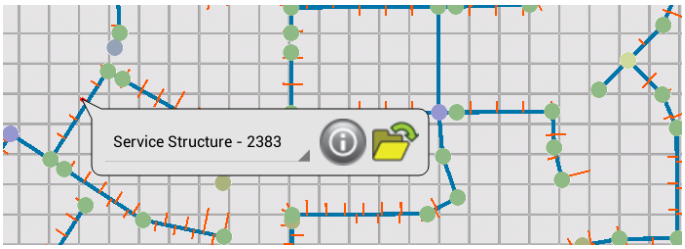
Inspecting and Selecting

Identify

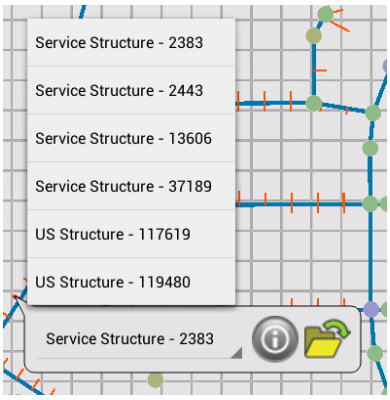
To inspect or identify a feature in the map, use the identify tool.



Tap the feature you want details on. This will pull up a popup with the name of the display field as well as value of the display field for the feature.

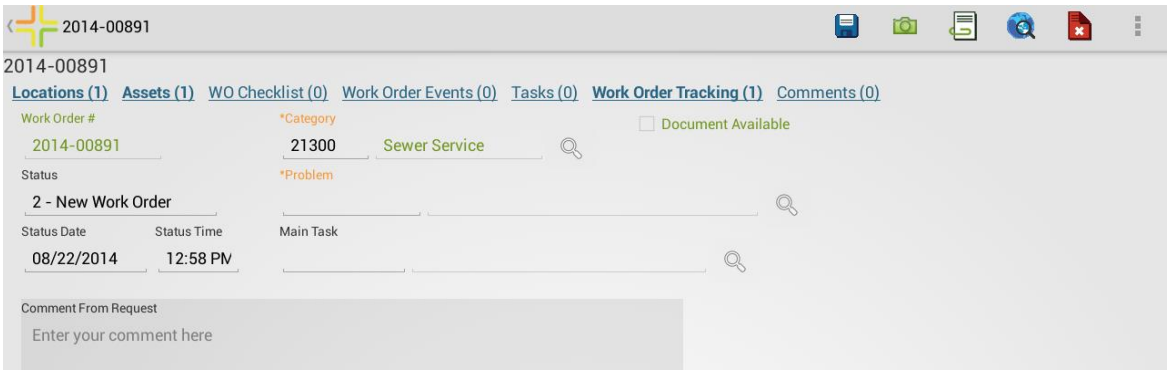


There may be more than one feature at that location. To view other features at that tap point, click the green arrow to pull up a list of all features found. The popup is a scrollable list. Find the item you are interested in and select it from the popup list.



The details popup provides a scrollable list with access to all of the attributes deployed for that feature in the map service and provides the ability to create a work order, a request, or an inspection on a feature, as well as view the Lucity feature relationships.

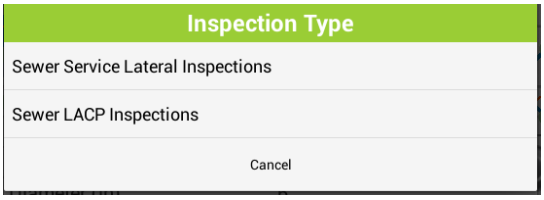
To create a work order for the current feature, click the Work Order button. This will create a new work order and attach the asset to the work order, and open the work order for further edits. The category for the work order is assigned based on the default category defined in Lucity for the selected feature. If there is no default category defined, the system finds the first available category in the category list with the correct asset type.



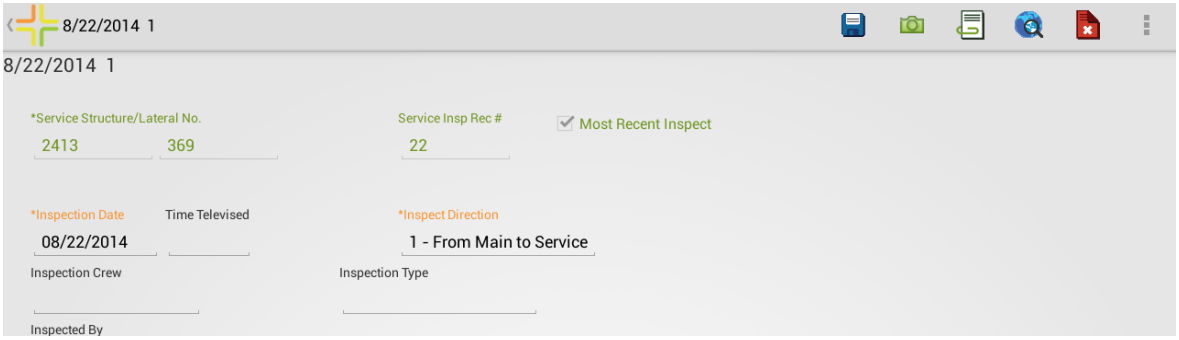
Click Back to go back to the map

Creating a request works the same way as a work order from the identify dialog. Click the Create Request button and it will create the request for the asset, place the asset on the request and assign a category to the request based on the selected asset. The request form is then opened for any further edits.

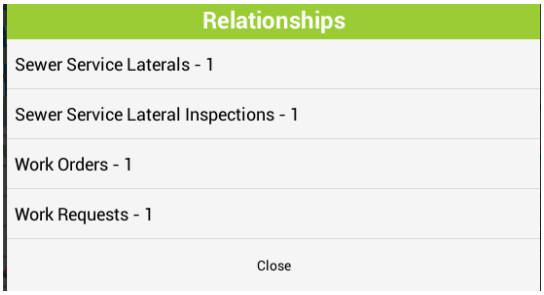
Creating an inspection from the identify dialog will create an inspection for the current feature for the current date and time. If there is more than one possible inspection type, the user is prompted for which type of inspection to create:



The created inspection is opened for further editing in a form.



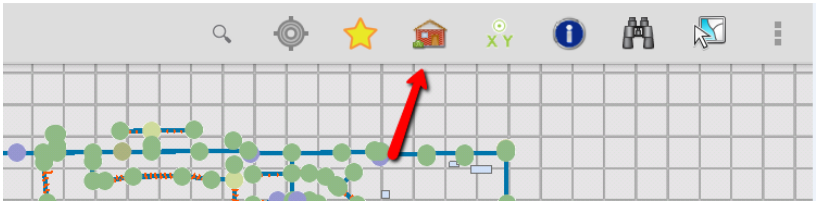
Clicking the relationships button opens a panel showing all relationships to the current feature (where there are records). Clicking on one of the relationships in the list will open a view which contains all of the items for the selected relationship.



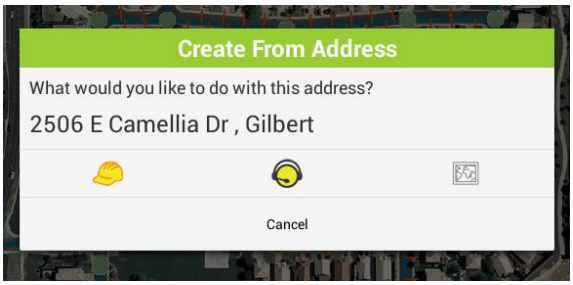
To turn off the identify tool and remove the graphics from the map, click the identify button again on the toolbar or select a different tool.

Point to address

One of the other tools provided in the tablet map is the ability to tap a point on the map and have the map attempt to calculate what the address is for that location.



Tap a location on the map to open a prompt showing the approximated address:



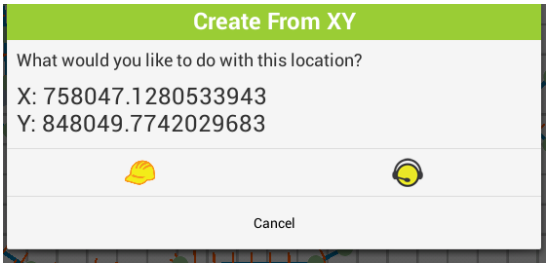
This reverse geocode uses the Esri world geocoding service. It does not use your own geocoding service for the search operation.

The work order, request, and driving directions tools on this dialog work the same as the address search dialog discussed earlier in the session.

Creating Requests or Work Orders at a Specified Point

If a work order or request is not being performed at a specific address or on a specific asset, using the XY tool is a good way to identify the location of the work being done.

Tap the location on the map where the work is. This will prompt for what to do with the specified point.



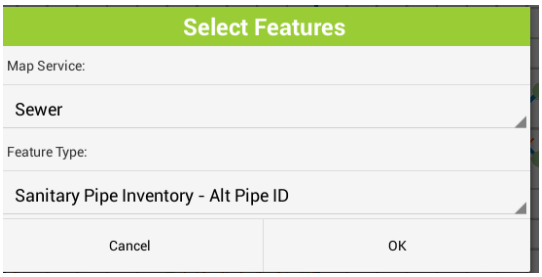
Creating a work order will create a new work order using the defined default category and add a location record with the specified XY. Creating a request will create a new request using the default category for the user/tablet and will put the XY on the request as the request location.

The coordinates displayed in the prompt are in the local defined coordinate system. This may vary from the map coordinate system. The Lucity mobile application automatically projects these coordinates into the operational coordinate system defined in the system settings.

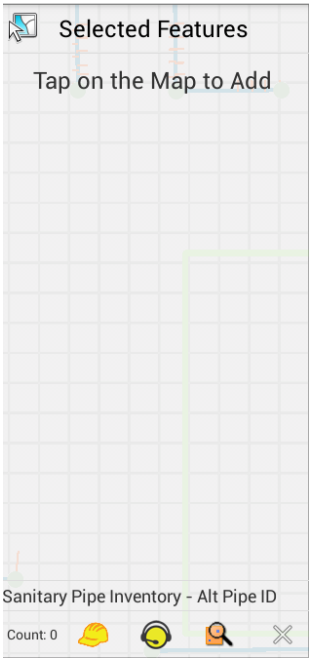
Multiple select

It is possible to select and work with multiple assets at a time using the multi-select tool:

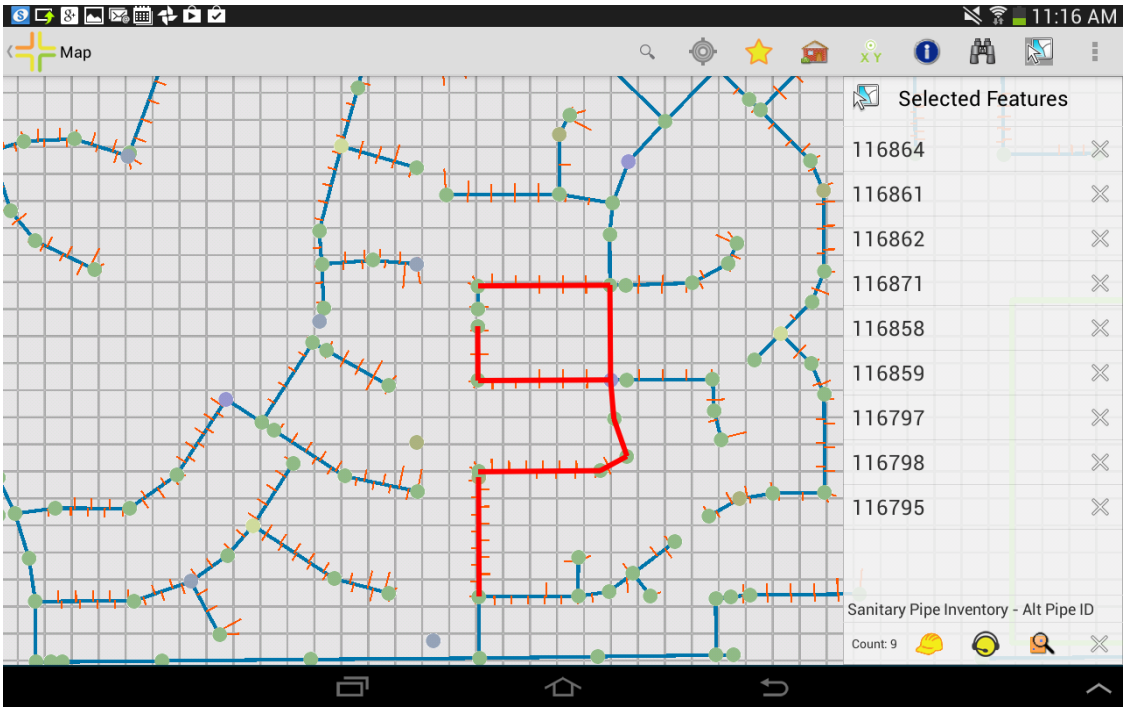
The tool prompts for which map service and layer you want to select features from:



The tool then expands in preparation to display the list of features you select.



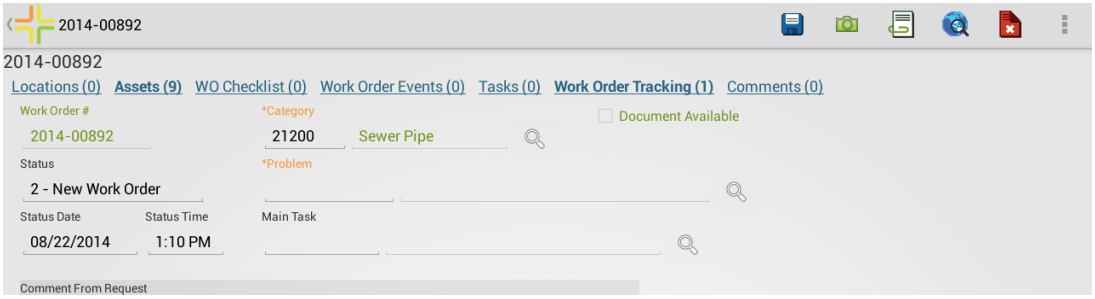
Clicking Select returns you to the map to start tapping the desired features to be added to the multi-select. Each feature in the selected layer that is tapped will be highlighted and the identifier will be added to the list of features in the Select Features pane.



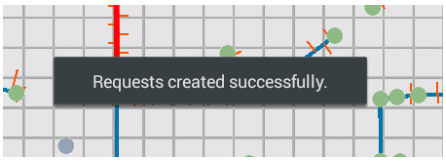
To unselect a feature, click the "X" next to the feature in the list. Tapping a feature in the pane will flash the feature in the map.

A running count of features is show at the bottom along with tools to create work orders, requests, and inspections on the selected features.

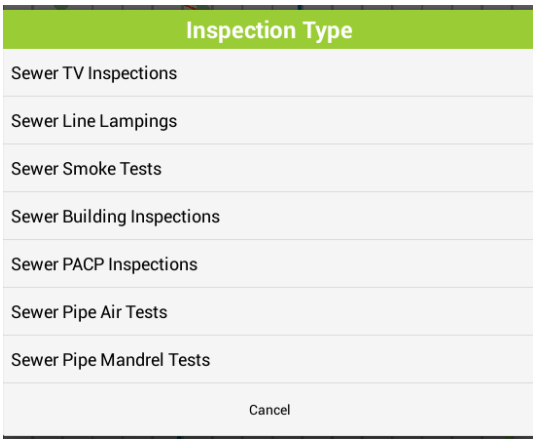
Creating a work order creates one work order and attaches all assets to the work order. The work order form is opened for further editing.



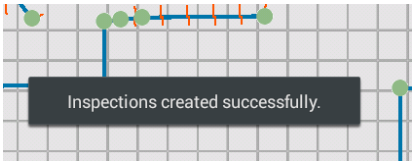
The Create Request function creates one request for each item. The system will display a toast message to indicate that the creation was successful.



Create inspections will create an inspection for each feature on the list for the current date and time. Some features support multiple types of inspections. These features will have an additional prompt for which type of inspection to create.



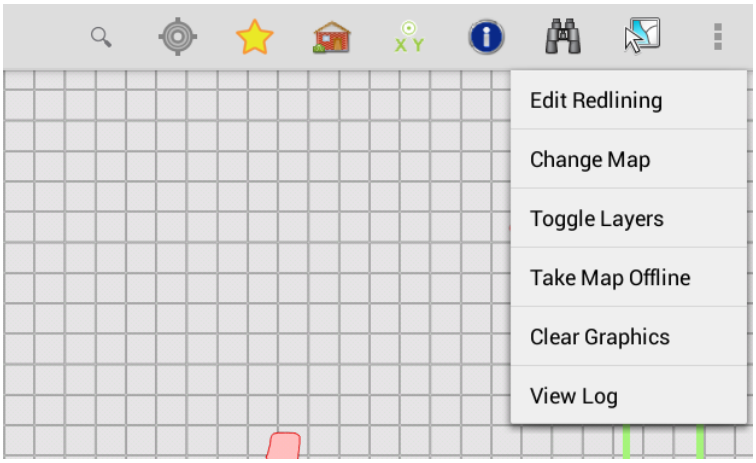
The inspections are created and a toast is displayed.

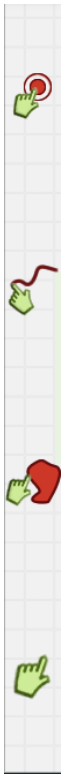


Redlining in the map

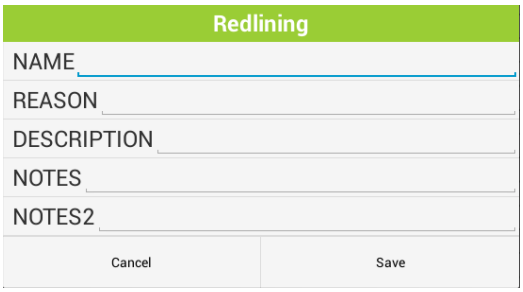
Maps can be configured to allow users to redline graphics and make notes directly in the map. Redlining is different than editing because it is not designed to work with Lucity features. It is designed to provide a way to communicate with back end GIS staff or other agency staff about something in the map. Redlining uses feature services with ArcGIS Server or on ArcGIS Online.

Maps which have a layer which is compatible with redlining will have a menu option for Edit Redlining.





Tapping this tool will open a redline objects panel with tools for adding lines, points, polygons, and for selecting existing redlining features. Use these tools to draw on the map. After the feature is drawn, a prompt will be displayed to enter attributes:



This prompt does not provide a picklist for fields with GIS domains.

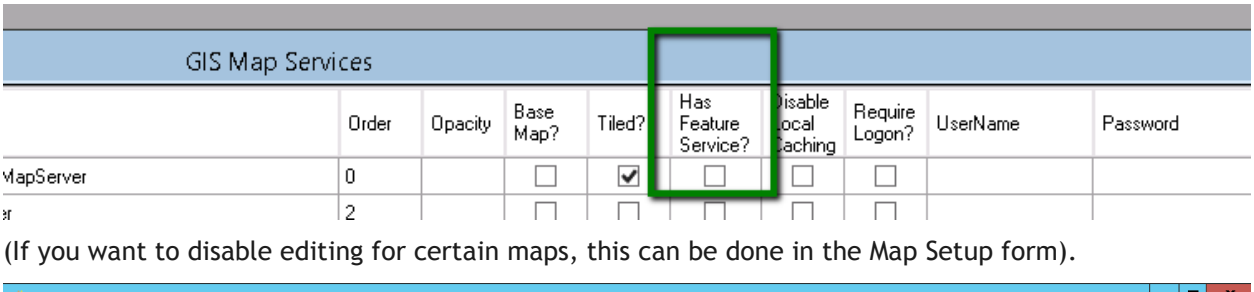
To edit the attributes or shape of an existing feature, use the select button and tap on the feature. This will select the feature. Tap the "i" to edit the attributes.

To leave redlining mode, select Edit Redlining from the menu to close the panel.

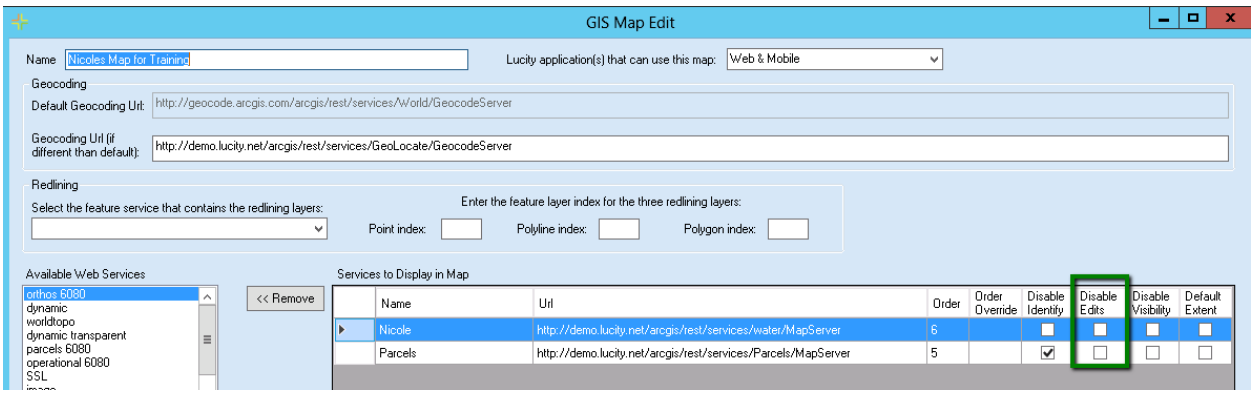
Editing

In addition to redlining, we also support a Feature Editing function which provides a more flexibility. It can be used, for example, to edit features integrated with Lucity. Before setting users up to do this, make sure you are not using the Lucity SOE GIS edit method any longer. You need to be using the Lucity feature services method for your edit maintenance.

If a Map Service has a corresponding feature service, you can check the Has Feature Service checkbox in Map Services to enable feature editing.



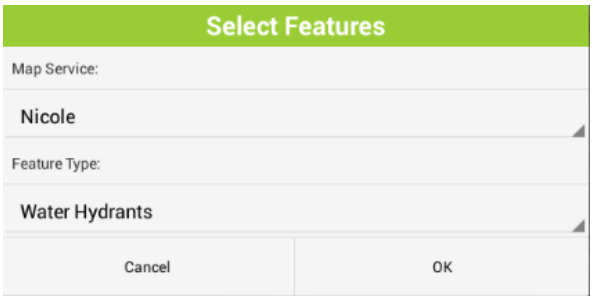
(If you want to disable editing for certain maps, this can be done in the Map Setup form).



If at least one layer supports editing, an additional menu option will be available from the overflow menu “Feature Editing”.

If there are multiple map services which support editing, you will be prompted for the map service you want to edit. If you only have one editable map service, this step is skipped.

Next you are prompted for what layer to edit:



This opens the feature editing pane.

From this point on, the workflow is the same as redlining.

Configuring GIS for mobile

If maps are already configured for Lucity Web, it may not be necessary to make many, if any, adjustments for mobile except to ensure that the tablet can access the GIS resources. We do not recommend using the alternate external Url. This will be removed in a future release.

Using Feature Services and ArcGIS Online instead of Map Services and ArcGIS Server

This documentation covers using Map Services with the Lucity Mobile iOS Map. It is also possible to use feature services in lieu of map services. This would be the suggested method if you were hosting all of your GIS data on ArcGIS Online for your mobile users.

If you have a choice, we currently recommend using the ArcGIS Server and Map Service model because it provides a little more flexibility and functionality with our current offerings. This is what was presented in today's session.

lucity™

TRAINING GUIDE

Mobile Intensive
Offline

Tablet Intensive - Offline

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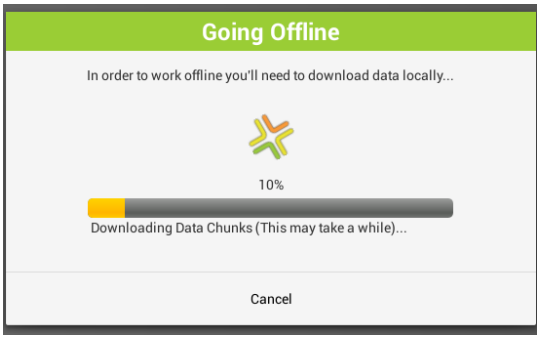
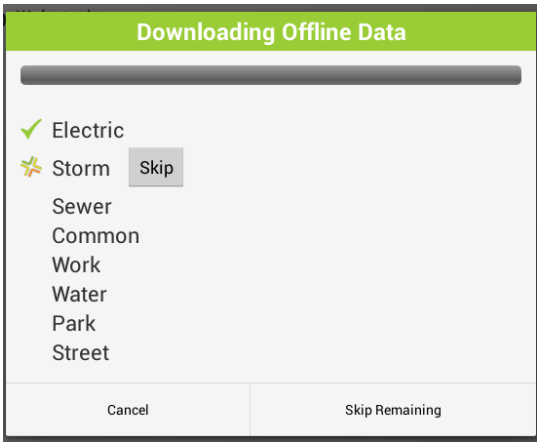
Going Offline

When an end user needs to go offline, they will click the “Go Offline” button (Android) or the Offline button on the iPad. This button is available on the dashboard. Clicking this will take their inventory, work order, and inspection data offline. It does not take map data offline. That must be done from the map they want offline.

Android

This is what the progress looks like on Android





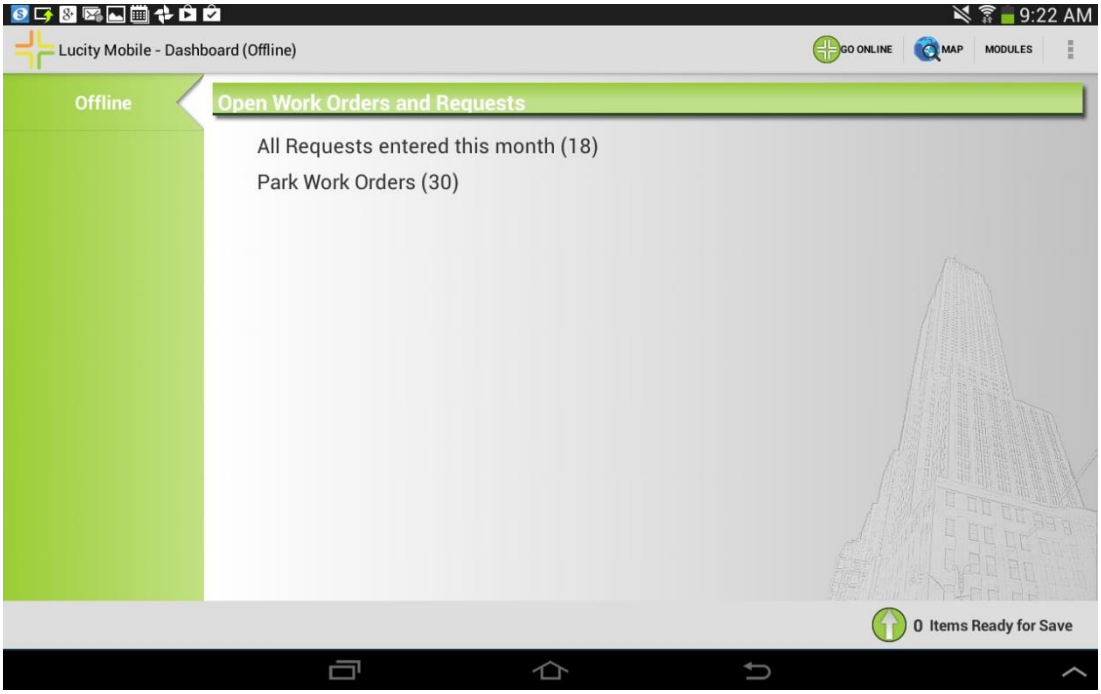
- There are several stages of download, it downloads the Work Order and Request data live from the server
- It persists this to local disk
- It downloads some setup data like the relationships between categories and work flow setup codes
- It downloads cached inventory datasets (these are not live; they are cached at 2a by default). It only downloads these if the setup indicates that they are needed (or that an update is needed) for the current user. This is not based on whether the underlying data is changed, this is based on a timed interval you specify for your agency or that user (quarterly, monthly, yearly)
- It clears existing data that should either no longer be accessible or that is being updated.

- It writes the cached inventory datasets locally to disk

The data that is downloaded includes views, forms, picklists, work orders, requests, and inventory data. No inspections are downloaded.

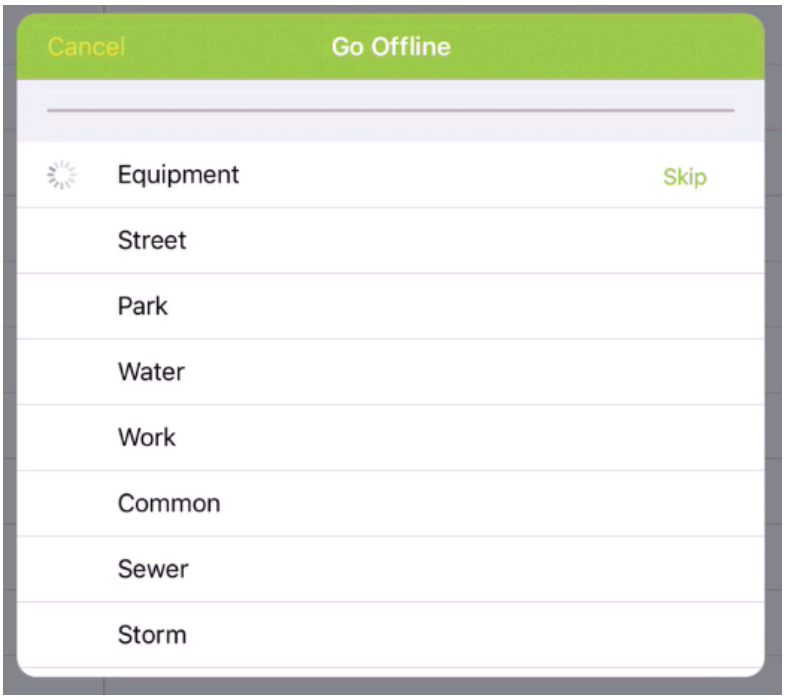
It is possible to skip downloads to save time. If the Work item is not allowed to download, it will not update the work views. If there is not an existing set of work view data already downloaded to the device, work orders and requests will be un-useable in the field.

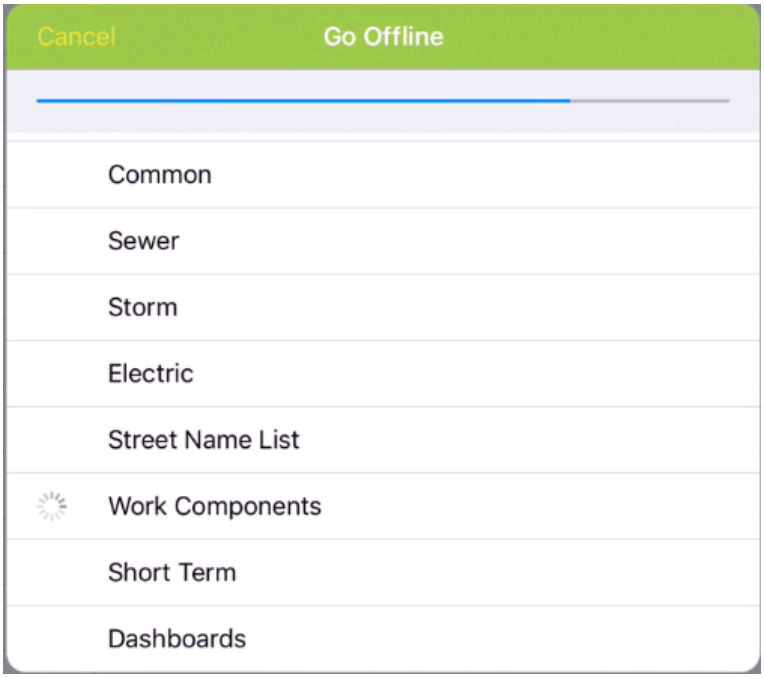
When everything successfully downloads, the dashboard changes to show a “Go Online” button:



Apple

On an Apple device there is only one progress dialog:





It downloads inventory data (which can be skipped), work component information (relationships between employees, problems, actions, etc and Categories), dashboards, and the Short Term cache (work orders and requests). The Dashboards, Short Term, and Work Components cannot be skipped. If you skip the Work cache and have never done a download before, you will not have any views or forms accessible for viewing or editing work order or request data.

When the offline process is completed, the button changes to a cloud with the arrow pointing up. Users will click on this when they are ready to go back online.

GIS Offline

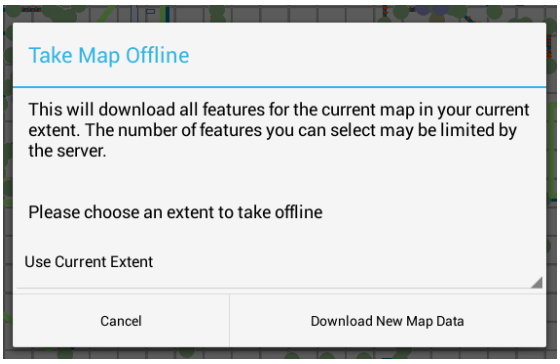
GIS data is not taken offline during the "Go Offline" process. GIS offline data is managed separately from the Lucity data. When launching the map from an offline dashboard, the system will check to see if there is an available offline map. If there is not one, the user must take a map offline to continue. A network connection is required to take a map offline.

Before taking a map offline, the current map should have a bookmark created for the map. The user will select this bookmark when taking the map offline. Currently bookmarks must be created on the tablet using the map that needs to go offline by the user that wants to take the map offline. In a future release, we will support a more robust bookmark management which supports sharing across applications and users.

After creating the necessary bookmark(s), follow these steps to go offline:

Android

To take a map offline in Android, select "Take Map Offline" from the menu

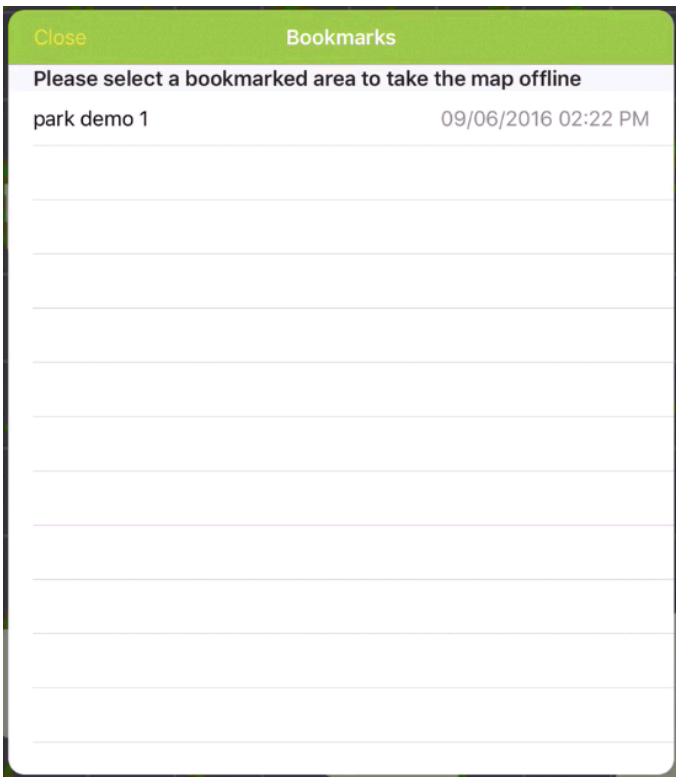


Select the bookmark and click "Download new map data"

If a map was previously downloaded to the device, you will get an option to use the existing map in lieu of downloading a new one.

Apple

To take a map offline on an iPad, go to the map you want off line and click the button. Select the bookmark to be taken offline when prompted.



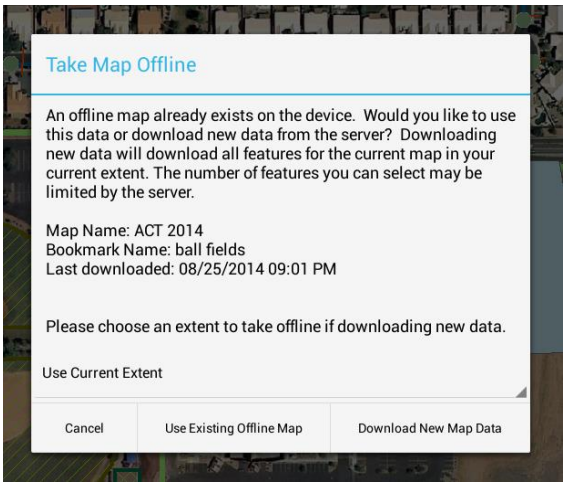
If a map was previously downloaded to the device, you will get an option to use the existing map in lieu of downloading a new one.

The system will download any necessary data (and load any side-loaded tiled maps as needed) and display the offline map to the user. The ArcGIS Server instance will limit how many features are downloaded. This is configured in ArcGIS Server and is limited to 1000 features for the service. There is no control over which 1000 features are returned and if an extent has more than 1000 features there is no notification that not all features were downloaded.

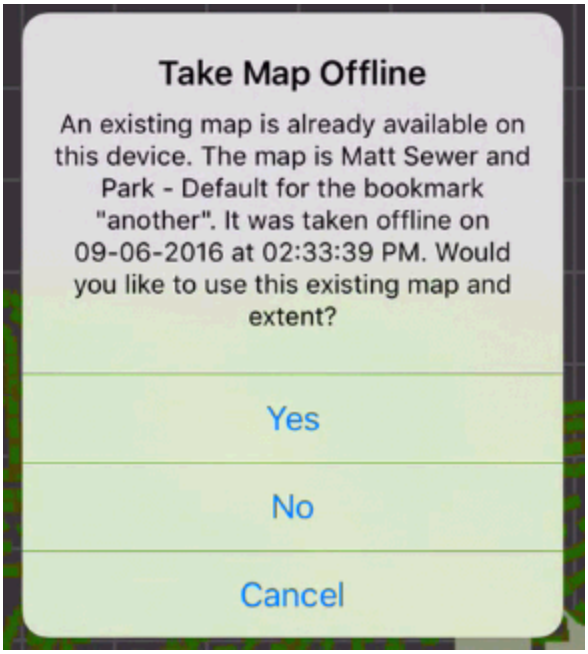
Depending on how the maps and map services are designed in Lucity Administration tools it is theoretically possible for the maps to look different offline than online. Offline maps do not support advanced symbology, data joins, plus other features that online maps can use. You also may make the decision not to include all map services in the offline map.

Once a map is available offline, it can be re-used without downloading again. If a map has already been downloaded for the device, the prompt for taking a map offline will provide information about what map is already available offline and ask the user what should be done:

Android



Apple



Maps are stored on a user by user basis on the device.

Most features from the online map work the same offline. There are a few functionalities not supported offline. Some of these limitations are:

- Offline maps do not support searching for addresses
- Show in map will not show addresses. It will only show XY points and assets.
- Offline maps do not support redlining
- Offline maps do not currently support the relationships tool (viewing related inspections, viewing related work orders)

Working Offline

Only dashboard items that are marked for mobile offline use will appear in the dashboard. Only data drills, asset trees, and quick lookups show up on an offline dashboard (quick lookups for Apple online and offline dashboards coming Fall 2016).

	2014r2	2015	2015r2	2016	2016r2
Android Offline	X	X	X	X	X
iOS Offline				X	X
Asset Trees Offline				X	X
Expanding Asset Trees Offline					X
Expanding Data Drills Offline				X	X
Quick Lookup Android				X	X
Quick Lookup iOS					X

Once offline, it is not possible to log out or to change clients. Users can exit the app. Re-opening the app opens it in offline mode and does not require a password. It is recommended that tablets be configured with lock screen passcodes to protect data.

The data that is downloaded as a part of the offline cache can range from 500MB to several GB depending on the size of the data on the server and what programs are configured to download to the device. We recommend allotting at least 1 GB for each primary Lucity system that will be on the device (Sewer, Work, Water, Parks, Streets, Storm, Facilities/Fleet/Equip, Electric, GIS). These data caches are shared across users on a device. (Note: GIS offline maps are not shared; however GIS Tiled caches can be shared if they are side-loaded).

Android

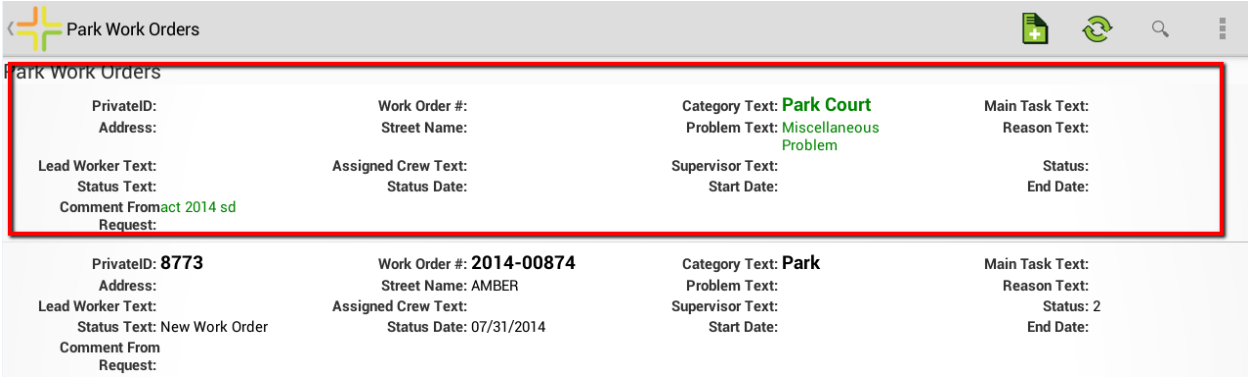
Existing work orders and requests are only accessible from the dashboard for Android. Work Orders and requests can be added through a view launched from a data drill, or from a view launched from the modules menu, or from GIS.

Toolkits and the Create Work Order and Create Request view buttons are not supported offline. Picklists for work order assets in the work order and request and PM forms are also not currently available offline (although the asset data can be manually entered if the user knows the asset id).

Adding new work orders and requests

Adding Work Orders and requests offline is very similar to online. Most of the custom business logic and defaulting does not occur until the data has been saved to the server, however. For example, if a user selects a problem with a default task, that default task will not be automatically populated while offline. The user can either manually select the task or leave it blank and it will populate when the work order is pushed online.

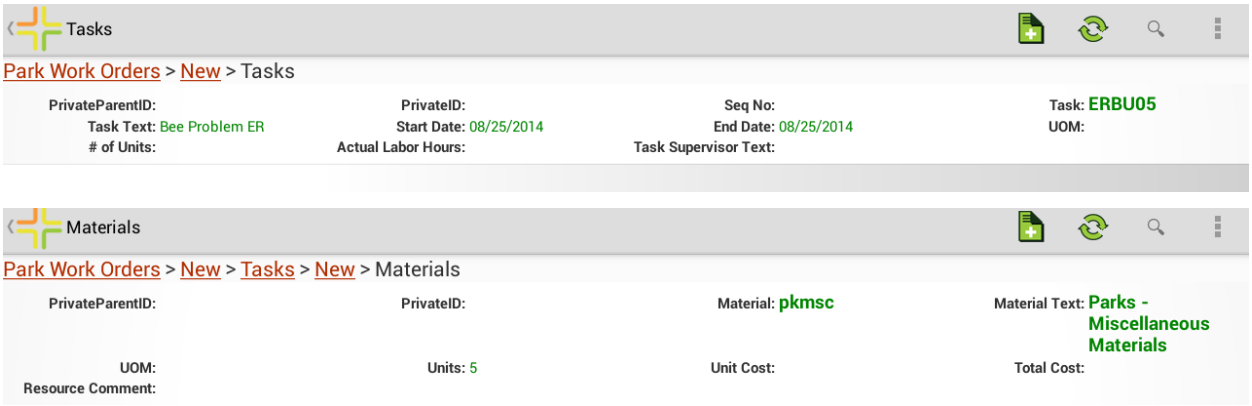
This work order was added offline from the Parks data drill:



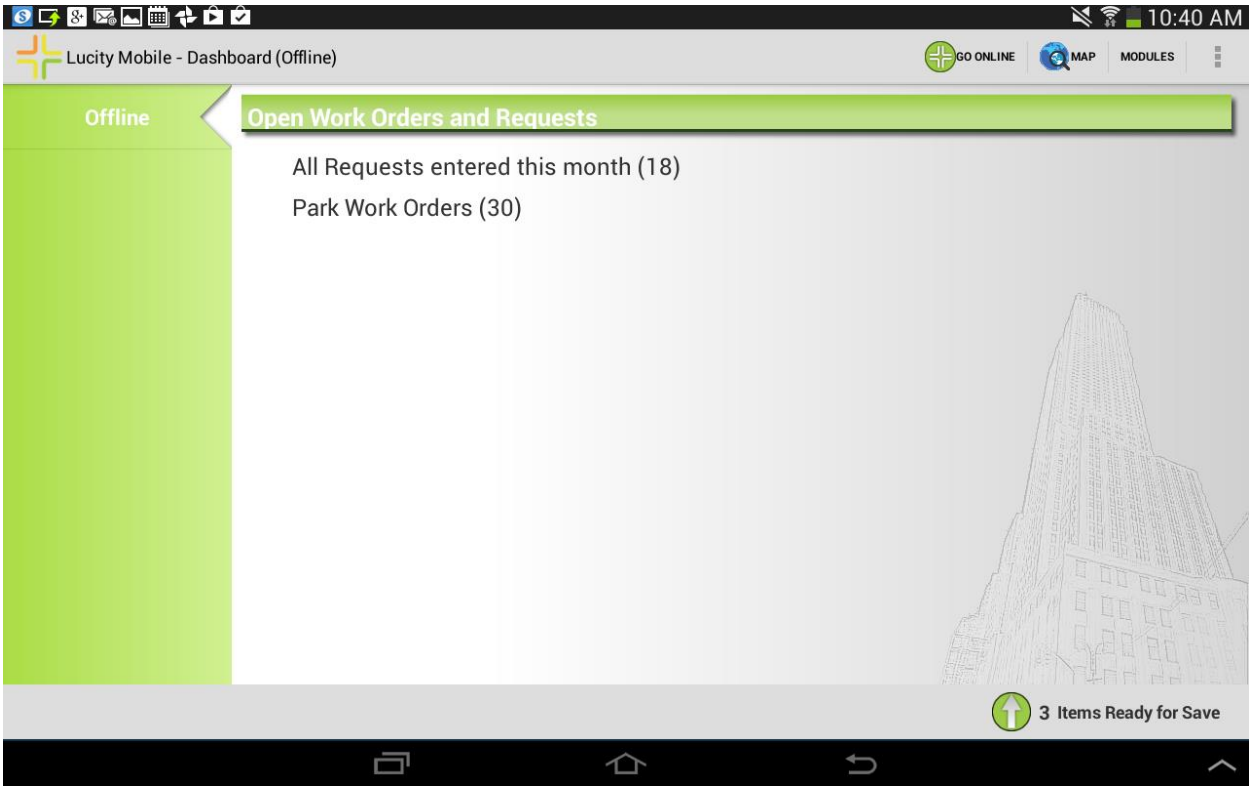
Once added, the work order is automatically added to the Parks data drill with Android (even if it does not meet the criteria for that drill, the offline app does not have enough info to know this). However, the count on the Parks drill is not updated. The count will continue to show the original server side accurate count at the time of download. The work order is also added to the work orders collection accessed from the Modules menu. The new work order will continue to be displayed in the data drill and in the modules menu until the user goes online, then goes offline again. At that point, the work order will no longer appear in the modules menu and will only appear in the data drill if it meets the criteria defined on the server for the data drill.

Notice that the text for records added offline are green.

Continuing on creating this work order, one task and one material were added. The task start and end dates were populated, the resources start and end dates were left blank.



Going back to the dashboard, the dashboard will show how many items are offline and need to be saved to the server due to changes made. In this case, there are 3 (the work order, the task, and the material resource).



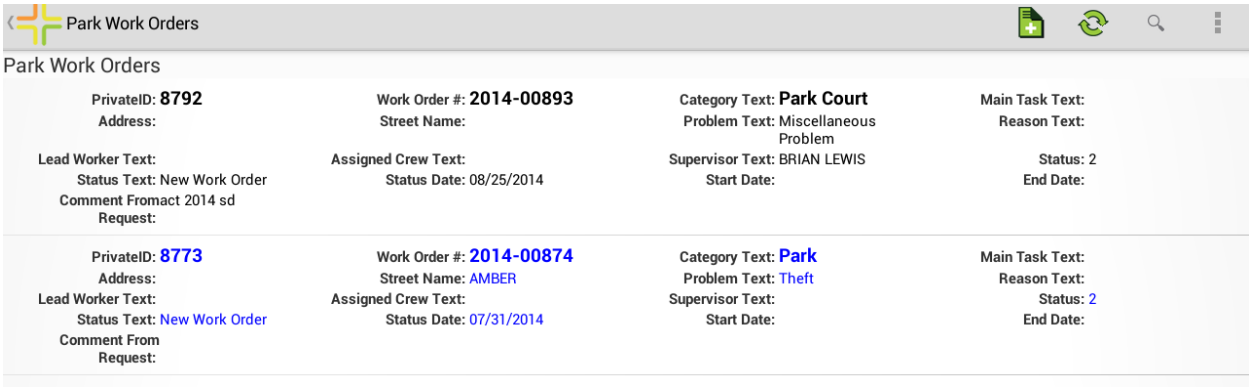
Clicking the "3 Items Ready to Save" button will push these changes to the server (but will not download any new data from the server).

Once the data is pushed to the server, the dates on the material are populated on the server based on the task dates (along with unit of measure and other defaulted values based on the data entered on the forms).

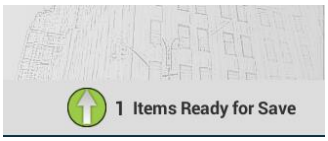
Even if the work order or request does not meet the user's dashboard criteria, the offline work order will remain available to the user since the user has not gone back online.

Editing Data Offline

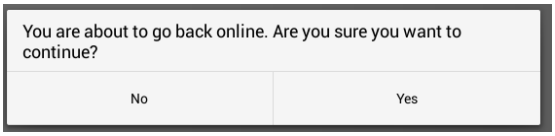
Editing data offline is very similar. The following work order was edited while offline. The text for work orders with offline edits is blue:



After editing a work order, the dashboard shows 1 item ready to save:



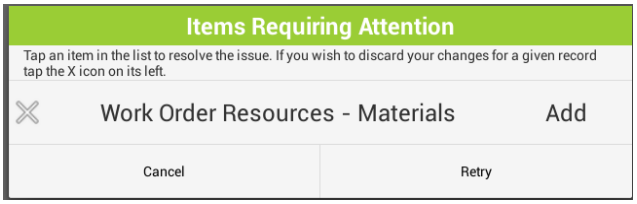
This offline edit can be pushed to the server by clicking this button, or the data will be pushed to the server when the user goes online by clicking the “Go Online” button on the dashboard. Since going back offline again can take a few minutes, the user is warned before going online:



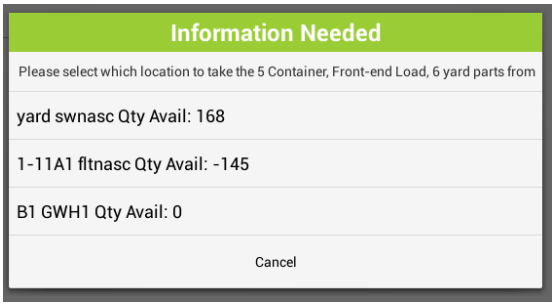
In this case, the user’s work orders (and requests) will be pushed online and when the user later goes offline, the requests and work orders will only be available if they meet the criteria in one of the user’s data drills.

Parts Inventory Prompting

If adds or edits in materials and fluids require information about where parts should be taken, users will be prompted to select a warehouse when taking records online.



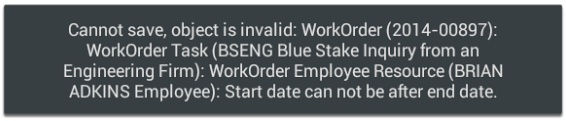
Selecting the material will open the materials form and will display a prompt



So the user can select a part location.

Error handing and resolution

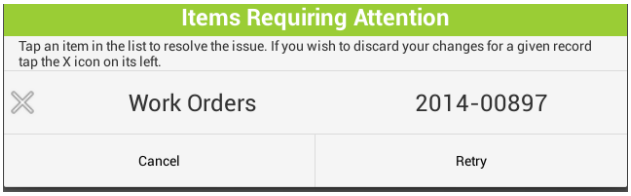
Errors are handled in a similar manner. When a user error is encountered that cannot be caught offline (like breaking a rule with end date and start date), the Requires Attention dialog will include the relevant record. When the user taps on the item it will open the form for the user and show the error:



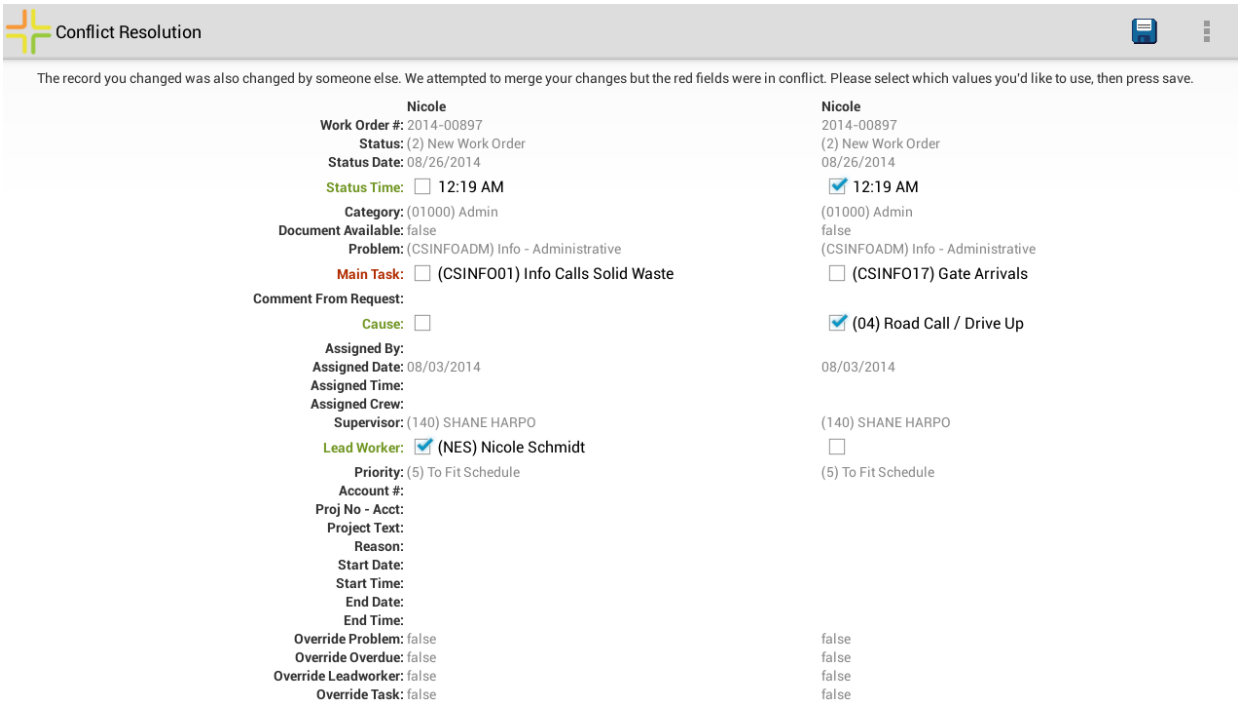
The user can fix the error and click save. To continue reviewing any remaining conflicts, navigate back to the dashboard.

Conflict Resolution

If two users edit the same data on the same record, a conflict can occur. These also appear as items requiring attention during the online push.



A dialog is displayed allowing the user to choose how to handle the conflict:



Place a check next to the value you want to keep and click Save.

Note: The advanced conflict resolution available in Android mentioned here is not offered in iOS.

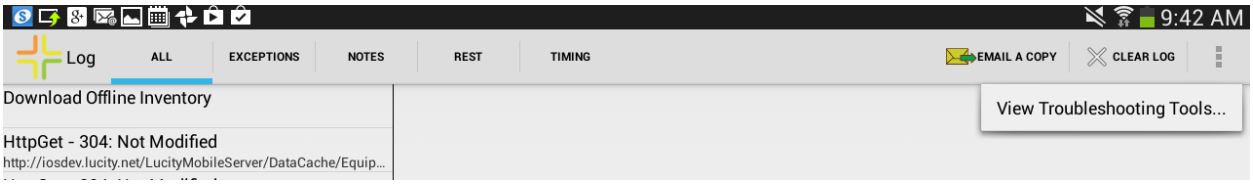
Inventory and Inspections Offline

Inventory data can be accessed from the modules menu, asset trees, or data drills offline. No inspection data is sent to the field, but inspection data can be collected while out in the field (as can inventory data, if desired, but GIS editing is not available).

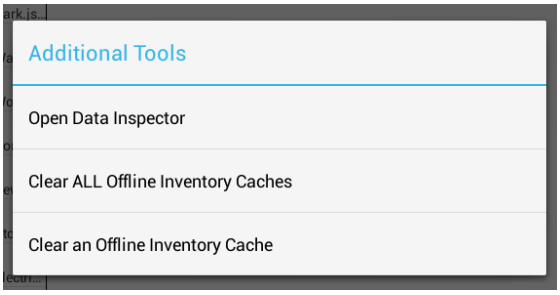
Inspections and inventory are pushed to the server and saved just like requests and work orders. However, inspections and inventory will stay cached offline on the device even after synched to the server until the relevant dataset is scheduled to be updated. For example, a user who is collecting Sign Inspections and has the Street dataset scheduled to update on the tablet monthly will accumulate up to 30 days of offline Sign Inspection data on the tablet. Documents are not kept locally on the device for inspections and inventory once the user goes online, however.

Troubleshooting or inspecting offline data status

To get information about the status of offline data (non-GIS) on a tablet, an interface for inspecting the offline metadata is available. To get to this, go to the View Logs on the menu. Once in the Logs view, click the View Troubleshooting Tools Menu

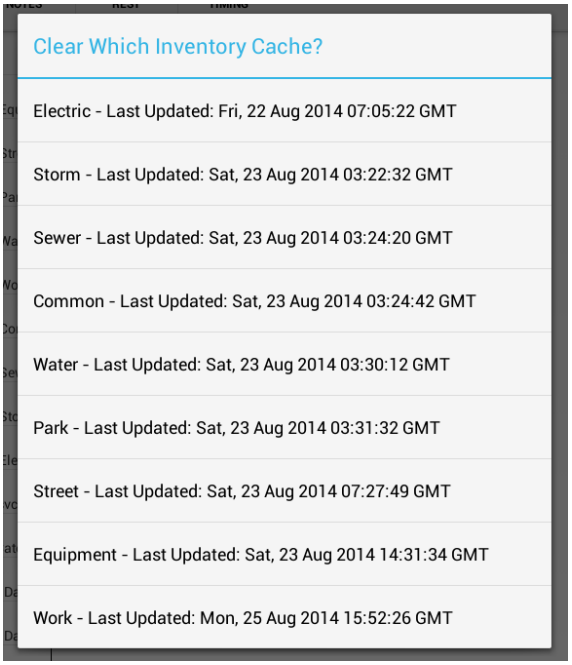


This is available online or offline. It provides 3 options:



The Data Inspector is for Lucity support and development purposes and is not documented for use by end users.

The Clear Offline Inventory Cache options provide metadata about the caches currently stored locally and allows one cache to be forcibly refreshed on the next go offline process.



Apple

Existing work orders and requests are accessible from the dashboard or from the Modules menu. They are also accessible as children of inventory items that are offline. Work Orders and requests can be added through a view launched from a data drill, or from a view launched from the modules menu, or from GIS.

Toolkits and the Create Work Order and Create Request view buttons are not supported offline. Picklists for work order assets in the work order and request and PM forms are also not available offline (although the asset data can be manually entered if the user knows the asset id).

Adding and editing data

Adding and editing data offline is very similar to online. Most of the custom business logic and defaulting does not occur until the data has been saved to the server, however. For example, if a user selects a problem with a default task, that default task will not be automatically populated while offline. The user can either manually select the task or leave it blank and it will populate when the work order is pushed online.

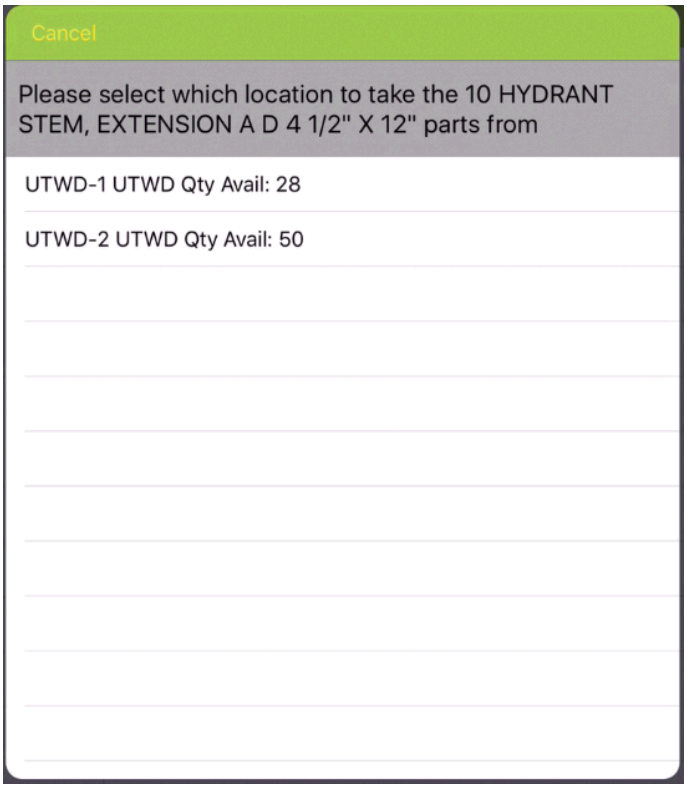
Synchronizing data back to the server

When you are ready to be online again, you need to synchronize your changes back to the server. You cannot go online until all changes have been synchronized to the server or abandoned.

Go back online by tapping the Go Online button.

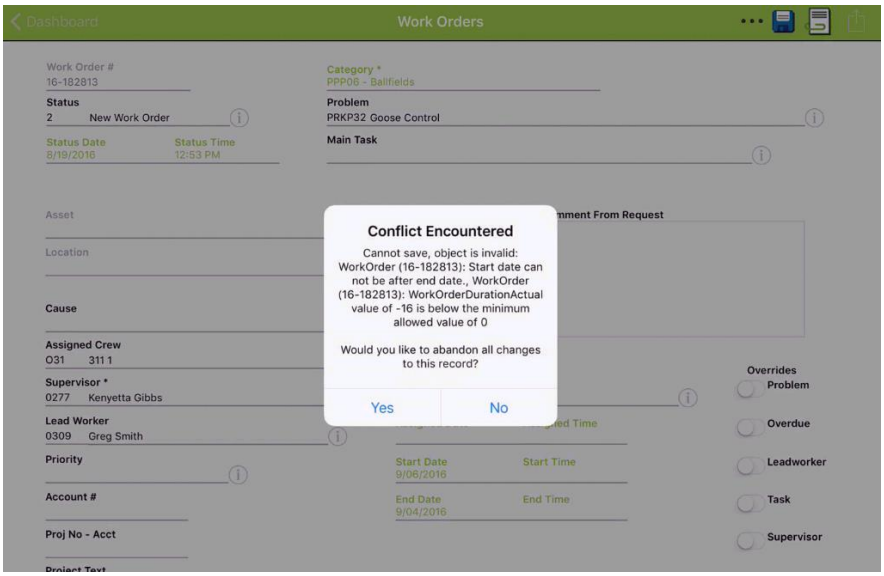
Parts Inventory Prompting

If adds or edits in materials and fluids require information about where parts should be taken, users will be prompted to select a warehouse when taking records online.

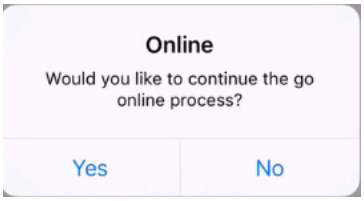


Error handing and resolution

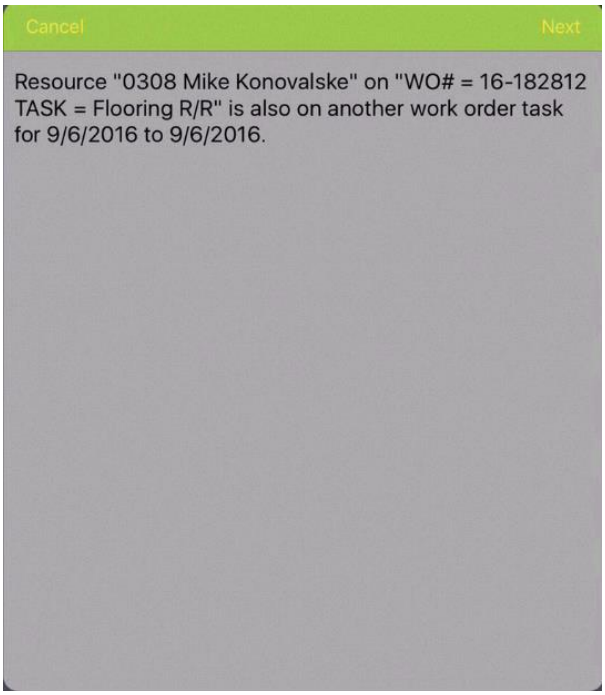
If errors are encountered (errors that cannot be caught by simple required, min/max, valid value error checking), users will be prompted with the error message. For example, if the user enters an end date that is prior to a start date on a work order.



If you click Yes this prompt, the record will be abandoned and the sync will continue. If you click No, you will be able to edit the record and hit Save and the sync will continue.



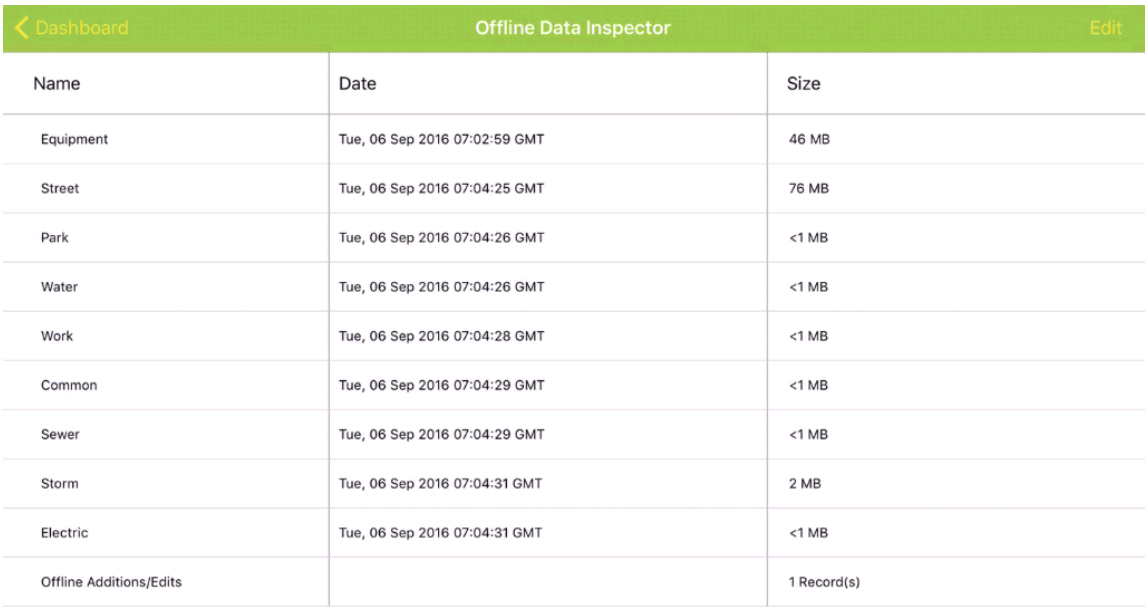
Warnings will be handled with a message dialog with a “Next” button to page through all of the warnings



Troubleshooting or inspecting offline data status

To get information about the status of offline data (non-GIS) on a tablet, an interface for inspecting the offline metadata is available. To get to this, select Offline Data Inspector from the menu on the dashboard.

This screen provides information about what caches are downloaded to the device, when they were downloaded, what size they are, and how many local edits are currently on the device. You can clear a specific cache (which will force it to try and download on the next Go Offline) by clicking edit. You can also discard all of your local offline changes through this Edit menu.



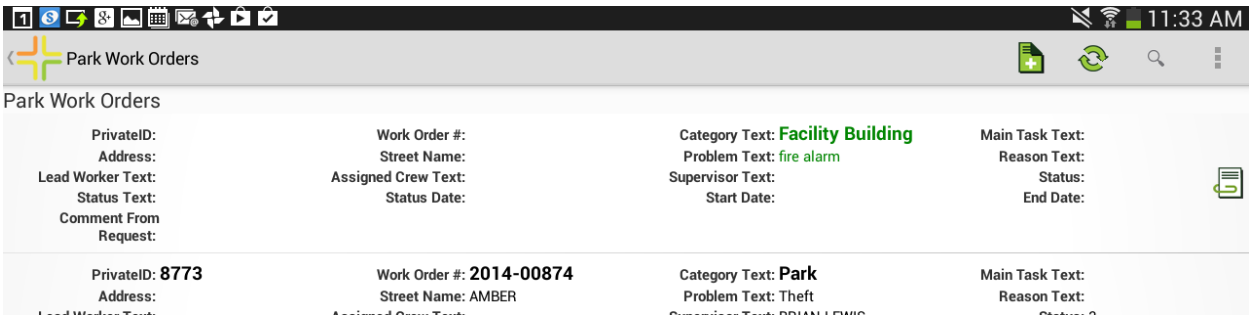
Name	Date	Size
Equipment	Tue, 06 Sep 2016 07:02:59 GMT	46 MB
Street	Tue, 06 Sep 2016 07:04:25 GMT	76 MB
Park	Tue, 06 Sep 2016 07:04:26 GMT	<1 MB
Water	Tue, 06 Sep 2016 07:04:26 GMT	<1 MB
Work	Tue, 06 Sep 2016 07:04:28 GMT	<1 MB
Common	Tue, 06 Sep 2016 07:04:29 GMT	<1 MB
Sewer	Tue, 06 Sep 2016 07:04:29 GMT	<1 MB
Storm	Tue, 06 Sep 2016 07:04:31 GMT	2 MB
Electric	Tue, 06 Sep 2016 07:04:31 GMT	<1 MB
Offline Additions/Edits		1 Record(s)

Documents while offline

Documents can be attached to new or existing records while offline. Existing documents are not available while offline.

Attaching documents works the same offline as online. Unlike the online version however, documents added offline require a description entered by the user.

Documents added offline are available during the current offline session for all modules.



Pushing the edits to the server will save the documents to the server and will leave the documents on the tablet for use locally while offline. Going online will also save the documents to the server, but when the user goes offline again, the documents will no longer be available. This is true of all modules (including inventory and inspections).

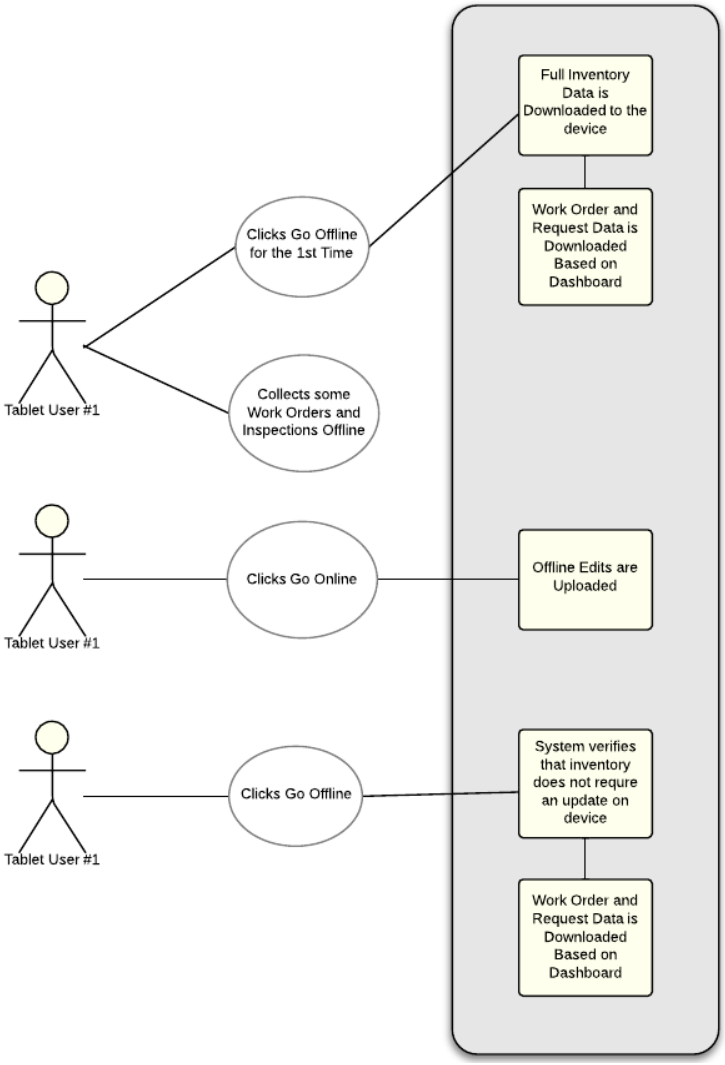
Offline Workflows

When a user goes offline, the tablet application downloads a cache of all of the inventory data so that it is available while the user is offline. The tablet application also reviews the user's dashboard for any Work Order or Request data that is marked for offline use and downloads that as well.

Downloading and processing the inventory datasets for offline use can be time consuming depending on the processor on the tablet and therefore is optimized to only download updates when needed. The following diagrams show some example workflows:

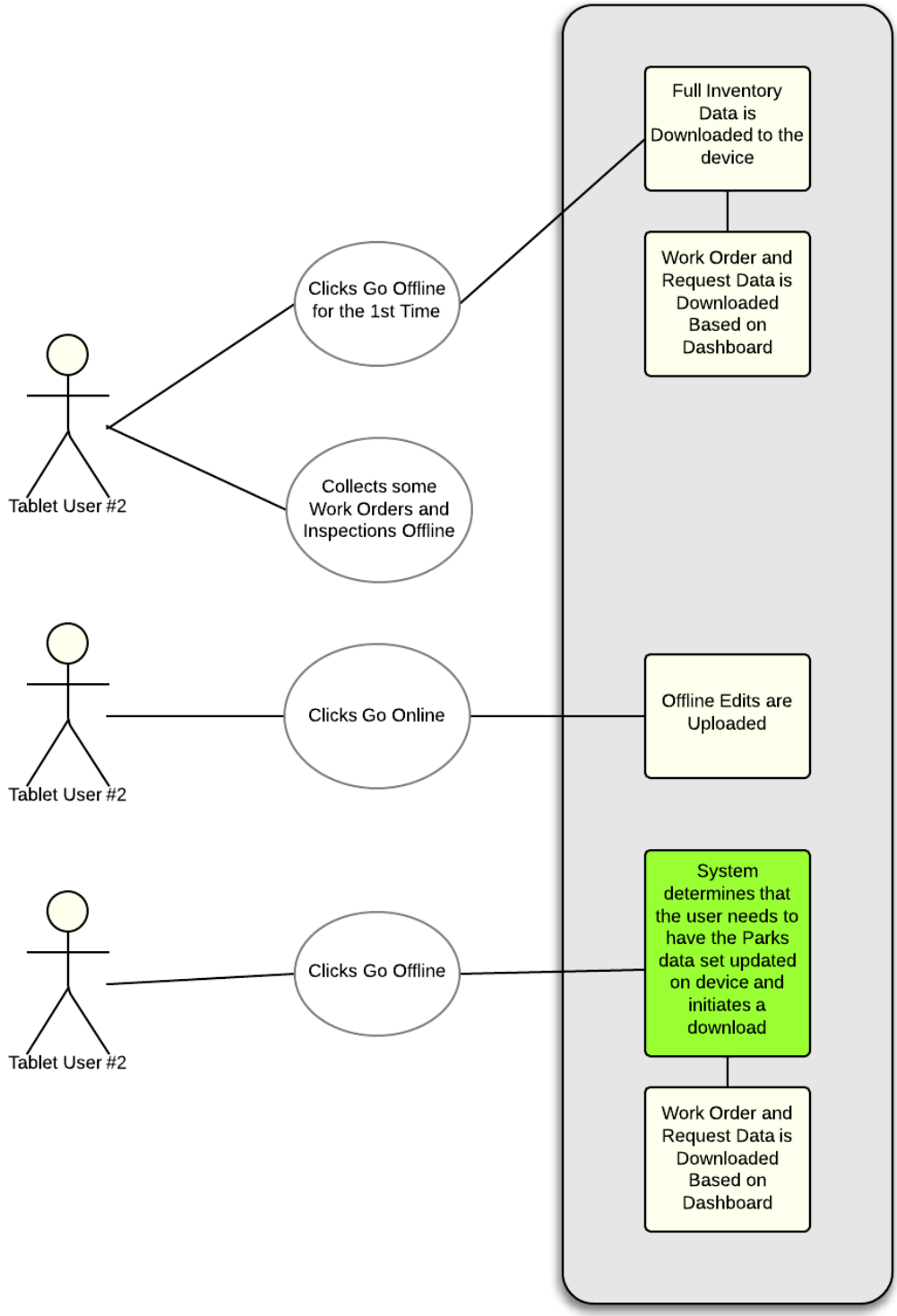
Example 1

Tablet User #1 does not need current inventory data. The data will download the first time and may not download again for a month or 3 months or even a year. The system knows this based on his login. It will check each time he goes offline but if he does not need an update, it will not download an update to the inventory data.



Example 2

Tablet User #2 is working on a project where he needs weekly updates to the Parks dataset on his tablet. All data will download the first time. The system will check each time he goes offline to see if the Parks dataset is older than 1 week. If it is, it will download it when he goes offline.



Inventory Data Cache

Inventory data and the direct children of inventory records (such as comment grids, status grids, field ties) are cached nightly. Inspections and tests, construction records, work projects, and other non-inventory modules are not cached nightly.

By default this cache happens at 2:00 am directly after the 1:45 app recycle.

The time to complete a cache will vary based on how much data you are caching, your database server, and your web server where mobile server is installed. It can range from 20 minutes to 4 hours (or more in some cases although this is cause for review).

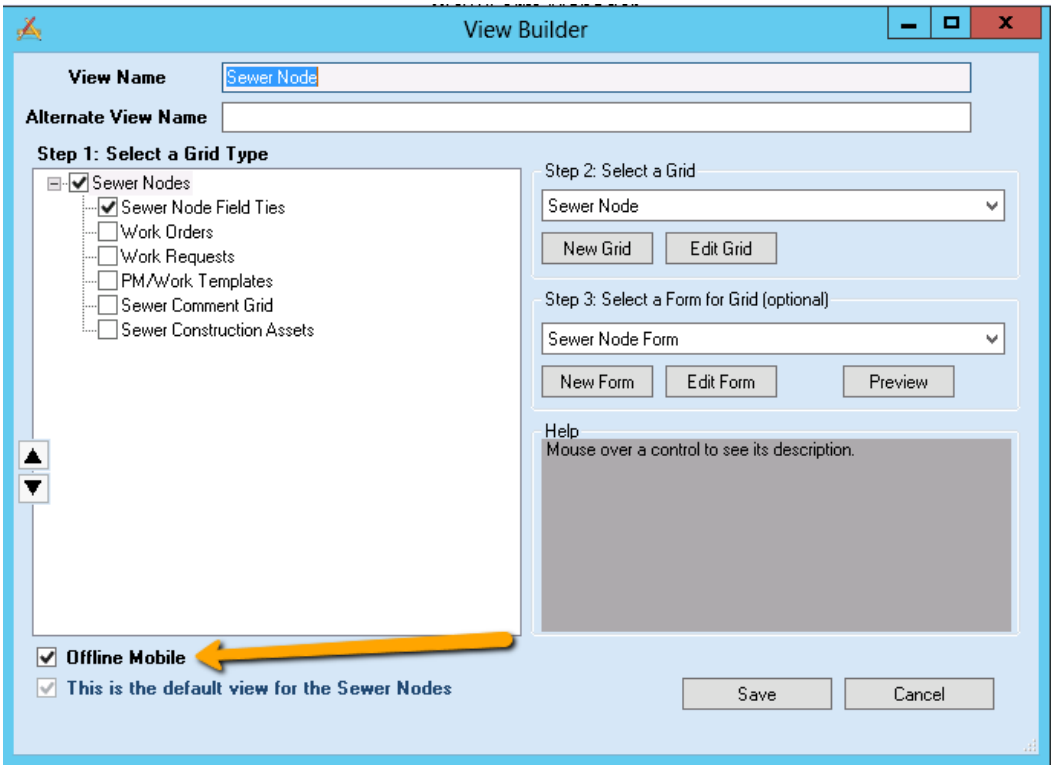
In addition to inventory data and the direct children of inventory records, views/forms/grids are also cached into the nightly static cache. This also will include picklists for fields on forms (including relationship style picklists which can be very large).

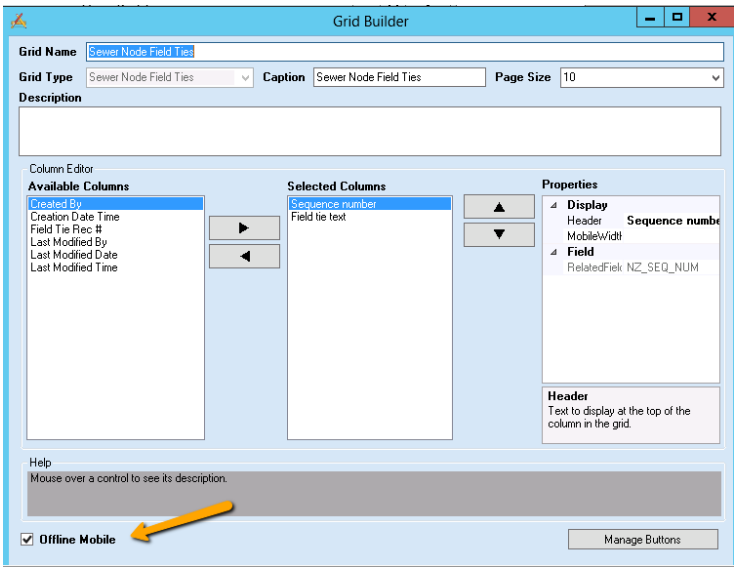
Views/Data

You can control what data goes out to the field so that you can streamline the experience and minimize the load on the server and the bandwidth required to go offline.

Configuring what data is potentially available to offline users

Configure which views are available offline using the Offline Mobile flag in the view builder. And in the grid builder (for children).





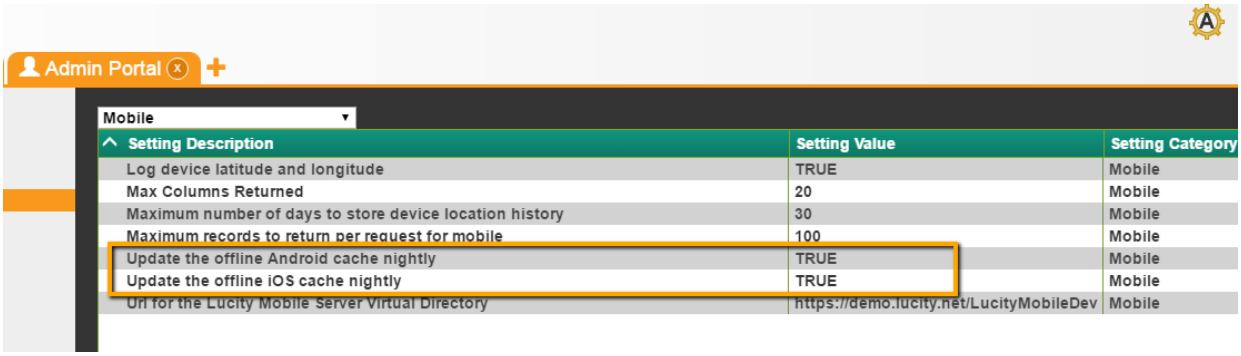
In addition to these settings, starting in Lucity 2016r2, we will also automatically cache views and forms of any module which is flagged for offline in a data drill on an offline dashboard frame for any users in your system.

Enabling the Android or Apple (iOS) cache

Android and Apple caches are separate caches.

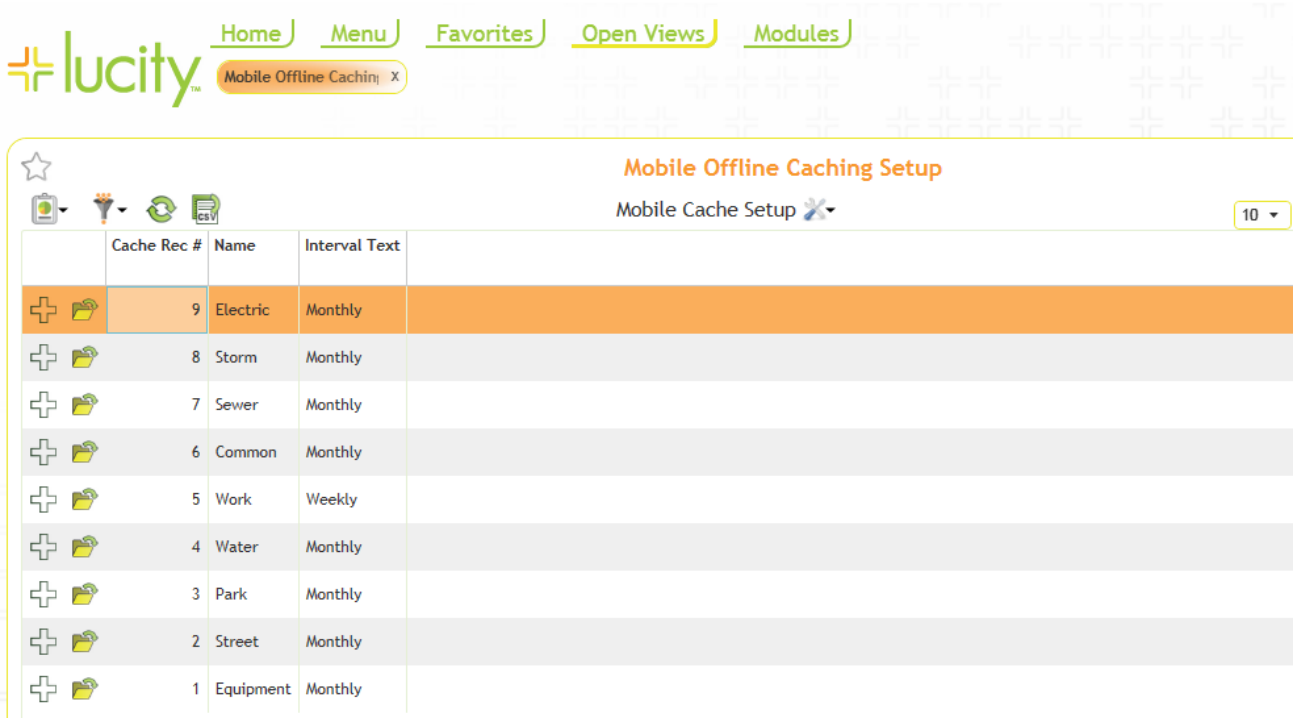
- We produce cache files with a file extension .json for Android
    - These are json formatted text files
    - Pre gzipped to json.gz file
    - The json.gz file is streamed to the client
    - Android post processes the data into a local SQLite database
- We produce cache files with a file extension .db for Apple devices
    - These are SQLite database files
    - Pre gzipped to a db.gz file
    - The db.gz file is streamed to the client

By default, only the Android cache is refreshed nightly. If you want to use Lucity offline on an Apple device, you must enable nightly caching for iOS.



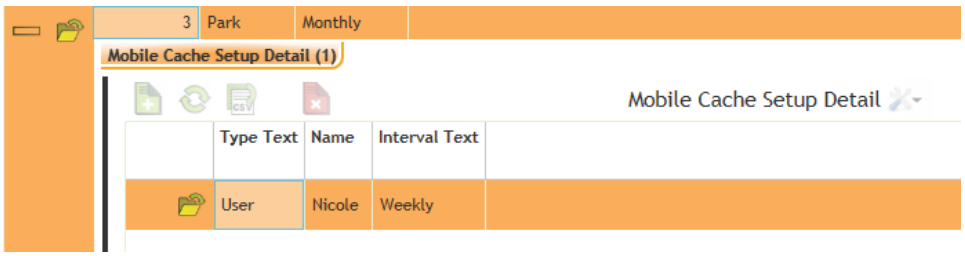
Configuring how often your users get updates

The frequency of tablet downloads is controlled by the Mobile Offline Cache Setup module (under the General menu). This is accessible in Lucity Web, Lucity Mobile, and Lucity Desktop. In order to use this module in Lucity Web and Lucity Mobile a view must be imported or created for the module.



By default all tablets will get all databases monthly. It is important to review and change this to fit the workflows required. Monthly may be too frequent in many cases. Tablets which do not need access to datasets should be configured to not download the datasets.

To configure what is downloaded on a user or group basis, add an override record to the Mobile Cache Setup Detail child of Mobile Offline Caching Setup. These will override the global parent values. The bottom screen cap, Park is configured to download Monthly for all users except Nicole. Nicole gets the data weekly.



One of the picklist options for Interval is “Never”. This allows an administrator to optimize and not send down datasets that a user or group of users will not need. Downloading too many datasets will cause the tablet to take a long time to go offline and will put unnecessary load on the web server.

Performance Considerations

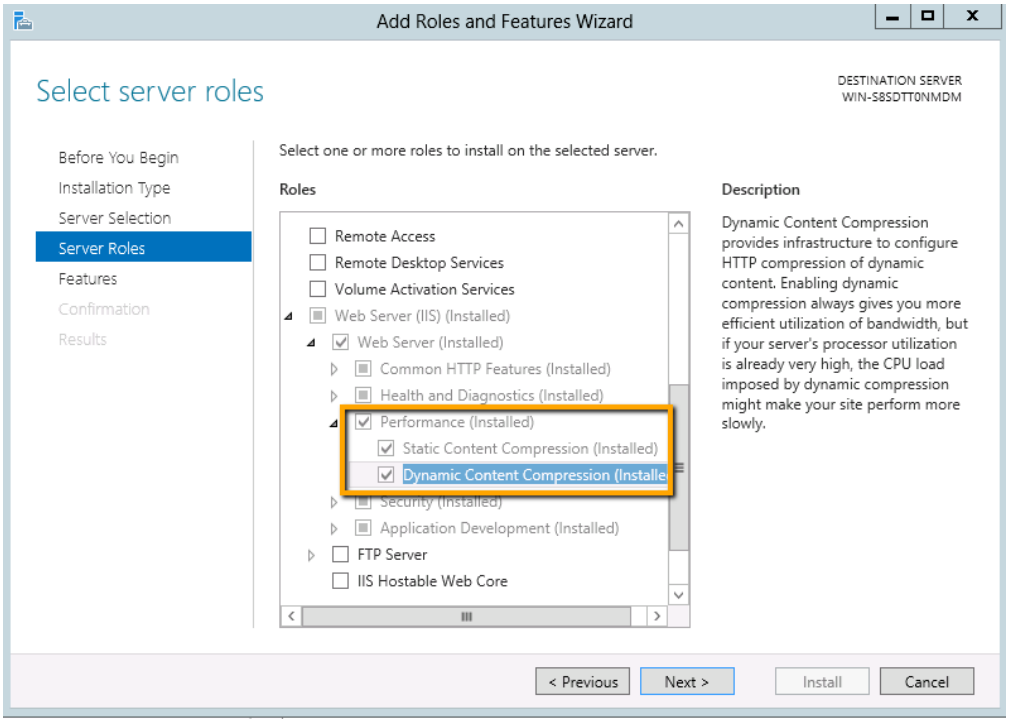
The performance of the Go Offline process is strongly correlated to the processor and memory available on the tablet for Android. Writing to disk is the most expensive activity during a Go Offline process. Slow or older tablets can take 10 to 20 times longer than newer faster tablets at writing information to disk. Keep this in mind when deciding which tablets will use offline data, how much offline data to push to the tablets, and how often the offline data is updated.

For Apple devices, the device model (how old it is) will affect download. Offline is only officially tested on iPads (not touch or iPhone) and we have good luck with most modern Apple devices. The iPad 2nd generation and Mini 1st generation will not perform well.

Additional optimizations that can be made include the following (in order of importance):

- Remove views which are not used or un-assign forms and child views from them or remove the Offline mobile flag.
- Do not add value lookups to forms unless they are needed. Remove value lookups from inventory and inspection forms that are not used or are not important. The default imported forms for Lucity have many fields which may not be necessary for your workflow.
- Remove fields from forms that are not used.

Additionally, you should enable dynamic content compression (if not already enabled) on your web server. This will allow for greater compression of data from the live/short term data cache (Work Orders and Requests).



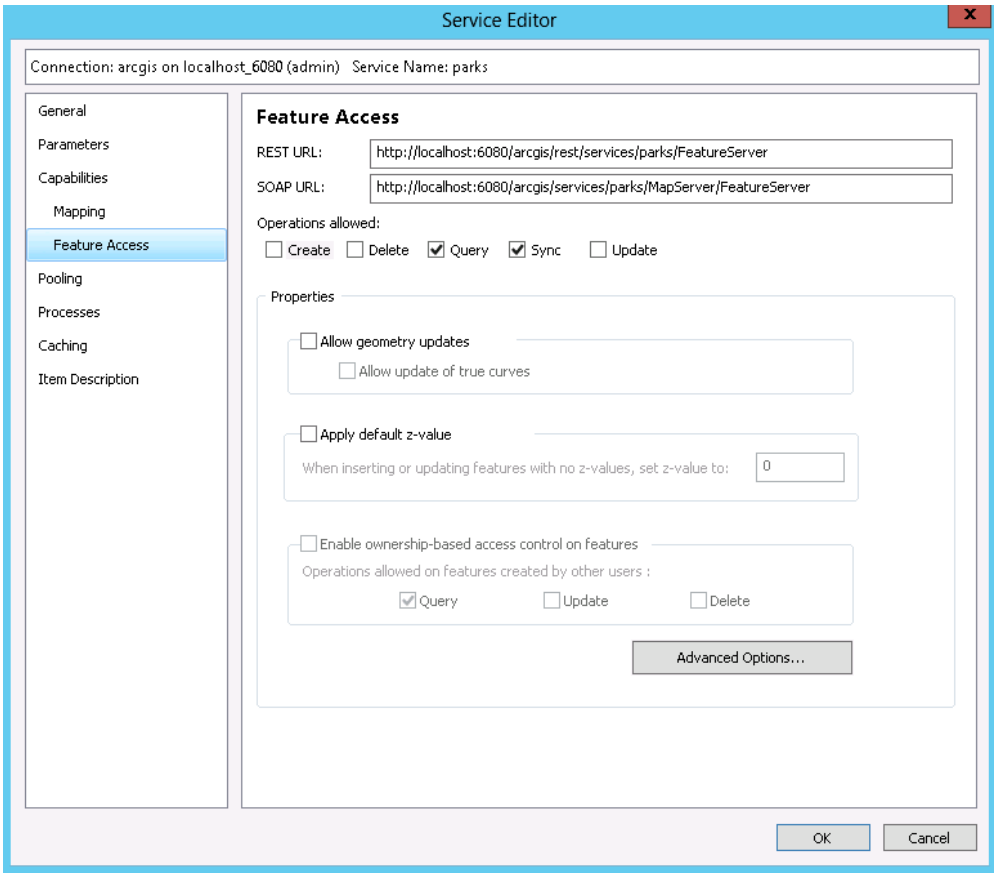
GIS

Configuring GIS for use with offline maps requires deploying feature services and raster tile packages (if desired).

Configuring Feature Services

Feature Services have special requirements for offline usage. They must have Sync enabled.

This is an example of a feature service configured for offline use:

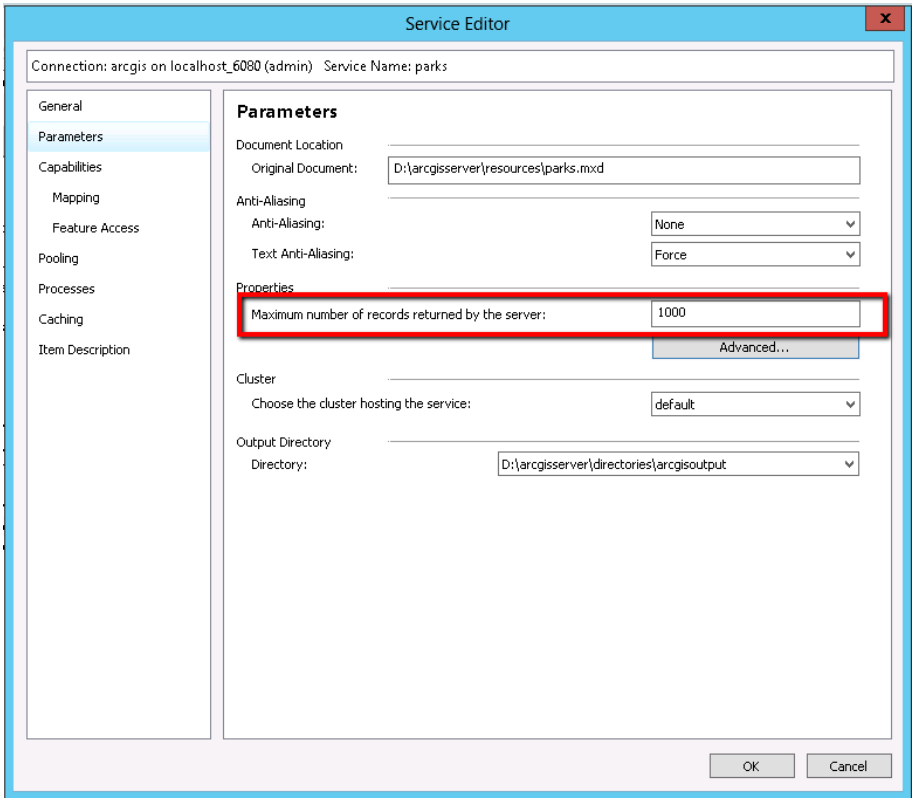


Prior to deploying this feature service:

- Global Ids were added to the datasets
- Data archiving was enabled on the datasets
- Symbology was simplified in the project
- Joins were removed
- Some changes were made to ensure that all layers in the map service were in a consistent state (either all versioned or all un-versioned; in the above example they are all versioned).
- The ArcMap project database connection was switched to a user with edit permissions to the geodatabase

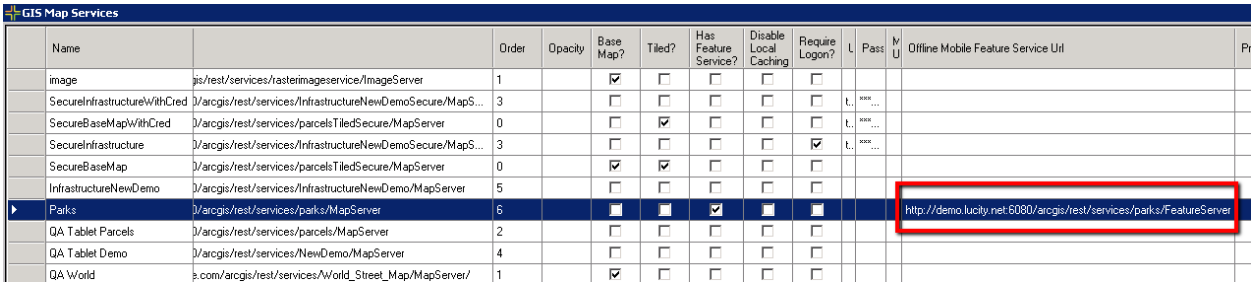
- Switched operational (non-tile cache) services to use the same spatial reference for all operational services
- The analyze tool was run in ArcMap as a part of the map service creation and all issues were resolved that were critical

Another consideration is the map service is the number of features returned. This can be bumped up if desired:



Keep in mind that if the server is returning more features, the offline map process will be slower and will generate more load on the server.

Once a feature service is configured, the map service in Lucity Admin should be configured for the new offline feature service:

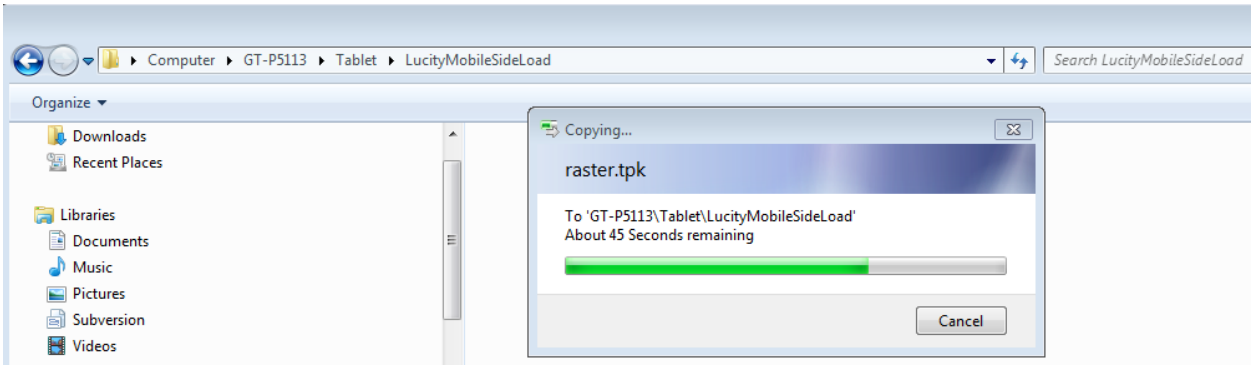


If a feature service url is provided, Lucity will assume that the map can be taken offline with the provided feature service url.

Tile Caches

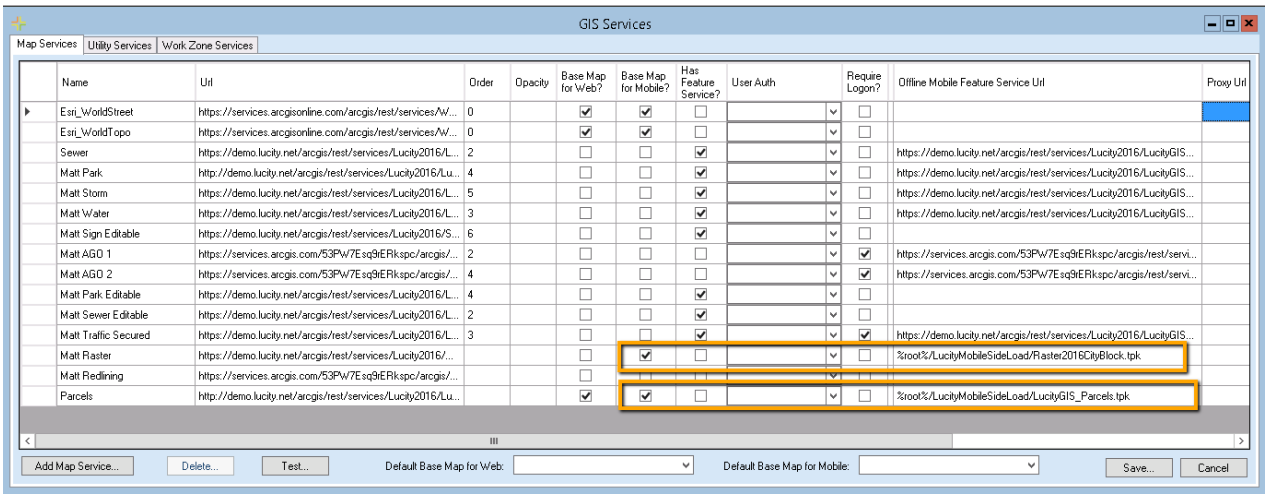
It is possible to side load tile caches on the device to provide a basemap. For details on creating tile cache tpk files, see Esri documentation. Once a tpk is created, it can be copied to the tablet. Create a folder in a consistent hive on the android file system and store the tpk in the same location on each device.

Here the tile cache is being copied to a new folder created on the root of the tablet called "LucityMobileSideLoad".



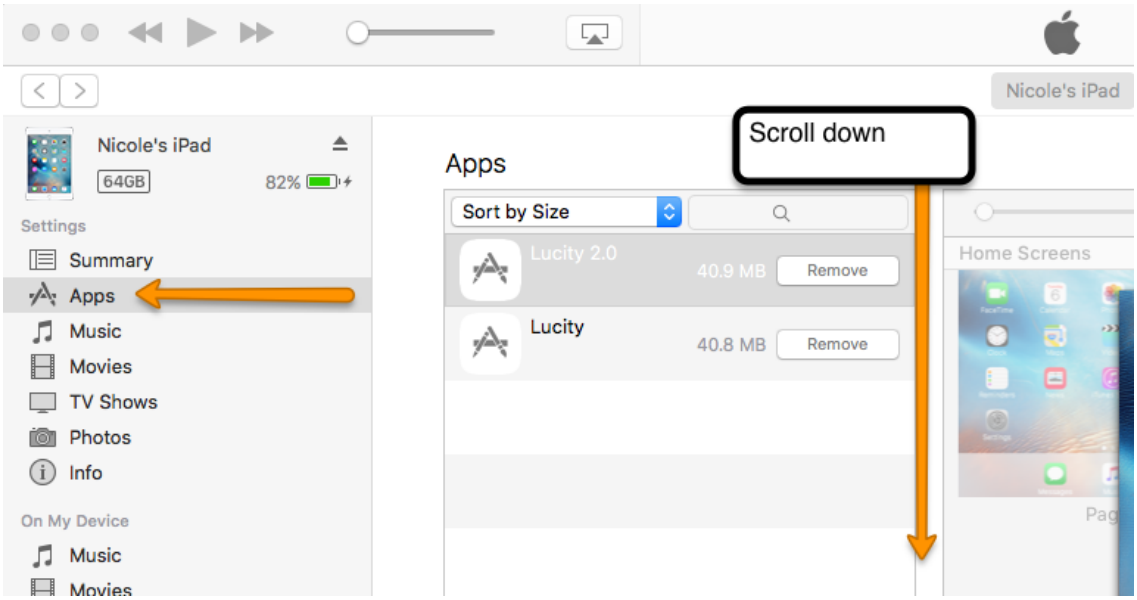
In Lucity Admin, the tiled service used in the map is updated with the location of this tiled cache stored locally: %root%/LucityMobileSideLoad/raster.tpk

The direction of the slashes in the above relative path are important.

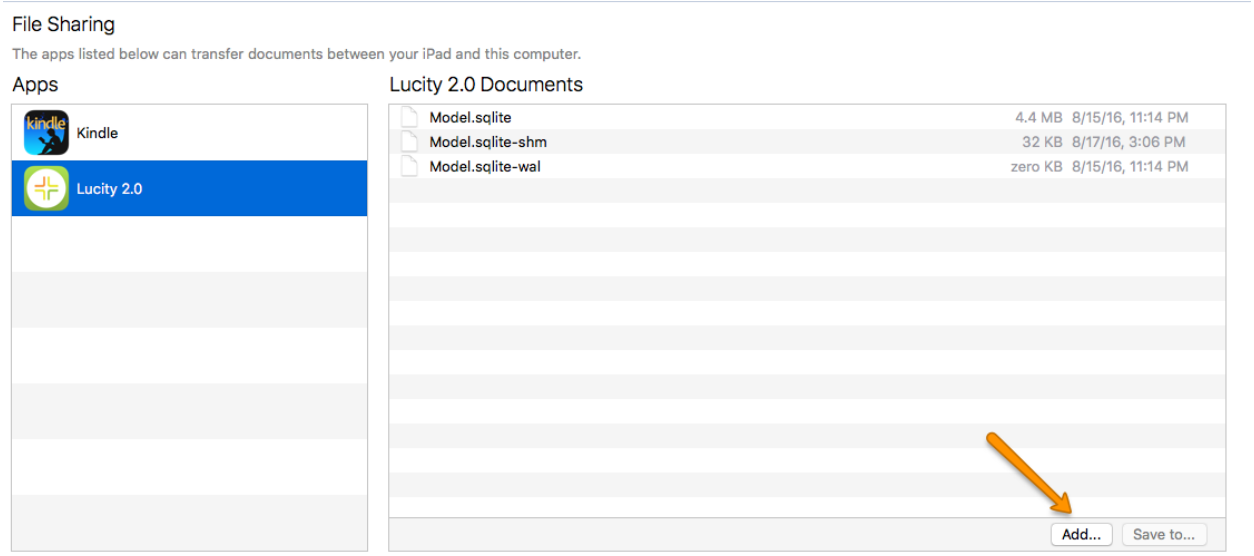


When going offline, the Lucity application will look for side loaded maps and load them for use on the device with an offline map.

For Apple devices, these should be loaded using File Sharing on iTunes. Connect the device to a PC or Mac and open iTunes. Click apps and scroll down to the bottom of the page and look for File Sharing.



Click Add and select the TPKs you want to have available. No folder can be created, it will be stored alongside the Lucity application in a dedicated folder.



You must Sync after adding the TPK.

For iOS, the system will ignore any folder names specified in the Offline Mobile path in GIS Map Services and will only do a file name match to match the TPK with the basemap.