



# Mapping– Mobile Techs and Service Orders

With SouthWare Service Orders and the Mobile Tech portal you have the option to utilize the MapQuest online mapping service to display maps of technician GPS positions and service order addresses. This option provides several benefits:

1. Service Dispatching – Display a map of open service order addresses and/or current positions of your technicians
2. Tech Access to Map Display – Display a map within the Mobile Tech portal of the technician’s current GPS position and the positions of each open service order for the day
3. Tech Manager Review – Display a map of GPS positions of a technician that have been logged during a day – this is activated in the configuration options (see [Tech Mgr documentation](#))
4. Mapping of Tech Time Tracking – Display map of Tech Time events (see [Tech Time Tracking documentation](#)). If you use the Technician Time Tracking option to record technician time events then GPS positions are also logged with each event.

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## Required Setup

To activate GPS Position Mapping you must enter the following configuration options in the “Tech Tracking” tab of the Enter Service Order “SO Config” tab.

### Tech GPS Position Mapping

**Capture Tech GPS Position?**

- Auto Update Interval

**Store GPS Tracking Data?**

**Map Icon Images**

- Tech - On-Site  

- Tech - Other Status  

- S/O - Normal  

- S/O - Priority 1  

- S/O - Late  

- S/O - Unassigned  

**MapQuest AppKey**   
(Required for map display - set up in NL Control Record)

### Capture Tech GPS Position?

Check this box to activate the capture of the GPS position of technicians via the mobile device browser. The Mobile Tech portal will capture GPS position data:

- For each Technician Time Tracking event (such as the start of a service order)
- At a regular interval defined in the next field

#### NOTE:

The Chrome browser beginning with version 50 will not capture GPS info unless your site uses https instead of http. If you intend to use Chrome as your browser you must use an https address for your Mobile Tech NetLink configuration.

## Auto Update Interval

Select the interval for regular automatic updates of the technician's current GPS position. When the technician accesses the Mobile Tech portal a timer is started that will capture the current GPS position based on this interval.

### NOTE:

If you choose to keep GPS Tracking History (next option) be aware that MapQuest does not allow more than 50 locations on a single route map. The Tech Manager portal allows managers to view the daily route taken by a tech, so updating every 15 minutes would result in up to 36 records in a 9 hour day (4 per hour) plus other tracking records for service work, travel, lunch, etc.

## Store GPS Tracking History?

Check this box to create history records of the GPS positions for each tech throughout the work day. Each time the portal captures the current tech GPS position it will check to see if the position has changed since the last update. If the position is different the portal will create a "GPS Position" tracking record. This allows management to review the daily routes traveled by technicians.

***GPS Positions are captured only if a mobile tech is logged into the Mobile Tech portal and the device is active.*** The tech does not need to be looking at the portal, but the portal must be active in the browser and the device must be active. If the technician logs out of the portal/browser or turns off the device then GPS positions are not captured.

If you use this feature the Tech Manager Portal will display an additional "GPS Tracking" tab when viewing a technician. A manager can pick a date and view the tracking positions of the technician throughout the day. See the "Technician Manager Portal" documentation for information on how a manager may review GPS tracking history.

### NOTE:

The portal will create a GPS Position record only if the position (latitude/longitude) is different than the previous GPS update. If a technician stays at the same position for several hours then no new GPS Position records will be created until the technician moves to a new GPS position.

## Map Icon Images

For each of the following situations you may specify an image file name (located in the NetLink "images" directory) to display on maps.

### Tech – On-Site

This will show the technician's position on the map when the technician is currently working on a service order. (Default is "techicon.png")

### Tech – Other Status

This will show the technician's position on the map when the technician is NOT currently working on a service order. (Default is "truckicon.png")

#### S/O – Normal

This will show the position of a service order that is not high-priority (priority of 1), is not late, and is not unassigned. (Default is "pin\_green32.png")

#### S/O – Priority 1

This will show the position of a service order that has a priority of 1 and is not late and not unassigned. (Default is "pin-red32.png")

#### S/O – Late

This will show the position of a service order that is late (not started and past the scheduled time). (Default is "warning32.png")

#### S/O – Unassigned

This will show the position of a service order that is not assigned to a technician. (Default is "unknown32.png")

### **MapQuest AppKey**

This will display the MapQuest Consumer Key specified in the NetLink Configuration record (NL-01-01, field 8, MapQuest Appkey). You must have obtained a valid key from MapQuest in order to use this feature.

### **MapQuest Notes**

This function utilizes the MapQuest online service and requires a valid MapQuest Consumer Key. A MapQuest key may be obtained by accessing <https://developer.mapquest.com/plans> and purchasing the pricing plan that provides for the transaction volume your business needs.

MapQuest is a paid online mapping service. You must be connected to the Internet to use MapQuest maps. You must also have a MapQuest AppKey which uniquely identifies your map usage requests.

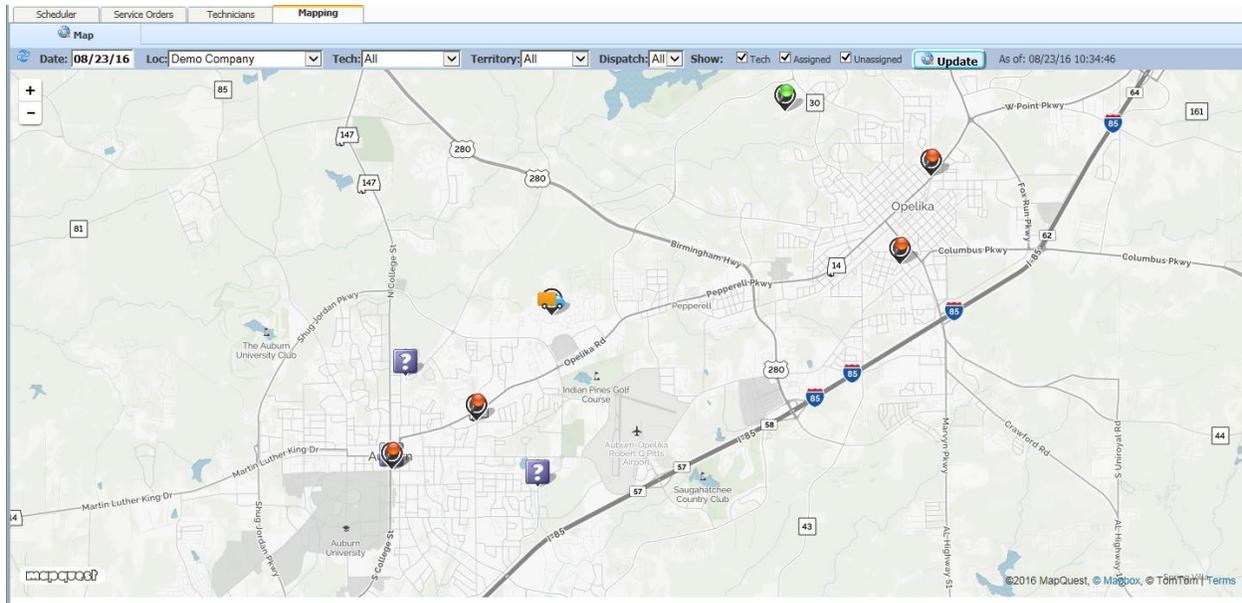
Addresses that you map via MapQuest are tracked by MapQuest as a "transaction". Any fees charged by MapQuest are based on your monthly volume of transactions. At the time of this writing (February 2017) here is the transaction fee schedule:

<p><b>\$0</b> with registration</p> <p><b>FREE</b> Give us a try! Get started quickly and easily.</p> <p><b>15,000</b> transactions per month</p> <p><a href="#">Get Started</a></p>	<p><b>\$99</b> per month</p> <p><b>BASIC</b> Good for start-ups, small businesses, and destinations.</p> <p><b>30,000</b> transactions per month</p> <p><a href="#">Buy</a></p>	<p><b>\$199</b> per month</p> <p><b>PLUS</b> For those that require a bit more scalability and flexibility.</p> <p><b>75,000</b> transactions per month</p> <p><a href="#">Buy</a></p>
<p><b>\$399</b> per month</p> <p><b>BUSINESS</b> Mid tier solution that offers performance and flexibility.</p> <p><b>200,000</b> transactions per month</p>	<p><b>\$799</b> per month</p> <p><b>BUSINESS PLUS</b> Top tier solution that allows for your company to grow.</p> <p><b>500,000</b> transactions per month</p>	<p><b>CUSTOM</b> Dedicated Account Management</p> <p><b>ENTERPRISE</b> Dedicated account management and a customized plan.</p> <p><b>ZERO to BILLIONS+</b> of transactions</p>

# Service Order Dispatch Mapping

## Mapping Tab

When you activate this feature the Service Scheduler portal displays a “Mapping” tab. When you choose this tab a map will display with icons showing the locations of service orders and icons showing the last GPS position reported for each technician.



When you access the Mapping tab it shows data for the combination of:

- Today’s date
- Your default service location
- All techs
- All service territories
- All dispatch operators
- All related service orders, including unassigned

The map allows you to change any of the following parameters and Update the map to show selected information:

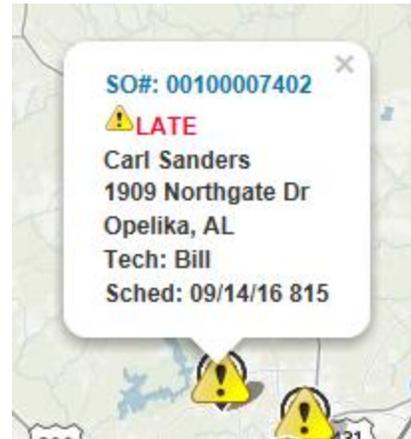
- Date
- Service location (one or all)
- Technician (one or all)
- Service territory (one or all)
- Dispatch operator (one or all)
- Whether to show technician locations

- Whether to show assigned service orders
- Whether to show unassigned service orders

## Zoom Options

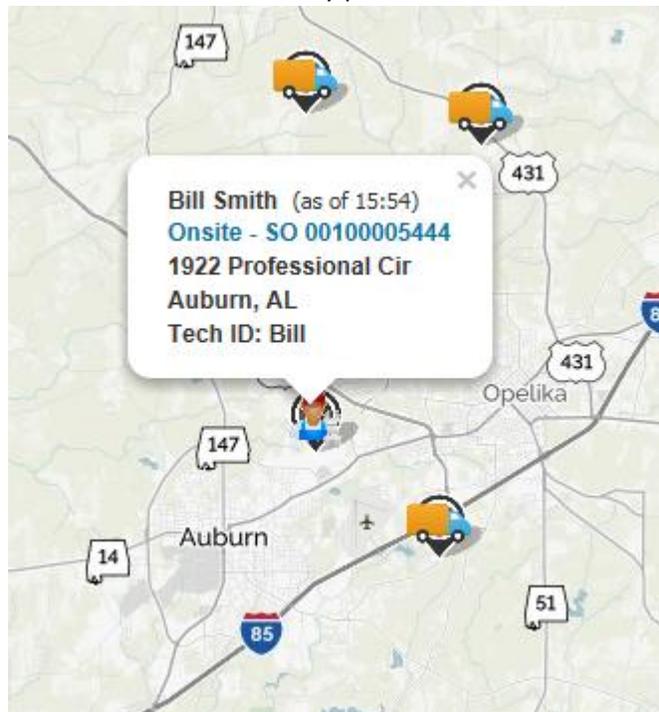
### Service Orders

You may click on a service order icon to display more info about the service call. A popup box shows info relevant to routing and scheduling. You may also click on the link to access the service order entry portal.



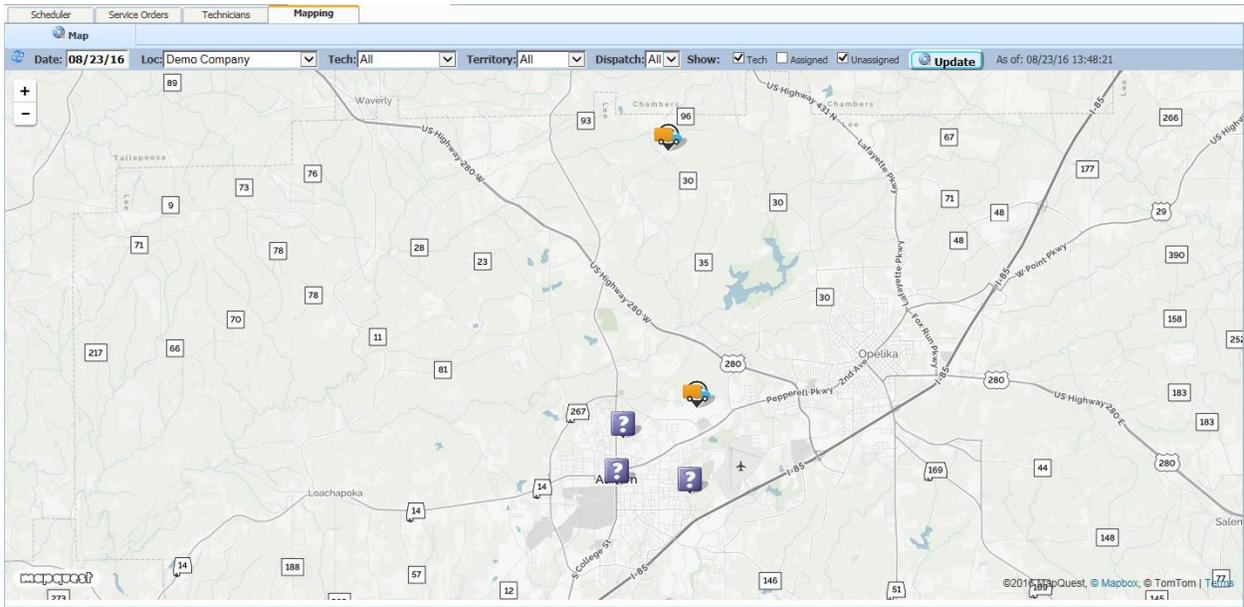
### Technician

You may click on a technician to see the street address of his current position along with his current activity (if you are using the Tech Time Tracking feature). If the tech is currently working on a service order you may click on the service order link to access the service order entry portal.



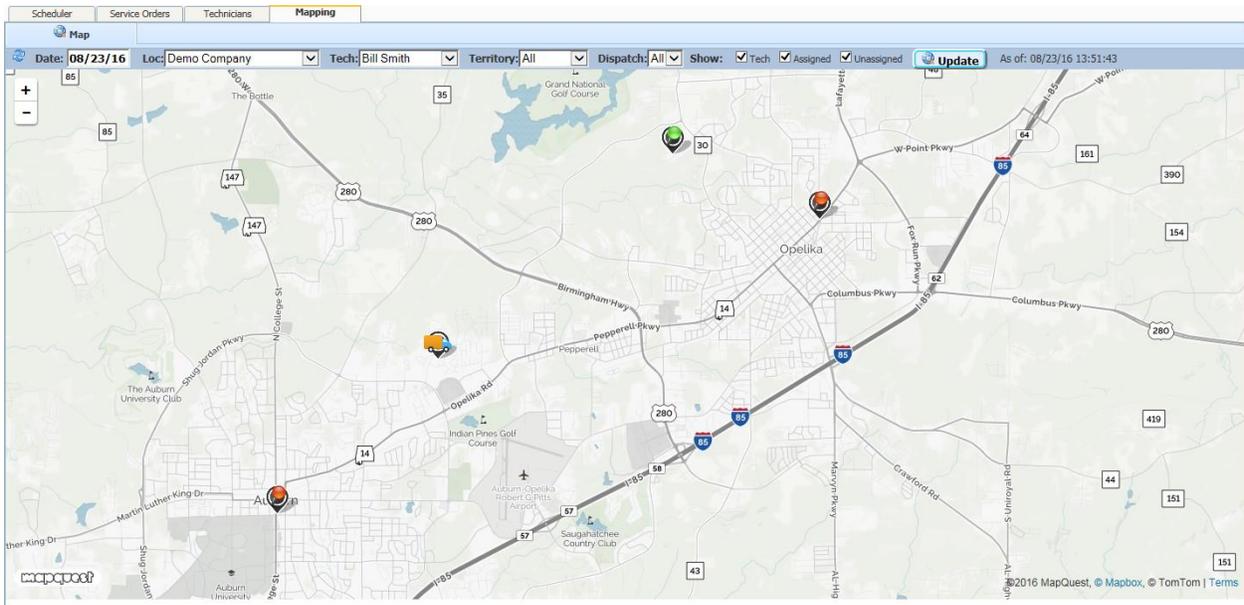
## Mapping Examples

Here are some example situations you can display by changing the parameters:



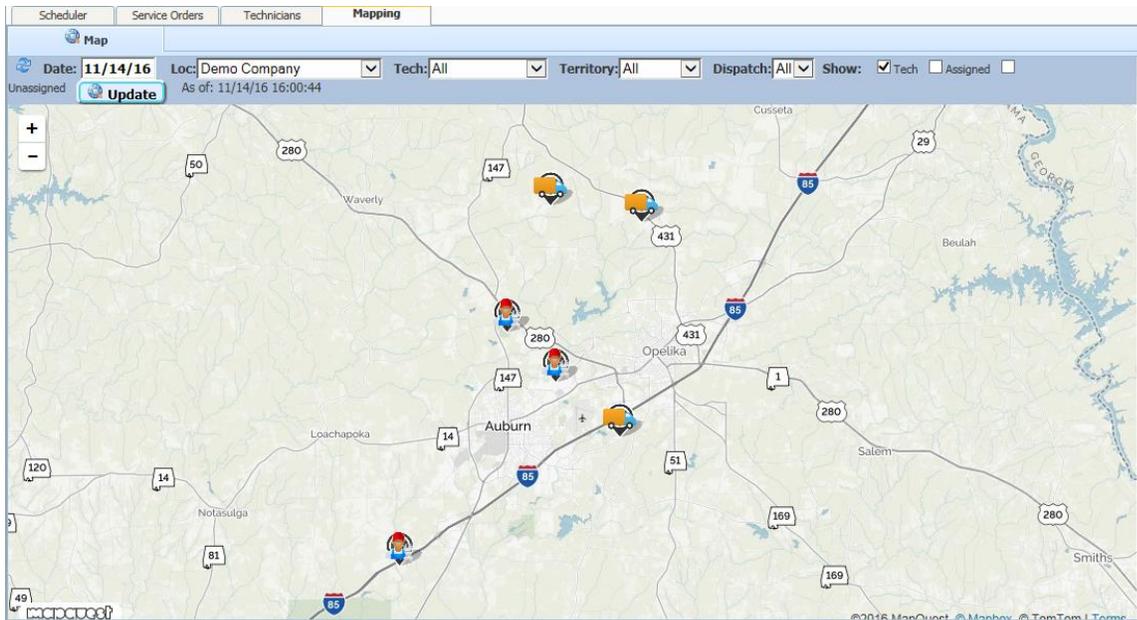
*Display all Unassigned Service Orders and current tech positions*

- Uncheck the option to show assigned service orders



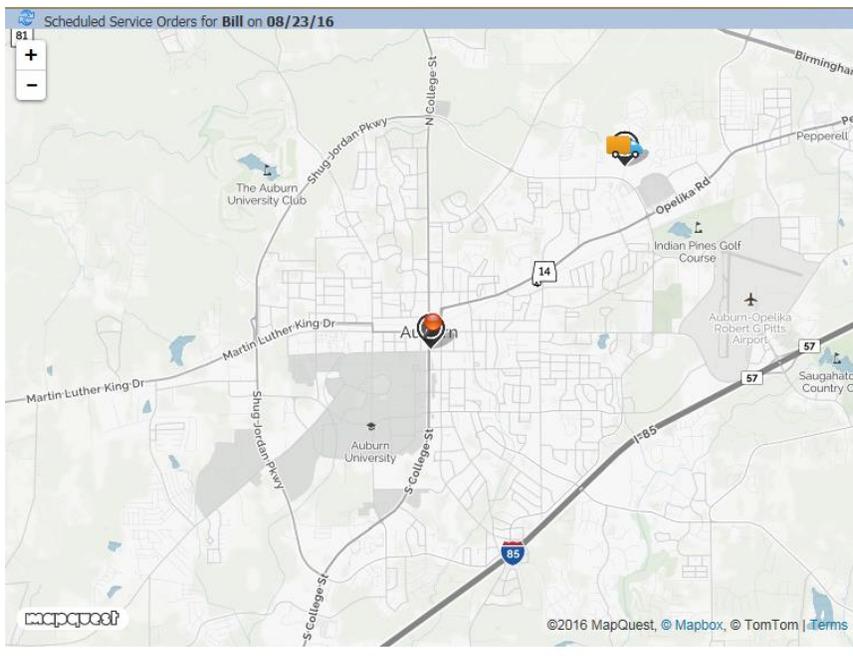
*Display all Service Orders for One Tech*

- Select a single tech from the dropdown list



Display only the current positions of all techs

- Uncheck the service order options



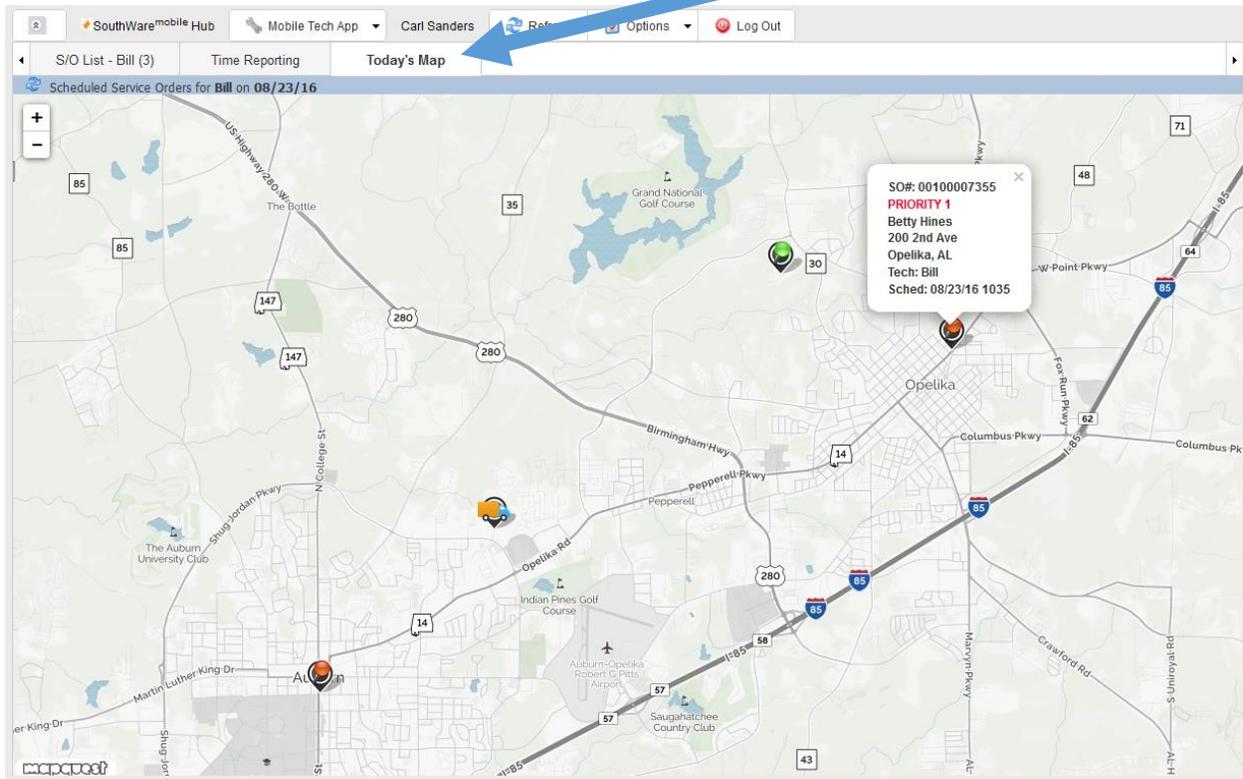
Location of a service order and the current location of the assigned technician

- Zoom to the map from a service order displayed in the scheduler board

## Mobile Tech Mapping

With this feature your mobile service technicians can utilize GPS Position info provided by their browser to display current maps showing technician location and service order locations. This function utilizes the MapQuest online service and requires a valid MapQuest Consumer Key.

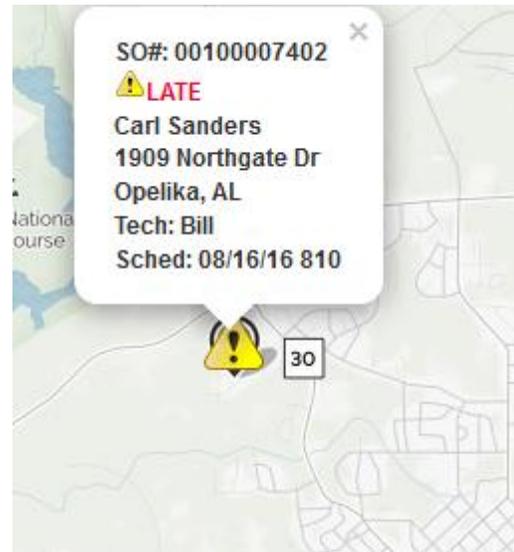
When you activate this feature the Mobile Tech portal displays a “Today’s Map” tab.



This map shows the technician’s current position (as of the last GPS reading) along with all pending service orders for today. The map shows icons for the technician and service orders based on the images defined in the configuration options. This can help the technician with route planning and scheduling.

## Map S/O Info

The technician may click on a service order icon to display more info about the service call. A popup box shows info relevant to routing and scheduling.



## Technical Notes

### How Technician GPS Position is Captured

In order for the Mobile Tech portal to capture technician GPS position:

1. the mobile tech device must have GPS capability
2. the mobile tech user must give the NetLink site permission to access GPS information (the browser typically asks a question and the user should select to “Always” give permission to the NetLink site)
3. the browser must support the HTML Geo Location API

When the Mobile Tech portal needs to get the current position it uses the browser’s built-in “geolocation” capability. The portal requests that the browser provide the current GPS coordinates, and the portal then sends these to the NetLink server for processing and storage.

The HTML Geo Location API is a standard feature of HTML 5, and should work in all recent browsers. However, the **resulting GPS coordinates will only be as accurate as the GPS capability of the device**. Here is a statement from the introduction to the document explaining the standard:

The Geolocation API defines a high-level interface to location information associated only with the device hosting the implementation, such as latitude and longitude. The API itself is agnostic of the underlying location information sources. Common sources of location information include Global Positioning System (GPS) and location inferred from network signals such as IP address, RFID, WiFi and Bluetooth MAC addresses, and GSM/CDMA cell IDs, as well as user input. No guarantee is given that the API returns the device's actual location. (<https://dev.w3.org/geo/api/spec-source.html>)

### How MapQuest is Used

MapQuest is a paid online mapping service. You must be connected to the Internet to use MapQuest maps. You must also have a MapQuest AppKey which uniquely identifies your map usage requests. Addresses that you map via MapQuest are tracked by MapQuest as a “transaction”. Any fees charged by MapQuest are based on your monthly volume of transactions.

When a SouthWare portal displays a map it calls the MapQuest server and provides addresses/locations to map. The MapQuest service renders the addresses/locations as icons on an interactive map. In most cases you may hover over or click on an icon to view more information.

- **Technician Positions** – The position of technicians is known via the GPS coordinates captured via the browser’s geolocation capability. Therefore when technicians are mapped they are mapped by passing latitude/longitude to MapQuest. In the MapQuest API this is considered “reverse geocoding” where we know the latitude/longitude and are trying to determine the street address. The portal tells MapQuest to provide the “best” representation of the GPS coordinates. Other info about the technician and the position are sent to the MapQuest API as popup “markers” that provide the additional details for a map icon.
- **Service Order Addresses** – The locations of service orders are known via the service street address of the service order. Therefore when service orders are mapped they are mapped by passing the street address to MapQuest. In the MapQuest API this is considered “geocoding” where we know the street address and are trying to determine the latitude/longitude. The portal tells MapQuest to provide the “best” representation of the street address. Other info

about each service order is sent to the MapQuest API as popup “markers” that provide additional details for the service order icon.

## NetLink Requests

### Service Order Mapping

The Mapping tab displays the NetLink request QSSOTECHMAP. This request obtains data points to be mapped by using two separate ReportMate reports:

- Service order data is output by the ReportMate format QSSOMAPS. The data contains street addresses from the selected service orders, and is formatted in JSON format.
- Technician position data is output by the ReportMate format QSSOMAPT. The data contains GPS latitude/longitude data that is output from special fields in the technician file (SV18), and is formatted in JSON format. These special fields determine the last reported GPS location for each technician from records stored in the technician time tracking data.

The service order data is then mapped by the page using the geocoding feature of MapQuest maps. The technician data is mapped using the reverse geocoding feature of MapQuest maps. The icons that display are based on the configuration options defined in the “Tech Tracking” tab of the “SO Config” tab available in the Enter Service Orders portal.

### Mobile Tech Mapping

The Tech Mapping page uses the NetLink request of MTTECHSOMAP.