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Introduction

What are exceptions?

The exceptions functionality offers comprehensive monitoring and reporting tools that help you manage field service operations efficiently and improve the productivity of your business.

Exceptions help managers monitor activities and events that are unexpected or that fall outside business-defined bounds. For example, a real-time exception notification can be triggered when drivers drive faster than the specified maximum speed, leave their vehicle idling for longer than the specified number of minutes, approach specific landmarks, or fail to log in within expected times.

Exceptions are offered as a standard feature of GeoManager. Additional exception types are provided as part of optional GeoManager packages that can be added to your client account for an additional fee. Some exception types are dependent on specific hardware. Please contact customer support if you want to add functionality to your service package.

Who can use the exceptions functionality?

Access to the exceptions functionality is controlled based on capabilities assigned to the user’s role. For example, only users who have the Exception Administration capabilities in their user role can set up and edit exceptions. The descriptions given in this manual assume that you have access to all the exceptions functionality. For more information about the capabilities, see “Role-based access” on page 52.

How is exception data presented?

Depending on how the exception has been configured, and on the type of exception, exception data can be viewed in a number of different ways. You configure the methods of exception notification when you create or edit the exception.

Exceptions can be configured to trigger real-time notifications as the events occur, or as a scheduled daily summary of events.
The following notification methods may be available, depending on the type of exception:

- Real-time emails or text messages are sent to one or more recipients as soon as the exception is triggered.
- Standard emails or text messages are sent to one or more recipients the following day.
- The Exception Alerts panel in the top right of the GeoManager window displays the label of the mobile device that has triggered the most recent alert. You can expand the Exception Alerts panel to show the 10 most recent exception alerts that have been triggered today.
- The Exception Console displays the 100 most recent exceptions that have been triggered in the last 24 hours.
- Exception reports can be generated to show the exceptions that have been triggered by the selected mobile devices in the specified period. You can generate a report that shows all the occurrences of a particular exception (for example all the idling exceptions) triggered by the selected mobile devices in the specified period. Alternatively, you can generate a Consolidated Exception Report that shows all the exceptions in a single report. The reports can be generated on demand or scheduled for dispatch by email to a list of recipients. The scheduled reports can also be posted on your FTP site.
- An Exception History Report can be generated for a selected mobile device on the Device Management tab. The Exception History Report contains the same information as the Consolidated Exception Report but is limited to the most recent exceptions (up to 10) generated in the last 14 days by the selected mobile device.

For more information about viewing exceptions, see the Device Management Help in GeoManager. For more information about the exception reports, see the GeoManager Reports Overview.

Creating exceptions

When you create an exception, you specify the parameters that will trigger that exception. The actual parameters vary according to the exception type. For example, a speed exception could be triggered when a mobile device (vehicle) exceeds a specified speed for a number of minutes. An idling exception could be triggered when a vehicle is idling for longer than the specified number of minutes. You also specify the time periods during which the exception will be monitored, and the list of mobile devices (vehicles) that will be monitored by the exception.

Real-time exceptions

Depending on the exception type, you can set up the exception notification for real-time delivery or for standard delivery. Not all exceptions are available as real-time exceptions.

Real-time delivery means that the specified recipients are informed by email or by text message when the exception is triggered. Each instance of an exception is sent in a single message. For
example, for a speed exception, you can configure the exception so that the named recipients are notified when the vehicle has been speeding for the specified number of minutes.

Standard delivery means that the exceptions are processed overnight and then delivered to the named recipients by email or by text message on the following day. All the instances of an exception are consolidated into one message.

**How long is exception data available?**

How long the exception data is retained in GeoManager depends on your contract with Trimble.

If you want to retain information beyond your GeoManager data retention period, we recommend that you schedule regular exception reports and store those reports (for example in PDF format). If you want to extend your data retention period, please contact customer support.
Overview

List of exception types

The list of exception types available to you depends on your service package but can include the following. These exception types are described fully later in this document.

- **Advanced Safety Management — Hard Brake**
  A hard brake exception is triggered when a driver brakes harder than expected. This exception type is only available with the Advanced Safety Management package and is only available for iLM 4200 and iLM 4500 mobile devices.

- **Diagnostic Fault**
  A diagnostic fault exception is triggered when a fault code is generated in the vehicle in which the mobile device is installed.

- **Driver Safety Hard Brake**
  A hard brake exception is triggered when a driver brakes harder than expected. This exception type is only available with the Driver Safety package. It is available for all device types that support Driver Safety.

- **Forms**
  A forms exception is triggered when the contents of a field in a form sent by a driver meet specified parameters.

- **Handset Usage**
  A handset usage exception is triggered when a hand-held mobile device has failed to contact GeoManager for a period of time during working hours.

- **Idling**
  An idling exception is triggered when the vehicle engine is left idling for longer than expected. That is, when the vehicle ignition is switched on but the vehicle is not moving.

- **Landmark**
  A landmark exception is triggered when a vehicle (mobile device) stops within the geofence around one of the specified landmarks.
■ Landmark Proximity
A landmark proximity exception is triggered when a vehicle (mobile device) arrives within or departs from the geofence around one of the specified landmarks and remains there for at least one minute.

■ Low Battery
A low battery exception is triggered when the battery level of an in-vehicle or hand-held mobile device falls to a low level and remains low for longer than expected.

■ Main Power Disconnect
A main power disconnect exception is triggered when a plug-and-play device is unplugged/disconnected.

■ Messaging
A messaging exception is triggered when a predefined message is sent by the driver.

■ Mileage
A mileage exception is triggered when a vehicle (mobile device) is driven further than the expected distance in one day.

■ Mobile Device Vicinity
A mobile device vicinity exception is triggered two or more vehicles (mobile devices) stop near to one another for longer than expected.

■ Off Hours/Unauthorized Use
An off-hours-use exception is triggered when the mobile device registers vehicle movement outside the work shift specified for that mobile device.

■ Posted Speed Limit Violation
A posted speed limit exception is triggered if the speed of the vehicle (mobile device) exceeds the posted speed limit by the value specified in the selected high, medium or low severity level.

■ Speed
A speed exception is triggered if the speed of the vehicle (mobile device) is higher than expected for longer than the specified number of minutes.

■ Stop
A stop exception is triggered when a mobile device stops at landmarks or other locations for longer than the specified total number of minutes in one day.

■ Stop Count
A stop count exception is triggered when a driver has made more stops than expected or fewer stops than expected at a landmark or another location.

■ Stop Duration
A stop duration exception is triggered when a mobile device stops for longer than expected at any location.

■ Switch Status
A switch status exception is triggered when the status of a switch in a vehicle changes while the vehicle is stopped. For example, when a door is opened or closed, or a pump engine is switched on or off.
■ Temp Status
  The temp status exception is triggered when the temperature inside a mobile asset rises outside the acceptable range.

■ Unauthorized Vehicle Usage
  An unauthorized use exception is triggered when a mobile device is moved without a valid driver login.

■ Zone
  A zone exception is triggered when a mobile device arrives at or departs from the specified zone. The zone can be defined to be a city, postal/ZIP code, county, state/province, special zone (such as a congestion charge zone) or a landmark.

Setting up an exception

Setting up an exception involves the following basic steps:

1  Selecting the type of exception you want to set up.
   For example, select an idling exception.

2  Specifying the parameters for the exception.
   For example, for a speeding exception, specify how fast a vehicle has to be moving and for how many minutes before it triggers an exception.

3  Specifying when you want the mobile devices to be monitored.
   For example, you can monitor the devices for specified periods of time, or for 24 hours a day.

4  Specifying who to notify when an exception occurs, and how.
   When an exception is triggered, the notification can be sent by email or by SMS, or displayed within GeoManager. For some exception types, you can choose to be notified as soon as the exception occurs (real-time notification) or as a summary on the following day.

5  Specifying the list of mobile devices that you want to monitor with this exception.

Creating an exception

1  On the Administration tab, click Devices, and then Exception Administration.

2  Click Exception Management.
   The Exception Administration window appears. If exceptions have already been set up, the Exception Administration window displays a list of the first 10 current exceptions. When you open the window for the first time, the list is empty.
   For each displayed exception, you can see at a glance the name of the exception, the exception type, the number of mobile devices that are being monitored by the exception, and whether the exception is enabled or disabled. Newly created exceptions are automatically enabled.
Exception Administration

- You may want to view all the current exceptions before creating another exception.
  - To display the next page of exceptions, click **Next** on the right of the window.
  - To display more than 10 exceptions on a page, select a value from the **Display** list at the right of the window. The list automatically updates.
  - To reduce the list of exceptions listed, select a specific exception type from the **Show** list at the top left. You can also choose to display just the exceptions that start with, contain, or end with a particular string by selecting from the list and then entering the search text. The search is not case sensitive. For example, you could choose to display all the zone exceptions that contain the letters _BE_ or _be_.

3. Click **Create New** to create an exception.
4. Click an exception type from the list to select it.
   - For more information about each standard exception type, see “Exception types” on page 12.
5. Enter the parameters for the exception.
The following table describes the parameters that have to be defined for all exception types. For a description of the parameters that are specific to the exception type, see “Exception types” on page 12.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exception Name</td>
<td>The name of the exception is up to 50 alphanumeric characters to describe the exception. We recommend that you use details about the exception in the name to make it easier to identify the exception. For example, “Idling 5+min area A delivery vans”. You could also start the exception name with your initials so that all your exceptions are easy to locate in the list.</td>
</tr>
<tr>
<td>Exception Type</td>
<td>The type of exception that you selected on the previous page. You cannot change the exception type from this page. If you want to change the exception type, click Cancel and then create another exception.</td>
</tr>
</tbody>
</table>
| Type of Monitoring Schedule      | Select Recurring or 24 x 7. The Recurring option is not available for all exception types.  
■ If you select recurring, the exception is monitored for the specified period and that period will be repeated until you manually disable or delete the exception. You can use a predefined monitoring schedule or specify your own monitoring schedule. For example, you could choose to monitor during working hours, at weekends, or for a specific time period during each day.  
■ If you select 24 x 7, the exception is monitored constantly until you manually disable or delete the exception. |
| Time Zone                        | The time zone in which the mobile workers are working. You can select multiple time zones by holding down the Ctrl key. It is recommended that you set the exception time zone to the same time zone as the mobile devices themselves. |
| Begin Date                       | Click the calendar tool to select the date at which the exception will come into effect. |
| Begin Time                       | Click the clock tool to select the time at which the exception will come into effect. |

6 Click Next.
If you selected a recurring schedule, the Specify the Monitoring Schedule Options screen appears.
If you selected a 24 x 7 monitoring schedule, the Specify the Exception Notification Options screen appears. Go to step 10.

7 On the Specify the Monitoring Schedule Options screen, select a predefined schedule from the list.
Selecting a predefined schedule populates the begin monitoring and end monitoring times. You can then alter the standard values to suit your business.

The predefined schedules monitor week days, week nights, weekends, week nights and weekends.

8 Enter or change the begin monitoring and end monitoring times as required by selecting a day of the week from the list and clicking the clock tool to enter the time.

9 When you have completed your monitoring schedule, click Next.

10 In the Specify the Exception Notification Options screen, select Exception Console delivery to send a notification of the exception to the online Exception Console. For information about using the Exception Console, see “Using Exceptions” on page 55.

11 Select Real-time message delivery to send notification by email or by SMS when the exception is triggered.

Note:
Real-time message delivery is not available for all exception types.

- To send notification by email, select PC version and then enter the email addresses that you want to notify. You can enter up to 8 email addresses in a single field if you separate the email addresses by commas. Do not add spaces between the email addresses. If you select PC version for field 2 as well, you can notify a further 8 recipients. If you need to notify more than this, create a mail alias and send the notification to the mail alias.

- To notify a mobile device, select Mobile device and then enter the phone number of the mobile device in the format phone_number@messaging.sprintpcs.com. You can enter more than one phone number in the box, separated by commas.

12 Select Standard Message delivery to notify the specified email addresses or mobile devices of the exceptions that occurred on the previous day.

All the exceptions from the previous day are sent in a single message. Again, if you select PC version, you can enter up to 8 email addresses in a single field, as long as you separate the email addresses by commas.

13 Click Next.

Depending on the exception type, you may then need to enter additional information. For a description of the parameters that are specific to the exception type, see “Exception types” on page 12.
On the Specify the Mobile Devices to Monitor screen, select the mobile devices that you want to monitor with this exception.

- To monitor a specific mobile device, select the device on the left and then click the > button. Hold down the Ctrl key to select multiple mobile devices. To monitor all the devices displayed in the list, click ALL >.
- To display all the mobile devices in a particular group, select the appropriate group name from the Groups list.
- To reduce the list of mobile devices, enter the first few characters of device label and then click Search. For example, to search for all devices whose device label starts with “AJ”, enter AJ and then click Search.

Note:
Some devices cannot be monitored by this exception and are listed as unavailable. This occurs either because the devices are already being monitored by another exception (in which case the name of the exception is shown in brackets) or because they do not have the necessary firmware to support the exception type. Devices shown on the “available” list can be monitored by this exception type.

On the confirmation screen, check that you have entered the details correctly and then click Done or click Create Another Exception.

If you clicked Create Another Exception, repeat the steps from step 4.

If you want to modify the exception, click the name of the exception.

14  On the Specify the Mobile Devices to Monitor screen, select the mobile devices that you want to monitor with this exception.

- To monitor a specific mobile device, select the device on the left and then click the > button. Hold down the Ctrl key to select multiple mobile devices. To monitor all the devices displayed in the list, click ALL >.
- To display all the mobile devices in a particular group, select the appropriate group name from the Groups list.
- To reduce the list of mobile devices, enter the first few characters of device label and then click Search. For example, to search for all devices whose device label starts with “AJ”, enter AJ and then click Search.

Note:
Some devices cannot be monitored by this exception and are listed as unavailable. This occurs either because the devices are already being monitored by another exception (in which case the name of the exception is shown in brackets) or because they do not have the necessary firmware to support the exception type. Devices shown on the “available” list can be monitored by this exception type.

15  On the confirmation screen, check that you have entered the details correctly and then click Done or click Create Another Exception.

16  If you clicked Create Another Exception, repeat the steps from step 4.

If you want to modify the exception, click the name of the exception.
Devices can also be added to existing exceptions by clicking Administration > Devices > Configure Mobile Device Details > Configure Mobile Device, selecting the devices and then clicking Settings > Exception Reassignment.

**Exception types**

The procedure for creating an exception is very similar for each exception type. The parameters that are common to each exception type are described in the previous section.

The parameters for triggering an exception are specific to each exception type. The following pages describe each standard exception type, describes whether it is available for real-time notification, and the parameters that trigger the exception.
Advanced Safety Management — Hard Brake

Description
A hard brake exception is triggered when a driver brakes at a rate greater than or equal to the rate specified in the exception.

Restrictions
- This exception type is available for iLM 4200 and iLM 4500 devices only. It relies on the mobile device being attached to the vehicle CAN bus.
- The Driver Safety Hard Brake exception is a similar exception that is available as part of the Driver Safety package. The Driver Safety Hard Brake exception can be generated either based on data captured from the vehicle CAN bus or from GPS data. It is available for all devices that support Driver Safety.
- For more information, see “Driver Safety Hard Brake” on page 15.

Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Hard Brake</td>
<td>If a driver brakes at a rate that is greater than or equal to this value, the exception is triggered.</td>
</tr>
</tbody>
</table>

Real-time notification?
Yes
Diagnostic Fault

Description
A diagnostic fault exception is triggered when a fault code is generated in the vehicle in which the mobile device is installed. The fault codes generated depend on the make, model, and year of manufacture of the vehicle. Each type of vehicle sends different predefined information, determined by the manufacturer and gathered from the vehicle’s computer systems.

Restrictions
- This exception type is only available with service packages that include vehicle diagnostics. Diagnostic fault exceptions can only be assigned to mobile devices that are equipped with the appropriate hardware, software, and firmware.
- Mobile devices can be assigned to one diagnostics fault exception only.
- This exception type is not available for the GeoManager Pocket Edition.

Parameters

There are no parameters to specify when setting up diagnostic fault exceptions. The thresholds for the diagnostics fault exception are defined when the mobile device is installed. The exception triggers when a predefined threshold is reached.

Real-time notification?
Yes
Driver Safety Hard Brake

Description

A Driver Safety Hard Brake exception is part of the Driver Safety package and is triggered when a driver brakes at a rate that is greater than or equal to that specified in the selected Driver Safety profile, based on 1-second GPS sampling. Driver Safety Hard Brake exceptions monitor the mobile devices 24 hours a day. For more information, see the Driver Safety User Guide.

Restrictions

This exception is available for all mobile devices that support Driver Safety. Only one Driver Safety Hard Brake exception can be configured for each Driver Safety profile.

Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver Safety Profile</td>
<td>Each Driver Safety Hard Brake exception that you create is assigned to a particular Driver Safety profile. All the mobile devices assigned to the profile will be monitored by the exception. For example, you might have one profile for your trucks and another for your vans. The Driver Safety profile is also where you set the threshold deceleration value that will cause the exception to be triggered. Select the Driver Safety profile that you want to use for this exception, and then select whether to trigger the exception for both moderate and hard braking, or just for hard braking.</td>
</tr>
</tbody>
</table>
## Exception types

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trigger on hard stops only or on all hard decelerations</td>
<td>Select <strong>Hard Stops Only</strong> to trigger the exception only for hard braking events that lead to a vehicle stop. Select <strong>All Hard Decelerations</strong> to trigger the exception for hard braking events that occur at any speed.</td>
</tr>
</tbody>
</table>

### Real-time notification?

Yes
Forms

Description

If the optional Messaging and Forms feature is being used, you can set up a forms exception that is triggered when the contents of a field in a form sent by a driver meet specified parameters.

For example, you could set up an exception for flagging unusually large quantities associated with a sales order.

To set up a forms exception, select the form from the list, select the relevant field in the form, and then enter the conditions that will trigger the exception.

Restrictions

This functionality is optional and may be purchased for an additional fee.

Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form</td>
<td>Select the name of the form that you want to monitor.</td>
</tr>
<tr>
<td>Field</td>
<td>Select the name of the field that you want to monitor.</td>
</tr>
<tr>
<td>Validation</td>
<td>Enter the condition that will trigger the exception. You can enter a condition based on the entered text string, on a numeric value, or on a yes/no value.</td>
</tr>
</tbody>
</table>

Real-time notification?

Yes
Handset Usage

Description
A handset usage exception is triggered when a hand-held mobile device has failed to contact GeoManager for longer than the specified duration within the monitoring schedule. You can choose to send an SMS to the mobile device when this exception is triggered. For example, a handset usage exception could be triggered if the handset has not contacted GeoManager for more than 15 minutes.
This helps a company determine when a hand-held mobile device is being used outside working hours or is being turned off or out of power during working hours.

Restrictions
This exception type is only available with GeoManager Pocket Edition.

Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enable/Disable SMS</td>
<td>Select this option if you do not want to send an SMS to a monitored mobile device when a handset usage exception is triggered for that mobile device.</td>
</tr>
<tr>
<td>Minutes device does not register ON</td>
<td>Enter a duration in minutes. When this number of minutes has elapsed without the mobile device contacting GeoManager, the exception is triggered.</td>
</tr>
</tbody>
</table>

Real-time notification?
Yes
Idling

Description
An idling exception is triggered when the vehicle associated with the mobile device is idling for more than the specified number of minutes. Idling is defined as when the vehicle ignition is switched on but the vehicle is not moving. If your company has purchased the vehicle diagnostics service package, then the vehicle’s ignition on and ignition off statuses are used to determine when the vehicle is idling.

Use of the idling exception helps a company increase productivity and save on both fuel and maintenance costs. It also reduces carbon emissions and helps support green fleet initiatives.

If the Notification Alert feature has been enabled by Trimble on your client account, then the Notification Alert option appears when you configure an idling exception. If you select this option, the idling alerts are triggered as soon as the thresholds are reached, as well as at the end of the event, for those devices associated with this exception. For example, if the exception is configured to trigger when a vehicle has been idling for 10 minutes, an idling notification alert would be triggered when the vehicle has been idling for 10 minutes, and an idling summary alert would be triggered when the vehicle has stopped idling.

If the Buzzer Alert feature has been enabled by Trimble on your client account, then the Buzzer Alert option appears when you configure an idling exception. If you select this option, the buzzer will sound in the vehicle as soon as the idling threshold is reached for those devices associated with this exception. For example, if the exception is configured to trigger after an idling duration of 10 minutes, the buzzer will sound in the vehicle when the vehicle has been idling for 10 minutes.

Restrictions
- Each mobile device can be assigned to one idling exception only.
- This exception type is not available for the GeoManager Pocket Edition.
- For the TVG 300, idling exceptions are monitored 24x7, regardless of the setting configured in the exception.
Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Idling Duration</td>
<td>The exception is triggered when the vehicle is idling for more than this number of minutes. The minimum idling duration is 3 minutes.</td>
</tr>
<tr>
<td>Notification Alert</td>
<td>If you select this option, the idling alerts are triggered as soon as the idling threshold is reached, as well as at the end of the event, for those devices associated with this exception. For example, if the exception is configured to trigger when a vehicle has been idling for 10 minutes, an idling notification alert would be triggered when the vehicle has been idling for 10 minutes. Regardless of this setting, an idling summary alert is triggered when the vehicle has stopped idling.</td>
</tr>
<tr>
<td>Buzzer Alert</td>
<td>Select this option to sound a buzzer in the vehicle as soon as the idling threshold is reached. Regardless of this setting, an idling summary alert is triggered when the vehicle has stopped idling.</td>
</tr>
</tbody>
</table>

Real-time notification?

Yes
Landmark

Description

A landmark exception is triggered when the vehicle in which the mobile device is installed stops within the geofence around one of the specified landmarks.

The main difference between this exception and the Landmark Proximity Exception is that in this case the vehicle must actually stop within the geofence around the landmark. In the Landmark Proximity Exception, the vehicle only needs to be within the geofence around the landmark for one minute, it does not need to stop. The other difference is that Landmark Exceptions are not monitored in real time. An overnight process identifies the landmark exceptions from the previous day.

See also “Landmark Proximity” on page 23.

This type of exception is helpful for tracking pickups and deliveries, monitoring unauthorized usage of company vehicles during or outside working hours, flagging unscheduled stops at customer locations, and for monitoring how often employees visit locations such as coffee shops.

Restrictions

Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exception Name</td>
<td>50 characters max.</td>
</tr>
<tr>
<td>Exception Type</td>
<td>Landmark</td>
</tr>
<tr>
<td>Customer Landmarks to monitor</td>
<td></td>
</tr>
<tr>
<td>Type of Monitoring Schedule</td>
<td>24 x 7</td>
</tr>
<tr>
<td>Time Zone</td>
<td>GMT</td>
</tr>
<tr>
<td>Begin Date</td>
<td>20/02/14</td>
</tr>
<tr>
<td>Begin Time</td>
<td>15:15</td>
</tr>
</tbody>
</table>
## Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Landmarks to monitor</td>
<td>Click the Select link to select the list of landmarks that you want to monitor. Note that you cannot delete a landmark that is used in an exception. You must remove the landmark from the exception before you can delete the landmark.</td>
</tr>
</tbody>
</table>

### Real-time notification?

No
Landmark Proximity

Description
A landmark proximity exception is triggered when a mobile device arrives within the geofence around one of the specified landmarks or departs from within the geofence. The mobile device does not have to stop at the landmark but must be near the landmark for at least one minute, plus a 10-second sampling rate, to trigger the exception.

The main difference between this exception and the Landmark Exception is that for the Landmark Exception, the vehicle must actually stop within the geofence around the landmark. For the Landmark Proximity exception, the vehicle only needs to be within the geofence around the landmark for one minute, or leave the geofence for one minute, it does not need to stop. The other difference is that Landmark Proximity Exceptions are monitored in real time.

See also “Landmark” on page 21.

Use of the landmark proximity exception helps managers monitor pickups and deliveries in real time. You can also use it to monitor unauthorized use of company vehicles during or outside working hours, or to flag unscheduled customer stops.

Restrictions
- Each mobile device can be assigned to one landmark proximity exception only.
- Up to 25 landmarks can be monitored by one landmark proximity exception.
- This exception type is only supported for landmarks with circular geofences.
- This exception type is not available for the TVG 300.

Parameters
## Exception types

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arrival/Departure</td>
<td>You can choose to monitor arrivals within the geofence around a landmark, departures from within the geofence around a landmark, or both.</td>
</tr>
</tbody>
</table>
| Customer Landmarks to monitor| Click the **Select** link to select the list of landmarks that you want to monitor.  
Note that you cannot delete a landmark that is used in an exception.  
You must remove the landmark from the exception before you can delete the landmark. |

### Real-time notification?

Yes
Low Battery

Description
A low battery exception is triggered when the vehicle’s battery falls below a pre-configured safety level and remains below that level for the specified duration. If the vehicle’s battery is too low, the in-vehicle mobile device will be switched off to preserve the battery power and enable the mobile worker to start the vehicle.

For a hand-held mobile device, the battery level of the device itself is monitored. By default, the exception is triggered if the battery level remains too low to transmit location data for 15 minutes, plus the update interval of the mobile device.

This exception helps remind mobile workers to charge their equipment. The low battery exception tells a manager that the mobile device is no longer transmitting location data. The manager can then contact the mobile worker.

Restrictions
- Monitoring of the battery level of hand-held mobile devices is only available with GeoManager Pocket Edition.
- Each mobile device can be assigned to one low battery exception only.
- For the TVG 300, the low battery duration is triggered 10 minutes after the configured duration is reached. For example, if the minimum duration configured in the exception is 15 minutes, then the low battery exception will be triggered after 25 minutes.
- For the TVG 300, low battery exceptions are monitored 24x7, regardless of the setting configured in the exception.

Parameters
### Exception types

#### Real-time notification?

Yes

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minutes device continues to have low battery without recharge</td>
<td>Enter a duration in minutes. If the device continues to have a low-battery condition after this number of minutes, the exception will be triggered. The minimum duration is 15 minutes.</td>
</tr>
</tbody>
</table>
Main Power Disconnect

Description
A main power disconnect exception is triggered when a plug-and-play device is unplugged/disconnected.

Restrictions
The main power disconnect exception is only supported on TVG 300 and TAG 200 devices.

Parameters
The “Main Power Disconnected” alert can also be sent to one or more email addresses.

This is configured via the following menu option:
Administration > Devices > Exception Administration > Configure Main Power Disconnected Email Address

Real-time notification?
Yes
**Messaging**

**Description**

If the optional Messaging and Forms feature is being used, you can set up a messaging exception that is triggered when a predefined message is sent by the driver.

For example, you could tie an exception to the predefined message “Vehicle has flat tire”. Whenever this message is sent by a driver, the system could send an email or an Exception Console notification to both the dispatcher and the maintenance group to ensure that immediate assistance is provided to the driver.

**Restrictions**

This functionality is optional and may be purchased for an additional fee.

**Parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Message</td>
<td>Select the message that will trigger the exception.</td>
</tr>
<tr>
<td>Validation</td>
<td>This field can be left blank.</td>
</tr>
</tbody>
</table>

**Real-time notification?**

Yes
**Mileage**

**Description**
A mileage exception is triggered when a vehicle (mobile device) is driven further than the specified distance in one day.

Use of the mileage exception helps a company increase productivity and save on both fuel and maintenance costs. It also reduces carbon emissions and helps support green fleet initiatives.

Your company can save money by improving the routes of mobile workers who consistently exceed the maximum daily distance specified for that vehicle.

**Restrictions**
Each mobile device can be assigned to one mileage exception only.

**Parameters**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mileage</td>
<td>Enter a distance in miles or kilometers (depending on your user locale). If</td>
</tr>
<tr>
<td></td>
<td>the vehicle is driven further than this distance in one day, the exception</td>
</tr>
<tr>
<td></td>
<td>will be triggered.</td>
</tr>
</tbody>
</table>

**Real-time notification?**
No
Mobile Device Vicinity

Description

A mobile device vicinity exception is triggered when the specified number of mobile devices (vehicles) stop within a certain distance of one another for the specified time period.

For example, a mobile device vicinity exception could be triggered when 3 vehicles stop within 0.3 miles of each other for 10 minutes. Only mobile devices (vehicles) that have been assigned to this exception will be monitored.

This exception type enables your company to check for route overlap caused by mobile devices being near to one another for extended periods of time and to flag unproductive time.

Restrictions

- This functionality is optional and may be purchased for an additional fee.
- Each mobile device can be assigned to one mobile device vicinity exception only.

Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of Mobile Devices</strong></td>
<td>Select the number of mobile devices (vehicles) that have to be stopped near to one another to trigger the exception. The minimum number of vehicles is 2.</td>
</tr>
<tr>
<td><strong>Common Duration</strong></td>
<td>Select how long the vehicles have to be stopped to trigger the exception. The minimum number of minutes that the vehicles have to be stopped is 5.</td>
</tr>
<tr>
<td><strong>Distance</strong></td>
<td>Select the distance in miles or km (depending on your user locale). If the vehicles are parked within this distance of one another, the exception will be triggered. The minimum distance is 0.3 miles or 0.5 km.</td>
</tr>
</tbody>
</table>

Real-time notification?

No
Off Hours/Unauthorized Use

Description
An off-hours-use exception is triggered when the mobile device registers vehicle movement outside the schedule specified for that mobile device. This exception type gives you the time, duration and location of any vehicle that is used outside working hours. You can either select a predefined schedule (such as week days, weekends) or create a specific schedule for the vehicles that you want to monitor. You specify the normal working hours for the mobile device, and the exception is triggered if any movement is detected outside these hours. The off-hours-use exception helps your company monitor whether company resources are being used outside the designated working hours.

Restrictions
Each mobile device can be assigned to one off-hours-use exception only.

Parameters

There are no parameters to specify when setting up off-hours-use exceptions.

Real-time notification?
No
ADMINISTERING EXCEPTIONS
Exception types

Posted Speed Limit Violation

Description
A posted speed limit exception is triggered if the speed of the vehicle exceeds the posted speed limit by the value specified in the selected severity level. You can choose to monitor any combination of the high, medium and low severity levels.

The severity levels are set using Administration -> Devices -> Posted Speed Limit Violation. They are specified as an absolute number of mph or km/h above the posted speed limit or as a percentage above the posted speed limit. For example, if the high severity level is set to 10 or more mph (16 km/h) above the posted speed limit then any monitored vehicle exceeding the posted speed limit by 10 mph (16 km/h) or more would trigger an exception of high severity.

The posted speed limit exception helps your company reduce the speed driven by mobile workers, which increases safety, and reduces traffic violations, fuel consumption and insurance costs.

Restrictions
None

Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alert Severity Levels</td>
<td>Select to trigger the exception when the vehicle speeds exceeds the low, medium and/or high thresholds.</td>
</tr>
<tr>
<td>Include Estimated Speed Limit</td>
<td>By default the posted speed limit exceptions are only triggered based on the posted speed limit stored for that section of road. If no posted speed limit is available, then the speed limit can be estimated based on the road classification. Select Include Estimated Speed Limit if you want exceptions to be triggered based on estimated speed limits.</td>
</tr>
</tbody>
</table>

Real-time notification?
Yes
Speed

Description

A speed exception is triggered if the speed of the mobile device exceeds the specified maximum speed and maintains that speed for longer than the specified duration.

You can use this exception type if you have a maximum speed that you require your drivers to observe, or if there is a lower speed limit for a particular type of vehicle, such as trucks. If you are only concerned with speeding violations, use the Posted Speed Limit Violation exception type instead.

The speed exception helps your company reduce the speed driven by mobile workers, which increases safety, and reduces traffic violations, fuel consumption and insurance costs.

Users can now configure a speed exception to trigger a speed or idling notification alert when the event occurs. In the example given above,

If the Notification Alert feature has been enabled by Trimble on your client account, then the Notification Alert option appears when you configure a speed exception. If you select this option, the speed alerts are triggered as soon as the thresholds are reached, as well as at the end of the event, for those devices associated with this exception. For example, if the exception is configured to trigger when a vehicle has been driven at 90 mph for 2 minutes, a speed notification alert would be triggered when the vehicle is driven at 90 mph for 2 minutes, and a speed summary alert would be triggered when the speed event ends.

If the Buzzer Alert feature has been enabled by Trimble on your client account, then the Buzzer Alert option appears when you configure a speed exception. If you select this option, the buzzer will sound in the vehicle as soon as the thresholds are reached for those devices associated with this exception. For example, if the exception is configured to trigger when a vehicle has been driven at 90 mph for 2 minutes, the buzzer would sound when the vehicle is driven at 90 mph for 2 minutes.

If the Speed Exception (Multiples of 10 Seconds) feature has been enabled by Trimble on your client account, you can select speeding durations of less than one minute (10, 20, 30,... seconds) or durations of a multiple of minutes. Please check with Trimble Support whether your hardware and firmware versions are supported. Configured durations of less than 1 minute will be sent as 0 minutes to non-supported hardware and firmware versions.

Restrictions

- Mobile devices can be assigned to one speed exception only.
- For the TVG 300, speed exceptions are monitored 24x7, regardless of the setting configured in the exception.
Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Speed</td>
<td>Enter the maximum speed in mph or km/h (depending on your user locale) that the vehicle can be driven without triggering the exception. The minimum value is 60 mph or 100 km/h.</td>
</tr>
<tr>
<td>Duration</td>
<td>Enter the duration that the vehicle must maintain the maximum speed to trigger the exception. For example, if you select a Max Speed of 90 mph and a duration of 2 minutes, a speed exception will be triggered when the vehicle has been travelling for longer than 2 minutes at 90 mph or more.</td>
</tr>
<tr>
<td>Notification Alert</td>
<td>Select this option to trigger a notification alert as soon as the speed and duration thresholds are reached. Regardless of this setting, the speed summary notification is triggered at the end of the speeding event.</td>
</tr>
<tr>
<td>Buzzer Alert</td>
<td>Select this option to sound a buzzer in the vehicle as soon as the speed and duration thresholds are reached. Regardless of this setting, the speed summary notification is triggered at the end of the speeding event.</td>
</tr>
</tbody>
</table>

Real-time notification?

Yes
**Stop**

**Description**

A stop exception is triggered when a mobile device stops at landmarks or other locations for longer than the specified total number of minutes in one day.

For example, if a mobile device stops at a particular gas station twice in one day for 10 minutes at a time, the total daily stop duration is 20 minutes. If this exceeds the specified duration, the exception will be triggered.

The stop exception can help establish whether mobile workers are spending too much time stopped at sites away from their routes, such as at their home or a work center.

**Parameters**
## Exception types

### Real-time notification?

No

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Daily Stop Duration</td>
<td>Enter the total number of minutes a day that the vehicle can be stopped at the specified locations before it triggers the exception.</td>
</tr>
<tr>
<td>Stops to monitor</td>
<td>You can choose to monitor:</td>
</tr>
<tr>
<td></td>
<td>■ all stops (whether at landmarks or not)</td>
</tr>
<tr>
<td></td>
<td>■ all stops at landmarks</td>
</tr>
<tr>
<td></td>
<td>■ all stops that are not at landmarks</td>
</tr>
<tr>
<td></td>
<td>■ only stops at landmarks of the selected type</td>
</tr>
<tr>
<td></td>
<td>■ only stops at the specified landmarks. Click the <strong>Select</strong> link to select the list of landmarks that you want to monitor.</td>
</tr>
</tbody>
</table>
Stop Count

Description

When you configure the stop count exception, you specify the acceptable range. The stop count exception is triggered if the monitored vehicle (mobile device) stops at landmarks or other locations more often than the maximum specified or less often than the minimum specified. The exception is not triggered if the stop count falls between the minimum and maximum number of stops.

Only stops that exceed the specified duration are counted.

For example, if a vehicle stops at a particular gas station three times in one day for 10 minutes at a time, the total daily number of stops is 3. If the maximum number of stops for 5 minutes or longer at that landmark is 2, the exception will be triggered. However, if one of the stops was shorter than the specified duration of 4 minutes, the exception is not triggered.

Similarly, if delivery drivers need to stop at a depot at least once a day to pick up supplies, then an exception could be triggered if one of those mobile devices fails to make a long enough stop at that location during their shift.

If the minimum number of stops is 2 and the maximum number of stops is 4, then the exception will trigger if the monitored vehicle makes 1 stop or 5 or more stops, but not 2–4 stops.

The stop count exception can help your company determine if a vehicle is stopping too many times, or too few times, at a particular location.

Parameters
### Parameter

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration of Stop</td>
<td>Enter the number of minutes that a vehicle must be stopped before it counts towards this exception. For example, if the duration is set to 4 minutes, then only stops of 4 minutes or longer are counted. The minimum value is 3 minutes.</td>
</tr>
<tr>
<td>Minimum/Maximum Total Daily Number of Stops</td>
<td>Enter the minimum and maximum number of expected stops. Any stop count that is outside this range for longer than the specified duration will trigger the exception.</td>
</tr>
</tbody>
</table>
| Stops to monitor                              | You can choose to monitor:  
  ■ all stops (whether at landmarks or not)  
  ■ all stops at landmarks  
  ■ all stops that are not at landmarks  
  ■ only stops at landmarks of the selected type  
  ■ only stops at the specified landmarks. Click the Select link to select the list of landmarks that you want to monitor. |

**Real-time notification?**

No
Stop Duration

Description
A stop duration exception is triggered when a vehicle (mobile device) stops at any location for longer than the specified stop duration.
The stop duration exception can help you to identify workers who spend too much or too little time stopped at any location.

Restrictions
- Each mobile device can be assigned to one stop duration exception only.
- This exception type is not available for the TVG 300.

Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stop Duration</td>
<td>Enter the number of minutes that the vehicle can be stopped at any location before it triggers the exception.</td>
</tr>
</tbody>
</table>

Real-time notification?
No
Switch Status

Description
A switch status exception is triggered when the status of a switch changes while the vehicle (mobile device) is stopped. For example, an exception could be triggered when a door or trunk is opened or closed, or a pump engine is switched on or off. Almost any switch in the vehicle can be monitored for activity.

Switch status exceptions are used to identify irregularities, such as unauthorized deliveries (door opened or closed), unauthorized tows (crane arm up or down), or unauthorized passenger pick-ups (passenger door opened or closed).

You specify the type of switch and the switch status change that you want to monitor. You can monitor a switch change to active (on), inactive (off) or both.

Switch status exceptions can be tied to landmarks to identify stops at non-customer sites.

You can monitor only stops at specified landmarks, only stops at landmarks of the selected type, all stops that are not at landmarks, all stops that are at landmarks, or all stops (whether at landmarks or not).

Restrictions
- Up to 20 switch status exceptions can be configured for your customer account.
- Each mobile device can be assigned to one switch status exception only.
- This exception type is not available for GeoManager Pocket Edition or for the TVG 300.
Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Switch to monitor</strong></td>
<td>Select the switches that you want to monitor from the list that has been</td>
</tr>
<tr>
<td></td>
<td>set up for your client account.</td>
</tr>
<tr>
<td><strong>Switch state change to monitor</strong></td>
<td>Select to trigger the exception when the switch state changes to active</td>
</tr>
<tr>
<td></td>
<td>(on), inactive (off) or both.</td>
</tr>
<tr>
<td><strong>Stops to monitor</strong></td>
<td>You can choose to monitor switch status changes during:</td>
</tr>
<tr>
<td></td>
<td>▪ all stops (whether at landmarks or not)</td>
</tr>
<tr>
<td></td>
<td>▪ all stops at landmarks only</td>
</tr>
<tr>
<td></td>
<td>▪ all stops that are not at landmarks</td>
</tr>
<tr>
<td></td>
<td>▪ only stops at landmarks of the selected type</td>
</tr>
<tr>
<td></td>
<td>▪ only stops at the specified landmarks.</td>
</tr>
</tbody>
</table>

**Real-time notification?**

Yes
Temp Status

Description
The temp status exception is triggered when the temperature inside a mobile asset rises above or falls below the specified acceptable level for a given duration.

You select the minimum and maximum acceptable temperatures for this type of mobile asset, for example for a refrigeration unit.

This exception helps you to protect the contents of your mobile assets.

For example, an exception could be triggered if the temperature inside a refrigerated truck rises to 5 degrees above normal and stays at that temperature for more than 10 minutes. The dispatcher would then notify the driver that there is a problem with the refrigeration unit in the vehicle.

This functionality is optional and may be purchased for an additional fee. It requires a temperature sensor to be connected to the mobile device. You can define up to 20 temp status exceptions for your customer account.

Restrictions
- This functionality is optional and may be purchased for an additional fee.
- Up to 20 temp status exceptions can be configured for your customer account.
- This exception type is not available for GeoManager Pocket Edition or for the TVG 300.

Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature to Monitor</td>
<td>Select the minimum and maximum acceptable temperatures for this type of mobile asset, for example for a refrigeration unit. If the temperature falls outside this range for the specified duration, the exception will be triggered.</td>
</tr>
</tbody>
</table>
### Real-time notification?

Yes

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature Duration</td>
<td>Enter the number of minutes that the temperature must be outside the acceptable range before the exception is triggered.</td>
</tr>
</tbody>
</table>
Unauthorized Vehicle Usage

Description
An unauthorized use exception is triggered when a vehicle (mobile device) is moved without a driver successfully logging in by means of an iButton with the TDI 100. This exception can help monitor unauthorized use of company vehicles during or outside working hours.

Parameters

No parameters are configured for this exception type. The vehicle is monitored for unauthorized use either 24 hours a day or throughout the monitoring schedule.

Real-time notification?
Yes
Zone exception

Description

A zone exception is triggered when a mobile device arrives at or departs from a monitored zone. A zone could be a city, state/province, postal code or ZIP code, county, special zone (such as a congestion charge zone) or landmark. The list of zone types that are available depends on your user locale.

When you set up a zone exception, you first select the type of zone that you want to monitor (for example, city or landmark) and then select the zones that you want to monitor (for example a list of cities or a list of landmarks). You then specify whether to monitor arrivals at the zone, departures from the zone, or both.

The zone exception can help monitor unauthorized use of company vehicles during or outside working hours, or flag possible security breaches when vehicles were not expected to move from a specific location. By checking if multiple mobile devices enter the same zone, your company can check for route overlap. By improving the routing, you can increase efficiency and reduce costs. The landmark zone exception can be used to monitor, for example, whether an employee returns to the employee’s start location during the day or finishes work early, or whether a group of employees meets at a colleague’s house for lunch.

Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone Type</td>
<td>The type of zone that you want to monitor.</td>
</tr>
<tr>
<td></td>
<td>Depending on your user locale, you can choose from city, state/province, postal/ZIP code, county, country, special zone (such as a congestion charge zone), or landmark.</td>
</tr>
<tr>
<td>Arrival/Departure</td>
<td>Select arrival, departure or both.</td>
</tr>
</tbody>
</table>
Once you have selected the type of zone and clicked **Next**, you are taken to a screen on which you specify the zones that you want to monitor.

**City:** You can monitor up to 10 cities. When monitoring cities in the US or Canada, ensure that you enter the city name and the state/province abbreviation. For example, enter Milpitas, CA. For other countries, just enter the city name.

**Postal/ZIP code:** You can monitor up to 10 postal/ZIP codes. Enter the postal/ZIP code in the appropriate format for your locale. For example, for the US, enter a five-digit ZIP code. In the UK, enter the first part of the alphanumeric postcode. For example, if the full postcode of a building is IP2 8SD, enter “IP2 8”. In Belgium, enter a four-digit postal code.

**State/province:** You can monitor up to 10 states or provinces. When monitoring states/province in the US and Canada, enter the state/province abbreviation. For other countries, just enter the name of the state. In some countries, a “state” is a very large area and would not make sense to monitor arrival or departure in such a large area. Monitoring states is not available in those countries.

**County:** You can monitor up to 10 counties. When monitoring counties in the US, enter the county name and the state abbreviation. For other countries, just enter the name of the county.

**Special:** Select from a list of available special zones. Click the > button to move special zones from the available list to the list of special zones that will be monitored.

---

**Note:**
The only currently supported special zone is the London Congestion Zone.

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**Landmark:** Select the landmarks that you want to monitor. For more information, see “Landmark zone exceptions” on page 46.

**Real-time notification?**
Yes

**Landmark zone exceptions**

For zone exceptions with a zone type of landmark, an exception can be triggered whenever a vehicle driven by an employee stops at one of the specified landmarks, departs from one of the landmarks after a stop, or both. The landmarks are only monitored during the employee’s working hours. You cannot select a recurring or 24x7 monitoring schedule for this zone type. For this zone type, you must create associations between mobile devices and employees (to identify the driver of each vehicle), and set up work shifts for your employees (to identify the driver’s working hours).
You can choose to monitor one of the following:

- All start location landmarks that are associated with one or more employee.
  This monitors all landmarks that are associated with at least one employee. That is, all the designated start locations. If associations between landmarks and employees are changed, then the landmarks that are monitored by this option will be updated automatically.

- All landmarks of the specified landmark type.
  This monitors all landmarks of the specified landmark type. No start locations will be monitored. If landmarks of the specified landmark type are created or removed, then the landmarks that are monitored by this option will be updated automatically.

- A list of specified landmarks.
  Only the specified landmarks will be monitored by the exception. No start locations will be monitored. An administrator would have to edit the exception to change the landmarks monitored by the exception. There is no limit to the number of landmarks that can be monitored.

For landmark zone exceptions, as well as, or instead of, specifying a fixed email address or mobile phone number, you can choose to notify the email addresses that are associated with the organizational unit of the employee who triggered the exception. These notifications can only occur if email addresses have been specified for the organizational unit of that employee. To do this, go to Administration > Employees > View/Create/Edit Organizational Hierarchy. Navigate to the relevant organizational unit and then enter one or more email addresses separated by commas. This option only appears if the Employee Landmark Association feature has been enabled by Trimble on your client account. You can also upload the email addresses as part of the organizational unit configuration upload.

Although you can assign a landmark zone exception to all the devices that are assigned to an organizational unit at that time, the exceptions are assigned directly to the devices and not to the organizational unit. Any changes to the assignment of devices within the organizational hierarchy will not be propagated to the exceptions. Any devices that were assigned to an exception when the exception was created remain assigned to the exception, even if the device is no longer in the original organizational unit, and even if the user no longer has access to the device.

If you add a device to the system or add an association between a device and an employee, you must manually assign exceptions to the new device. Changing an existing employee-device association is handled automatically.

The monitored landmarks can be the start locations associated with the employees, or any other landmarks. When a zone exception is used to monitor landmarks, the exception can be set up to monitor all the devices in a particular organizational unit. Landmark zone exceptions can monitor employees arriving at a landmark, departing from a landmark, or both. In addition, whenever a device triggers a landmark zone exception, the notification can be sent to a set of email addresses configured for the device’s organizational unit. When a landmark zone exception is triggered, the supervisor can challenge the employee at the time. The employee’s work shift is displayed in the mail notification alert, so that the supervisor can decide whether to
call the employee. For example, if the exception occurs at lunchtime, the supervisor might decide to call the employee. If the exception occurs 5 minutes before the end of the employee’s work shift, the supervisor is very unlikely to call, as the employee has finished work for the day.

The landmark zone type is only available for customers whose client accounts have the Customer Landmark and Employee Management features enabled.

**Monitoring private landmarks**

When the private landmark functionality is enabled on your customer account, the following restrictions are imposed on users selecting the landmarks that can be monitored by exceptions:

- When users are selecting landmarks for landmark-based exceptions, the address details of private landmarks are hidden, unless the user’s role includes the View Private Landmarks capability.
- When users are viewing or editing landmark-based exceptions, the address details of private landmarks are hidden, irrespective of the user’s role.
- The mail notification generated as a result of a speed exception contains the address of the event but not the name of the landmark. If the event occurs in the vicinity of a private landmark, the location value contains “Location Not Available”.
Modifying an exception

You can modify the exception to change the parameters of the exception or the mobile devices monitored by the exception. You cannot change the exception type.

If an exception is disabled, you must enable it before you can make any changes to it.

1. On the Administration tab, click Devices, and then Exception Administration.
2. Click Exception Management.
   The Exception Administration window appears displaying a list containing the first 10 current exceptions.
3. Use the search fields and the page next link to display a list that contains the exception that you want to modify.
   For more information about changing the list of displayed exceptions, see “Creating an exception” on page 7.
4. Click the name of the exception that you want to modify.
   The exception name, exception type and status appear, together with a list of edit links.
5. Click the link that relates to the part of the exception that you would like to modify.
   For example, if you want to change the parameter settings for the exception, click Parameter.
   Click Mobile Devices to assign the exception to more mobile devices or to remove the assignment from particular mobile devices.
6. Make the required changes and then click Update.
   The new exception details appear.
7. If you want to make more changes, click the link that relates to the part of the exception that you would like to modify.
8. When you have finished making changes, click Done.

Note:
The “Main Power Disconnected” alert can also be sent to one or more email addresses. This is configured via the following menu option: Administration > Devices > Exception Administration > Configure Main Power Disconnected Email Address
Disabling an exception

You can temporarily disable an exception to stop it monitoring the specified devices.

1. On the Administration tab, click Devices, and then Exception Administration.
2. Click Exception Management.
   The Exception Administration window appears displaying a list containing the first 10 current exceptions.
3. Use the search fields and the page next link to display a list that contains the exception that you want to disable.
   For more information about changing the list of displayed exceptions, see “Creating an exception” on page 7.
4. Click Disable in the row that corresponds to the exception that you want to disable.
   You are asked to confirm that you want to disable the exception.
5. Click OK.
   The exception status changes to “Disabled”.
   If you want to enable the exception again, click Enable in the corresponding row.

Deleting an exception

If you are sure that you no longer want to use a particular exception, you can delete it. Any scheduled reports associated with this exception are also deleted. If you want to stop monitoring the specified devices temporarily, you can disable the exception rather than deleting it. You can modify the exception if you want to change the parameters of the exception or the mobile devices monitored by the exception.

1. On the Administration tab, click Devices, and then Exception Administration.
2. Click Exception Management.
   The Exception Administration window appears displaying a list containing the first 10 current exceptions.
3. Use the search fields and the page next link to display a list that contains the exception that you want to delete.
   For more information about changing the list of displayed exceptions, see “Creating an exception” on page 7.
4. Click Delete in the row that corresponds to the exception that you want to delete.
   You are asked to confirm that you want to delete the exception and the associated scheduled reports.
5. Click OK to remove the exception from the list of exceptions.
Assigning a batch of exceptions to mobile devices or groups

You can specify the individual mobile devices that will be monitored by an exception when you create or modify the exception. Alternatively, you can batch assign exceptions to mobile devices by selecting one or more exceptions that you want to assign to the selected mobile devices.

1. On the Administration tab, click Devices, and then Exception Administration.
2. Click Batch Exception Assignment.
   The list shown in the first section by default shows a list of groups. You can see the list of mobile devices.
3. To search for a specific mobile device, enter the first few characters in the name of the device and click Search.
4. Select one or mobile devices in the list.
   Hold down the Shift or Ctrl key to select multiple mobile devices.
5. To search for a specific exception, enter the first few characters in the name of the exception and click Search.
6. Select one or exceptions in the list.
   Hold down the Shift or Ctrl key to select multiple mobile devices.
7. Click Assign.
   A confirmation of the assignments between mobile devices and exceptions appears.
8. Click Assign More to assign more exceptions to mobile devices or click Done.

Viewing a report of the assignments

You can generate a report that shows whether the selected mobile devices have been assigned to the selected exceptions. If you select multiple mobile devices and multiple exceptions, then a matrix of mobile devices and exceptions indicates the assignments.

1. On the Administration tab, click Devices, and then Exception Administration.
2. Click View Exception Parameter Reports.
3. Select one or mobile devices or click Groups and then select one or more groups.
   Hold down the Shift or Ctrl key to select multiple mobile devices or groups.
4. Select one or more exceptions.
   Hold down the Shift or Ctrl key to select multiple exceptions.
5. Select the reporting option.
   You can choose to display the report online, or download it in comma-delimited, tab-delimited, or Microsoft Excel format.
6 Click **Generate Report**.

If you selected Online Report, the report appears in the web browser. If you selected one of the other formats, then you are prompted to open or save the report.

## Role-based access

This table shows the features that must be enabled by Trimble on your client account and the capabilities that must be added to a user’s role to make the exception functionality available to a user. These capabilities are automatically added to the default admin role.

<table>
<thead>
<tr>
<th>Features</th>
<th>Capability</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exceptions</td>
<td>Exceptions</td>
<td><strong>Exception Administration</strong>&lt;br&gt;<strong>Edit Exception</strong>&lt;br&gt;Allows the user to create, edit, and view exception parameters, batch assign devices to exceptions, and to generate the View Exception Parameter Report.</td>
</tr>
<tr>
<td>Exceptions</td>
<td>Exceptions</td>
<td><strong>Exception Administration</strong>&lt;br&gt;<strong>View Exception</strong>&lt;br&gt;Allows the user to view the exception parameters, the notification settings, and the assignment of devices to exceptions; and to generate the View Exception Parameter Report.</td>
</tr>
<tr>
<td>Exceptions</td>
<td>Exceptions</td>
<td><strong>Exception Administration</strong>&lt;br&gt;<strong>Exception Console</strong>&lt;br&gt;Allows the user to view the exception occurrences in either the Alert Notification drop-down list or in the Exception Console.</td>
</tr>
<tr>
<td>Exceptions</td>
<td>Exceptions</td>
<td><strong>Exception Administration</strong>&lt;br&gt;<strong>Reports</strong>&lt;br&gt;Allows the user to generate the on-demand exception reports and to schedule the exception reports.</td>
</tr>
<tr>
<td>Exceptions + Employee Management + Customer Landmarks</td>
<td>Exceptions + Employee Management</td>
<td><strong>Exception Administration</strong>&lt;br&gt;<strong>Edit Exception</strong>&lt;br&gt;Enables the user to create and edit zone exceptions of type landmark.</td>
</tr>
<tr>
<td>Features</td>
<td>Capability</td>
<td>Description</td>
</tr>
<tr>
<td>----------</td>
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<td>-------------</td>
</tr>
<tr>
<td>Exceptions + Notification Alert</td>
<td>Exceptions</td>
<td>Enables users to configure exception notification alerts for speed and idling exceptions. The notification alerts are only available for iLM 27xx devices with firmware version of 2.12 or above.</td>
</tr>
<tr>
<td>Exceptions + Speed Exception (Multiples of 10 Seconds)</td>
<td>Exceptions</td>
<td>Enables users to configure a speed exception for speeding durations of less than one minute (10, 20, 30,... seconds) or of a multiple of minutes. This speed exception is available for iLM 27xx devices with firmware version of 2.12 or above.</td>
</tr>
<tr>
<td>Employee Landmark Association</td>
<td>n/a</td>
<td>Enables the user to monitor start location landmarks and to specify the email addresses to notify when a landmark zone exception is triggered by a device in the organizational unit.</td>
</tr>
</tbody>
</table>
Glossary

**asset**

An asset is any device or hardware installed on a customer account, such as the in-vehicle devices and the peripheral devices (such as iDTs, mDT, barcode wands). It can also be used to mean the other assets owned by the company, such as vehicles that need servicing.

**GPS**

Global Positioning System is a worldwide satellite navigational system, made up of 24 satellites orbiting the earth and their receivers on the earth's surface. The GPS satellites continuously transmit digital radio signals so that up-to-the-minute information may be used in location tracking, navigation and other location or mapping technologies.

**handset**

A hand-held mobile device that is configured for GeoManager.

**mobile device**

The in-vehicle device that captures information on the position, speed and direction of the vehicle, and the time of the record. If your package includes Vehicle Diagnostics, the mobile device also captures diagnostic information directly from the vehicle bus. There are two main types of mobile device: the TVG and the iLM.

- TVG 660: GPS and vehicle diagnostics
- TVG 850: GPS, advanced diagnostics and Wi-Fi access-point capability
- TVG 300: low-cost, self-install “plug and play” device
- TAG 200: used for tracking powered assets
- iLM 2700: GPS
- iLM 3100: GPS and Wi-Fi access-point capability
- iLM 4500: GPS, diagnostics and wireless capability for heavy-duty trucks
**vehicle bus**

A vehicle bus is a specialized internal communications network that interconnects various components inside a vehicle, such as the Engine Management System (EMS), Control Unit (TCU), the Anti-lock Braking System (ABS) and body control modules (BCM). It can provide a variety of information about the vehicle, such as the speed of the vehicle and the distance travelled.