Trimble Access™ Mobile Inspector

User Guide

Mobile Inspector

Trimble Access Mobile Inspector software integrates with Infotech Mobile Inspector to enhance field data collection and construction inspection processes. It enables the digital representation of assets in a construction management system, improving the asset management lifecycle.

The integration allows inspection tasks to be sent from Infotech Mobile Inspector to the field via a measurement service, where Trimble Access lists tasks and provides tools for measurements and calculations. This helps site inspectors focus on tasks, capture asset and location data digitally, and communicate updates back to the construction management system.

Key benefits include:

- Digital workflow: Eliminates paper-based processes and digitizes assets for improved management.
- Efficiency: Streamlines infrastructure inspection and automates Daily Work Reporting (DWR).
- Integration: Supports AASHTOWare Project Construction & Materials, AASHTOWare Project FieldManager, AASHTOWare Project SiteManager and Appia.

System components

The components of the Trimble Access Mobile Inspector and Infotech Mobile Inspector integration are described below.

Infotech Construction Management System

Trimble Access Mobile Inspector supports Infotech Mobile Inspector integration with any of the following Infotech Construction Management systems:

- AASHTOWare Project Construction & Materials
- AASHTOWare Project FieldManager
- AASHTOWare Project SiteManager
- Appia

Infotech Mobile Inspector

Infotech Mobile Inspector is a web application that allows inspectors to collect information required for daily work reports, including item progress, contractor workforce, photos, and site conditions in the field on a mobile device or tablet. The field data captured in Mobile Inspector can then be synced back to an Infotech construction management system.

Trimble Measure Service

Trimble Measure Service is a WebIntent Service that facilitates the communication and data exchange between Infotech Mobile Inspector and Trimble Access Mobile Inspector.

Trimble Access General Survey software

Trimble Access General Survey software streamlines field data collection for surveyors, providing tools for efficient measurements, stakeout, and data management. It integrates seamlessly with Trimble hardware and office software, enabling accurate and productive workflows for survey professionals.

Trimble Access Mobile Inspector software

Trimble Access Mobile Inspector is a software solution designed to enhance field data collection and infrastructure inspection processes. It integrates with Infotech Mobile Inspector to complete inspection tasks, enabling site inspectors to digitally map, and report location and asset data, streamlining infrastructure inspection and improving lifecycle asset management.

You can use the Trimble Access Mobile Inspector software with any GNSS receiver or conventional instrument supported by the Trimble Access General Survey software.

Get started

To get started with Trimble Access Mobile Inspector, you will need to install software to your field device. Depending on your requirements, you may need to set up a custom units file.

Software installation

You will need to ensure the following software is installed on your field device.

Infotech Mobile Inspector

The Infotech Mobile Inspector web application must be installed on your field device. This device must be registered with your Infotech construction management system.

For detailed instructions refer to the Infotech documentation available here: learn.infotechinc.com/guides/mobile-inspector-install-guide.pdf.

Trimble Access Mobile Inspector

Trimble Access General Survey, Trimble Access Mobile Inspector and the Trimble Measure service are available to install from Trimble Installation Manager.

Trimble Access Mobile Inspector is available as a perpetual or subscription license.

For more information, refer to the topic **Installing Trimble Access** in the *Trimble Access General Survey User Guide*.

Units file

A Units file is included with the installation of Trimble Access Mobile Inspector. This is a file that contains the common point, length, area, and volume calculation units and their SI Converter.

You can create a custom Units file to support your preferred project naming conventions, abbreviations and custom unit definitions.

To create a custom Units file:

1. Open File Explorer on the field device and go to C:\Program Files\Trimble\<Current Version of Trimble Access>\General Survey\Plugin\Trimble\MobileInspector.

2. Make a copy of "MobileInspectorUnits.txt" and rename it as "LocalUnits.txt" and save this in the same directory.

Workflow steps

Infotech Mobile Inspector, Trimble Access General Survey and Trimble Access Mobile Inspector software are designed to work together to enable you to complete your inspection tasks.

Create Daily Work Report in Infotech Mobile Inspector

Before completing field measurements using Trimble Access, you will need to use the Infotech Mobile Inspector web application on the field device to create a Daily Work Report and identify the items you need to measure in the field. Once you have identified the items to measure, you will send them to the Trimble Access software.

> **NOTE –** The items are sent to the Trimble Access Mobile Inspector software via the Trimble Measure Service and are stored locally on the device running the Trimble Access software. You cannot create measurement tasks and share them with other users via the cloud.

1. On the field device on which you will use Trimble Access, sign in to the Infotech Mobile Inspector web application.

2. To view the project work you are assigned to, from the menu select **Contracts** and then select the contract.

3. Once you have selected a contract, you can:

    - Review items.

      Items are the pay items or materials that are being used on the contract. Expand an item to view details about the quantity expected to be used on the contract and the price associated with it.

    - Add a report to create a new Daily Work Report.

    - Select a report that has already been created.

4. To create a Daily Work Report (DWR), select **Add report** and fill out the fields in each tab as required.

5. To create an item to be measured in the field, in the Daily Work Report select the **Postings** tab and then click **Add Posting**. Select the item and then fill out the required fields.

> **NOTE –** If you select a road in the Trimble Access Mobile Inspector software, then the **Station** information is obtained from shared measurements from Trimble Access Mobile Inspector. See Selecting a road for stationing information, page 7.

6. To send the item to the Trimble Access Mobile Inspector software, click **Measure Service**.

Once sent to the Trimble Access Mobile Inspector software, the item can be measured in the field.

Set up the project and job in Trimble Access General Survey

Once the posting has been created in Infotech Mobile Inspector and sent to the field via the Trimble Measure Service, open Trimble Access General Survey on the field device to select the project and the job.

Selecting the project

You can create or open a project that is stored locally on the controller or is stored in the Trimble Connect cloud.

- To open a project, select it in the **Projects** screen and tap **Open**.
- To download a project from Trimble Connect, tap the **Sign in** 👤 icon in the title bar to sign in using your Trimble ID. Once you are signed in, tap select the project in the **Projects** screen and tap **Download**.
- To create a new project, tap **New**.

For more information, refer to the topic **Managing projects** in the *Trimble Access General Survey User Guide*.

Selecting the job

When you open a project, the **Jobs** screen appears.

- To open a job, select it in the **Jobs** screen and tap **Open**.
- To download a job from Trimble Connect, select the job in the **Jobs** screen and tap **Download**.
- To create a new job, tap **New**.

For more information, refer to the topic **Managing jobs** in the *Trimble Access General Survey User Guide*.

Linking files to the job

When you open the job, the **Map** screen appears.

Typically you will want to link a control points CSV file and a road alignment file to the job so that you can view data from those files in the map and if needed use points from those files in Trimble Access.

Use the **Layer manager** to link files to the job and to manage the data that is visible in the **Map** screen.

1. To open the **Layer manager**, tap ⊗ in the **Map** toolbar.

2. To link files to the job, tap **Add** and then select the files to link from a location on the controller or from Trimble Connect if the project you are working in is a cloud project. Tap **Accept**.

   - Linked CSV files are listed in the **Point files** tab of the **Layer manager**. By default the contents of the file are visible and selectable in the map, indicated by the check mark inside a square ☑ next to the file name.

   - Linked road alignment files are listed in the **Map files** tab of the **Layer manager**. By default the contents of the file are visible in the map but not selectable, indicated by the check mark ✔ next to the file name.

3. To make the features in a file selectable, tap the file name in the **Map files** tab. A check mark inside a square ☑ indicates the features are selectable.

4. To close the **Layer manager**, tap **Accept**.

For more information, refer to the topic **Managing layers using the Layer manager** in the *Trimble Access General Survey User Guide*.

Connect to GNSS or a conventional instrument

To start measuring you will need to connect to a GNSS receiver or a conventional instrument.

> **TIP –** Because most Trimble Access Mobile Inspector users use a GNSS receiver connected to a VRS network for real-time GNSS corrections, the rest of this topic outlines those steps. For information on setting up conventional survey equipment, refer to the topic **Conventional surveys** in the *Trimble Access General Survey User Guide*.

To connect to a GNSS receiver:

1. To configure the software to use a VRS network connection:

   a. Tap ≡ and select **Settings/ Survey styles**.

   b. Tap **RTK** and then tap **Edit**.

   c. Tap **Rover data link**.

   d. In the **Type** field select **Internet connection**.

   e. Tap ▶ next to the GNSS correction source field and then tap New and configure the connection to the VRS network using the IP address and other information provided by the VRS

network administrator.

    f. Tap ▶ next to the GNSS internet source field and select how the controller will connect to the internet. Tap Config to configure internet connection settings.

For more information, refer to the topic **To configure a rover internet data link** in the *Trimble Access General Survey User Guide*.

2. Assemble and erect the equipment for the rover.

3. Turn on the receiver and connect the controller to the receiver using Bluetooth or a USB serial cable.

For more information, refer to the topic **GNSS rover receiver setup** in the *Trimble Access General Survey User Guide*.

4. The status bar in the Trimble Access software updates to show the GNSS receiver is connected.

If the Trimble Access software does not automatically connect to the receiver, refer to the topic **Auto-connect options** in the *Trimble Access General Survey User Guide*.

Complete Measure requests in Trimble Access Mobile Inspector

To start the inspection work and view measurement tasks, you must switch from Trimble Access General Survey to the Trimble Access Mobile Inspector application. To switch apps, tap the General Survey icon in the status bar and then select Mobile Inspector.

> **TIP –** You can still access many Trimble Access General Survey functions from within Mobile Inspector, including all map and layer functions. For example, you can open the **Layer manager** and add Trimble Maps as a background or add additional files. You can also stake to the alignment from within Mobile Inspector if needed.

Selecting a road for stationing information

> **NOTE –** Selecting a road RXL file is not required for completing measurement tasks. Other alignment file types, such as LandXML, can also be loaded, viewed and selected in the Map instead. However, station information is only shared back to reports in Infotech Mobile Inspector when you select an RXL file.

1. Tap ☰ and then tap **Select a road**.

2. Select the files to link from a location on the controller or from Trimble Connect if the project you are working in is a cloud project and then tap **Accept**.

The selected road is shown in the **Map files** tab of the **Layer manager** and is referenced in the daily work report.

To deselect a road file you have previously selected, repeat the steps above but instead of selecting a file, tap **None** and then tap **Accept**.

Completing measure requests

To view the list of measure requests sent from Infotech Mobile Inspector, tap ☰ and then tap **Measure requests**.

The type of measurement request is shown at the start of the name in the measure request list:

- Area = Area
- Vol =Volume
- Pt = Point
- Len = Length

To ensure all measurement requests are downloaded, tap **Refresh**.

To complete a measurement request, select the request and then tap **Measure**.

For more information, see:

- Area measurement, page 8
- Volume measurement, page 10
- Point measurement, page 12
- Length measurement, page 13

Area measurement

When you select an area measurement request from the **Measure requests** list the software shows the map and the **Measure area** form.

To compute the area:

1. In the **Method** field, select the required calculation method:

    - **Perimeter** method calculates the area using the selected boundary points.

    - **Surface** method calculates the area using an existing surface for the area calculation.

2. If you are using the **Perimeter** method:

    - Select points to measure the area from the list or map view.

        As you select points they are given a number based on selection order, highlighted blue in the map and a pink mesh is drawn to indicate the extent of the area calculation. Tap a point again to remove it from the current selection. To clear the current selection and start again, tap **None**.

    - If the points you want to use do not yet exist in the job then tap the **Measure** softkey to open the **Measure points** form and measure new points.

        For more information, refer to the topic **GNSS survey measure methods** in the *Trimble Access General Survey User Guide*.

Once you have measured the new points, tap **Esc** in the **Measure point** form to return to the **Measure area** form and then select the points from the map. To select from the list, you will need to tap **Esc** and re-select the request and select **Measure**.

3. If you are using the **Surface** method, select an existing surface from the drop-down box.

   - If the surface you want to use does not exist in the job then select the points in the map view and create a surface. To select the surface from the drop-down menu, you will need to tap **Esc** and re-select the request and select **Measure**.

   - If the points you want to use do not yet exist in the job then tap the **Measure** softkey to open the **Measure points** form and measure new points.

     For more information, refer to the topic **GNSS survey measure methods** in the *Trimble Access General Survey User Guide*.

     Once you have measured the new points, tap **Esc** in the **Measure point** form to return to the **Measure area** form and then select the points from the map to create the surface.

4. Tap **Calc**. The **Measurement request result** screen appears.

   The **Shared area** group box shows the value that will be displayed in the Infotech Mobile Inspector web application and used for payment calculations. Select from the following options:

   - **Surface area**: The total area of the surface accounting for slopes and point elevations.
   - **Plan area**: The total area of the footprint, ignoring elevation changes.

   The **Measurements** group box displays the calculated values:

   - **Selection**: Lists the points selected for the area calculation.
   - **Surface area**: The total area of the surface accounting for slopes and point elevations.
   - **Plan area**: The total area of the footprint, ignoring elevation changes.
   - **Perimeter**: The total distance around the boundary of the selected points.

   All of these values are stored in a LandXML file for use in office software and for auditing purposes.

5. To add an additional area to the final shared value, tap the **+** softkey to return to the **Measure area** form.

   - If you are using the **Perimeter** method, points added to the calculation are shown in the **Measurement request result** screen in the **Selection** list after the semi-colon.

   - If you are using the **Surface** method, the surfaces added to the calculation are shown in the **Measurement request result** screen in the **Selection** list after the semi-colon.

6. To complete the measure request, tap **Share**.

   The information shown in the results screen and the attached LandXML file is shared with Infotech Mobile Inspector and the Daily Work Report.

7. The software returns to the **Measure requests** screen. The completed measure request is no longer shown in the list.

Volume measurement

When you select a volume measurement request from the **Measure requests** list the software shows the map and the **Compute volume** form.

To compute a volume you must select a surface. You can calculate volumes from surfaces stored in triangulated terrain model (TTM) files. You can import TTM files from your office software or create them from the map in General Survey.

To create a surface:

1. In the map, select three or more 3D points.

2. Tap and hold in the map and select **Create surface**.

3. Enter the surface name. Tap **OK**.

    The surface is linked to the current job as a linked map file and appears in the map.

    For more information, refer to the topic **Creating a surface from existing points** in the *Trimble Access General Survey User Guide*.

To compute the volume:

1. In the **Method** field, select the required calculation method:

    *   **Above an elevation** method

        Calculates the volume of a single surface above the specified elevation. Only the cut volume is computed.

    *   **Void volume** method

        Calculates the volume of material needed to fill a surface up to the specified elevation.

    *   **Surface to elevation** method

        Calculates the cut and fill volumes between a single surface and the specified elevation. Where the surface is below the elevation, fill will be computed; where the surface is above the elevation, cut will be computed.

    *   **Surface to surface** method

        Calculates the cut and fill volumes between two surfaces. The **Initial surface**, is the original surface and **Final surface** is the design surface or surface after excavation. Where the **Initial surface** is above the **Final surface**, then cut is computed; where the **Initial surface** is below the **Final surface**, then fill is computed.

        > **NOTE –** Volumes are computed only in areas where the initial and final surfaces overlap.

    *   **Stockpile/depression** method

        This works in a similar way to **Surface to surface** except with only one surface. The selected surface is treated as the final surface and the initial surface is defined from the perimeter points of the selected surface. Where the surface is above the perimeter surface, then cut is computed

(stockpile); where the surface falls below the perimeter surface, then fill is computed (depression).

- **Surface area** method

   Calculates the surface area, and using the specified depth can calculate the volume.

2. Select the surface or surfaces to use.

3. If required, enter the **Haul bulkage** or **Shrinkage** factor to apply to the calculation.

   A *haul bulkage* factor allows for the expansion of cut material as it is excavated. Haul bulkage is defined as a percentage. The **Adjusted cut** volume is the cut volume with the haul bulkage factor applied to it.

   A *shrinkage* factor allows for compaction in fill material. Shrinkage is defined as a percentage. The **Adjusted fill** volume is the fill volume with the shrinkage factor applied to it.

4. Tap **Calc**. The **Measurement request result** screen appears.

   The **Shared volume** group box shows the value that will be displayed in the Infotech Mobile Inspector web application and used for payment calculations. Select from the following options:

   - **Cut volume**: The calculated volume of material that needs to be removed.

   - **Fill volume**: The calculated volume of material needed to fill the area.

   - **Cut/Fill balance**: The difference between the volume of material that needs to be removed and the volume of material that needs to be added.

   The **Measurements** group box displays the calculated values:

   - **Cut volume**: The calculated volume of material that needs to be removed.

   - **Cut area**: The calculated size of the cut area.

   - **Fill volume**: The calculated volume of material needed to fill the area.

   - **Fill area**: The calculated size of the fill area.

   - **Cut/Fill balance**: The difference between the volume of material that needs to be removed and the volume of material that needs to be added. This value is shown only if it can be calculated.

   All of these values are stored in a LandXML file for use in office software and for auditing purposes.

5. To add an additional volume to the final shared value, tap the **+** softkey to return to the **Measure volume** form.

   Volumes calculated are added to the total shared volume and the points associated with the volume are shown in the **Measurement request result** screen in the **Selection** list after the semi-colon.

6. To complete the measure request, tap **Share**.

   The information shown in the results screen and the attached LandXML file is shared with Infotech Mobile Inspector and the Daily Work Report.

7. The software returns to the **Measure requests** screen. The completed measure request is no longer shown in the list.

Point measurement

When you select a point measurement request from the **Measure requests** list the software shows the map and the **Measure point** screen.

1. Tap ▶ next to the **Measurement point** field and then select one of the options below to create or select the point. These options are the same as when selecting points in Trimble Access General Survey.

Select...	To...
List	Select from a list of all points in the job.
Wildcard search	Search the job using a filter.
Key in	Create a point by keying in the **Point name**, **Code**, and **Coordinates**.
Fast fix	Quickly measure and automatically store a point. Wherever the instrument is pointing, that position is stored.
Measure	View the Measure screen so that you can enter the **Point name, Code**, and **Target height**.
Map selections	View a list of points selected from the map.

For more information, refer to the topic **Selecting points** in the *Trimble Access General Survey User Guide*.

2. When you have selected the points, tap **Enter** to confirm the selection.

3. Tap **Calc**. The **Measurement request result** screen appears.

   The **Selection** field lists the names of the selected points.

4. To complete the measure request, tap **Share**.

   The information is shared with Infotech Mobile Inspector and the Daily Work Report.

5. The software returns to the **Measure requests** screen. The completed measure request is no longer shown in the list.

Length measurement

When you select a length measurement request from the **Measure requests** list the software shows the map and the **Measure length** form.

1. Select points from the list or map view.

    As points are selected they are given a number based on selection order and highlighted blue in the map. Tap a point again to remove it from the current selection. To clear the current selection and start again, tap **None**.

2. If the points you want to use do not yet exist in the job then tap the **Measure** softkey to open the **Measure points** form and measure new points.

    For more information, refer to the topic **Managing layers using the Layer manager** in the *Trimble Access General Survey User Guide*.

    Once you have measured the new points, tap **Esc** in the **Measure point** form to return to the **Measure length** form and then select the points from the list or the map.

3. Tap **Calc**. The **Measurement request result** screen appears

    The **Shared length** group box shows the value that will be displayed in the Infotech Mobile Inspector web application and used for payment calculations. Select from the following options::

    *   **Slope Length**: The distance measured along an inclined surface such as a road or hill.
    *   **Horizontal Length**: The distance projected onto a flat, horizontal plane, disregarding elevation or slope.

    The **Measurements** group box displays the calculated values.

    *   **Selection**: Lists the points selected for the length calculation.

    All of these values are stored in a LandXML file for use in office software and for auditing purposes.

4. To add an additional length to the final shared value, tap the **+** softkey to open the **Measure length** form.

    Points added to the calculation are shown in the **Measurement request result** screen in the **Selection** list after the semi-colon.

5. To complete the measure request, tap **Share**.

    All of the information shown in the results screen and the attached LandXML file are shared with Infotech Mobile Inspector and the Daily Work Report.

Review measurements in Infotech Mobile Inspector

The **Report Details** tab includes a file attachment labelled **RawMeasureServiceData**. This file contains all of the data from the field and is attached to the report for auditing purposes.

The **Postings** tab shows the results of the measurements from Trimble Access Mobile Inspector:

- The **Measured** check box next to the **Qty** field in the **Overview** tab indicates that the quantity value shown has been measured.

- The detailed view shows all the information about the measurement, including the recorded location and station information based on the measurement and the selected alignment. LandXML and CSV files are attached.

You can download the LandXML and CSV files and import them into your office software. and import this into an office software.

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