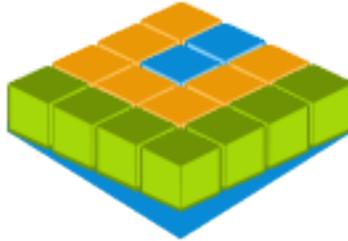


# CollabLand<sup>©</sup>

Software for Digitization and  
Mosaicing of Land Survey Maps



## User's Manual

Version 2.5

Release Date: 28 Feb 2017

CollabLand<sup>©</sup> is a Java<sup>™</sup> based Software for Digitization and Mosaicing of Land Survey Maps developed by [National Informatics Centre](#), Ministry of Communications and Information Technology, Government of India.

CollabLand<sup>©</sup> uses open standards to achieve inter application operability. CollabLand<sup>©</sup> is developed using the following Open Domain Development Tool Sets, Libraries and Software Packages:

- PostgreSQL - Database
- Jasper Reports - Reporting Engine
- Geo Tools - Shape File Library
- iText - PDF Library
- Apache - Codec Library

In this manual and the software, names *Tippan* and *FMB Map* or even simply *FMB* are used synonymously to represent the drawing of a piece of Land (Plot) under a given Survey Number.

All issues and observations may kindly be addressed to [CollabLand Support](#)

# File

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[New](#) | [Open](#) | [Import](#) | [Export](#) | [Save](#) | [Save As](#)  
[Page Setup](#) | [Print Preview](#) | [Print](#) | [Logout](#) | [Close](#) |  
[Exit](#)

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The options in this menu refer to the FMB Management. Most of the options in this Menu are provided in the Tool Bar and Button Panel also.

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## New

The "New" option allows Creation of a new Tippan or FMB (Field Measurement Book) Map.

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## Open

The "Open" option allows Opening of a specific Tippan or FMB Map from the Database.

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## Import

"The Import" option provides facility to Import data in specified formats for Creation of Tipples or FMB Maps conforming to Standards followed in States or Systems. On selecting this option, the user will be prompted to choose the Data Format for Import. Subtler information regarding the format shall be given in the corresponding property file. On choosing the format, data in those format will be loaded and displayed in the Tables. Further steps in Import depend on the format chosen. Currently the following formats are supported.

### Total Station

In this case, the Point coordinate data from Total Station Instruments can be directly read and displayed in the Station Table. CollabLand can import GSI files of Leica Instruments and ASC files of TopCon Systems. On choosing this option, the system would display a dialog box using which the user can choose the Instrument Type, Station Data file, the Data Units, and the Import Options. Once the OK button of this dialog is clicked, the data from the chosen file would be read and displayed depending on the Import Option Selected.

[Into Empty Table](#) - Displays Data in the emptied Station Table

**Append the Table** - Appends Data at the end of Station Table

**Create Points** - Displays Data in a temporary table.  
Users can delete unwanted points from this table and create Points in the Map from remaining Data

Using this option, the Traverse Survey data from Total Station Instruments (GSI Files) can be directly read, computed, corrected and displayed in the Traverse Table. If the selected file is a Traverse Data file the data from the chosen file would be read and the traverse point coordinates would be computed. The computation results would then be displayed, and the user would be prompted for the traverse correction method and the output file name. The following correction methods are available:

**Proportionate** : The closing error would be distributed in the ratio of the length of the sides

**Uniform** : The closing error would be uniformly distributed.

Once the OK button of this dialog is clicked, the computed traverse coordinates would be corrected using the selected method, and the point coordinates would be displayed in the Traverse Table. The Traverse map also would be displayed in the Canvas.

## Shape File

In this case, Polygon (and MultiPolygon) entities from Shape Files can be read and displayed on the Canvas. On choosing this format, the system will display a dialog box using which the user can choose the Shape file, the Data Unit, and the Identifier used in the Shape File for Survey Number. Besides, the users have the following options regarding the mode of import of the shapes:

**As In File** : Import Polygons in the order as they appear in the Shape File. Press the 'Next' button in the table panel to import the next Polygon.

**By Choice** : Import Polygons as per the choice of the User. Press the 'Next' button in the table panel, and system would prompt for the next Identifier.

**Into Database** : Import all Polygons into the database. The system would further prompt for the location in which the polygons are to be stored.

**All as Mosaic** : Import all the Polygons as a Mosaic Map. Users can append the imported polygon(s) into the existing map by selecting the option provided for this purpose.

## Image File

In this case, scanned images of Maps can be displayed in CollabLand. On choosing this format, the system will display a dialog box using which the user can choose the image file name. On pressing the OK button, the image would be displayed on the Canvas. Users can further plot the points in the image using the Free Hand Point option available under Map menu.

## Vision File

In this case, FMB Maps drawn using Vision software can be imported into CollabLand. On choosing this format, the system will display a dialog box using which the user can choose the Vision file name. On pressing the OK button, the data from the chosen file would be converted into CollabLand format and the map would be displayed on the Canvas.

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## Export

"The Export" option provides facility to Export the Map in COllabLand into specified formats. Currently the following formats are supported.

### KML File

In this case, the map displayed in the Canvas can be exported into a KML file. Both FMB Maps (Tippans) as well as Mosaic Maps can be exported into KML files. On invoking this option, the system would prompt for the KML file name. On providing the file name, the map would be saved in the given file in KML format.

### Shape File

In this case, the map displayed in the Canvas can be exported into a Shape file. Both FMB Maps (Tippans) as well as Mosaic Maps can be exported into Shape files. On invoking this option, the system would prompt for the Shape file name. On providing the file name, the map would be saved into six files with \*.dbf \*.fix \*.prj \*.qix \*.shp and \*.shx extensions.

### Image File

In this case, the map displayed in the Canvas can be exported into an Image file. Both FMB Maps (Tippans) as well as Mosaic Maps can be exported into Image files. On invoking this option, the system would prompt for the Image file name. Images can be exported in the JPG/JPEG, TIF/TIFF, PNG and BMP formats. On providing the file name with desired extension, the map would be saved in the respective format.

### PDF File

In this case, the map displayed in the Canvas can be exported into a PDF file. Both FMB Maps (Tippans) as well as Mosaic Maps can be exported into PDF files. On invoking this option, the system would prompt for the PDF file name. On providing the file name, the map would be saved in the given file in PDF format.

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## Save

The "Save" option saves the current Tippan to the Database under the current identification.

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## Save As

The "Save As" option saves the current Tippan to the Database under a different identification.

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## Page Setup

The "Page Setup" options allows setting of parameters like paper size, orientation, and margin. On successfully entering the required parameters, the canvas would be resized and redisplayed.

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## Print Preview

The "Print Preview" options provides a compact view of the drawing area (canvas). Options are available for users to Zoom this view and take the Print out.

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## Print

The "Print" option prints the Tippan currently in the Canvas. On selecting this option the standard dialog for printing would be displayed, using which the user can specify the print configuration.

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## Logout

The "Logout" option logs out the current user session in CollabLand. A new user can now login through the login prompt that would appear.

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## Close

The "Close" option closes the Tippan. The tables will be reset and the canvas will be cleared.

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## Exit

The "Exit" option exits the application.

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## Edit

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[Undo](#) | [Redo](#) | [Copy](#) | [Paste](#) | [Rotate](#) |  
[Clear](#)

---

The "Edit" menu provides a host of features that operate on the existing Maps.

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### Undo

The "Undo" option undoes the last operation performed.

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### Redo

The "Redo" option redoes the last operation undone.

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### Copy

The "Copy" option copies the Tippan or the Details (such as Notes, Symbols, Profiles and Sketchs) into the Clipboard. On Selecting the option the system would display a dialog box using which the users can select the Tippan or the Details to be copied. On selecting the items and pressing OK, they would be copied into the Clipboard.

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### Paste

The "Paste" option pastes the Tippan or the Details in the Clipboard into the current Map. On Selecting the option the system would display a dialog box using which the users can select the Tippan or Details to be pasted.

Tippan would be pasted based on Points with common names. On choosing to paste

the Tippans, the users would be prompted to choose the names of Coincident and Alignment Point.

Details can be pasted manually or automatically. If Auto Place option is selected the Details would be pasted at the same location from where they were copied. If this option is not selected, the user can paste the details any number of times by specifying the location. Press Esc or Enter key to terminate the pasting operation.

---

## Rotate

This option rotates the Map on the Canvas about a selected Point by a specified angle.

On selecting the option the system would prompt, *Select Pivot Point for Rotation*. When this point is specified a dialog box would appear, using which the user can specify the required Rotation Angle in degrees. On entering the Angle, the Map will be rotated by that much of angle. If the given angle is Positive then the Map will be rotated in Anti-clockwise direction and if it is Negative then the Map will be rotated in clock-wise direction. Maps containing View Ports cannot be rotated.

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## Clear

The "Clear" option deletes the Map from the Canvas.

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# View

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[Auto Fit](#) | [Pan Mouse](#) | [Pan Exact](#) | [Zoom Mouse](#) | [Zoom Exact](#)  
[Half Scale](#) | [Double Scale](#) | [User Scale](#) | [Variable Scale](#)  
[Pin Map](#) | [Release Map](#)

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The "View" Menu provides a host of features that operate on the display of Tippians.

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## AutoFit

The "Auto Fit" option automatically fits the Tippan according to the space available in the canvas. Auto Fit will function properly only if 'Variable' scale is used. In case of a fixed scale, this option only centers the canvas. This operation can also be invoked by pressing the F Key.

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## Pan Mouse

On selecting this menu a message will be displayed at the Status Bar that *"Press the Mouse and drag to Pan"*. Now user can drag the Tippan according to the requirement. This operation can also be invoked by pressing the W Key.

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## Pan Exact

This option is similar to the "Pan Mouse" option. The difference is that the User has to specify the extent of panning required along X-axis and Y-axis.

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## Zoom Mouse

This option will zoom out the Tippan, and will function only in 'Variable' scale. When we click on this menu a message will be displayed at the Status Bar as "*Specify first corner for Zoom*". After clicking once on the Canvas another message will be displayed at the Status Bar as "*Specify the Second Corner*". Then the Tippan will be zoomed out and the scale will be changed. This operation can also be invoked by pressing the Z Key.

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## Zoom Exact

This option will Zoom in the Tippan, and will function only in 'Variable' scale. When the User selects this option a dialog box will be displayed using which the user can specify the zoom factor.

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## Half Scale

This option changes the zoom scale to half of the existing value, if the scale chosen is "Variable". This operation can also be invoked by pressing the K Key.

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## Double Scale

This option changes the zoom scale to double of the existing value, if the scale chosen is "Variable". This operation can also be invoked by pressing the J Key.

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## User Scale

This option changes the zoom scale to a value specified by the user. On invoking this option, the system would display a dialog box using which the user can specify the scale value. This operation can also be invoked by pressing the Ctrl+U Key.

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## Variable Scale

This option changes the zoom scale mode to "Variable". This operation can also be

invoked by pressing the Ctrl+B Key.

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## Pin Map

This option Pins the map to the drawing canvas so that any further Panning and Zooming is arrested.

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## Release Map

This option Releases the map from the drawing canvas so that further Panning and Zooming is possible.

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# Map

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[Draw Map](#) | [Add Base Line](#) | [Outer Boundary](#)  
[Sub-Division Points](#) | [Sub-Division Lines](#) | [Sub-Divisioning](#)  
[Merge Sub-Divisions](#) | [Sub-Division Area](#)

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This Menu provides a host of features that operate on Creation of Tippan. Users are advised to read the [suggested procedure for data entry for maps](#) before attempting digitization of cadastral maps.

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## Draw Map

Using this option, the user can Draw the Tippan on the canvas using the data from the Tables.

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## Add Base Line

Using this option, the user can create a new Base Line. This facility allows the user to interactively create a Tippan on the Canvas by entering the Ladder data in a Base Line Entry Table. When the user enters the data in this table the map would be simultaneously drawn on the canvas.

On invoking this option, the system will check if a Tippan is already existing on the Canvas. If no Tippan exists on the canvas, the Base Line Entry Table would be displayed immediately on invoking the menu.

If a Tippan exists, the system would prompt for the Start and End points of the new Base Line. On selecting these two points the system would display a Base Line Entry Table in which the Ladder data can be entered. If a boundary line exists between the selected points, that Line would be divided at the specified cut points.

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## Outer Boundary

Using this option, the user can create and modify the outer boundary of the Tippan.

## Create Boundary

This option allows the user to define the outer boundary of the Tippan. On invoking this option, the system will prompt: *"Select corners in Order"*. The user can now select the points falling on the Outer Boundary of the Tippan. The operation will automatically terminate when a closed boundary is specified.

Only one Outer Boundary can be specified for a Tippan. However users can create any number of Inside Boundaries to represent Tippans within a Tippan. Thus, if this option is invoked on Tippans where the Outer Boundary is already defined, the system would display the message: *"Outer Boundary already exists for this Tippan; Do you want to create an Inside Boundary ?"*. On affirmative response, the system would further prompt *"Specify a point within the Inside Boundary"*. When the user specifies a point within the region where the Inside Boundary is to be defined, the system would prompt for confirmation: *"Create Inside Boundary using the Selected Lines ?"*. The Inside Boundary would be created on confirmation.

## Include Points

This option allows the user to include more points in the outer boundary of the Tippan. On invoking this option, the system will prompt: *"Select Boundary Line to Include Point"*. The user may now select a line in the outer boundary between whose end points the new point would be included. On selecting a valid outer boundary line, the system would further prompt: *"Select the Point to Include"*. The user may now select the point to be included and the boundary would be redrawn with the selected point inserted between the end points of the selected boundary line.

## Exclude Points

This option allows the user to exclude points from the outer boundary of the Tippan. On invoking this option, the system will prompt: *"Select Boundary Point to Exclude"*. The user may now select the point to be excluded from the outer boundary. On selecting a valid outer boundary point, the boundary would be redrawn with the selected point excluded from the outer boundary of the Tippan.

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## Sub-Division Points

This option allows users to create Points, primarily required for Sub-Division of the Maps. The following point creation methods are available

### Offset Point

Using this option, the user can specify Sub-Division Points on Base Lines and Boundary Lines of a Tippan. On invoking this option, the system will prompt: *"Select side near to Base Point"*. On selecting the line, a dialog box would appear with the following fields.

**Length Unit** - Select the unit in which the length is entered

- Distance - Enter the distance from the base point
- Offset - Enter the offset distance (0.0 for Point on Line)
- Name - Enter the name of the point
- Total Length - Select how the Total Length is to be displayed
- Add Point in - Select the Table in which the Point is to be added

While entering the data, the Point will be temporarily displayed on the Canvas. Pressing the "OK" Button would create the Sub-Division Point. Users can create Symbols at the given position by specifying the Symbol Code as the Point name. Users are advised to select the lines at the same end (as far as possible) for better results.

## Coordinates

Using this option, users can create points by entering the X, Y, and Z coordinates, through the dialog that would appear on invoking this option.

## Delta / Polar

Using this option, users can create points by entering the Delta or Polar coordinates with reference to a selected base point. On invoking the option, the system would prompt: "*Select Base Point*". Once the base (reference) point is selected a dialog box would appear and users can enter the Delta or Polar coordinates in the appropriate pane. The users can also specify the unit in which the data is entered. While entering the data, the Point will be temporarily displayed on the Canvas. Pressing the "OK" Button would create the Point using the data in the selected pane. Users can create Symbols at the given position by specifying the Symbol Code as the Point name.

## Triangle Point

Using this option, users can create points by specifying its distance from two existing points. On invoking the option, the system would prompt for the first and the second points; and the side in which the point shall be created. Once these points are specified, the system would display a dialog through which the users can enter the point name and the distances from the the selected points, and the unit in which the distances are entered. Pressing the "OK" Button would create the Point.

## Intersection Point

Using this option, users can create points at the intersection point of two existing lines. On invoking the option, the system would prompt for the first and the second lines. Once these lines are selected, the system would display a dialog through which the users can enter the

point name (and view the coordinates of the the intersection point). A marker also would be displayed at the intersection point. Pressing the "OK" Button would create the Point.

## Free Hand Point

Using this option, users can create free hand points by specifying its position on the canvas using the mouse. When the option is invoked, the system would display a dialog box using which the users can specify the parameters such as Scale and Units. Further the system would prompt : *"Specify Point Position"*. On clicking at the desired position of the point on the canvas, the system would display a dialog through which the users can enter the point name and modify the coordinates of the specified point (if needed). Pressing the "OK" Button would create the Point. This option, along with the [Import Image](#) feature, provides a facility to convert the raster images of the maps into vector format.

---

## Sub-Division Lines

This option allows users to create sub-division Lines, primarily used as boundaries of sub-divisions in the Maps. The following Line creation methods are available

### Point to Point

Using this option, the user can create sub-division lines by connecting existing points. On invoking this option, the system will prompt: *"Select corners in order and press Enter"*. Then the user can now select the points connecting the sub-division lines. The operation can be terminated by clicking at a corner (the last corner) two times, or by pressing Enter.

### Area and Side

Using this option, the user can create sub-division lines parallel to the sides of a sub-division enclosing a user specified area. Once this option is invoked, the system will prompt: *"Select the Sub-Division near the Side"*. On selecting the side of a sub-division, the system would prompt for the area of sub-division, the unit in which the area is entered, and the names of sub-division points. Once these inputs are provided the system would create the sub-division line enclosing the specified area. The region covering the specified area would be displayed in a shaded pattern and the user would be prompted to optionally modify the displayed length of the new sub-division line.

### Area and Point

Using this option, the user can create sub-division lines along the corners of a sub-division enclosing a user specified area. Once this option is invoked, the system will prompt: *"Select the Sub-Division near the Point"*. On selecting the corner of a sub-division, the system would prompt for the area of sub-division, the unit in which the area is entered, and the name of sub-division point. Once these inputs are provided the system would create the sub-division

line enclosing the specified area. The region covering the specified area would be displayed in a shaded pattern and the user would be prompted to optionally modify the displayed length of the new sub-division line.

---

## Sub-Divisioning

Using this option, the user can create a Sub-Division. On invoking this option, the system will prompt: "*Specify A Point within The Region*". On clicking inside the closed boundary of the Sub-Division, the system will prompt for the Sub-Division Name and the Displayed Area. Specifying the name and the area, the Sub-Division will be created. If a Sub-Division exists at the clicked point, that will be deleted.

---

## Merge Sub-Divisions

Using this option, the user can merge two Sub-Divisions into one Sub-Division. On invoking this option, the system will prompt: "*Select the Sub-Divisions to Merge*". The user can now select two Sub-Divisions. Then the system will prompt for the Sub-Division Name and the Displayed Area. Specifying the name and the area, the two selected Sub-divisions will be merged and a new Sub-Division will be created.

---

## Sub-Division Area

This option lists the Sub-Divisions with respective Areas, and also the Total Area of the Plot. The user can modify the displayed area of each sub-division from this table, and the same will be effected in the map when the OK button is pressed. An option is available to copy the modified area values into the Boundary Table. (Note: While the area table is being displayed, Boundary lines which are not fully used in definition of boundary would be displayed in the highlight color)

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# Modify

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[Frill Lines](#) | [Add Length](#) | [Align Map](#)  
[Modify Point](#) | [Modify Length](#) | [Modify Text](#) | [Move Text](#) |  
[Delete](#)

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This Menu provides a host of features that operate on Modification of Tippians.

---

## Frill Lines

This option allows creation of dummy Lines denoting the location / orientation of Adjacent Plots (Survey Numbers). On invoking this option the system will prompt: "*Select start base Point*". The user may now select the start Point and the end Point, and the Frill line will be created. (All frill lines will be displayed for equal length).

---

## Add Length

Using this option, the user can add the linear measurement between two points in the Tippan. On invoking the option, the System would prompt for the First and the Second Points. On selecting these points, a dialog box would appear with which the user can specify the linear measurement between the selected points. If a measurement is already marked between the selected points, a message to this effect would be displayed.

---

## Align Map

Various options to modify the position and alignment of the digitized maps are provided in this section. Only the coordinates (poistion) and alignment (rotation) of the maps are modified using these options. No shrinking or expansion of the maps is performed.

## Coordinates

Using this option, the user can specify the Co-ordinate System for the Tippan. On invoking the option, the System will prompt: "*Select Origin Point*". On selecting the origin point, a dialog box would appear with which the user can specify the X and Y Co-ordinates of the selected point. The Co-ordinates of other points will be computed and displayed based on the user input.

## Line - Angle

Using this option, the user can align the Tippan with the North direction. On invoking this option, the system will prompt: "*Select side near to Base Point*". On selecting the line, a dialog box would appear using which the user can specify the angular deviation of North with respect to the selected line. Successfully entering the angle would orient the Tippan towards North.

## Two Points

Using this option, the user can align the Tippan by specifying the coordinates of two points. On invoking this option, the system will prompt to select two points. After selecting the points, a dialog box would appear using which the user can specify the proposed coordinates of the points. Once the point coordinates are specified, the map would be moved to the new coordinates of the first point and rotated to align with the coordinates specified for the second point.

---

## Modify Point

Using this option, the user can modify the parameters (like coordinates, base and offset distances) of the Points in the Tippan. On invoking the option, the System will prompt: "*Select the Point to Modify*". On selecting the Point, a dialog box would appear, using which the user can enter the modified parameters of the Point.

---

## Modify Length

This option lists the Lines in the Tippan with respective Lengths. The user can modify the displayed Length of any Line from this table, and the same will be effected in the map when the OK button is pressed. Length display can be avoid by removing the displayed length from the table. (Note: While the table is being displayed, Boundary lines which are not fully used in definition of boundary would be displayed in the

highlight color)

---

## Modify Text

Using this option, the user can modify the Texts in the Tippan (like Displayed Length of Lines, Displayed Area of Sub-Divisions). On invoking the option, the System will prompt: *"Select Text to Modify"*. On selecting the Text, a dialog box would appear, using which the user can enter the modified text. Facility exists to remove the Length of the Lines and to display them within brackets. Users can rotate the Area and Name of the Sub-Divisions also using this option.

---

## Move Text

Using this option, the user can move the Texts in the Tippan. On invoking the option, the System will prompt: *"Select Text to Move"*. The user can select any text and drag it to the desired position.

---

## Delete

### Point

This option help users to delete independent (un-used) Points in the map. When the option is invoked, the system would prompt: *"Select Point to Delete"*. On selecting the Point, it would be deleted (without any further confirmation).

### Line

This option help users to delete independent (un-used) Lines in the map. When the option is invoked, the system would prompt: *"Select Line to Delete"*. On selecting the Line, it would be deleted (without any further confirmation).

### Sub-Division

This option help users to delete a Sub-Division in the map. When the option is invoked, the system would display a dialog box using which the users can specify

the name of the Sub-Division to be deleted. On specifying the Sub-Division name, it would be highlighted and the map would be moved such that the specified Sub-Division would be positioned at the centre of the Canvas. The Sub-Division would be deleted once the user confirms the system prompt to this effect.

## Un-Used Points

This option help users to delete all the un-used Points in a Map. This option is applicable only for Maps created from Total Station Points. When the option is invoked, the system would highlight all the un-used points and prompt for confirmation to delete them. All those Points would be deleted once the user confirms the prompt.

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## Details

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[Note](#) | [Symbol](#) | [Profile](#) | [Sketch](#) | [View](#)  
[Port](#)  
[Copy](#) | [Modify](#) | [Move](#) | [Rotate](#) | [Delete](#)

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This menu provides a host of features like creation and modification of details like Notes, Symbols, and Profiles.

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### Note

Using this option, the user can create Notes in the Maps. On invoking the option, a dialog box would appear consisting of the following fields.

- |           |  |
|-----------|--|
| Note      | - Enter the Text for the Note                    |
| Font      | - Choose the Font of the Note                    |
| Color     | - Choose the Color of the Note                   |
| Size      | - Enter the Size of the Note                     |
| Angle     | - Enter the Rotation Angle of the Note           |
| Underline | - Select the box if the Text is to be underlined |
| Bold      | - Select the box if the Text is to be in Bold    |
| Italic    | - Select the box if the Text is to be in Italics |

On properly entering the fields and pressing "OK" button, the System will prompt: *"Specify Position for Note"*. On specifying the position, the note will be created. Users can modify the above parameters using the same dialog box which would re-appear when the Right Mouse Button is pressed (before specifying the position of Note).

---

### Symbol

## Select

Using this option, the user can create Symbols in the Tippan. On invoking the option, a dialog box would appear consisting of the following fields.

- Type - Select the type of Symbol from the List
- Width - Enter the Width of the Symbol
- Height - Enter the Height of the Symbol

On properly entering the fields and pressing "OK" button, the System will prompt: *"Specify Position for Symbol"*. On specifying the position, the symbol will be created. Users can modify the above parameters using the same dialog box which would re-appear when the Right Mouse Button is pressed (before specifying the position of Symbol). It may be noted that only one North symbol can be created in a map.

## Arrow

Using this option, the user can create an Arrow (Lead) symbols in the Tippan. On invoking the option, the System will prompt: *"Specify Points and Press Enter"*. After pressing Enter, the user has to specify the Arrow Size, and the Arrow symbol would be created.

## North

Using this option, the user can create a North symbol in the Tippan. On invoking the option, the System will prompt: *"Specify Three Points"*. On providing the three points, the North symbol would be created.

Only one North symbol can be created in a map. Therefore, if a North symbol already exist while invoking this operation, the user would be prompted to delete that and create the new North symbol. Similary, at the end of the creation of the North symbol, the system would optionally align the survey numbers of adjacent plots along the direction of the North symbol.

Users can create the other symbols in this menu in a way similar to the North symbol

## Profile

Using this option, the user can create Profiles in the Tippan. A Profile is an open or closed set of lines (Polygon or Polyline) used to represent subtle features of Tippan like water bodies, streams, forest cover, roads, etc. Closed polygons can be filled or left empty.

On invoking the option, the System will prompt: *"Specify Points to create Profile"*. The user can go

on specifying the points defining the profile. Pressing Enter key would mark the end of point specification and the profile would be created. Pressing 'C' key would close the profile automatically.

### Parameters for Open Profiles

- Line Type - Select the type of Line from the List
- Parameter - Enter the Parameter for the selected Line type  
For Solid, Chain, Dash, Dotted, and Dot Dash types, Parameter denotes the Thickness of the Lines. For others it is the spacing of the pattern on the Line
- Color - Choose the Color of the Profile

### Parameters for Closed Profiles

- Fill Type - Select the type of fill from the List
- Angle - Enter the Angle of fill (Not always used)
- Spacing - Enter the Spacing of fill (Not always used)
- Color - Choose the Color of the Profile

The following options to meet specific requirements during Profile creation are provided in the Right Mouse Button Menu

- Existing Point (P) - Enables selection of existing Points in the FMB.  
All further clicks would select the nearest Point.
- Point On Line (L) - Enables selection of Lines to specify the Point.  
Once the Line is selected, user can specify the distance of the point from the start of the Line.  
Option exists to create a Note to show this distance.
- Clicked Point - Disables the above options. All further clicks would select the clicked Point itself. (Same as [Shift Key](#))
- XY Coordinates (X) - Point specification by X Y coordinates.
- Polar Point (T) - Point specification by Polar coordinates.

- Perpendicular (D)** - Enables/Disables creation of segments perpendicular to the previous segment.
- Parallel (E)** - Enables/Disables creation of segments parallel to the previous to previous segment.
- Orthogonal (O)** - Enables/Disables creation of segments parallel to the Orthogonal (X and Y) Axes
- Symbols (S)** - Facilitates creation of Symbols (like Square Well / Water Tank, Tiled/Thatched/Terrace House, Buildings) which are NOT truly North aligned.
- Arrow / Lead (A)** - Creates an Arrow (Lead) at the end of the Profile
- Close Profile (C)** - Closes the Profile (Fill option would be prompted)
- Complete** - Completes Profile Creation (Same as Pressing Enter)
- Reject Last** - Rejects the last input (Same as Pressing Escape)
- 

## Sketch

Sketch is a smooth profile. Using this option, the user can create smooth (usually open) Profiles, like Streams and Roads, in the Tippan.

On invoking the option, the System will prompt: *"Click the Mouse and Drag"*. The user may press the mouse and drag along the desired positions. Pressing 'C' key would close the Sketch automatically. On releasing the mouse, the system would prompt for the parameters as in the case of Profiles, and the Sketch would be created along the mouse path.

---

## View Port

View Port is an enlarged view of a portion of the map (Window) in a given scale. When this option is invoked the system would prompt for the diagonal corners of the Window. On specifying these, the user would be prompted for the Name and Scale of the View Port. Once these values are entered, the system would display the outline of the View Port and prompt for the position where the View Port is to be placed. On specifying the position, the View Port would be created and displayed at that position. The outline of the specified Window would be marked in dashed lines with the View Port name. Users can control the display of the View Ports and Windows by using the option provided in the Display panel of the Options dialog. Maps containing View Ports cannot be rotated.

## Copy

Using this option, the user can copy the Details in the Tippan. On invoking the option, the System will prompt: *"Select Detail to Copy"*. The user can now pick the detail and copy it any number of times by specifying the location. Press Esc or Enter key to terminate copying and to pick a new detail for copy.

---

## Modify

Using this option, the user can modify the Details in the Tippan. On invoking the option, the System will prompt: *"Select Detail to Modify"*. On selecting the Detail, a dialog box would appear, using which the user can enter the modified parameters.

---

## Move

Using this option, the user can move the Details in the Tippan. On invoking the option, the System will prompt: *"Select Detail to Move"*. The user can select any Detail and drag it to the desired position.

---

## Rotate

Using this option, the user can Rotate the Details (except aligned Symbols) in the Tippan. On invoking the option, the System will prompt: *"Select Detail to Rotate"*. On selecting the detail, a dialog box would appear using which the user can specify the angle of rotation. If the given angle is Positive then the Detail will be rotated in Anti-clockwise direction and if it is Negative then the Detail will be rotated in clock-wise direction.

---

## Delete

Using this option, the user can delete the Details in the Tippan. On invoking the option, the System will prompt: *"Select Detail to Delete"*. The user can select any Detail and it will be deleted.

---

# Mosaic

---

[Traverse](#) | [Plot Points](#) | [Join Points](#) | [Draw Lines](#) | [Traverse Sheet](#)  
[Mosaic Tippians](#) | [Insert Tippan](#) | [Remove Tippan](#)  
[Align Tippan](#) | [Move Tippan](#) | [Rotate Tippan](#)  
[Move Points](#) | [Merge Points](#) | [Merge Sides](#) | [Auto Merge](#)  
[Show Sub-Divisions](#) | [Verify Tippan](#) | [Area Table](#) | [Properties](#)

---

Mosaicing is the process of joining together cadastral maps within an area (say a Village) to form the consolidated map of that area (the village map). The accuracy, speed and success of mosaicing operation depends on the system of surveying employed and the accuracy with which the survey is conducted and data digitized. This menu provides a host of features that facilitates mosaicing of Tippians. Users are advised to read the [suggested procedure for mosiacing of maps](#) before attempting mosaicing of land parcels.

---

## Traverse

Using this option, users can create Traverse using Angle and Distance. On invoking the option, a dialog box would appear where users can specify the Bearing, Distance, and the Back and Fore Point names. The Bearing should be measured in the counter clockwise direction from the North direction (positive Y axis). Facility exists to optionally create a Traverse Line connecting the Back and Fore Points. While entering the data, the Point will be temporarily displayed on the Canvas. When the OK button is pressed after entering the values, the Traverse Point (and Line) would be created and the dialog box would re-appear where the user can enter the Angle and Distance of subsequent Lines in the Traverse. For the subsequent Lines the Angle is measured in clock-wise direction from the previous Line. The coordinates of the newly created points can be optionally added into the Station or Traverse Table.

---

## Plot Points

Using this option, the user can plot the Traverse Points on the canvas using the data from the Traverse Table.

---

## Join Points

Using this option, the user can join the traverse points. On invoking this option, the system would display a dialog box using which the user can specify the range of point numbers to be joined.

---

## Draw Lines

Using this option, the user can draw traverse lines by selecting the points in order. On invoking this option, the system will prompt: *"Select Corners in order and press Enter"*. Then the user can select points connecting the Traverse Lines. The operation can be terminated by clicking at a corner (the last corner) two times, or by pressing Enter.

---

## Traverse Sheet

Using this option, the user can view the traverse sheet for the displayed Traverse Map. Users can make corrections in the Angle and Distances (Meridian and Perpendicular) and refresh the Traverse Map. There is provision to export the Traverse sheet into CSV file format also.

---

## Mosaic Tippans

Using this option, the user can mosaic all the Tippans in a selected village. On invoking the option, the system would prompt for the District, Taluk, and the Village. If mosaicing is done over a Traverse, the system would perform the mosaicing based on the count of control points in each tippan. Towards this the count of Tippans with Three or more (3+), Two, One and Zero Control Points would be displayed, and the users can select the category to be included in the mosaic. When the mosaicing is done without a Traverse, the system would prompt for the first tippan to be mosaiced. When all the required information are given, the system would automatically perform the mosaicing operation. Once the process is complete, the system would display a report, where the users have

the option to continue the mosaicing process with modified [options](#).

---

## Insert Tippan

Using this option, the user can insert Tipples into the Traverse. Three methods are provided to insert Tipples. On invoking all these options, the user would be prompted to select the Tippan(s) to be inserted. Further action depends on the method chosen.

### Auto

In this method, the selected Tipples would be inserted into the Traverse at a position Automatically computed by the system.

### Manual

In this method, the selected Tipples would be inserted into the Traverse one by one. For each Tippan, the system would prompt: *Specify the Tippan Position*. The user can specify the position to insert the Tippan. Press Enter to automatically insert the Tippan. Press Shift to skip to the next selected Tippan.

### Import

In this method, the selected Tipples would be Imported into the Traverse at the existing co-ordinate position of the Tipples. This method is useful for mosaicing Tipples for which the global co-ordinates are assigned (like those generated from Total Station Data and Shape files)

---

## Remove Tippan

Using this option, the user can Remove Tipples already inserted. On invoking this option, the system will prompt: *Select Tippan to Remove*. By clicking inside the desired Tippan, it would be removed from the Mosaic (without any further confirmation).

---

## Align Tippan

Using this option, the user can align two Tippans along their selected sides. On invoking this option, the system will prompt: *"Select the Side of the First Tippan to Align"*. On selecting the side of the first tippan, the system will further prompt: *"Select the Side of the Second Tippan to Align"*. On selecting the two sides, the second tippan would be rotated such that the selected sides would coincide.

---

## Move Tippan

Using this option, the user can Move Tippans already inserted. On invoking this option, the system will prompt: *"Select Tippan to Move and Drag"*. The user can now click inside the desired Tippan and drag it to a new position. Tippans with Control Points cannot be Moved.

---

## Rotate Tippan

Using this option, the user can Rotate Tippans already inserted. On invoking this option, the system will prompt: *"Select Tippan to Rotate and Drag"*. The user can now click inside the desired Tippan and Rotate it to a new position by dragging the mouse. The Tippan would be rotated about the nearest (Control) Point of the Tippan. Tippans with more than one Control Point cannot be Rotated.

---

## Move Points

Using this option, the user can move points of Tippans inserted into the Traverse. On invoking this option, the system will prompt: *"Pick the Point to Move and Drag"*. The user can now pick the point and drag to the desired position.

---

## Merge Points

Using this option, the user can merge points of Tippans inserted into the Traverse. On invoking this option, the system will prompt: *"Select Points to Merge and Press Enter"*. On selecting the points and pressing Enter, the points would be merged into their centroid.

## Merge Sides

Using this option, the user can merge two lines of Tippians inserted into the Traverse. On invoking this option, the system will prompt: "*Select First Side to Merge*". On selecting the first side, the system will further prompt: "*Select Second Side to Merge*". On selecting the two sides, the second side would be merged with the first side.

---

## Auto Merge

Using this option, the system would automatically merge the Points and Lines. Coincident Points within a gap of [Merge Tolerance](#) would be merged into a single Point during this operation.

---

## Show Sub-Divisions

This option displays the sub-divisions in the Tippians in the Mosaic. The original Tippians would be removed. The Topological details in the original Tippians would be copied to the parent Mosaic.

---

## Verify Tippians

This option performs the mosaicing of the displayed Tippians with its immediate neighbours. A report on the outcome of the mosaicing also would be displayed.

---

## Area Table

This option displays the area of all the Tippians added in the Mosaic in a Table form. Properties like Color and hatch parameters of the Tippians can be modified by pressing button against each Tippians. Facility exists to export the area table into a comma separated (CSV) text file.

---

## Properties

This option allows setting of properties like Color and hatch parameters of the Tipples in the Mosaic. On invoking the option, a dialog box would be displayed where the users can specify the above parameters. When the OK button is pressed, the display would be modified based on these parameters.

---

# Tools

---

[Distance](#) | [Area](#) | [Angle](#) | [Search](#) | [Geo Reference](#) | [Options](#)

---

## Distance

### Point To Point

Using this option, the user can measure the distance between two existing points in the Tippan. When this option is invoked, the system will prompt: *Select the First Point*. On selecting the first point, the system would further prompt: *Select the Second Point*. When the second Point is also selected, the system would display the distance between the two selected Points.

### Point To Line

Using this option, the user can measure the perpendicular (offset) distance from an existing point to a Line in the Tippan. When this option is invoked, the system will prompt: *Select the Point*. On selecting the point, the system would further prompt: *Select the Line*. When the Line is also selected, the system would display the offset distance from the selected Point to the Line.

---

## Area

This option allows the user to compute the area enclosed within a polygon. On invoking this option, the system will prompt: *"Select corners in Order"*. The user can now select the points falling on the vertices of the polygon. A random point anywhere in the canvas can be selected by pressing the right mouse button. The selection will automatically terminate when a closed boundary is specified or the 'C' key is pressed. On successful selection of the polygon points, the enclosed area would be displayed.

---

## Angle

This option allows the user to measure the angle between two lines. On invoking this option, the system will prompt for the lines. On selecting two lines, the angle from the first line to the second line in clockwise direction (in Degrees and Minutes) would be displayed.

---

## Search

### Point

This option help users to locate a Point in the map. When the option is invoked, the system would display a dialog box using which the users can specify the name of the Point. On specifying the Point name, a temporary Marker would be displayed on the given Point and the map would be moved such that the specified Point would be positioned at the centre of the Canvas.

## Text

This option allow users to locate a Text in the map. When the option is invoked, the system would display a dialog box using which the users can specify the Text to be searched. Users may suffix and/or prefix an Asterisk/Star ( \* ) symbol to denote the behaviour of search as given below:

Enter	To Search for
abc	The EXACT Text "abc"
abc*	Texts STARTING WITH "abc"
*abc	Texts ENDING WITH "abc"
*abc*	Texts CONTAINING "abc"

Provision also exists to conduct the search in the whole map or limit it to Point/Sub-Division Names, Linear/Area Measurements, and Notes. On specifying the inputs, a Table of Search Results would be displayed in a tabular form along with a Display Selector ( [ ] ). On clicking the Display Selector, a temporary Marker would be displayed over that Text and the map would be panned such that the specified Point would be positioned at the centre of the Canvas.

## Sub-Division

This option help users to locate a Sub-Division in the map. When the option is invoked, the system would display a dialog box using which the users can select the name of the Sub-Division. On selecting the Sub-Division name, it would be highlighted and the map would be moved such that the specified Sub-Division would be positioned at the centre of the Canvas.

## Geo Reference

### Select Points

This option help users to Geo Reference maps by selecting a set of points and specifying their Lat-Long values. When each point is selected, the system would display a dialog box using which the users can specify its Lat-Long values. Once all the points are selected, users may press Enter and a table containing the coordinates of all the selected points and the specified Lat-Long values would be displayed. The users can modify the Lat-Long values in this table, if needed. On pressing OK, the map would be Geo-Referenced with reference to the specified Lat-Long values.

### Load GCP File

This option allows users to Geo Reference maps with reference to the values given in a Ground Control Points (GCP) file. When the option is invoked, the system would display a file chooser using which the users can select the GCP file. On selecting the file, a table containing the coordinates of all the points and the Lat-Long values specified in the file would be displayed. The users can modify the Lat-Long values in this table, if needed. On pressing OK, the map would be Geo-Referenced with reference to the Lat-Long values specified in the file.

## Options

This option allows the user to change a various settings related to the usage of this software. When User selects this menu a dialogue box with the following options would appear.

## General

Traverse Direction : [Clockwise | Anti-Clockwise]  
 Base Distance : [Cumulative | Incremental]  
 Table Data Unit : Choose the Unit in which data is entered  
 Area Display Unit : Choose the Unit in which Area is to be displayed  
 Auto Save : [No Auto Save | With(out) Confirmation] [Time Limit]  
 Undo Limit : Specify the desired Undo Limit  
 Number of Decimals : Specify the desired number of decimals.

**Store Options:** This allows users with administrative privilege to save the current values of various options in the Database. The system would prompt for the name of Option Group under which all the Option Values would be stored in the database. When an ordinary user invokes this operation the system would display a file chooser using which the user can specify a file name in which the Option Values would be stored.

**Restore Options :** This allows the users to restore the values of various options from the Database. On invoking, the system would prompt to select the name of Option Group to be restored. Once the name is selected, maps (if any) would be redrawn using the restored values and the main Option Dialog would be re-displayed. A button to Delete the selected option group is also provided for the users with administrative privilege. The facility to restore is available to all users, irrespective of their user privileges. Provision to restore the Option Values stored in a file is also available.

## View

Title : Enable/Disable Display of Title on Canvas  
 Table on Canvas : Configure the Display of Tables on Canvas  
 Coordinate Type : Choose the coordinates to Display (X-Y or Lat-Long)  
 Display View Ports : Choose how to Display the View Ports  
 Display Sub-Divisions : Choose how to Display the Selected Sub-Division  
 Length at Cut Points : Choose how to Display the Total Length at Cut Points

## Display

Point Co-ordinates : Enable/Disable Display of Point Co-ordinates  
 Offset Measurements : Enable/Disable Display of Offset Measurements  
 Local Numerals : Enable/Disable Display of Measurements in Local Numerals  
 Metric Measurements : Enable/Disable Display of Measurements in Metric Unit  
 Sub-Division Area : Enable/Disable Display of Sub-Division Area in the Map  
 Survey Number : Enable/Disable Display of Survey Number in the Map  
 Verbal Scale : Enable/Disable Display of Verbal Scale in the Canvas  
 Topological Details : Enable/Disable Display of Topological Details

## Sizes

The User can specify the Frill Size, Font sizes of Border and Table displayed on the Canvas, Display size of Points, Boundary Lines, Symbols and Adjacent Plot Numbers using the fields in this Pane.

## Texts

The User can specify the Font sizes for various Texts displayed on the Map, such as Length of Lines, Name of Points, Number and Area of Sub-divisions.

## Types

The User can specify the Type of Base Points, Base Lines, Offset Points, Offset Lines, using the fields in this Pane.

## Colors

The User can specify the Color of Base Points, Offset Points, Base Lines, Boundary Lines, and various texts in the maps as well as the Highlighting color, using the fields in this Pane.

## Tables

The user can enable/disable display of various Tables, using the fields in this Pane.

## Mosaic

The user can specify various parameters pertaining to Mosaicing of Tippians.

Mosaic Method	: Based on Base Lines and/or Boundary Lines
Point Tolerance	: Maximum gap allowed between coincident Points
Length Tolerance	: Allowed length difference of coinciding lines
Merge Tolerance	: Maximum gap between points during <a href="#">Auto Merge</a>
Refresh Interval	: Number of Tippians to be mosaiced between repaint If 0 (zero) repaint would be done only at the end

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# Work Flow

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[Forward](#) | [Accept](#) | [Approve](#) | [Propose](#) | [Reject](#) |  
[Details](#)

---

This option refers to the WorkFlow of the system. This process will be initiated when there is a requirement for modification in the FMB. The users who are having their roles for modifying/ verifying/approving will do their respective work for the completion of the transaction.

CollabLand supports two types of workflow: (1) [Internal](#) Workflow and (2) [External](#) Workflow. During Internal workflow process all the activities are done using the CollabLand software. The approval process completes the workflow cycle thereby the old FMB will be replaced by the modified one. An Internal workflow process cannot be initiated before the previous process is concluded. During External workflow, systems external to CollabLand also are involved. One External workflow process need not be concluded before initiating another one. No maps will be replaced by an External workflow.

---

## Forward

This option is meant for the user who is responsible for modifying the FMB during Internal workflow. When the modification is completed the FMB will be forward for further processing by the higher authority. When a map is forwarded, it cannot be accessed by anyone else other than the higher authority, untill the workflow process is concluded.

---

## Accept

This option will be enabled for the officer who is responsible for verifying and confirming the corrections carried out in the FMB. Only when the corrections are as per the requirement, the officer will use this option for further approval to the approving authority for the completion of the transaction.

---

## Approve

This option will be enabled for the user who is having the role of the Approving authority. Once this option is selected the modified FMB will be treated as the current FMB and the old FMB will not be available for further transaction. Care has to be taken before approving the modified FMB as it completes the transaction process.

---

## Propose

This option is meant for the user who is responsible for modifying the FMB during an External workflow. When the modification is completed the FMB will be proposed for further processing by external systems. When a map is proposed, the base map can still be accessed by anyone and initiate another modification even before the workflow process is concluded.

---

## Reject

This option will be enabled only for the verifying and the approving authority. When the concerned authority is not satisfied with the modifications and/or transactions carried out by the next lower level officer(s) this option will be used to terminate the initiated transaction.

---

## Details

This option would give a list of all Workflow initiated on the current map. (If a map from the database is not displayed on the canvas, the system would prompt to open a map prior to listing) Users can view older versions of the map by clicking the View button against each workflow entry.

When this option is invoked by the verifying or the approving authority, a dialog box would appear showing the details of the ongoing transaction.

---

# Reports

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[User Progress](#) | [Transaction Summary](#) | [Transaction History](#) | [Map Status](#)  
[Transaction Details](#) | [Data Entry Status](#) | [Area Report](#) | [User List](#) | [Tolerance Report](#)

---

This option refers to the Reports of the system. This process will be initiated when there is a requirement for monitoring the activities/transactions taken place in the village/taluk to the administrators like Tehsildar/AD (Survey)/District Collector

---

## User Progress

For any specified period, the user can create the report for the works carried out by the officials (of all roles) on the FMBs.

---

## Transaction Summary

This Transaction Summary report shows the total number of FMBs modified, verified and approved for any specific period and for any specific village.

---

## Transaction History

This report gives a detailed description of the transaction process taken place (like modification, verification, approval) for any particular survey number as a history report.

---

## Map Status

The current status of the FMBs for any particular village can be taken using this report option

## Transaction Detail

This report gives a detailed description of the transaction process (like modification, verification, approval) taken place for any particular village (or all the villages) during any specific period.

---

## Data Entry Status

The progress of the staff involved in the data entry work for digitizing the FMB Records can be monitored on a daily basis using this option.

---

## Area Report

This report shows the area of all survey numbers (and sub-divisions inside them) in a selected Village or Block.

---

## User List

This report provides a list of all the users created in the database.

---

## Tolerance Report

This report shows the List of Lines and Sub-Divisions whose displayed Length / Area is varying from the computed value beyond the prescribed Tolerance Limit.

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# Admin

---

[User Management](#) | [Change Password](#)  
[Backup](#) | [Restore](#) | [Tolerance](#) |  
[Customize](#)

---

## User Management

This menu contains options for maintaining and modifying the users and their roles of this application software.

### Create User

Using this option, new users can be created (added) to make use of this software under various roles. When this option is invoked, a dialog box would appear using which the user name, login name, role, and password of the user to be added can be entered. On successfully entering these details, the new user would be added and a message would be displayed to this effect.

### Modify User

Using this option, details of the existing users can be modified. When this option is invoked, the system would prompt to select the user to be modified. On selection of valid user, a dialog box would appear using which the modified user name and the role of the user can be specified. On successfully entering these details, the user data would be modified, and a message would be displayed to this effect.

### Set Password

Using this option, the Password of other users can be changed. When this option is invoked, the system would prompt to specify the user name and the new password. On successfully entering these details, the user's password would be modified, and a message would be displayed to this effect.

### Deactivate User

Using this option, an existing user can be deactivated. When this option is invoked, the system would prompt to specify the user to be deactivated. On specifying a valid user, the user would be deactivated after due confirmation.

---

## Change Password

Using this option, password of the current user can be modified. When this option is invoked, a dialog box would appear to enter the new password. And the same will be confirmed by asking the user to re-enter the new password once again. When both the new password and the re-entered password are matching, a message would be displayed to this effect. This new password only should be used for login from the next session onwards.

---

## Backup

On Clicking the Backup option, full backup of the data will be created in a file with the Current Date. The backup files which are created will be listed in the Restore menu. It is important to note that this option has to be selected only in the server and not in the clients. In case if this option is selected in the client system the user will be prompted with an warning message 'Backup cannot be taken'.

---

## Restore

On Clicking the Restore option, a list of datewise sorted backup files will be listed. The user should choose one among the files and Press 'Ok'. Now the database will be Recovered from the backup file. Restore can be done only in the Server and only the user who is having the Database Administrator role can use this option; for other users this option will not be enabled.

---

## Tolerance

This option allows users to set the Tolerances for Linear and Area Measurements. If these Tolerances are set, the users would be warned of any violation of these Tolerances.

The Tolerance ranges should be continuous; that is, the lower limit of a range should be equal to the upper limit of the previous range. Otherwise the system would display a message: *"Range not continuous in Row(s): "*

The first range may start with zero (0.0) and the last range may end with a preferably high value. The allowances can be in absolute values or a Percentage of the actual measurement. The Unit for Range Limits and the Allowance are Meters (for Length) and Sq. M. (for Area) respectively.

---

## Customize

This option allows users to customize various parameters related to this software. *The effect of customization would be available only in the next session of the application. Hence users are advised to exit and restart CollabLand after customization.*

When this option is invoked a dialogue box with the following options would appear, using which the users can perform the customization.

### Map

Parameters affecting the Geometry of the Tippan (FMB Maps) can be customized using the options provided here.

#### Symbol File Name

Specify the name of the file containing the XML code of Symbols to be used. The file can also be selected using the Browse button.

#### Adjacent Plot Numbers

Survey Numbers of adjoining Plots can be displayed with or without an underline using this option.

#### Length Rounding to 20 cm

When this option is enabled, linear measurements in the map would be rounded of to the nearest 20 cm (0.20 m).

## GUI

Parameters affecting the User Interface of CollabLand can be customized using the options provided here.

### Local Language

When this option is enabled, the text in the border of FMB Map would be displayed in the local language.

### Local Language Font

Specify the Name of the local language Font to be used.

### Local Language Size

Specify the Size of the local language Font to be used.

### GUI Font Size

Specify the Font Size of Texts in various Tables, Buttons, Pop-Up Menus etc.

### Sub-Village Domain

In certain states, the Survey Numbers in a Village are often grouped into smaller units called Khandam or Block. This option allows the user to customize the name of this Sub-Village domain. If a valid domain name is chosen, it's number would be prompted for while saving Tippians.

### Visible Buttons

Users can Remove Displayed Table Buttons using this option. To Remove a Displayed Button, select the Button from the List of "Visible Buttons" and press the "Remove" Button.

### Hidden Buttons

Users can Display Hidden Table Buttons using this option. To Display a Hidden Button, select the Button from the List of "Hidden Buttons" and press the "Display" Button.

## Print

Parameters affecting Printing of Tippans can be customized using the options provided here.

### Paper Size

Users can Add and Remove Papers using this option. On selecting a Paper from the List and pressing the "Remove" Button, that Paper would be removed. To Add a Paper, click the "Add Paper" Button. Then the user would be prompted to enter the Name, Height and Width of the new Paper. On successfully entering the relevant data, the paper would be added to the List.

### Plot Scale

Users can Add and Remove Plot Scales using this option. On selecting a Scale from the List and pressing the "Remove" Button, that Scale would be removed. To Add a Scale, click the "Add Scale" Button. Then the user would be prompted to enter the new Scale. On successfully entering the relevant data, the Scale would be added to the List.

## Database

Parameters affecting the Database Connection can be customized using the options provided here.

### Host Address

Specify the IP address of the system which hosts the database

### Port Number

Specify the Port Number of the system which hosts the database

### Database Name

Specify the Name of the Database

### Postgres Path

Specify the absolute path of the PostgreSQL database

## Update Database

This Button would update the database with respect to the software version.

## Caption

Specify the corresponding Captions in Local Language for various Terms

---

# Help

---

[Manual](#) | [Test](#) | [Data](#) |  
[About](#)

---

## Manual

This will open the CollabLand User Manual in the default browser.

---

## Test

This will load a sample Tippan data in the Table and draw it on the Canvas

---

## Data

This will show the data of the displayed Tippan/Mosaic in a Table format.

---

## About

This will give the information about the CollabLand Software.

---

# Tool Bar

---

CollabLand provides Tool Bar containing a series of Icons to invoke commonly used operations. A list of saved "Options" and "Scales" are also provided in the Tool Bar from which the users can select the desired Option Group and Plot Scale to display the Map. Besides, the Tool Bar holds a list containing the sub-divisions in the current Map, from which the user can select a sub-division for highlighted display.

 - [New](#)

 - [Open](#)

 - [Save](#)

 - [Print](#)

 - [Preview](#)

 - [Undo](#)

 - [Redo](#)

 - [Zoom Out](#)

 - [Zoom In](#)

 - [Auto Fit](#)

 - [Zoom Area](#)

 - [Pan Mouse](#)

 - [Pan Fixed](#)

 - [Rotate Map](#)

 - [Options](#)

 - [Pin the Map](#)

 - [Release Map](#)

 - Table Panel

 - Tool Palette

# Table Panel

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## Table Operations | Panel Buttons

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CollabLand provides the following Data Tables through which it accepts the basic input for Tippan (FMB Map) creation.

- Station Table** - Holds Co-ordinate Data of Base Points in Total Station Survey and Theodolite Survey. In Total Station Survey this table can be populated by importing the GSI files using the Import option. For Theodolite survey, users may manually type-in the reduced coordinates of points. The Elevation of the points, if not entered, would be considered as 0.0 (zero) by default.
- Traverse Table** - Specifies the co-ordinates and type of Traverse Points used for mosaicing of maps. For Total Station traverse this table can be populated by importing the GSI files using the Import option. For Theodolite survey, users may manually type-in the reduced coordinates of points.
- Bearing Table** - Provides the facility to enter the Angle and Distance of Traverse Survey. The Bearing of the first Station station also need to be specified, otherwise it would be assumed as zero (0.0).
- Ladder Table** - Accepts the basic 5-Column Ladder Data of Chain Survey. Users have to manually type-in the data in this table.
- The data can be entered in any order (bottom to top OR top to bottom) as an option to Reverse the contents of the Table is available to set the desired order.
- Extended Table** - Contains the information about the Sub-Division or Cut Points that are defined in the map, for all systems of Survey (Chain, Theodolite or Total Station). Therefore this table can be used along with the Ladder Table and the Station Table.
- Boundary Table** - Gives the list of points in the outer boundary and the sub-division boundaries of the map. The displayed area of the sub-divisions also can be optionally entered in

this table.

**Adjacency Table** - Lists the adjacent plot numbers/names and the vertices they share with the parcel being digitized. This data may be properly entered to ensure automatic display of information about the adjacent parcels in the maps and also to facilitate easy mosaicing of parcels.

**Control Table** - Enlists the names of various control points in the map and their types. The control points can be Bi-Junction (BJ) points, Tri-Junction (TJ) points, or Khandam (KH) points. Properly entering the control point information would help accurate mosacing of the parcel.

## Table Operations

By pressing the Right Mouse Button on the Table, a Pop-Up menu would appear containing the following operations that work on the Table.

- Cut** - Deletes selected Rows and copies the data to buffer
- Copy** - Copies the data in selected Rows into the buffer
- Paste** - Pastes the data in the buffer at current position
- Special** - Sub Menus under this are Specific to the Table
- Draw** - Modifies the Map in the Canvas using the data in the table
- Users can select the desired row(s) and 'Draw'
- Sort** - Sorts the data in the table based on the first column
- Swap** - Swaps the data in the selected rows, column-wise
- Unit** - Changes the unit of the data in the tables

**Insert Row Above** - Inserts an empty row above the current row

**Delete This Row** - Deletes the current row

- Insert Row Below - Inserts an empty row below the current row
  - Delete Many Rows - Facilitates deletion of a Range of Rows
  - Insert Many Rows - Inserts multiple Rows (above or below)
  
  - Reset Column - Sets all the cells of this Column to blank
  - Reverse Table - Reverses the contents of this Table (upside down)
  - Reset Table - Sets all the cells of this Table to blank
  - Remove Table - Removes this Table from display
  
  - Search Text - Searches for a Text in the Table(s)
  - Export Tables - Exports the contents of the Tables into a File
  - Import Tables - Imports the contents in a File into the Tables
  - Table Options - Displays the Table Options Pane using which users can Display and Remove various Tables.
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## Panel Buttons

Besides, the following Buttons to invoke commonly used operations are also provided below the Tables.

- Clear - [Clears](#) the Canvas
- Close - [Closes](#) the current Tippan
- Draw - [Draws](#) the Tippan from Table Data
- Exit - [Exits](#) the CollabLand Application
- Import - [Imports](#) bulk input data
- Next - [Opens](#) the Tippan with next survey number from the database

- [Imports](#) the Data of the next Tippan from the file.

Open - [Opens](#) a new Tippan

Previous- [Opens](#) the Tippan with Previous survey number from the database

Print - [Prints](#) the current Tippan

Reset - Resets the contents of all the Data Tables.

Save - [Saves](#) the current Tippan to database

Save As - [Saves](#) the current Tippan to database with a new identifier

Setup - [Setups](#) the Paper size, orientation, and margin

# Hot Keys

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CollabLand provides a series of Hot Keys to switch over to an operation. Almost all frequently used operations are provided with Hot Keys. Some of the Hot Keys are active only during a particular operation.

- A - Creates an Arrow Head (Lead) at the end of the [Profile](#)
- C - Closes the [Outer Boundary](#) of Tippan / Closes the [Profile](#)
- D - Enables/Disables creation of perpendicular segments in [Profile](#)
- E - Enables/Disables creation of parallel segments in [Profile](#)
- F - [Auto Fit](#).
- J - [Scales the view by half](#). (Functions only during Variable Scale)
- K - [Scales the view by two fold](#). (Functions only during Variable Scale)
- L - Enables/Disables selection of Points on Lines for [Profile](#)
- O - Enables/Disables creation of orthogonal segments in [Profile](#)
- P - Enables/Disables selection of existing Points for [Profile](#)
- R - Removes temporary rotations and resets the Tippan display.
- S - Facilitates creation of Symbols using [Profile](#)
- T - Enables Point specification by Polar coordinates for [Profile](#)
- W - [Pans](#) the display by Mouse screen position.
- X - Enables Point specification by XY Coordinates for [Profile](#)

Z - [Zooms](#) an area indicated by screen position.

Ctrl + B - Sets [Variable Scale](#) Mode.

Ctrl + C - [Copies](#) the Tippan or Detail from Canvas.

Ctrl + D - [Draws](#) the Tippan using the data in Tables.

Ctrl + F - [Searches for a String](#) in the Map.

Ctrl + N - Facilitates Creation of a [New](#) Tippan.

Ctrl + O - [Opens](#) a Tippan from the Database.

Ctrl + P - [Prints](#) the Tippan in the Canvas.

Ctrl + S - [Saves](#) the Tippan in Database.

Ctrl + U - Sets [User Defined Scale](#).

Ctrl + V - [Pastes](#) the Tippan or Detail into Canvas.

Ctrl + Y - [Redoes](#) the last Undone operation.

Ctrl + Z - [Undoes](#) the last operation.

F3 - Resets the Zoom and Pan of the Canvas

Arrow Keys - Pans over the Tippan Display.

Shift + Arrow - Minutely Pans over the Tippan Display.

Ctrl + Arrow - Rotates the Tippan Display.

Escape - Rejects the last input.

Shift - Disables all Flags during [Profile](#) creation.

Space Bar - Aborts the ongoing operation.

Shift + MouseRoll - Zoom-In / Zoom-out the Canvas

MouseRoll - Zoom-In / Zoom-out the Displayed Map

Shift + MouseDrag - Pans the Canvas

Ctrl + MouseDrag- Pans the Displayed Map

# Suggested Procedures

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## [Digitization Procedure](#) | [Mosaicing Procedure](#)

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The suggested procedure for various operations using the software are described below. Users are advised to adhere to this procedure, as far as possible, for optimum results.

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### Procedure for Digitization of Cadastral Maps

CollabLand provides a set of Tables to enter the data for creation of Maps. Users are advised to get acquainted with the various [Data Tables](#) and the [Table Operations](#) before attempting the data entry operations.

1. Base Points shall be named with English alphabets only. CollabLand does not distinguish between capital and small letters. Thus, the names 'A' and 'a' would be treated as the same.
2. Base Points shall be named in Lexical order based on the Traverse direction. The Traverse direction can be Clockwise or Anti-Clockwise, and the same shall be selected in the [Options](#) dialog.
3. If a map contains more than 26 base points (thereby exhausting names A to Z), users may use alpha-numeric names like, Z1, Z2, ZA, etc. However, care shall be taken to strictly maintain the Lexical order of the names being used.
4. Check the Ladder Table of the hand-drawn map for presence of all Base (G) Lines. It was often found that G-Lines having no offset points are missing in the Ladder table of these maps. Complete the Ladder Table by incorporating all such base lines.
5. Mark all cut (sub-division) points in the map and generate the ladder information for them. Strictly avoid duplication of tie lines during this process. Further, the tie-lines may be optimally defined so that their number is minimum. (In case of complex maps, mark these points and measurements on a photocopy of the hand-drawn map, if possible, to avoid mistakes)

6. Enter the Ladder data in the [Ladder Table](#). (If possible enter the information of a horizontal Base Line at the bottom of the table, to ensure proper orientation of the map). Press "Draw" to generate the G-Lines. Save this map in the database under the correct survey number.
7. Enter the cut-points information in the [Extended Table](#). Press "Draw" and save the map in database.
8. Enter the outer boundary information in the [Boundary Table](#); Press "Draw" and save the map.
9. Enter the Sub-Division boundary information also in the [Boundary Table](#) in the order of Sub-Division Number; Press "Draw" after each Sub-Division and save the map. Also check the Sub-Division area at each step.
10. Enter Adjacency information and Control Point information in respective tables. Press "Draw" and save the map.

If any error / warning is displayed at any of the above steps, users shall correct the entered data and perform the Draw operation again, until all the messages disappear, so that the map would be error free. CollabLand would still generate the map (as far as possible), even in case of erroneous data, to enable the users to easily detect the location of error. However, users are strictly advised to refrain from saving such maps.

[Back to FMB Map Menu](#)

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## Procedure for Mosaicing of Land Parcels

The procedure for mosaicing depends on the system of surveying employed. In general, a skeleton of the mosaiced map is initially created from the Traverse Survey Data of the area. The individual parcel maps are then placed on this Traverse map, to get the mosaiced map. Overlapping boundaries are then matched, wherever applicable, to get the final map.

CollabLand can automatically produce mosaiced maps of high accuracy in case of Total Station Survey, and also from Tippians created using Shape files. For Total Station Survey the Traverse Map can be created by [Importing the Traverse Data Files](#). The individual parcels shall then be inserted using the [Import](#) option under the [Insert Tippan](#) menu of Mosaic.

In case of Chain (and Theodolite) Survey System, the accuracy of the field data (work) has a great role in the success of mosaicing. Besides, the Adjacency and Control Point information

must be properly entered for every Tippet when they are digitized. High quality mosaiced maps, however, can be generated using CollabLand with certain amount of user intervention. This version of CollabLand facilitates mosaicing of Tippets which uses the Simple Triangulation Methodology of Madras Survey System. Mosaicing of maps created using other systems and methodologies would be taken care in the subsequent versions of the software.

CollabLand provides two methods to plot Traverse maps in Theodolite System:

**From Bearing / Angle and Distance Data:** When the Bearing/Angle and Distance of Traverse Lines are available, users can create [Traverse](#) using the option provided under the Mosaic menu.

**From Point Coordinate Data:** When the Coordinates of Traverse Points are available, the following steps may be followed to create the Traverse.

1. Enter the adjusted coordinates of Traverse Points in the Traverse Table.
2. Plot the Traverse Points by invoking the [Plot Points](#) option in Mosaic menu.
3. Create the Traverse Lines using the [Draw Lines](#) option in the Mosaic Menu.
4. Traverse lines can alternatively be created by entering the Point names in order in the Boundary Table, and then pressing the 'Draw' button.

In Simple Triangulation system, the mosaicing is done based on the length of the Base (G) Lines, and Boundary (F) Lines that are shared between two adjacent parcels. While mosaicing Tippets over a Traverse, it is assumed that there will be at least one Tippet with two or more Control points in the area to be mosaiced. A Traverse map, however, is NOT mandatory to create the mosaiced maps in CollabLand.

The [Mosaic Tippets](#) option in CollabLand creates mosaiced maps of an area (say a Village) with very little user interaction, irrespective of the Survey System being followed. This feature has the facility to mosaic the unmosaiced Tippets with modified [Tolerance values](#). Hence this option may be repeatedly used, increasing the Tolerance values during each iteration. Tippets remaining unmosaiced at the end may be manually mosaiced.

The following guidelines are suggested for manually creating mosaiced maps under Chain survey system.

1. Insert the individual parcels using the [Manual](#) or [Auto](#) method provided under the Insert Tippet menu option. Tippets with two or more control points may be inserted first,

followed by those with one, and then no control points. The [Mosaic Tolerance values](#) may be suitably altered to ease this process.

2. Inserted Tippians may be [Moved](#) and/or [Rotated](#) using the corresponding menu options so as to reduce the gap between them. Gaps between Tippians may be further reduced / removed by suitable [moving the Points](#), merging the [Points](#) and the [Sides](#). The [Auto Merge](#) option may be used to automatically merge the Points and Sides if the gaps between them are minor.
3. If the traverse data is not readily available for the region to be mosaiced, users may import any one of the tippians using the ["Import"](#) option under the ["Insert Tippan"](#) menu of Mosaic. This tippan may be used as the reference for mosaicing of further tippians by following the above steps.

[Back to Mosaic Menu](#)

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