LEICA MobileMatriX

Frequently Asked Questions

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1 Differences in Leica MobileMatriX Editions

Do I have to buy/install any ArcGIS software to use Leica MobileMatriX?

No, you can use the MobileMatriX Standard or Professional Edition. Only the Mobile-MatriX on ArcGIS Version requires a pre-existing ArcGIS license.

What is the difference between MobileMatriX Standard, Professional Edition and on ArcGIS Edition?

Leica MobileMatriX is available in three editions: Standard, Professional and on ArcGIS.

The **Leica MobileMatriX Standard Edition** software is ideal for typical data collection tasks. With a simple user interface based on Leica Geosystems and ESRI interface design, you can collect point, line, or polygon features including attribute information with high performance and productivity.

The **Leica MobileMatriX Professional Edition** software offers everything that the Standard version offers, and furthermore it supports disconnected editing technology from ESRI, the complete ArcGIS® database model and many more features. It is ideal for data maintenance tasks - disconnected from the network environment with the ability for in the field data collection and design using the checked out features - especially for companies working with an ESRI enterprise database in the office.
The **Leica MobileMatriX on ArcGIS Edition** runs as an extension on any ESRI ArcGIS® Desktop product (ArcView, ArcEditor, ArcInfo) with version 9.0 (SP3), 9.1 or 9.2, providing:

- Full GIS functionality of underlying ArcGIS Desktop available.

- GIS functionality varies according to ArcGIS Desktop product.

What types of Geodatabase does the software support?

The Leica MobileMatriX Standard Edition works only in personal geodatabases (Microsoft Access MDB). Leica MobileMatriX Professional Edition users can use an enterprise geodatabase to check data out to a personal geodatabase. Leica MobileMatriX doesn't supports File Geodatabases.

Is there an evaluation version? How long does it last?

Yes. The evaluation version (available for Leica MobileMatriX Standard, Professional and on ArcGIS Edition) expires after one month. For details, contact your local Leica Representative.

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2 INSTALLATION

WHICH VERSIONS AND LICENSES OF ARCGIS DESKTOP (ARCVIEW, ARCEDITOR, OR ARCINFO) DO I NEED FOR THE LEICA MOBILEMATRIX ON ARCGIS EDITION?

- Version 9.0 with Service Pack 3
- Version 9.1 or 9.1 SP1
- Version 9.2

WHAT ARE THE MINIMUM COMPUTER SPECIFICATIONS REQUIRED?

Value	ArcGIS 9.0	ArcGIS 9.1	ArcGIS 9.2
ArcGIS service packs (only valid for Leica MobileMa-triX on ArcGIS Edition)	Service pack 3	Release or Service pack 1	
Operating system	Any of the following: – Microsoft® Windows NT® 4.0 with Service Pack 6a – Windows® 2000 Professional – Windows XP Home Edition – Windows XP Professional Edition – Windows XP Tablet PC Edition		
CPU speed	850 MHz	850 MHz	1 GHz
Processor	Pentium III or higher		
Memory/RAM	512 MB	512 MB	1 GB
Disk space	Approximately 4 GB.		
Internet Explorer	Microsoft Internet Explorer version 6.0 or later must be installed.		

WHICH SERVICE PACKS ARE SUPPORTED OR REQUIRED FOR THE OPERATING SYSTEM?

- Microsoft Windows NT operating system version 4.0 with Service Pack 6a

IS THERE A NETWORK INSTALLATION?

No, not in Leica MobileMatriX v2.0

Does the software support floating licenses?

No. Each copy of the Leica MobileMatriX software must be installed on only one computer at any time.

Do I need to be an Administrator to install the software?

Yes.

If you want to install Leica MobileMatriX on ArcGIS Edition, a valid ArcGIS Desktop software must be installed, as well as the ESRI .NET components.

Can I choose a directory to install the Leica MobileMatriX Editions to?

Yes. During the wizard the user can define the installation path.

Can I uninstall the installation?

Yes. However it is strongly recommended to uninstall the software with following workflow. Place the Leica MobileMatriX CD in the CD drive and perform the steps to install the software. The installer detects an installed version of Leica MobileMatriX and request to remove the software. Press OK – the software gets then properly uninstalled.

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3 LANGUAGE

DOES LEICA MOBILEMATRIX SUPPORT OTHER LANGUAGES?

The Leica MobileMatriX v2.0 supports the English and German language.

4 GENERAL

CAN I COPY LEICA MOBILEMATRIX SETTINGS FROM ONE TABLETPC TO ANOTHER?

When you make customization changes to the user interface in ArcMap or Leica Mo-bileMatriX, you can save these changes in one of the following places: The current map document, a base template, the Normal template.

On the *Commands* tab of the *Customize* dialog, there is a *Save in* combo box that lists the names of the currently loaded document and templates. In ArcMap or Leica MobileMa-triX, use this setting to specify whether the change you are about to make will be saved in the document, the Normal template, or another template. The default setting is the Normal template.

WHY ARE THE LEICA MOBILEMATRIX BUTTONS DISABLED ON THE TOOLBAR?

You have not started an edit session. From the Editor drop-down menu, select *Start Editing*.

HOW DO I DISPLAY THE LEICA MOBILEMATRIX TOOLBARS IN ARCMAP/LEICA MOBILEMATRIX?

1. In ArcMap/Leica MobileMatriX, click the *View* menu and then select *Toolbars*.

2. Select the various LEICA toolbars. The toolbars appear in ArcMap.

You can dock the toolbar above, below, or beside the map.

HOW TO CREATE A LIST OF ATTRIBUTE VALUES AND HOW CAN I MANAGE THESE?

1. Create a new Domain, e.g. with Coded Values (Help: About creating attrib-ute domains).

2. Create a new feature class (or use an existing one) with a new field and desired domain.

3. Now you can assign attributes interactively to each feature by using the Attributes dialog box or changing the symbology in the layer properties to unique values.

HOW TO CREATE/CHOOSE NEW SYMBOLS FOR LAYERS?

The symbols must be available as bmp or emf files. Open the symbol properties of your layer and click Properties. Now choose Type: Picture Marker Symbol and select your desired file.

Are special characters allowed to name contents of the Data Manager?

It is recommended to use **no** special characters such as ä, ö, ü, …

What is spatial reference?

The spatial reference for the geodatabase describes its coordinate system (for example, WGS-84, or UTM), its spatial domain, and its precision. The spatial domain (or extent) is the allowable coordinate range for x and y coordinates. All feature classes in a survey-aware geodatabase must use the same coordinate system, and the spatial domain of each feature class must be within the bounds of the spatial domain defined for the geodatabase.

Can I change my spatial reference?

No. You cannot change the spatial reference after it is already set for a geodatabase without deleting all of its data. At the start of a project, make sure that you carefully define the area to be mapped.

Can I import a spatial reference?

Yes. If this is the first feature class in your Geodatabase, then you simply take the default spatial domain generated by the software during the data import operation.

Alternatively, you can navigate to the spatial reference you want to use:

1. In the ArcCatalog tree (in ArcCatalog or DataManager), right-click the database in which you want to create a new feature dataset.

2. Click **New**.

3. Click **Feature Dataset**.

4. Enter a name for the feature dataset.

5. To define the feature dataset's spatial reference, click **Edit**.

6. To set the feature dataset's spatial reference, click *Select* or *Import* .

7. Navigate to the spatial reference you want to use, or navigate to the feature class or feature dataset whose spatial reference you want to use as a template.

8. If you want to change any parameters in the selected coordinate system, click **Modify**, edit the parameters and then click **OK**.

9. In the *X/Y Domain* tab, enter the minimum and maximum *x* and *y* coordinates for the dataset and then enter the required precision for the coordinates.

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10. If any feature class in the feature dataset will have z-values, click the *Z Domain* tab, enter the minimum and maximum *z*-value for the dataset and then enter the precision required for the *z* coordinates.

11. If any feature class in the feature dataset will have measures, click the *M Domain* tab, enter the minimum and maximum *m*-value for the dataset and then enter the precision required for the *m*-values.

12. Click **OK**.

13. To see the details of the new dataset's spatial reference, click **Show Details** and then click **OK**.

WHICH ARE THE SUPPORTED FILE FORMATS IN MOBILEMATRIX?

▪ **Following data types are supported:**

Shapefiles, Geodatabases, ArcIMS feature services, ArcIMS map services, Geography Network connections, SDE layers, TIN, DXF, DWG, DGN, VPF, Text files, OLE DB tables, SDC

▪ **Following raster formats are supported:**

ADRG, ESRI BIL, ESRI BIP, ESRI BSQ, BMP, DIB, CADRG, CIB, DIGEST, ASRP, USRP, DTED, ER Mapper, GIF, ERDAS 7.5 GIS, ESRI GRID, ESRI GRID Stack, ESRI GRID Stack file, ERDAS IMAGINE, CIT, COT, JPEG, JFIF, JPEG 2000, ERDAS 7.5 LAN, MrSID, ArcSDE Rasters, TIFF, ERDAS RAW, PNG, NITF

HOW TO CREATE DONUTS FEATURE?

Donuts are Polygon Features with holes, e.g. a lake with an island in it. In LEICA MobileMatriX donuts are created by clipping the exterior polygon with the interior polygon.

1. Start an Edit session.

2. Select the inner polygon.

3. Click Editor and select Clip.

4. In the Clip dialog box, select the 'Discard the area that intersects' option.

5. Click OK.

6. Delete the inner polygon if necessary.

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How to import CAD files?

Either importing a CAD feature class from AutoCAD's DWG, MicroStation's DGN, and Drawing Interchange File (DXF) formats, or importing feature classes from a CAD dataset to another geodatabase can be done using the Import Feature Class command. Whereby it is possible to modify the spatial reference, the output fields, and the field names.

5 WORKING WITH SURVEYING SENSORS

IS A REFRACTION COEFFICIENT CONSIDERED IN LEICA MOBILEMATRIX?

Not in MobileMatriX, but if your TPS is configured with refraction correction you'll get your corrected measurements directly through the interface.

WHICH 3RD PARTY SENSORS ARE SUPPORTED?

3rd party GPS instruments are supported using the NMEA interface. Connection to the sensors can be established either with cable or wireless communication (Bluetooth® or radio connection). However, because the Leica MobileMatriX editions are an open extension to ArcObjects, it could be extended to add support for other survey instruments.

WHAT IS THE DIFFERENCE BETWEEN ORIENTATION POINTS, TARGET POINTS AND CONTROL POINTS?

Orientation Points are datum points used for calculating a setup.

Target Points are known or unknown points that were measured to create new coordinates.

Control Points are used to check the setup during a survey session for control purposes.

WHAT I HAVE TO DO TO FORCE THE SECOND MEASUREMENT BEING PART OF THE MEAN COORDINATE?

That is standard functionality. You have not to care about. But you have the possibility to change the rules according your needs.

CAN I USE OFFSETS TO COLLECT FEATURES?

In case of TPS, you can enter an offset in TPS Status window or in Survey Explorer and record it.

Which survey instruments are supported?

Leica MobileMatriX supports data collection in the field with an online connection to following survey instruments:

- GPS

  - NMEA-compliant GPS receivers (any NMEA receiver that outputs GGA messages)

  - Leica GPS1200

  - Leica GPS500

  - Leica GS50

  - Leica SmartAntenna ATX1230

  - Leica SmartAntenna ATX900

- TPS

  - Leica TPS1200 series

  - Leica TPS1100 series

  - Leica TPS1000 series

  - Leica TPS800 series

  - Leica TPS700 series

  - Leica TPS400 series

  - Leica TPS300 series

  - Leica TPS 110c

  - Leica Builder

- Level

  - Leica Sprinter

  - Leica DNA

  - Trimble DiNi 12T

- Laser Rangefinder

  - Vectronix Vector IV

  - Leica LaserLocator

However, because the Leica MobileMatriX editions are an open extension to ArcObjects, it could be extended to add support for other survey instruments.

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What is NMEA?

NMEA is an open industry standard established by the National Marine Electronics Association. This standard defines a format for communicating data collected or computed by a GPS receiver to an external device. For more information, go to www.nmea.org/pub/index.html.

Can I use a laser rangefinder?

Yes, Laser rangefinders are supported by Leica MobileMatriX. The supported model is the Vectronix Vector IV series and the Leica Laser Locator.

However, because the Leica MobileMatriX editions are an open extension to ArcObjects, it could be extended to add support for other Laser Rangefinders.

How to apply the GPS measurement button to the TabletPC buttons?

For convenient work with TabletPC and GPS, you can simply assign the GPS Measurement button to shortcut. Therefore go to the customize dialog and press the Keyboard button. Select the Leica GPS Tools category and the Single GPS Measurement command. Then assign the shortcut key e.g. Ctrl+M.

Now go to the Control Panel – Tablet and Pen Settings – Tablet button tab. Assign to the desired button the previously defined shortcut (e.g. Ctrl+M).

How to setup a connection between a sensor and MobileMatriX using a radio modem?

1. Connect your sensor and your TabletPC to the radio modems using RS232.

2. Configure the sensors Remote Port to RS232. Make sure that the used Baud rate is supported by the radio modem. You can find this Baud rate in the modems user manual (e.g. Amber wireless radio works at 57600, several others at 9600).

3. Configure the settings in the MobileMatriX Options dialog according the settings at your sensor.

6 WORKING WITH SURVEY DATA AND REPORTING

HOW CAN I EXPLORE SURVEY POINT DATA?

You can select a Survey Point by using the List Survey Objects Tool or the List Survey Objects by Query Tool. Then you'll get the desired data shown. If you are using the List Survey Objects Tool you can select different specific Survey Objects by pressing the shift key.

HOW TO CREATE A PRINTED REPORT ABOUT MY SURVEY DATA?

There are three options:

- Choose your desired setup within the Survey Explorer, click report tab and design your desired report.

- Select your desired data in the Survey Explorer. Use Report Survey Objects (right-click) to create a printed report.

- To create an ASCII report, in the Data Manager right-click on the Survey Project, then Export Survey Data. Select ASCII export.

HOW TO DELETE SURVEY DATA (SURVEY OBJECTS) (COMPUTATIONS, MEASUREMENTS, POINTS)?

In the Survey Explorer navigate to the desired data you want to delete, select it and click the Delete survey objects button in the Survey Explorer toolbar.

AFTER TYPING IN COORDINATES IN THE SURVEY EXPLORER (CREATE XY-POINT) I ALSO LIKE TO INPUT AN ELEVATION VALUE. INSTEAD OF ALLOWING THAT, LEICA MOBILEMATRIX CREATES A NEW OBJECT AUTOMATICALLY.

Auto Complete is set active. To deactivate this Function right-click the Survey Explorer dialog and uncheck Auto Complete.

THE POINT INCREMENT FOR A NEW SURVEY POINT IS ALWAYS 1. WHAT IF I WOULD LIKE TO HAVE A DIFFERENT STEP?

The increment can be set using the Survey Editor › Options dialog. Click the Points tab and set the increment to the desired value.

Why did my import of survey data (files and measurements – e.g. GSI) fail?

The extent of the data in the survey file (e.g. gsi) is greater than the extent of the selected geodatabase. Import the gsi files into a new geodatabase that has a larger spatial reference. Further details can also be found in the created Log file.

7 Working with Survey Feature

How to sort Survey Feature Classes in the Select New Survey Features Dialog alphabetical?

By default the 10 last used features are displayed in order to their use. To show all features check "show all". All features will be shown in alphabetical order.

A new Survey Feature cannot be created.

Make sure that a edit session is started and that you are currently in survey mode and not e.g. in stakeout mode. To get into survey mode you have to click either the Add Line, tangential or 3 Point Arc button.

Why is the new Survey Feature tab in the ArcMap's TOC missing?

Before you can work with Leica MobileMatriX, you must enable it in ArcMap and Arc-Catalog. Once you enable the extension, you can work with GPS data in ArcCatalog.

Note: Enable Leica MobileMatriX on ArcGIS Edition must be enabled in ArcMap and in ArcCatalog.

Why does my new survey feature not line up with my survey points?

Survey Points are not affected by the resolution of the geodatabase spatial domain. They are always represented precisely in the geodatabase. If the spatial domain is too large, GIS features are stored with lower precision than their underlying survey points. This does not affect the quality of the data, but it can cause inaccuracies in the ArcMap/Leica MobileMatriX display.

Note: If you inadvertently selected the wrong Geographic Transformation when you added data to ArcMap, then the incorrect shift is also applied to the data.

Why can't I collect one or more of my feature (they don't appear in the Survey Feature tab in TOC)?

Either an Edit Session is not yet started or you are in Stakeout mode. Please start an Edit Session or change back to Survey mode (by clicking either Add Line, tangential or 3 Point Arc).

Can I continue a feature?

When recording a line or polygon feature, you could come across another feature that you need to record. The feature may be adjacent to the line or polygon feature,

or it may be some distance away. For example, when collecting a pathway (line fea-
ture), you might encounter a sign (point feature). You do not have to record the
entire pathway and then return to record the sign; you can just toggle between the
different feature in the Survey Feature dialog. The features can even be continued if
the Edit Session was stopped in the mean time or a new data was checked-out from
an enterprise database again.

CAN I MEASURE MULTIPLE FEATURE AT ONCE?

When recording a line or polygon feature, you could come to a situation that several
features are on the same location. You can simply measure multiple feature by
checking all required checkboxes in the survey feature tab.

8 SNAPPING

SNAPPING TO FEATURE IS NOT WORKING.

The snapping environment has to be set according your needs. The dockable window can be found in Editor / Snapping.

SNAPPING TO A SURVEY POINT IS NOT WORKING

Make sure that no feature snap (e.g. parcel) is activated, because it has a higher priority than the Survey Point snap.

9 SUPPORT

WHERE CAN I GET TECHNICAL SUPPORT FOR MY LEICA MOBILEMATRIX ON ARCGIS EDITION?

Technical support for the Leica MobileMatriX on ArcGIS extension is available from you local Leica Geosystems representative. For ArcGIS support, refer to the ArcMap and ArcCatalog Help or go to http://support.esri.com

WHAT FILES SHOULD I EMAIL IF I NEED TECHNICAL SUPPORT FOR LEICA MOBILEMATRIX?

When troubleshooting a problem, your local Leica representative will need to know the software version numbers and service packs you have, the exact steps you are using, and the exact error you are getting (send a screen snap). You also need to send the original personal geodatabase with the ArcMap document (.mxd). Make sure that you set relative paths in the document. Furthermore, if available send us the *.dmp file as well as Leica MobileMatriX log file and InstrumentDriver log file.

WHERE CAN I FIND MORE TROUBLESHOOTING INFORMATION?

Refer to the Leica MobileMatriX Help.

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