Introduction

The purpose of this tutorial is to help you to get started with MicroStation Descartes as quickly as possible. This tutorial stresses basic functions of the software and provides guidance on how to explore advanced topics in more detail.

About this Tutorial

The tutorial includes an introduction and seven lessons:

- Lesson 1 - Managing Files and Viewing Images
- Lesson 2 - Positioning Images
- Lesson 3 - Georeferencing and Mosaics
- Lesson 4 - Raster Editing
- Lesson 5 - Snap-Assisted Digitizing
- Lesson 6 - Using Themes
- Lesson 7 - Raster-to-Vector Conversion
- Lesson 8 - Image Draping

The Introduction covers the general organization and common functions of the MicroStation Descartes environment and should be read by all users. Lesson 1 through Lesson 7 teach the operation of core MicroStation Descartes feature sets. The lessons are independent of each other and may be completed in any order. However, we do recommend that you complete them in the order that they are presented.

Please notice that the graphics in this tutorial have been captured at a resolution of 1024 x 768. If your screen does not permit such resolution, some docked tool boxes may not appear as shown here. If you should face this situation, pull out the missing tool bars from the Tools menu and use them undocked.

The tutorial assumes that you have a good working knowledge of MicroStation functions and vocabulary. You should know how to:

- Start and exit MicroStation
- Use Working Units and Color Table settings
- Use Coordinate Readout, Level Symbology and Locks
- Control and manipulate views
- Define view attributes and view levels
- Select elements and create element selection sets
- Define element attributes
- Place and remove fences
- Create, open, close, and save design files
- Save design file settings

➤ **Before you begin**

1. Set MicroStation Working Units to valid MicroStation Descartes settings. If you need information on how to manage these settings, see the *MicroStation Descartes Setup Guide*.

2. Set the MicroStation Plotting Configuration File correctly. If you need information on how to manage these settings, see the Plotting and Printing Images chapter of the *MicroStation Descartes User's Guide*.

3. Become familiar with location markers.

4. These lessons use markers. The markers are identified throughout the lessons as **location #**. Each of these locations is identified using a unique number (location **1**). These markers will help you in positioning the pointer and entering data points precisely where this tutorial expects it to be.

Locations can be identified by a **Circle** accompanied by a number on the center/left hand side.

The location markers are snappable, therefore it is required that you snap to the center of the location before entering a data point. If you want to enter a data point on a design element, RESET until the desired element highlights. Confirm with a data point.

Tutorial Introduction

There are four concepts that are important to this MicroStation Descartes tutorial:

- Product Architecture
- The Project
- Image Management
- Conversion Environment

Product Architecture

MicroStation Descartes is an MDL application with image viewing, image editing, and raster-to-vector conversion capabilities that integrates seamlessly with MicroStation. The interfaces in MicroStation Descartes — tools, dialog boxes, and so forth — are all implemented in MDL and thus depend on the MicroStation kernel to operate.

The Project

In MicroStation Descartes, you can use both raster and design file types. You will be able to relate many different files to a single task. You may work with your files in reference using standard MicroStation conventions.

For more complicated projects such as mosaics or as an alternative method of organizing your files, you may wish to use a Descartes project. The project provides you with a method to organize distinct source files into an integrated whole. The project is used to integrate images so that you can quickly recall them.

The links to the data of a project are kept in a file with a PRJ extension. MicroStation Descartes leaves the management of design files to MicroStation; the active file as well as all the reference files are handled by MicroStation file functions. However, since the image is referenced to a design file, it may be simultaneously displayed with overlain design vectors.

Image Management

In MicroStation Descartes, the native image file format has the HMR extension. An HMR file can be created by importing a raster image or when a raster image is resampled using the Descartes editing and transformation features. You may also work directly with a variety of raster formats without the need to convert them into the HMR format.

One of the more powerful capabilities of MicroStation Descartes is that image files can be assembled together to form a mosaic without having to merge the original image files into one megafile. The mosaic can be displayed or printed.

Image files form a mosaic when they are referenced to a common coordinate system. A project is used to organize the images that are in the same coordinate system so that they can easily be recalled in a group. When the images are displayed, MicroStation Descartes permits you to use the image files that form the mosaic as one object. The image files may have different resolutions or color tables, and can originate from different scales.

In MicroStation Descartes, you can warp, edit, enhance, and transform images. Use the warping tools to position the image so that it is easy to work with or to resample the image to fit a specific geometric space. Use the editing tools to despeckle, fill holes, erase raster, copy a region of an image and paste it to another location, paint, draw in raster using all MicroStation vector tools, and stamp vectors into a raster file. Use the enhancement tools to modify the color table, adjust the contrast, extract or edit image channels, standardize the gray scale palette for all images in a mosaic, or render colors in an image transparent. Use the transformation tools to move, scale, rotate, and mirror an image, as well as to merge more than one image together.

Conversion Environment

In MicroStation Descartes, tools are provided to support a variety of workflows. You have the choice to work completely in raster, convert completely to vector, or combine elements of each workflow. The choices you make will depend on your own preferences and on the requirements of a particular project.

In raster workflows, you may remove unwanted parts of the scanned drawing such as folds, stains, speckles, or extraneous information. You may also repair raster elements, change raster elements, and add new raster elements. To change elements, you may use brushes (filters) to edit colors, erase tools to remove elements, and copy, paste, and move tools to reposition elements. To add new raster elements, you may use stamp tools to imbed vectors (including text and cells) into the raster drawing and raster drafting tools to draft in raster using any MicroStation vector editing tool.

In conversion workflows, you may use heads-up digitizing tools such as raster snap, the spy window, editing aids, and symbology management. For advanced conversion projects, you may vectorize line segments, intersections, matrices of intersections (i.e., parcels), contours, circles, and arcs, and you may replace raster cells and symbols with vector cells and symbols.

MicroStation Descartes Tutorial Workbook