# MicroStation and SmartPlant Instrumentation

## Overview

MicroStation is a three-dimensional CAD software package which includes features to allow the interchange of design data with SmartPlant Instrumentation. SmartPlant Instrumentation supplies the design data, and generates the required schematic drawing associated with a specific loop, component or block by means of MicroStation.

**Notes**

- SmartPlant Instrumentation use of the term **Block** corresponds to the term **Cell** in MicroStation.
- This section explains how MicroStation works with SmartPlant Instrumentation. All the topics in this section require a basic level of familiarity with MicroStation. Refer to the MicroStation user manual for detailed explanations of MicroStation functionality.

## System Requirements

Minimum hardware and software requirements must be met before installing MicroStation on your computer.

- 16 MB RAM in addition to SmartPlant Instrumentation installation requirements.
- 75 MB of free hard disk space.

Refer to your MicroStation user manual, Getting Started for more detailed requirements for running the MicroStation software package.

## Setting the SmartPlant Instrumentation Parameters for MicroStation SE/J

To generate CAD loop drawings using MicroStation, the temporary folder path setting on the **General** page of the SmartPlant Instrumentation **Preferences** dialog box must not exceed forty two characters. This means that you cannot use the default path C:\Program Files\SmartPlant\Instrumentation\TEMP.

If you installed MicroStation SE or J, you can enter file paths with spaces (long file paths) on the **Loop Drawings** > **CAD File Locations** page of the SmartPlant Instrumentation **Preferences** dialog box. This requires that you modify the MicroStation parameter in the INTOOLS.INI file as follows:

### ➢ To enable MicroStation SE/J to work with long file paths

1. In the main SmartPlant Instrumentation folder, open the INTOOLS.INI file.
2. In the [Loop] section, change the value of the MicroStation parameter from 95 to SE.

The result: MicroStation=SE

## MicroStation Settings

Once MicroStation has been successfully installed, a number of modifications still have to be made to ensure compatibility with SmartPlant Instrumentation. The modifications are done directly through the options on the menu bar of the main **MicroStation** window.

### ➢ To define MicroStation settings

1. On the **Workspace** menu, click **Preferences**.
2. In the **Preferences** dialog box, under **Category**, select Memory Usage and ascertain that your settings are as follows:

| Setting | MicroStation 95 or SE | MicroStation J |
|---|---|---|
| Max. Element Cache | 8000 | 10240 |
| Resource Cache | 24 | 1024 |
| Undo Buffer | 256 | 2048 |
| Font Cache | 30 | 256 |
| Conserve Memory | Cleared | Cleared |
| Disable OLE Automation | Cleared | Cleared |

**Note**

- When working with MicroStation 95, SE or J, the **Conserve Memory** check box must be cleared.

3. Under **Category**, select Operation and ascertain that your settings are as follows:

| Setting | Value |
|---|---|
| Locate Tolerance | 10 |
| Pointer Size | Normal |
| Pointer Type | Orthogonal |
| Display Levels | Names |
| Immediately Save Design Changes | Selected |
| Save Settings on Exit | Cleared |
| Compress Design on Exit | Cleared |
| Enter into Untitled Design | Selected |
| Reset Aborts Fence Operations | Selected |

| Setting | Value |
|---|---|
| Level Lock Applies for Fence Operations | Selected |
| Use Semaphore File for Locking | Cleared |

**Note**

- When working with MicroStation, the **Immediately Save Design Changes** check box must be selected to enable viewing or generation of loop drawings if MicroStation was not previously launched.

4. Under **Category**, select Tags and ascertain that your settings are as follows:

| Setting | Value |
|---|---|
| Prompt on Duplicate Tag Sets | Cleared |
| Use Design File Tag Sets by Default | Cleared |
| Place Tags in Same Graphic Group | Cleared |

5. When finished, click **OK** to return to the main **MicroStation** window.

# Working with MicroStation

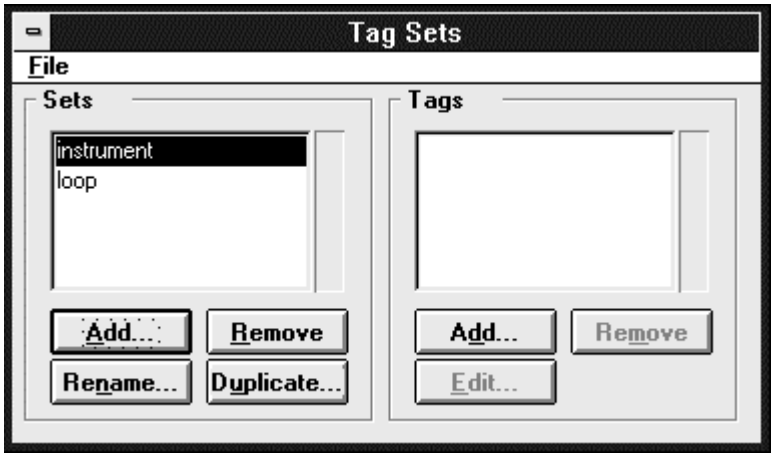
## Creating Tag Sets

In MicroStation you group tags into tag sets. Use this procedure when you need to create a new tag set from scratch. To save time it is recommended to duplicate and rename tag sets instead of creating new ones. You can save tag sets to a tag set library file and then copy them to other files as required

### ➢ To create tag sets

1. In the main MicroStation window, on the **Element** menu, point to **Tags**, then select **Define**.
2. In the **Tag Sets** window, click **Add** under the **Sets** data window.
3. In the **Tag Set Name** dialog box, type the required name.
4. Click **OK** to reopen the **Tag Sets** window.
5. To add another Set, click **Add** again (under the **Sets** data window) to open the **Tag Set Name** dialog box.
6. Repeat steps 2 and 3, but enter instrument instead.

   The **Tag Sets** window should now appear as follows.




7. Click **Add** under the **Tags** data window to open the **Define Tag** dialog box.
8. Enter the required information.

**Note**

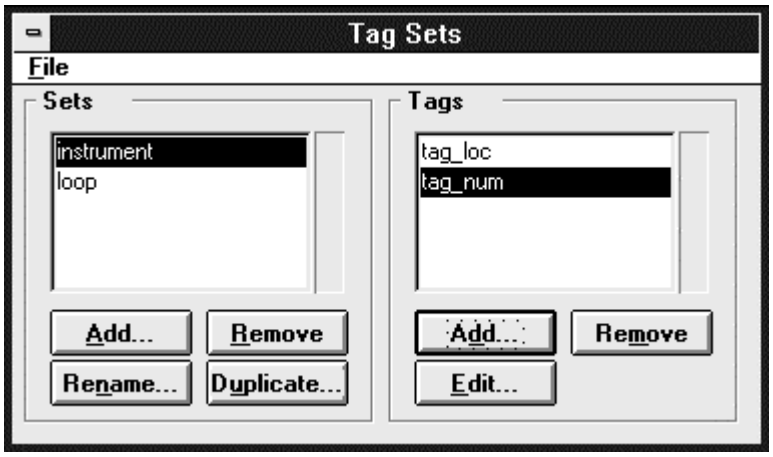
- The text in the **Default Tag Value** pane must be typed in upper case.

9. Click **OK** to reopen the **Tag Sets** window.

10. To add another tag definition, click **Add** again (under the **Tags** data window), to open the **Define Tag** window.

11. Repeat step six and seven, but now enter **tag_loc** (i.e., Tag Location) instead.

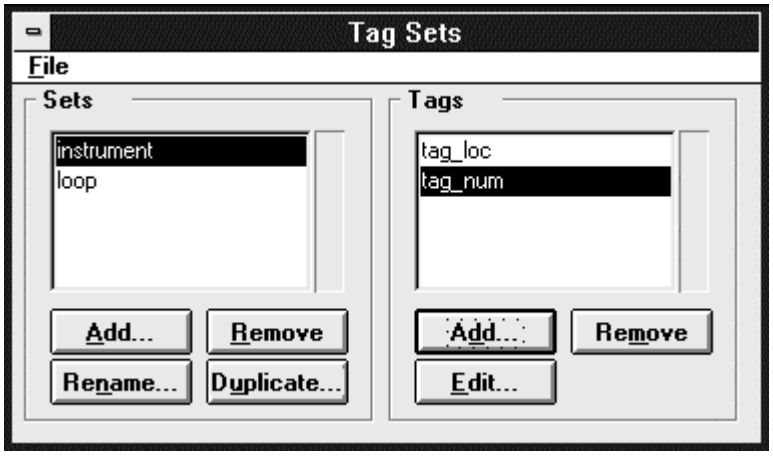
    When finished, the **Tags** data window in the **Tag Sets** window for instrument should appear as follows.




12. Select loop in the **Sets** data window to enter its tag definitions in the **Tags** data window.

13. Repeat steps 6 - 8, and enter loop_type and loop_func i.e., Loop Type and Loop Function respectively.

    When finished, the **Tags** data window in the **Tag Sets** window with the loop set selected should appear as follows.



## Exporting Tag Sets

Exporting Tag Sets allows you to save new tag sets in a library file. This makes it more convenient to import the exported tag set when required.

### ➢ To export Tag sets

1. In the **Tag Sets** window, select the **Set** (e.g., instrument), to export.
2. On the **File** menu, point to **Export** and select **Create**.
3. In the **Export Tag Library** dialog box, click **OK** to return to the **Tag Sets** window.

4. Repeat steps 2 and 3 to create a tag library for the loop set.

**Note**

- The next time you open a MicroStation session, select Import to display the latest tag set definition.

## Importing Tag Sets

This procedure explains how to retrieve a previously created tag set from a tag library file.

### ➢ To import a tag set

1. In the **Tag Sets window**, on the **File** menu, click **Import**.
2. In the **Open Tag Library** dialog box, select the required library and click **OK** to open the **Import Sets** dialog box.
3. Click **OK** to reopen the **Tag Sets** window with the set and its associated tags displayed.
4. To add another Set, to the **Tag Sets** window, repeat steps 1 and 2, but this time select instrmnt.tlb in the **Open Tag Library** dialog box.

## Linking a Tag to a Drawing Element

This procedure explains how to create a drawing element and associate it with the tag definitions that you defined in the **Define Tag** window.

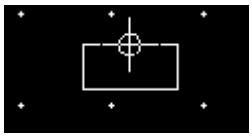
### ➢ To link a tag to a drawing element

1. In the main **MicroStation** window, on the **Tools** menu, point to **Main**, and select **Tags**.

2. In the **Tags** window, select, for example, the **Place Block** tool from the **Main tool palette** to draw a rectangle on the MicroStation desktop.

3. Select **Attach tags to an element** to open the **Attach Tags** dialog box.

4. In the **Attach Tags** dialog box, place the cursor on the rectangle that you drew in step two:



5. Double click the cursor to open the **Attach Tags** dialog box.

**Note**

- If you want to display another tag set, such as the loop tag set, open the Attach Tags dialog box and repeat steps 3 - 5.

6. Click **OK** to display the tags on the desktop.

7. Move the tags, without clicking, to the required location. Below is a typical example.


8. Click the left mouse button when the tag position is appropriate.

   The tag is now associated with the design element (the rectangle in this case).

## Creating a Cell Library

This procedure explains how to create a cell library to which you can add cells as required.

### ➢ To create a Cell Library

1. In the main **MicroStation** window, on the **Element** menu, click **Cells** to open an unnamed **Cell Library** window.
2. On the **File** menu, click **New** to open the **Create Cell Library** dialog box.
3. Click **OK** to reopen the **Cell Library** window.
4. Drag the **Cell Library** window as far off the desktop as possible and store it for future use. The window will be recalled later when you will add a cell to it.

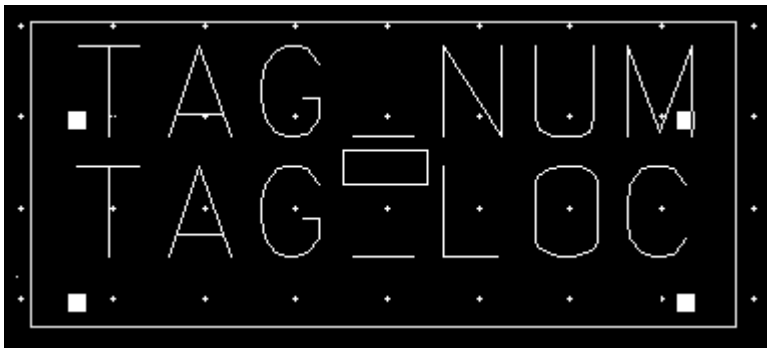
## Fencing Elements for a Cell

You can fence elements to globally perform actions on them in batch mode. This allows you to identify the cell in a cell library to be recalled as many times as required. This enables you for example to edit the cell, or combine it with other cells to create a larger design.

### ➢ To fence elements for a cell

1. Set all the required elements on the desktop, and select the fence icon on the main tool palette.

2. Fence the required elements.




**Note**

- Fencing an area automatically opens the **Cell Library** window. Prior to saving a cell in the cell library you need to define the cell origin.

## Defining the Cell Origin

You define a cell origin to set the position of a graphic object in a design. This will subsequently and automatically entail the **Create** action in the **Cell Library** window.

### ➢ To define the cell origin

1. Select the **Define Cell Origin** icon from the Main tool palette.
2. Click the cursor on the lower left corner of the desktop.

**Note**

- Now that the cell origin is defined, you have to accurately set the cell origin coordinates.

## Defining the Coordinates of the Cell Origin

This procedure explains how to generate the cell origin coordinates for a graphic element placed on the desktop.

### ➢ To define the cell origin coordinates

1. With the cell origin defined (typically, on the lower left corner of the desktop), click  to open the **AccuDraw** window.
2. Set the X and Y coordinates to 0.0000.
3. Select the check boxes.

## Adding a Cell to the Cell Library

Use this procedure to add an existing cell to a cell library.

### ➢ To add a cell to the cell library

1. Open the **Cell Library** window.
2. Click **Create** to open the **Create New Cell** dialog box.

   **Note**

   - Both **Name** and **Description** must be defined otherwise **Create** is not performed.

3. Click **Create** to display the new cell name and description in the data window of the **Cell Library** window.

## Previewing a Cell

When several cells are listed in the cell library, it is recommended that you preview a cell to make sure that you have selected the correct one. This procedure explains how to generate a thumbnail view of the cell.

### ➢ To preview a Cell

- Open the appropriate cell library, and click the cell that you want to preview.

  **Note**

  - A thumbnail view of the cell appears in the **Print Preview** pane.

## Displaying a Cell on the Desktop

This procedure explains how to take a previewed cell and place it on the desktop. This may also be useful when you want to relocate a cell to achieve a different design than the current one.

➢ **To display a cell on the desktop**

1. Open the **Cell Library** window, click a cell to preview it, and then click **Placement**.
2. On the Main tool palette, click the **Place Active Cell** icon.

   **Note**

   - A tool from the **View Control** bar may be required to display your Cell.
3. Move the mouse to the required location on the desktop.
4. Click to pin the cell to a selected location.
5. If you need another copy of the same cell, repeat steps 3 and 4.
6. When done, right click.

   **Note**

   - You can also add cells from other libraries, print/plot your design, etc. Refer to the MicroStation user manual to learn more about the available MicroStation options.

## Generating a Report Using MicroStation

You can generate SmartPlant Instrumentation reports using MicroStation from either SmartPlant Instrumentation or MicroStation. When you generate the report from the MicroStation environment you need to manually open the required report file using the **Open** dialog box in MicroStation. However, the recommended generation method is using the Loop Drawings module **Loop Explorer** since it is completely automatic and internal to SmartPlant Instrumentation.