Your Technology Advantage

Customizing the Interface V8i-SS3 Part 1

Presented by:

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Using a Task Based Interface

Learning the Bits and Pieces

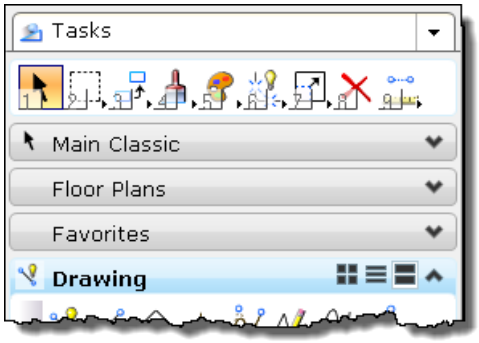
Tools

Tools, tool boxes and tool frames have always been available in MicroStation, but now you can organize them in a globally using DGN Libraries. You can create custom tools that consist of delivered out-of-box tools in MicroStation or custom tools. These tools can then be organized into specific tasks as needed.
You create and manage custom tools using the Tools tab found in **Workspace → Customize.**

Tasks

This new feature is the organization mechanism for tools and commands. A Task is a set of tools grouped together to facilitate a specific workflow process. The definition of this task and its tools are stored in DGN Libraries and are often referred to as a task-based interfaces. Standard tools are often referenced in more than one group of tasks.

You create and manage tasks using the TASKS panel found in **Workspace → Customize.**
The Drawing and Drawing Composition Task Groups are provided by default in a 2D environment; with additional 3D Task Groups available in a 3D environment.

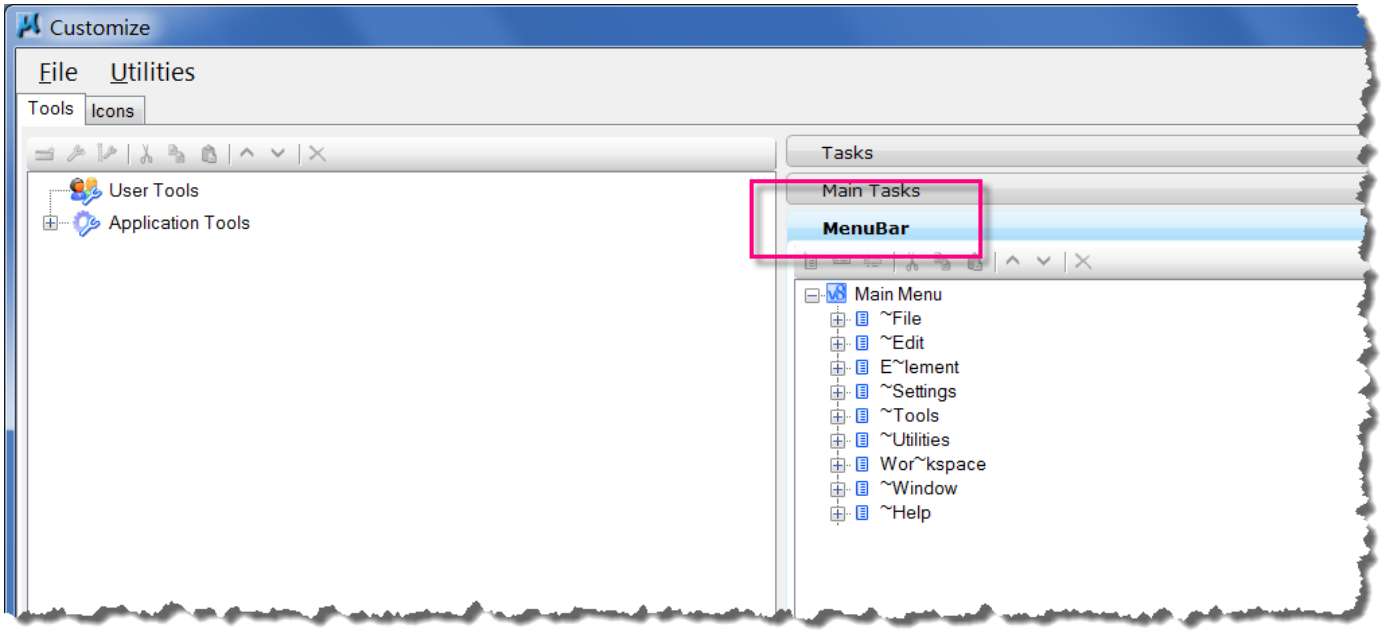


Here are some ideas to consider for custom Task Groups:

- Drafting
- Drawing Production
- Publishing
- Windows
- Favorites
- Discipline Specific Tasks
- Annotation
- Detailing

Menus

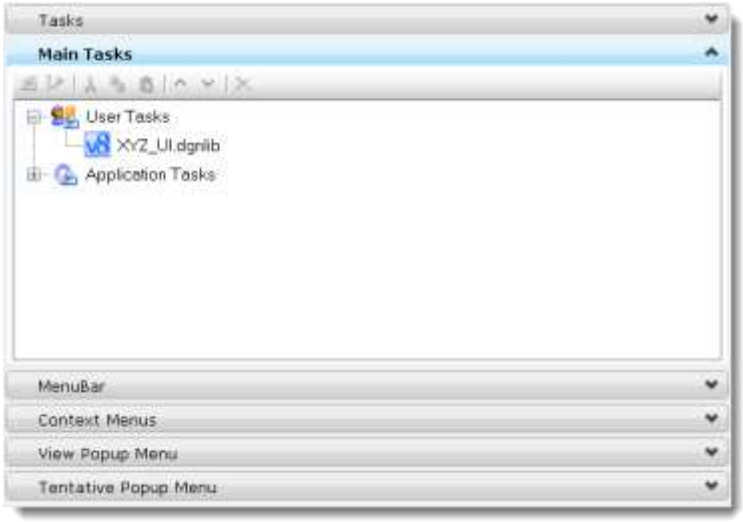
Custom menus have always been available in MicroStation, but in the latest versions you now organize them using DGN Libraries.
You create and manage custom pulldown menus using the MENUBAR panel found in **Workspace → Customize**.



Main Tasks

A Main Task is a set of referenced tools grouped together because you need to use them often. You can create a Main task and assign it to one or more tasks. After a Main task has been assigned to a task, it appears at the top of the Tasks dialog when that task is selected. The tools grouped into a Main task can be standard tools, custom tools, or a mixture of both types.

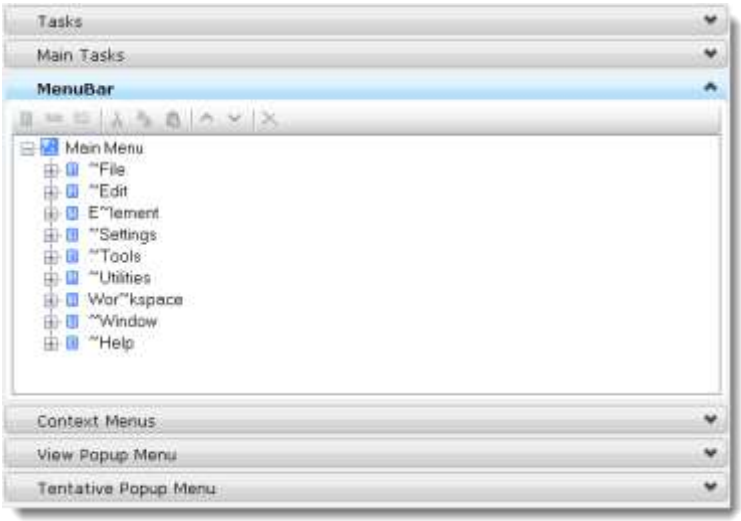
You can create and manage tasks using the Main Tasks tab found in **Workspace → Customize.**



Menubar

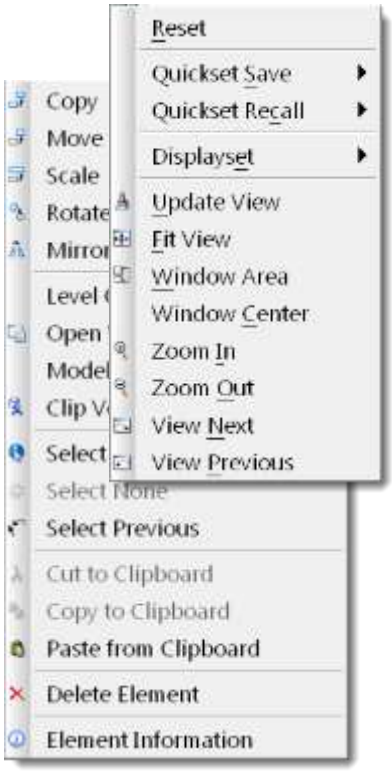
Using the Menubar tab you can delete or add to the standard MicroStation menus in order to streamline them and to add custom menus to meet your own needs. Another purpose is to allow CAD managers to delete or add to the standard MicroStation menus and add custom menus for their employees.

You can create and manager custom menus using the Menubar tab found in **Workspace → Customize**



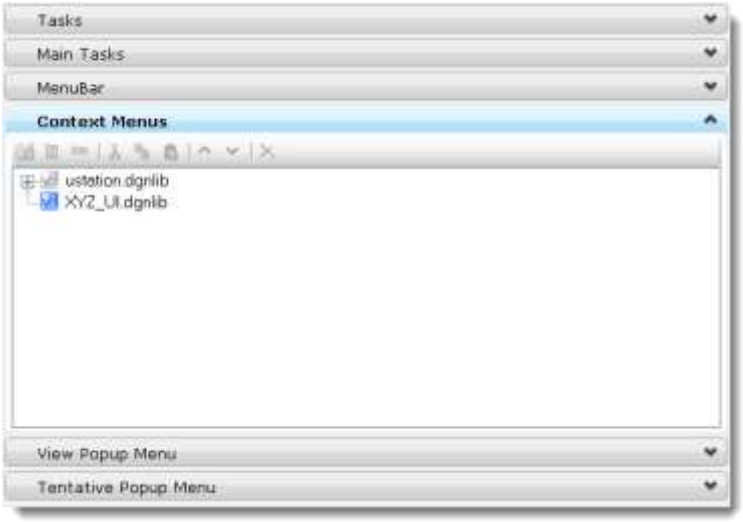
Context Menus

A context menu is a menu that appears when you right-click. It is also called the Reset Pop-up menu. You can customize this menu by adding menus and menu items to it. You can show or hide and enable or disable menu items based on named expressions or in-line expressions.



Custom menus and menu items can be added, moved, copied, reordered, deleted, and renamed on a context menu.

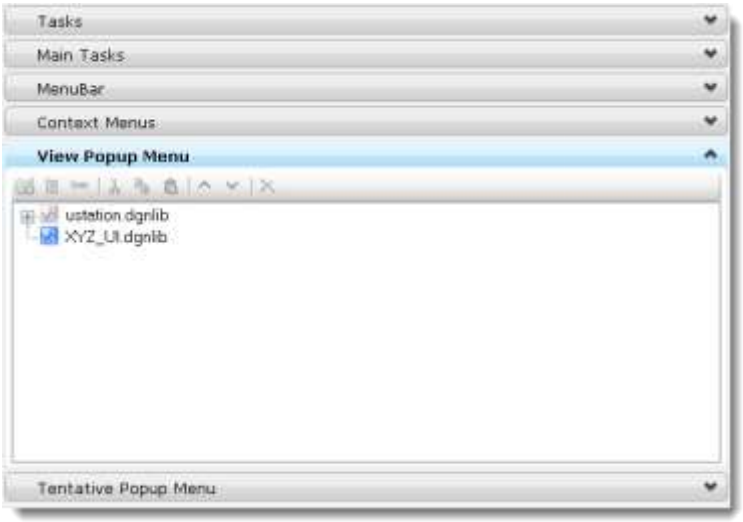
You can also add a menu mark to a context menu item. A menu mark is a graphic or icon to the left of the menu item's text. It indicates the status of the menu item.



You can create and manager custom menus using the Context Menus tab found in **Workspace → Customize**

View Popup Menu

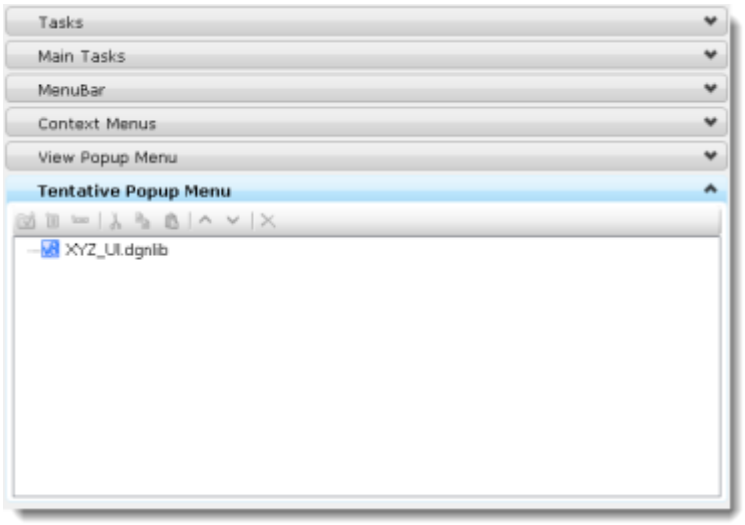
A view pop-up menu is a menu that appears when you press the <Shift> key and right-click. It is also called the View control pop-up menu. You can customize this menu by adding menus and menu items to it. You can show or hide and enable or disable these menus and menu items based on named expressions or in-line expressions.



You can create and manager custom menus using the View Popup Menu tab found in **Workspace → Customize**

Tentative Popup Menu

A tentative pop-up menu is a menu that appears when you press the <Shift> key and the tentative buttons (left- and right-hand mouse buttons) at the same time. You can customize this menu by adding menus and menu items to it. You can show or hide and enable or disable these menus and menu items based on named expressions or in-line expressions.



You can create and manager custom menus using the Tentative Popup Menu tab found in **Workspace → Customize**

Where are the Pieces Stored?

DGN Libraries

The DGN Library was introduced in the first release of V8 and was used primarily for the storage of level library definitions. This file is typically named using the .DGNLib extension but can be any DGN file. Later releases of V8, XM and V8i added additional functionality to the DGN Library allowing for the definition and storage of Text Styles, Dimension Styles and Multi-Line styles, and now interfaces. Custom interface files are controlled using the configuration variable MS_GUIDGNLIBLIST. It is recommended that you differentiate the various DGNLib files using unique names to declare their purpose.

Such as:

- Level Libraries – XYZ_levels.dgnlib
- Text and Dimension Style Libraries – XYZ_styles.dgnlib; XYZ_annotation.dgnlib
- Multi-line Style libraries – XYZ_multi-lines.dgnlib
- Interface Customizations – XYZ_UI.dgnlib; XYZ_siteUI.dgnlib; XYZ_clientUI.dgnlib; XYZ_userUI.dgnlib; etc.

MicroStation XM Strengths and Weaknesses

Weaknesses

- Main tool frame not integrated into the Task Navigation dialog.

MicroStation V8i-SS1, SS2, SS3 Strengths and Weaknesses

Strengths

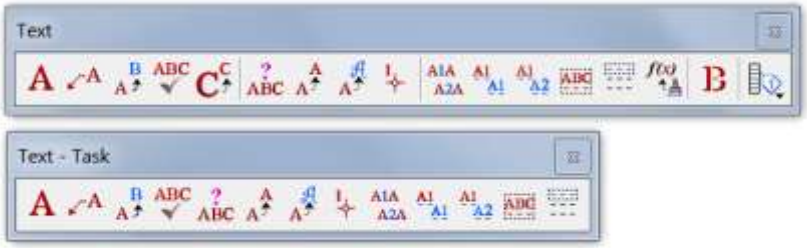
- Main tool frame integrated into the Task Navigation dialog.
- Reference Tasks eliminate the massive duplication of tasks across multiple workflows
- Improved dialog docking to improve use of screen real-estate.
- Improved Task Navigator Layout Options
- Ability to modify the contents of the Main tool frame using the new MAIN TASKS panel.
- Ability to manage icons
- Improved navigation tools.
- Ability to modify the delivered interface using GUI.DGNLIB (SS3 Only)

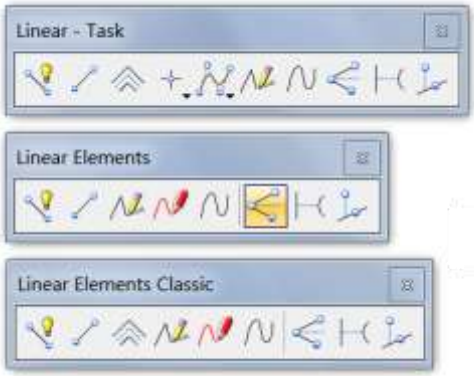
Weaknesses

- Massive duplication of tools between tasks
- Some obvious tools are missing in the out-of-the-box tasks
- Inability to add separators to the buttons defined in a navigator panel.

Missing Text Commands

Change Case, Update All Fields, XYZ Text



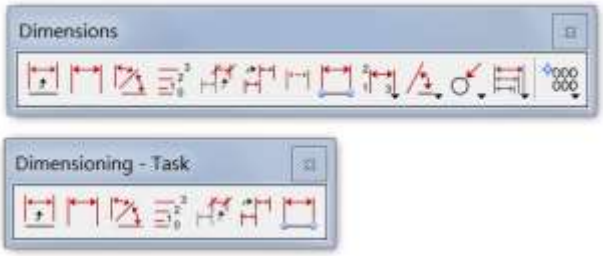


Missing Linear Commands

Place Freehand Sketch

Missing Dimension Commands

Insert Dimension, Radial/Diameter Dimensions



Configuration Variables for the Interface

Variables YOU NEED TO KNOW!

_USTN_SYSTEMDGNLIBLIST

This variable defines the out-of-the-box DGN Libraries that contain primarily user interface tools for MicroStation. By default this definition reads the file USTATION.DGNLIB which contains all the tools and tool boxes for MicroStation.

_USTN_SYSTEM_GUIDGNLIBLIST

This variable specifies the list of DGN files with required system resources.

I don't recommend modifying these definition unless you are making massive changes to the out-of-the-box MicroStation interface. It would be more efficient to use one of the following methods.

MS_GUIDGNLIBLIST

This variable specifies which files can be used for tasks, tool boxes, tools, icons, and menu customizations. By default this variable points to MS_DGNLIBLIST and to the DGN libraries in the active interface folder. This variable controls what you see in the list of customizations found in **Workspace → Customize.**

MS_DGNLIBLIST

This variable defines the locations of all .DGNLIB files regardless of their purpose. These DGNLIB files may include levels, styles, cells, linetypes, etc.

MS_GUITASKTREEROOT

This variable allows you to control which tasks and workflows are available in the Tasks dialog.

MS_DEFAULT_MAINTASKPATH

This variable allows you to control what MAIN TASK is loaded into the Tasks dialog.

_USTN_CAPABILITY < +CAPABILITY_UI_LOADFROMACTIVEFILE

This variable allows you to control user access to the Tools tab while working on a file that is not listed in the previous configuration variables. If this capability is defined users can see custom tools, tasks, and menus in the open DGN file and all configured DGN Libraries.

This will give you access to the features on the Tools tab while working in a DGN file that is not specified by the configuration variables listed above. If this capability is set, you will see the custom tools, tasks, and menus in the open DGN file in addition to those in the configured DGN libraries.

_USTN_CUSTOMIZEBASEID

Specifies a base number at which Customize will begin generating ids for user-created resources. After this value has been set, Customize will not create any resources with a resource id lower than this value.

MS_FKEYMNU

Defines the file name that holds the function key button menu. The default name is “funckey.mnu” located in the _USTN_USERINTROOT directory.

MS_BUTTONMENU

Defines the file name that holds the mouse button menu. The default name is “default.btnmenu” located in the _USTN_USERINTROOT directory.

MS_MAINMENUDOCKINGBESIDE

If set to a non-zero value, tool boxes and dockable dialogs may be docked alongside the main menu bar. If not set (default) or set to 0, MicroStation's main menu bar spans the entire width of the application window.

MS_FULLPATHINTITLEBAR

When turned on, the full path of the current Design File is displayed in the main title bar.

_USTN_DISPLAYALLCFGVARS

If set, all configuration variables (including those of the format _USTN_xxx) will be displayed.

MS_ALLOWVECTORICONSINANYFILE

If set, this configuration variable displays the Vector Icons task in every DGN file.

Controlling Preferences in V8i

MS_USERPREFSEED

This variable defines the path of the seed file used to create user preference resource file.

MS_DOCKINGPREF

This variable defines the path of the XML file for default dialog docking preferences.

MS_TASKDIALOGPREF

This variable defines the path of the XML file for default task dialog preferences.

MS_GROUPPANELPREF

This variable defines the path of the XML file for default group panel preferences.

Variables Used Primarily in XM and Earlier Releases

_USTN_CAPABILITY < +CAPABILITY_UI_LOADFROMACTIVEFILE

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_USTN_CUSTOMIZEBASEID

Specifies a base number at which Customize will begin generating ids for user-created resources. After this value has been set, Customize will not create any resources with a resource id lower than this value.

Administrator Tips

Here are a few tips that I feel will save your sanity while trying to learn these new interface development tools.

DGNLIB Seed File

Create a seed file for your DGNLIB files so you can start with a "clean" library file. You don't want any levels, styles, or interface items to be accidentally inherited.

View Control

Turn off all views in the default DGNLIB seed file so that it is obviously not a file to "draw in".

Label DGNLIB

Place a text label in view 1 of the DGNLIB file so that if someone does try to open it and turn on a view they can immediately see that they are in a DGNLIB file. You can even "lock" this element so it can't be deleted!

Unique Background Color

Create a copy of your color table and modify the background color for your DGNLIB files. This will make it more obvious when you are in a DGNLIB file rather than a DGN file.

Design History

Consider using Design History to track CAD Standards changes in your .DGNLIB files. This is a great way to keep track of what and why your CAD Standards are modified over time.

Getting Started on Your Custom Interface

Below is a simple workflow for customizing your interface.

Create Standard Interface File for Company XYZ

Create a blank DGN Library file to hold all customizations. You can do this by saving a new file and placing it in the path specified by your MS_GUIDGNLIBLIST or MS_DGNLIBLIST configuration variables.

STEP 1: Create and open file **XYZ_UI.dgnlib**

STEP 2: Create interface customizations using **Workspace → Customize** to modify any of the following interface items:

- Tools
- Tool boxes
- Tool frames
- Tasks
- Main Tasks
- Menubar
- Context Menus
- View Popup Menus
- Tentative Popup Menus

Create Standard Tasks

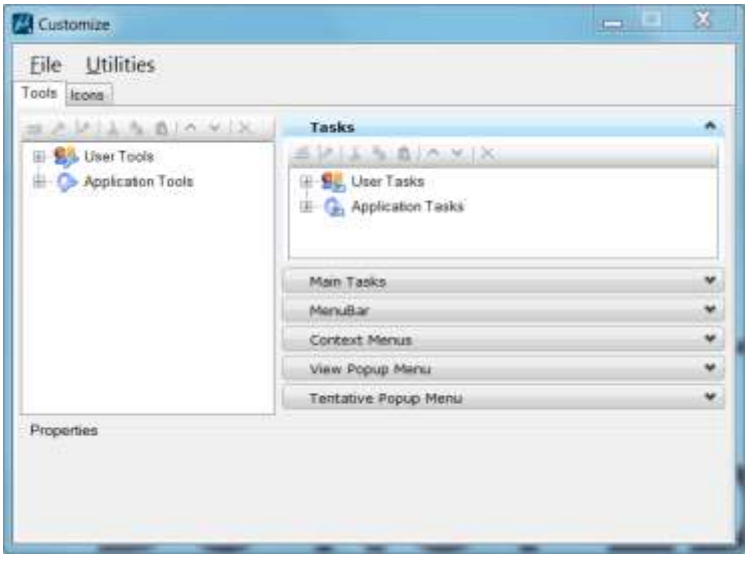
Create corporate/project oriented tasks to organize the tools created in the previous steps. Remember, a task is simply used to "organize" custom tools and out-of-the-box tools.

STEP 1: Open the file **XYZ_UI.dgnlib**

STEP 2: Select **Workspace → Customize** and select the **TASKS** panel bar.

STEP 3: Create standard tasks in an organized manner to help the user produce specific drawings quickly.

Tasks are not required to use your custom tools. You can use custom tools and tool boxes without placing them into tasks. However, using organized tools in tasks not only saves screen space but reduces the steps the user must perform during typical production processes.



Create Standard Menus

Create corporate/project oriented menus to organize the tools created in the previous steps.

STEP 1: Open the file **XYZ_UI.dgnlib**

STEP 2: Select **Workspace → Customize** and select the **MENU** panel bar.

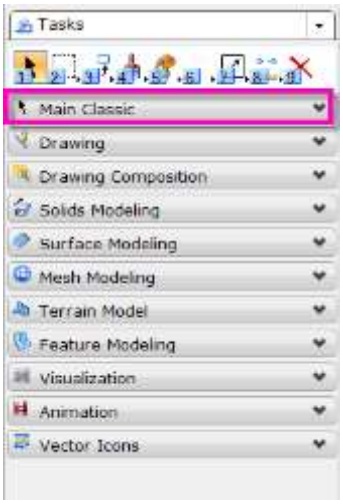
STEP 3: Create standard menus in an organized manner to help the user produce specific drawings quickly.

Creating a Custom Tool and Toolbox

The first step to any customization is to create the custom or modified tools you want to add to the various locations in the interface.

How to Add the CLASSIC MAIN Tools to Task Navigation

Use the following steps to add the MAIN CLASSIC toolbar to the delivered Tasks.



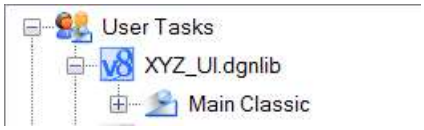
STEP 1: Open the file **XYZ_UI.dgnlib**

STEP 2: Select **Workspace → Customize** and select the **TOOLS** tab.

STEP 3: Expand the **USER TOOLS** and create a new toolbar named **XYZ Tools.**

STEP 4: Using the **LEFT PANE** of the dialog, expand the group **MICROSTATION → MAIN CLASSIC** and **<*Right-Click*>** to access the **COPY** command.

STEP 5: Using the **RIGHT PANE** of the dialog, expand the group **USER TASKS → XYZ_UI.dgnlib** and <***Right-Click***> to access the **PASTE** command.



How to Create a Missing Level Tools

Use the following steps to create level tools for OFF BY ELEMENT and OFF EXCEPT ELEMENT commands.

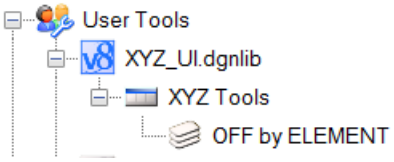
STEP 1: Open the file **XYZ_UI.dgnlib**

STEP 2: Select **Workspace → Customize** and select the **TOOLS** tab.

STEP 3: Expand the **USER TOOLS → XYZ_UI.dgnlib → XYZ Tools** and <*Right-Click*> to create a new tool.

STEP 4: Rename the tool to **OFF BY ELEMENT** and using the PROPERTIES pane at the bottom of the dialog define the following parameters:

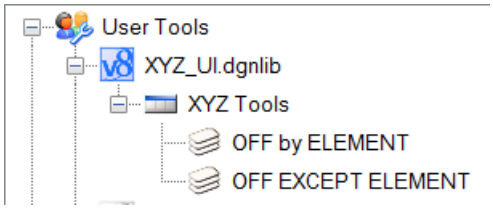
Keyin: levelmanager level offbyelem
Balloon Text: OFF by ELEMENT
Icon: *<select an appropriate icon using the USTNICONS.RSC file>*



Create the another tool for OFF EXCEPT ELEMENT level command.

STEP 1:

Keyin: levelmanager level offexceptelem
Balloon Text: OFF EXCEPT ELEMENT
Icon: *<select an appropriate icon using the USTNICONS.RSC file>*



If the LEVEL MANAGER is not loaded, you might need to add this mdlapp to your "automatically" loaded mdl applications using the MS_DGNAPPS configuration variable.

Improving the DROP Command

When you use the DROP command you always have to TURN ON the Shape option, the settings change is not memorized, right? Well not anymore! Use the following steps to memorize the setting change in a MACRO and then use that MACRO to replace the delivered DROP command tool.

STEP 1: Select **Utilities → Create Macro** and key-in the name **MYDROP** for the new macro.

STEP 2: Select the **DROP** command and **TURN ON** the **LINE STRINGS/SHAPE** option as your default.

STEP 3: Select the **STOP RECORD** button for Macros.

STEP 4: Edit the **MYDROP** macro and see what was recorded.

How to Create a MYDROP button

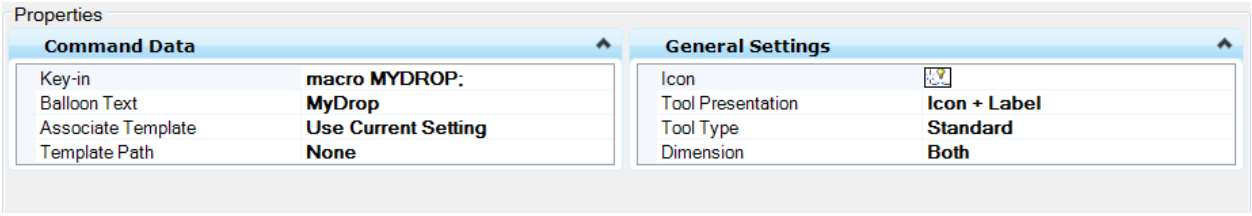
STEP 1: Open the file **XYZ_UI.dgnlib**

STEP 2: Create a MicroStation Basic macro to record the tool settings changes when using the DROP command.

STEP 3: Select **Workspace → Customize** and select the **TOOLS** tab.

STEP 4: Expand the **USER TOOLS** and create a new toolbar named **XYZ Tools** with a new tool named **MyDrop Element**. Modify the tool to use the new macro you just recorded.

macro MYDROP;

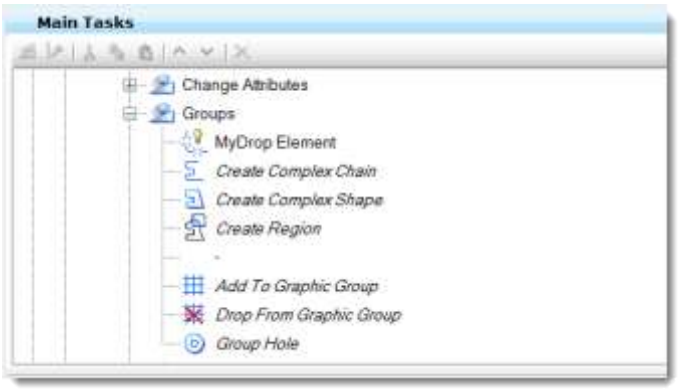


Creating a Custom MAIN Toolbar

The next step is to create a custom MAIN TASK toolbar.

STEP 1: Select **Workspace → Customize** and select the **MAIN TASKS** panel bar.

STEP 2: Expand the panel until you see the **USTATION → MAIN** toolbar



STEP 3: Copy the out-of-the-box **MAIN** toolbar and paste it into the **XYZ_UI.dgnlib**. Rename the new toolbar to **XYZ Main**.

STEP 4: Replace the default **DROP ELEMENT** command with your new tool **MYDROP ELEMENT**.

STEP 5: Close MicroStation completely.

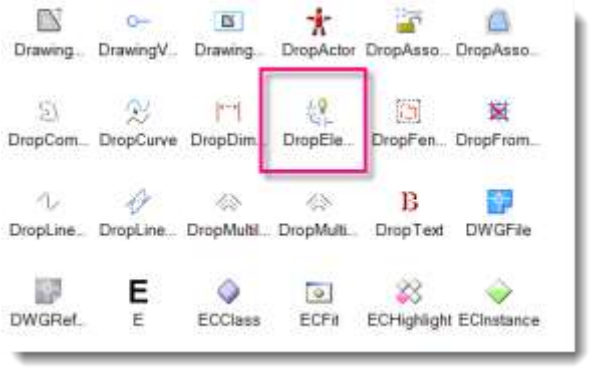
STEP 6: Define the following configuration variable in your workspace environment.

MS_DEFAULT_MAINTASKPATH = XYZ Main;

STEP 7: Restart MicroStation and verify that you are using the new **XYZ MAIN** toolbar.

Creating a Custom Icon

Next, we can create a custom icon using an external program; or use an icon delivered with MicroStation. This enhancement appeared in V8i-SS1 and was improved again in V8i-SS2/SS3. We will borrow the default DROP ELEMENT icon for our new tool.



STEP 1: Select **Workspace → Customize** and select the **MAIN TASKS** panel bar.

STEP 2: Select the **TOOL** tab and expand until you can select your custom tool **MYDROP ELEMENT**.

STEP 3: Using the **PROPERTIES** panel located at the bottom of the dialog; select **ICON** field.

STEP 4: Use the **BROWSE** button to open the **DEFINE ICON FOR TOOL** dialog.

STEP 5: Modify the **LOOK FOR ICONS IN** setting to **USTNICONS.RSC**.

STEP 6: Scroll through the icons until you find the **DROP ELEMENT** icon.

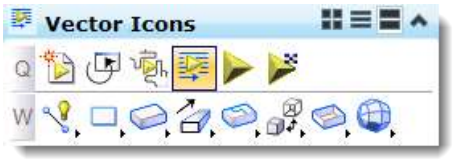
STEP 7: Pick **OK** to close the ICON dialog.

Make ICONS for all button sizes

16 x 16
24 x 24
32 x 32
48 x 48

Using the New VECTOR ICON Tasks

Use the new VECTOR ICON task bar to use vector drawings to generate an ICON. All icons should be generated in a .DGNLIB file.



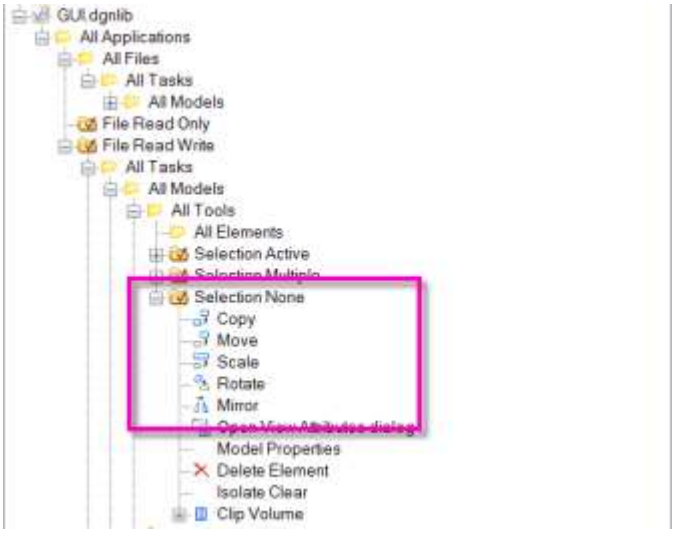
Creating a Custom Context Menu

Next, let's look at how we can add a command to the new context-sensitive menus. If you have worked with the <*Right-Click*> menu in V8i you should have realized the convenience of having the basic manipulation commands readily available at any time. No traveling across the screen to get to those commands you use hundreds of times a day.

However, there is one manipulation command that is missing, how often to you use the new STRETCH command? Me too. So let's add that command to the <*Right-Click*> menu when nothing is selected.

STEP 1: Select Workspace → **Customize** and select the **CONTEXT MENUS** panel bar.

STEP 2: Expand the **GUI.DGNLIB** file and navigate using the following image until you find the menu for **SELECTION NONE**.



STEP 3: Select the item **SELECTION NONE** and <*Right-Click*> to access the **COPY** command.

STEP 4: Scroll up and select the **XYZ_UI.DGNLIB** file.

STEP 5: <*Right-Click*> to access the **PASTE** command.

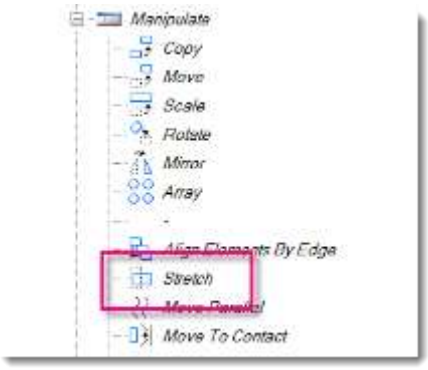
STEP 6: Expand the new **SELECTION NONE** from the **XYZ_UI.DGNLIB** and remove all items from this list.

STEP 7: Using the **LEFT PANE** of the dialog; select the **TOOLS** tab.

STEP 8: Navigate to the **MANIPULATE** toolbox and locate the **STRETCH COMMAND**.

STEP 9: Select the **STRETCH** command and <*Right-Click*> to access the **COPY** command.

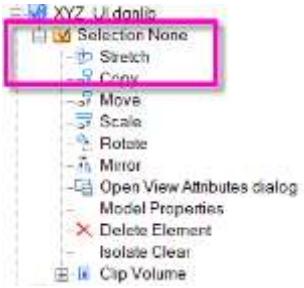
STEP 10: Using the **RIGHT PANE** of the dialog; select the **SELECTION NONE** item and <*Right-Click*> to access the **PASTE** command.



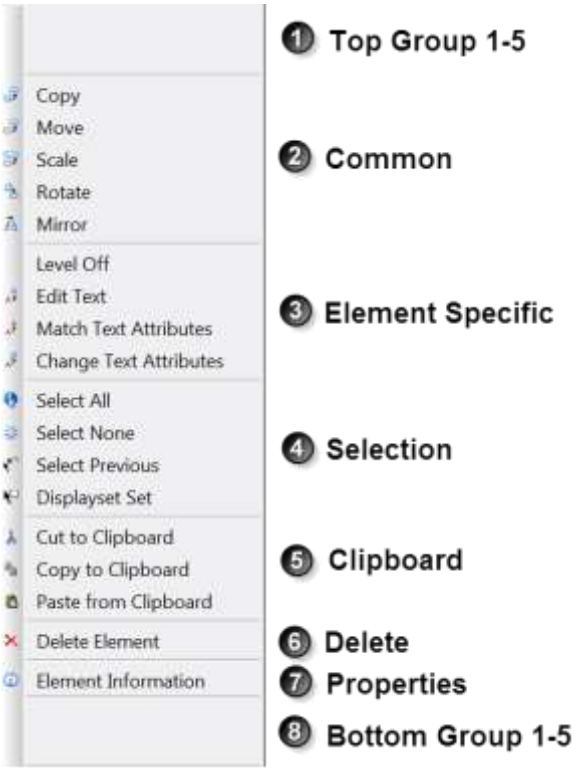
You can also <Drag-n-Drop> commands from the LEFT PANE to the RIGHT PANE of this dialog.

STEP 11: Select the new **STRETCH** command and modify the **PROPERTIES** of this item using the **LOWER PANE** of the dialog.

STEP 12: Select the **GENERAL SETTINGS → PRIORITY** setting and set it to the **COMMON** option. This will place the **STRETCH** command in the same group as the other common commands in the <*Right-Click*> menu.



You can also place the command in other locations as shown below:



That's probably more than I have time for….but hopefully not more that you wanted to know!

Thank you for your time

Hope you enjoyed the session!

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