









Template Language Reference

Main Help

-  [Introduction](#)
-  [Template Organization](#)
-  [Defaults and Template Data](#)
-  [Programmer Input](#)
-  [Logic and Source Generation Control](#)
-  [Miscellaneous](#)
-  [Template Symbols](#)
-  [Annotated Examples](#)

Template Language Reference

[Introduction](#)

- [Template Language Overview](#)
- [What Templates Are](#)
- [Template Types](#)
- [What Templates Do](#)
- [Pre-Processing and Source Code Generation](#)
- [Embed Points \(#EMBED\)](#)
- [Template Prompts](#)
- [Data Dictionary Interface](#)
- [Template Structure](#)
- [Template Source Format](#)
- [The Template Registry File](#)
- [Customizing Default Templates](#)
- [Adding New Template Sets](#)

[Template Organization](#)

[Defaults and Template Data](#)

[Programmer Input](#)

[Logic and Source Generation Control](#)

[Miscellaneous](#)

[Template Symbols](#)

[Annotated Examples](#)

Template Language Reference

[Introduction](#)

[Template Organization](#)

[Template Code Sections](#)

[#TEMPLATE \(begin template set\)](#)

[#APPLICATION \(source generation control section\)](#)

[#PROGRAM \(global area\)](#)

[#MODULE \(module area\)](#)

[#PROCEDURE \(begin a procedure template\)](#)

[#GROUP \(reusable statement group\)](#)

[#UTILITY \(utility execution section\)](#)

[#CODE \(define a code template\)](#)

[#CONTROL \(define a control template\)](#)

[#EXTENSION \(define an extension template\)](#)

[Embed Points](#)

[#EMBED \(define embedded source point\)](#)

[#AT \(insert code in an embed point\)](#)

[#ATSTART \(template initialization code\)](#)

[#ATEND \(template reset code\)](#)

[#EMPTYEMBED \(generate empty embed point comments\)](#)

[#POSTEMBED \(generate ending embed point comments\)](#)

[#PREEMBED \(generate beginning embed point comments\)](#)

[Template Code Section Constraints](#)

[#WHERE \(define #CODE embed point availability\)](#)

[#RESTRICT \(define section use constraints\)](#)

[#ACCEPT \(section valid for use\)](#)

[#REJECT \(section invalid for use\)](#)

[Defaults and Template Data](#)

[Programmer Input](#)

[Logic and Source Generation Control](#)

[Miscellaneous](#)

[Template Symbols](#)

[Annotated Examples](#)

Template Language Reference

 [Introduction](#)

 [Template Organization](#)

 [Defaults and Template Data](#)

[Default Data and Code](#)

[#WINDOWS \(default window structures\)](#)

[#REPORTS \(default report structures\)](#)

[#LOCALDATA \(default local data declarations\)](#)

[#GLOBALDATA \(default global data declarations\)](#)

[#DEFAULT \(default global data declarations\)](#)

[Symbol Management Statements](#)

[#DECLARE \(declare a user-defined symbol\)](#)

[#ALIAS \(access a symbol from another instance\)](#)

[#ADD \(add to multi-valued symbol\)](#)

[#DELETE \(delete a multi-valued symbol instance\)](#)

[#DELETEALL \(delete multiple multi-valued symbol instances\)](#)

[#PURGE \(delete all single or multi-valued symbol instances\)](#)

[#CLEAR \(clear single-valued symbol\)](#)

[#FREE \(free a multi-valued symbol\)](#)

[#FIX \(fix a multi-value symbol\)](#)

[#FIND \(super-fix multi-value symbols\)](#)

[#SELECT \(fix a multi-value symbol\)](#)

[#SET \(assign value to a user-defined symbol\)](#)

[#UNFIX \(unfix a multi-value symbol\)](#)

[#DECLARE Attributes](#)

[UNIQUE \(no duplicates allowed\)](#)

[SAVE \(save symbol between generations\)](#)

 [Programmer Input](#)









 [Logic and Source Generation Control](#)

 [Miscellaneous](#)









 [Template Symbols](#)

 [Annotated Examples](#)

Template Language Reference

-  [Introduction](#)
-  [Template Organization](#)
-  [Defaults and Template Data](#)
-  [Programmer InputInput and Validation Statements](#)
 - [#PROMPT \(prompt for programmer input\)](#)
 - [#VALIDATE \(validate prompt input\)](#)
 - [#ENABLE \(enable/disable prompts\)](#)
 - [#BUTTON \(call another page of prompts\)](#)
 - [#FIELD \(control prompts\)](#)
 - [#PREPARE \(setup prompt symbols\)](#)
- [#PROMPT Entry Types](#)
 - [CHECK \(check box\)](#)
 - [COMPONENT \(list of KEY fields\)](#)
 - [CONTROL \(list of window fields\)](#)
 - [DROP \(droplist of items\)](#)
 - [EMBED \(enter embedded source\)](#)
 - [EMBEDBUTTON \(enter embedded source\)](#)
 - [FIELD \(list of data fields\)](#)
 - [FILE \(list of files\)](#)
 - [FORMAT \(call listbox formatter\)](#)
 - [FROM \(list of symbol values\)](#)
 - [KEY \(list of keys\)](#)
 - [KEYCODE \(list of keycodes\)](#)
 - [OPTION \(display radio buttons\)](#)
 - [PICTURE \(call picture formatter\)](#)
 - [PROCEDURE \(add to logical procedure tree\)](#)
 - [RADIO \(one radio button\)](#)
 - [SPIN \(spin box\)](#)
 - [Display and Formatting Statements](#)
 - [#BOXED \(prompt group box\)](#)
 - [#DISPLAY \(display-only prompt\)](#)
 - [#IMAGE \(display graphic\)](#)
 - [#SHEET \(declare a group of #TAB controls\)](#)
 - [#TAB \(declare a page of a #SHEET control\)](#)
-  [Logic and Source Generation Control](#)
-  [Miscellaneous](#)
-  [Template Symbols](#)
-  [Annotated Examples](#)

Template Language Reference

-  [Introduction](#)
-  [Template Organization](#)
-  [Defaults and Template Data](#)
-  [Programmer Input](#)
-  [Logic and Source Generation Control](#)
 - [Template Logic Control Statements](#)
 - [#FOR \(generate code multiple times\)](#)
 - [#IF \(conditionally generate code\)](#)
 - [#LOOP \(iteratively generate code\)](#)
 - [#CASE \(conditional execution structure\)](#)
 - [#INSERT \(insert code from a #GROUP\)](#)
 - [#BREAK \(break out of a loop\)](#)
 - [#CYCLE \(cycle to top of loop\)](#)
 - [#RETURN \(return from #GROUP\)](#)
 - [#GENERATE \(generate source code section\)](#)
 - [#ABORT \(abort source generation\)](#)
 - [File Management Statements](#)
 - [#CREATE \(create source file\)](#)
 - [#OPEN \(open source file\)](#)
 - [#CLOSE \(close source file\)](#)
 - [#READ \(read one line of a source file\)](#)
 - [#REDIRECT \(change source file\)](#)
 - [#APPEND \(add to source file\)](#)
 - [#REMOVE \(delete a source file\)](#)
 - [#REPLACE \(conditionally replace source file\)](#)
 - [#PRINT \(print a source file\)](#)
 - [Conditional Source Generation Statements](#)
 - [#SUSPEND \(begin conditional source\)](#)
 - [#RELEASE \(commit conditional source generation\)](#)
 - [#RESUME \(delimit conditional source\)](#)
 - [#? \(conditional source line\)](#)
-  [Miscellaneous](#)
-  [Template Symbols](#)
-  [Annotated Examples](#)

Template Language Reference

 [Introduction](#)

 [Template Organization](#)

 [Defaults and Template Data](#)

 [Programmer Input](#)

 [Logic and Source Generation Control](#)

 [Miscellaneous](#)

Miscellaneous Statements

[#! \(template code comments\)](#)

[#< \(aligned target language comments\)](#)

[#CLASS \(define a formula class\)](#)

[#COMMENT \(specify comment column\)](#)

[#ERROR \(display source generation error\)](#)

[#EXPORT \(export symbol to text\)](#)

[#HELP \(specify template help file\)](#)

[#INCLUDE \(include a template file\)](#)

[#IMPORT \(import from text script\)](#)

[#MESSAGE \(display source generation message\)](#)

[#PROTOTYPE \(procedure prototype\)](#)

[#PROJECT \(add file to project\)](#)

Built-in Template Functions

[EXTRACT \(return attribute\)](#)

[EXISTS \(return embed point existence\)](#)

[FILEEXISTS \(return file existence\)](#)

[INLIST \(return item exists in list\)](#)

[INSTANCE \(return current instance number\)](#)

[ITEMS \(return multi-valued symbol instances\)](#)

[QUOTE \(replace string special characters\)](#)

[REPLACE \(replace attribute\)](#)

[SEPARATOR \(return attribute string delimiter position\)](#)

 [Template Symbols](#)

 [Annotated Examples](#)

Template Language Reference

-  [Introduction](#)
-  [Template Organization](#)
-  [Defaults and Template Data](#)
-  [Programmer Input](#)
-  [Logic and Source Generation Control](#)
-  [Miscellaneous](#)
-  [Template Symbols](#)
 - [Symbols Dependent on %Application](#)
 - [Symbols Dependent on %File](#)
 - [Symbols Dependent on %ViewFiles](#)
 - [Symbols Dependent on %Field](#)
 - [Symbols Dependent on %Key](#)
 - [Symbols Dependent on %Relation](#)
 - [Symbols Dependent on %Module](#)
 - [Symbols Dependent on %Procedure](#)
 - [Window Control Symbols](#)
 - [Report Control Symbols](#)
 - [Formula Symbols](#)
 - [File Schematic Symbols](#)
 - [File Driver Symbols](#)
 - [Miscellaneous Symbols](#)
-  [Annotated Examples](#)

Template Language Reference

Main Help

 [Introduction](#)

 [Template Organization](#)

 [Defaults and Template Data](#)

 [Programmer Input](#)

 [Logic and Source Generation Control](#)

 [Miscellaneous](#)

 [Template Symbols](#)

 [Annotated Examples](#)

[Procedure Template: Window](#)

[%StandardWindowCode #GROUP](#)

[%StandardWindowHandling #GROUP](#)

[%StandardAcceptedHandling #GROUP](#)

[%StandardControlHandling #GROUP](#)

[Code Template: ControlValueValidation](#)

[%CodeTPLValidationCode #GROUP](#)

[Control Template: DOSFileLookup](#)

[Extension Template: DateTimeDisplay](#)

[%DateTimeDisplayCode #GROUP](#)

Introduction

Template Language Overview

What Templates Are

Template Types

What Templates Do

Pre-Processing and Source Code Generation

Embed Points (#EMBED)

Template Prompts

Data Dictionary Interface

Template Structure

Template Source Format

The Template Registry File

Customizing Default Templates

Adding New Template Sets

Template Language Overview

Clarion for Windows' Template Language is a flexible script language complete with control structures, user interface elements, variables, file I/O, and more. The Template Language "drives" the Application Generator both at application design time and during source code generation.

- During application design, the programmer is asked for specific information about the application being generated. These prompts for information come directly from the templates.
- During source code generation, the template is in control of the source code statements generated for each procedure in the application, and also controls what source files receive the generated code.

This process makes the Templates completely in control of the Application Generator. The benefit to the programmer of this is the complete flexibility to generate code that is directly suited to the programmer's needs.

See Also:

[What Templates Are](#)

[Template Types](#)

[What Templates Do](#)

[Pre-Processing and Source Code Generation](#)

[Embed Points](#)

[Template Prompts](#)

[Data Dictionary Interface](#)

[Template Structure](#)

What Templates Are

A template is a complete set of instructions, both Template and "target" language statements, which the Application Generator uses to process the programmer's input for application customizations then generate "target" language (usually, but not limited to, Clarion language) source code.

Clarion's templates are completely reusable. They generate only the exact code required for each specific instance of its use; they do not inherit unused methods. The templates are also polymorphic, since the programmer specifies the features and functions of each template that are required for the procedure. This means one template can generate different functionality based upon the programmer's desires.

Some of the most important aspects of template functionality supported by the Template Language include:

- Support for controls (#PROMPT) that gather input from the developer, storing that input in user-defined template variables (symbols).
- Pre-defined template variables (Built-in Symbols) containing information from the data dictionary and Clarion for Windows' application development environment.
- Specialized #PROMPT entry types, which give the programmer a list of appropriate choices for such things as data file or key selection.
- Unconditional and conditional control structures (#FOR, #LOOP, #IF, #CASE) which branch source generation execution based on an expression or the contents of a symbol (variable). This allows the Application Generator to generate only the exact source code needed to produce the programmer's desired functionality in their application.
- Statements (#EMBED) that define specific points where the developer can insert (embed) or *not* insert their own source code to further customize their application.
- Support for code templates (#CODE), control templates (#CONTROL), and extension templates (#EXTENSION) that add their specific (extended) functionality to any procedure template. This makes any procedure type polymorphic, in that, the procedure can include functionality normally performed by other types of procedures.

Template code is contained in one or more ASCII files (*.TPL or *.TPW) which the Application Generator pre-compiles and incorporates into the REGISTRY.TRF file. It is this template registry file that the Application Generator uses during application design.

Once in the registry, the template code is completely reusable from application to application. It generates custom source code for each application based upon the application's data dictionary and the options selected by the programmer while working with the Application Generator.

The programmer can customize the templates in the registry (or in the *.TP* files) to fit their own specific standard design requirements. This means that each procedure template can be designed to appear exactly as the programmer requires as a starting point for their applications. Multiple "default" starting points can be created, so the programmer can have a choice of starting point designs for each procedure type.


When the programmer has customized the template source (*.TP* file), the Application Generator automatically updates the registry. When the programmer has customized the registry, the template source files can be re-generated from the registry, if necessary.


The Application Generator always makes a *copy* of the template, as stored in the registry, when creating a procedure or first populating a procedure with a code, control, or extension template. Once this copy is made, the programmer further customizes it to produce exactly the functionality required by the application for that procedure.


The template language can generate more than source code: it can even be used to create add-in utilities (see #UTILITY).


Template Types

There are four main types of templates: procedure, code, control, and extension templates.

 Procedure templates (#PROCEDURE) generate procedures and/or functions in an application. This is the choice you make when asked to choose the starting point for a "ToDo" procedure in the Application Generator.

 Code templates (#CODE) generate executable code into a specific embed point. The developer can only insert them at an embed point within a procedure. A list of the available code templates appears from which to choose.

 Control templates (#CONTROL) place a related set (one or more) of controls on a procedure's window and generate the executable source code into the procedure's embed points to provide the controls' standard functionality.

 Extension templates (#EXTENSION) generate executable source code into one or more embed points to add specific functionality to a procedure that is not "tied" to any window control.

What Templates Do

The template code files contain template language statements and standard "target" language source code which the Application Generator places in your generated source code files. They also contain the prompts for the Application Generator which determine the standard customizations the developer can make to the generated code.

The programmer's response (or lack of) to the prompts "drives" the control statements that process the template language code, and produces the logic that generates the source code. The templates also contain control statements which instruct the Application Generator how to process the standard code. The function of a template is to generate the "target" language source code, customized per the programmer's response to the prompts and design of the window or report.

There are some lines of code from templates that are inserted directly into your generated source code. For example, if you accept a default Copy command menu item in your application window, the following code is inserted in your generated source exactly as it appears in the template file:

```
ITEM('&Copy'),USE(?Copy),STD(STD:Copy),MSG('Copy item to Windows clipboard')
```

Some of the standard code in the template is a mix of "target" (Clarion) language statements and template language statements. For example, when the contents of a template variable (symbol) needs to be inserted in the generated source code, the Application Generator expands the symbol to the value the application will use, as it generates the source code for the application. Within the template code, the percent sign (%) identifies a variable (symbol). In the example below, the Application Generator will fill in the field equate label for the control as it writes the source code file, substituting it for the %Control variable:

```
SELECT(%Control)
```

To support customizing the template starting point at design time, Clarion's template language provides prompt statements that generate the template's user interface, so that the Application Generator can query the developer for the information needed to customize the application. The basic interface consists of command buttons, check boxes, radio buttons, and entry controls placed on the Procedure Properties dialog. These statements can also create custom dialog boxes to gather input from the developer. While working with the Application Generator, therefore, some of the dialogs and other interface elements the developer sees are not part of the Application Generator rather they are produced by the template.

For example, the following statement displays a file selection dialog from the application's data dictionary, then stores the programmer's choice for a data file in a variable (symbol) called %MyFile:

```
#PROMPT('Pick a file',FILE),%MyFile
```

It makes no difference what the programmer names the files and fields, nor what database driver is selected. The programmer picks them from a file selection dialog.





The template also contains control structures to instruct the Application Generator on how to generate the code (such as, #IF, #LOOP, #CASE). These control statements work in the same manner as Clarion language control structures.

Pre-Processing and Source Code Generation

Before allowing you to create an application using the templates, the Application Generator pre-processes the template code (.TPL and .TPW) files. The Application Generator verifies the registry is up to date by testing the time stamps and file sizes of all the template source code files.

The Application Generator utilizes the templates as stored in binary form in the registry file, as it gathers customizations from the developer with the prompts and dialogs available through the Procedure Properties dialog. The Application Generator stores the template starting point for each procedure and the customization from the programmer in the .APP file.

At source code generation time, the Application Generator processes the application's procedures as stored in the .APP file against the template, a second time. Some of the more important steps it uses to produce the source code are:

-  It executes the template language control statements to process the template and the procedure's customizations in the correct order.
-  It resolves the template symbols both built-in and user-defined.
-  It creates the source code files and writes the source code as generated by the template, line by line, including the previously evaluated symbols.
-  It evaluates embed points and writes the source code, as embedded by the developer and stored in the .APP file, in the correct location within the generated source code.

Embed Points (#EMBED)

One of the most important template language statements is #EMBED, which defines an embed point. These extend the structure and functionality of the procedure template by allowing the programmer to add their own custom code. The embed points indicate "targets" at which the developer can add their own custom code to the generated source. These are also the "targets" for the source code generated by control and extension templates.

Each procedure template allows for a certain number of default points at which embeds are allowed. These are typically points which coincide with messages (events) from the operating environment (Windows), such as when the end user moves focus from or to a field. The template programmer can add to, or subtract from, the list.

When the developer customizes the template, pressing the Embeds button in the Procedure Properties dialog provides access to all the embed points available in a procedure. The Actions popup menu selection in the Window Formatter also provides access to the embed points for a specific control.

The developer adds custom code either hand coded from scratch in the editor, or created with a code template--at the embed point. The embed points are also the points into which control templates and extension templates generate executable code to support their functionality.

The Application Generator stores the embed point's code (no matter what its origination) in the .APP file. At code generation time, the Application Generator processes the template, producing source; when it reaches an embed point, it places the developer's code, line by line, into the generated source code document.

Template Prompts

Input Validation Statements and Prompt Entry types place controls on the Procedure Properties window or Actions dialog which the developer sees when using the template to design an application. These range from a simple string telling the Developer what to do (#DISPLAY), to command buttons, check boxes, or radio buttons. There are also specialized entry types which provide the programmer a list of choices for input, such as the data fields in the dictionary.

Standard Windows controls can be used to get information from the programmer on the Procedure Properties window, the Actions dialog, or custom prompt dialogs. The common control type--entry field, check box, radio button, and drop-down list are all directly supported via the #PROMPT statement.

#PROMPT places the prompt, the input control, and the symbol in a single statement. The general format is the #PROMPT keyword, the string to display the actual prompt, a variable type for the symbol, then the symbol or variable name. The Application Generator places the prompt and the control in the Procedure Properties or Actions dialog (depending on whether the prompt comes from a the procedure template or a code, control, or extension template). When the developer fills the control with a value, then closes the dialog, the symbol holds the value.

The #BUTTON statement provides additional "space" for developer input when there is more developer input required than can fit in the one dialog. This places a button in the dialog, which displays an additional custom dialog when pressed. The additional dialogs are called "prompt pages."

#ENABLE allows prompts to be conditionally enabled based on the programmer's response to some other prompt. #BOXED supports logical grouping of related prompts. Once the programmer has input data into a prompt, the #VALIDATE statement allows the template to check its validity.

These tools provide a wide range of flexibility in the type of information a template can ask the programmer to provide. They also provide multiple ways to expedite the programmer's job, by providing "pick-lists" from which the programmer may choose wherever appropriate.

Data Dictionary Interface

The templates use information from the Data Dictionary extensively to generate code specifically for the declared database. There are several symbols that specifically give the templates access to all the declarations: %File, %Field, %Key, and %Relation. These, and all the symbols related to them, give the templates access to all the information in the Data Dictionary.

Pay special attention to the %FileUserOptions, %FieldUserOptions, %KeyUserOptions, and %RelationUserOptions symbols. These are the symbols that contain the values the user enters in the **User Options** text control on the **Options** tab of the **File Properties**, **Field Properties**, **Key Properties**, and **Relation Properties** dialogs. This can be a powerful tool to customize any output from the Data Dictionary.

The best way to use these %UserOptions symbols is to set them up so the user enters their custom preferences which your template supports in the form of attributes with parameters, with each attribute separated by a comma. This gives them the same appearance as Clarion language data structure attributes. By doing this, you can use the EXTRACT built-in template function to get the value from the user. For example, if the user enters the following in a **User Options** for a field:

MYCUSTOMOPTION(On)

The template code can parse this using EXTRACT:

```
#IF(EXTRACT(%FieldUserOptions,'MYCUSTOMOPTION'.1) = On)  
  #!Do Something related to this option being turned on  
#ENDIF
```

This is a very powerful tool, which allows for infinite flexibility in the way your custom templates generate source code.

Template Structure

[Template Source Format](#)




[The Template Registry File](#)

[Customizing Default Templates](#)











[Adding New Template Sets](#)

Template Source Format

The structure of the ASCII template source file is different than the structure of a Clarion source file. To read the ASCII source for a template, start out with the following guidelines:

-  Any statement beginning with a pound symbol (#) identifies a template language statement.
-  A percent sign (%) before an item within any statement (template or "target" language) identifies a template symbol (variable), which the Application Generator processes at code generation time.
-  Any statement that begins without the pound (#) or percent (%) is a "target" language statement which is written directly into a source code file.

The template files are organized by code sections that terminate with the beginning of the next section or the end of the file. The template code generally divides into ten sections.

-  #TEMPLATE begins a template set (template class). This is the first statement in the template set (required) which identifies the template set for the registry.
-  #APPLICATION begins the source generation control section. This is the section of the template that controls the "target" language code output to source files, ready to compile. One registered template set must have a #APPLICATION section.
-  #PROGRAM begins the global section of the generated source code, the main program module. One registered template set must have a #PROGRAM section.
-  #MODULE begins a template section that generates the beginning code for a source code module other than the global (program) file. One registered template set must have a #MODULE section.
-  #PROCEDURE begins a procedure template. This is the fundamental "target" language procedure or function generation template.
-  #GROUP begins a reusable statement group containing code which may be #INSERTed into any other section of the template. This is the equivalent of a template language procedure or function.
-  #CODE begins a code template section which generates executable code into a specific embed point. The developer can only insert them at an embed point within a procedure. A list of the available code templates appears from which to choose.
-  #CONTROL begins a control template. Control templates place a related set (one or more) of controls on a procedure's window and generate the executable source code into embed points that provides the controls' standard functionality.
-  #EXTENSION begins an extension template. Extension templates generate executable source code into one or more embed points of a procedure to add specific functionality to the procedure that is not "tied" to any window control.
-  #UTILITY begins a utility execution section. This is an optional section of the template that performs a utility function, such as cross-reference or documentation generation. This is similar to #APPLICATION in that it generates output to ASCII files.

A template set must have a #TEMPLATE section to name the set for registration in the REGISTRY.TRF template registry file. At least one registered template set must have #APPLICATION, #PROGRAM, and #MODULE sections.

The Template Registry File

The Template Registry file (REGISTRY.TRF) is a specialized data repository which stores template code and defaults in binary form. All the template elements available in the Application Generator come from the registry. As you add elements from the template into your application, the Application Generator retrieves the code from the registry then stores it along with your customizations, in the .APP file.

Storing the templates in a binary registry provides these advantages:



Quick design-time performance.



The ability to update the defaults in the registry using standard application development tools (such as the Window Formatter). For example, you can modify a procedure template's default window without writing template source code.

The sources for the REGISTRY.TRF are the template code files (.TPL and .TPW) which are installed in the TEMPLATE subdirectory. The Application Generator can read and register .TPL files, adding it to the template registry tree. The .TPW files usually contain additional procedure or code template source, which is processed along with the .TPL file by the #INCLUDE statement in the .TPL file. This allows the template author to logically separate disparate template components.

The default template file for Clarion for Windows is CW.TPL. This file uses the #INCLUDE statement to specify processing the other .TPW files which appear in the \CWTEMPLATE directory.

Customizing Default Templates

There are two methods for customizing the templates:



You can edit the template source code in the .TPL and .TPW files.

It is always a good idea to make a backup copy before making any modifications to the shipping templates.

When directly editing the template source code, you can change the type of source code it generates, or the logic it uses to generate the code. This is how you can make your templates generate source code the way you would write it if you were hand-coding the application.

You can also extend the functionality of the templates by adding your own features. For example, you may want to add prompts to each procedure template that allow you to generate a "comment block" at the beginning of each procedure containing procedure maintenance comments from the programmer maintaining the application.

Adding the following code to the end of any existing template set accomplishes this modification:

```
#EXTENSION(CommentBlock,'Add a comment block to the procedure'),PROCEDURE
#PROMPT('Comment Line',@S70),%MyComment,MULTI('Programmer Comments')
#ATSTART
#FOR(%MyComment)
!%MyComment
#ENDFOR
#ENDAT
```

This code adds an extension template that is available for any procedure in the application. When you design your procedure, add the CommentBlock extension template to the procedure, then add comments to the Comment Line prompt each time you modify the procedure. At source generation time, each comment line will appear following an exclamation point (!). The block of comments appears in the code just before the PROCEDURE or FUNCTION statement.

If you want this extension to be used in all the procedures you write, go into the Template Registry and add the extension to all the default procedures for each procedure template. This way, you can make sure it is always used, and you can even place its prompts on the Procedure Properties dialog by checking the Show on Properties box as you add the extension to the procedure template.

Once you make the changes, either choose the **Setup à Template Registry** menu selection, open an existing application, or create a new application. Make sure the Re-register When Changed box is checked in the Registry Options dialog. The Application Generator automatically pre-processes the templates to update the registry when you have made changes to the template code files.



You can add to or edit the default user interface procedure template elements such as the standard window designs and report layouts, or your standard global and local data variables using the Template Registry.

When you highlight a procedure template in the Template Registry and press the Properties button, the Procedure Properties dialog appears, without all the custom prompts you would normally see when developing an application. Any button which is not dimmed in the Template Registry is available to you to create the default starting point for the procedure.

You can set up the procedure for the starting point that will get you furthest toward a complete procedure while requiring the least amount of customization from you at application design time. If the procedure allows it, you may use the window and report formatters, or define additional data, by pressing the appropriate buttons.

Once you've customized your template registry, you can also export your customizations to template

source code files. This is useful for sharing your customizations with other developers.

To update the template source code with the customizations made in the Template Registry, press the Regenerate button in the Template Properties dialog. This updates the .TPL and .TPW files with the changes made.

Adding New Template Sets

Adding another set of templates, whether from a third-party vendor or templates you have written yourself, is a very simple process. There is only one requirement for the new template set; a #TEMPLATE statement to identify the set for the template registry. Of course, it also needs to have the specific procedure, code, control, and extension templates to add to the template registry.

For example, the following code is completely valid as a template set with nothing else added:

```
#TEMPLATE(PersonalAddOns,'My personal Template set')  
#CODE(ChangeProperty,'Change control property')  
#PROMPT('Control to change',CONTROL),%MyField,REQ  
#PROMPT('Property to change',@S20),%MyProperty,REQ  
#PROMPT('New Value',@S20),%MyValue,REQ  
%MyField{%MyProperty} = %'MyValue #<!Change the %MyProperty of %MyField
```

When you register this template set, it will appear in the template registry as Class PersonalAddOns containing just the ChangeProperty code template.

Once a template set is registered in the template registry, all its components are completely available to the programmer for their application development, along with all the components of all other registered template sets. This allows the programmer the flexibility to "mix-and-match" their components during development.

For example, the programmer could create a procedure from a procedure template in the standard Clarion template set, populate it with a control template from a third-party vendor, insert a code template into an embed point from another third-party vendor, then add an extension template from their own personally written template set. At source generation time, all these separate components come together to create a fully functional procedure that performs all the tasks required by the programmer (and nothing else). This is the real power behind Clarion's Template-oriented programming!

Template Organization

Template Code Sections

- _____ #TEMPLATE (begin template set)
- _____ #APPLICATION (source generation control section)
- _____ #PROGRAM (global area)
- _____ #MODULE (module area)
- _____ #PROCEDURE (begin a procedure template)
- _____ #GROUP (reusable statement group)
- _____ #UTILITY (utility execution section)
- _____ #CODE (define a code template)
- _____ #CONTROL (define a control template)
- _____ #EXTENSION (define an extension template)

Embed Points

- _____ #EMBED (define embedded source point)
- _____ #AT (insert code in an embed point)
- _____ #ATSTART (template initialization code)
- _____ #ATEND (template reset code)
- _____ #EMPTYEMBED (generate empty embed point comments)
- _____ #POSTEMBED (generate ending embed point comments)
- _____ #PREEMBED (generate beginning embed point comments)

Template Code Section Constraints

- _____ #WHERE (define #CODE embed point availability)
- _____ #RESTRICT (define section use constraints)
- _____ #ACCEPT (section valid for use)
- _____ #REJECT (section invalid for use)

Template Code Sections

- [#TEMPLATE \(begin template set\)](#)
- [#APPLICATION \(source generation control section\)](#)
- [#PROGRAM \(global area\)](#)
- [#MODULE \(module area\)](#)
- [#PROCEDURE \(begin a procedure template\)](#)
- [#GROUP \(reusable statement group\)](#)
- [#UTILITY \(utility execution section\)](#)
- [#CODE \(define a code template\)](#)
- [#CONTROL \(define a control template\)](#)
- [#EXTENSION \(define an extension template\)](#)

#TEMPLATE (begin template set)

#TEMPLATE(*name*, *description*)

#TEMPLATE Begins the Template set.

name The name of the Template set which uniquely identifies it for the Template Registry and Template Language statements. This must be a valid Clarion label.

description A string constant describing the Template set for the Template Registry and Application Generator.

The **#TEMPLATE** statement marks the beginning of a Template set. This should be the first non-comment statement in the Template file.

The Template Registry allows multiple Template sets to be registered for the Application Generator. Each Template Code Section (**#APPLICATION**, **#PROGRAM**, **#MODULE**, **#PROCEDURE**, **#CONTROL**, **#CODE**, **#EXTENSION**, and **#GROUP**) within a Template is uniquely identified by its **#TEMPLATE** statement's *name* and the name of the section. This allows different Template sets to contain Template Code Sections with names that duplicate those in other Template sets without ambiguity, and allows the programmer to concurrently use Template sets from multiple sources to generate applications.

Example:

```
#TEMPLATE(SampleTemplate,'This is a sample Template')  
#INCLUDE('FileTwo.TPX')  
#INCLUDE('FileThree.TPX')
```

#APPLICATION (source generation control section)

#APPLICATION(*description*) [, **HLP**(*helpid*)]

#APPLICATION Begins source generation control section.

description A string constant describing the application section.

HLP Specifies on-line help is available.

helpid A string constant containing the identifier to access the Help system. This may be either a Help keyword or "context string."

The **#APPLICATION** statement marks the beginning of a source generation control section. The section is terminated by the next Template Code Section (**#PROGRAM**, **#MODULE**, **#PROCEDURE**, **#CONTROL**, **#CODE**, **#EXTENSION**, **#UTILITY**, or **#GROUP**) statement. The Template statements contained in this section control the source generation process. Only one **#APPLICATION** section is allowed in a single Template set. Actual source generation is done by the **#GENERATE** statement.

Any User-defined symbols defined in the **#APPLICATION** section are available for use in any Template Code Section that is generated. Any prompts in this section are placed on the Global Properties window and have global scope.

Example:

```
#APPLICATION('Example Application Section')      #!Generate entire application
#PROMPT('Enable &Shared Files',CHECK),%SharedFiles
#PROMPT('Close Unused &Files',CHECK),%CloseFiles,DEFAULT(1)
#BUTTON('.INI File Settings')
  #PROMPT('Use .INI file',CHECK),%INIActive,DEFAULT(1)
  #ENABLE(%INIActive)
  #PROMPT('.INI File to use',DROP,'Program Name.INI|Other'),%INIFile
  #ENABLE(%INIFile='Other')
  #PROMPT('File Name',@S40),%ININame
  #ENDENABLE
  #PROMPT('Save Window Locations',CHECK),%INISaveWindow,DEFAULT(1)
#ENDENABLE
#ENDBUTTON
#!
#!Global Template Declarations.
#MESSAGE('Generating ' & %Application,0)  #! Open the Message Box
#DECLARE(%FilesUsed),UNIQUE,MULTI          #! Label of every file used
#DECLARE(%FilePut,%FilesUsed)             #! "Yes" for RI PUT used
#DECLARE(%FileDelete,%FilesUsed)         #! "Yes" for RI DELETE used
#DECLARE(%ModuleFilesUsed,%Module),UNIQUE,MULTI,SAVE #!Name of file used in module
#DECLARE(%ModuleFilePut,%ModuleFilesUsed),SAVE #! "Yes" for RI PUT used
#DECLARE(%ModuleFileDelete,%ModuleFilesUsed),SAVE #! "Yes" for RI DELETE used
#DECLARE(%IniFileName)                   #! Used to construct INI file
#DECLARE(%ModuleProcs,%Module),MULTI,SAVE,UNIQUE #! Program MAP prototype
#DECLARE(%ModulePrototype,%ModuleProcs) #! Module MAP prototype
#DECLARE(%AccessMode)                   #! File open mode equate
#DECLARE(%BuildFile)                    #! Construction filename
#!
#!Initialization Code for Global User-defined Symbols.
#IF(%SharedFiles)                       #! IF Shared Files Enabled
  #SET(%AccessMode,'42h')                #! default access 'shared'
#ELSE                                     #! ELSE (IF NOT Shared Files ..)
  #SET(%AccessMode,'22h')                #! default access 'open'
#ENDIF                                    #! END (IF Shared Files ...)
#IF(%INIFile = 'Program Name.INI')       #! IF using program.ini
  #SET(%INIFileName, %Application & '.INI') #! SET the file name
#ELSE                                     #! ELSE (IF NOT using Program.ini)
  #SET(%INIFileName,%ININame)           #! SET the file name
#ENDIF                                    #! END (IF using program.ini)
#!
#! Main Source Code Generation Loop.
#DECLARE(%GlobalRegenerate)              #! Flag that controls generation
#IF(~%ConditionalGenerate OR %DictionaryChanged OR %RegistryChanged)
```

```

#SET(%GlobalRegenerate,%True)           #! Generate Everything
#ELSE                                     #! ELSE (If no global change)
#SET(%GlobalRegenerate,%False)          #! Generate changed modules only
#ENDIF                                    #! END (IF Global Change)
#SET(%BuildFile,(%Application & '.TM$')) #! Make temp program filename
#FOR(%Module), WHERE (%Module <> %Program) #! For all member modules
#MESSAGE('Generating Module: ' & %Module, 1) #! Post generation message
#IF(%ModuleChanged OR %GlobalRegenerate) #! IF module to be generated
#FREE(%ModuleProcs)                     #! Clear module prototypes
#FREE(%ModuleFilesUsed)                 #! Clear files used
#CREATE(%BuildFile)                     #! Create temp module file
#FOR(%ModuleProcedure)                  #! FOR all procs in module
#FIX(%Procedure,%ModuleProcedure)       #! Fix current procedure
#MESSAGE('Generating Procedure: ' & %Procedure, 2) #! Post generation message
#GENERATE(%Procedure)                   #! Generate procedure code
#ENDFOR                                  #! END (For all procs in module)
#CLOSE(%BuildFile)                      #! Close last temp file
#CREATE(%Module)                         #! Create a module file
#GENERATE(%Module)                       #! Generate module header
#APPEND(%BuildFile)                     #! Append the temp mod file
#CLOSE(%Module)                          #! Close the module file
#ENDIF                                    #! END (If module to be...)
#ENDFOR                                  #! END (For all member modules)
#FIX(%Module,%Program)                  #! FIX to program module
#MESSAGE('Generating Module: ' & %Module, 1) #! Post generation message
#FREE(%ModuleProcs)                     #! Clear module prototypes
#FREE(%ModuleFilesUsed)                 #! Clear files used
#CREATE(%BuildFile)                     #! Create temp module file
#FOR(%ModuleProcedure)                  #! For all procs in module
#FIX(%Procedure,%ModuleProcedure)       #! Fix current procedure
#MESSAGE('Generating Procedure: ' & %Procedure, 2) #! Post generation message
#GENERATE(%Procedure)                   #! Generate procedure code
#ENDFOR                                  #! EndFor all procs in module
#CLOSE()                                 #! Close last temp file

```

See Aslo:

[#GENERATE](#)

#PROGRAM (global area)

#PROGRAM(*name*, *description* [, *target*, *extension*]) [, **HLP**(*helpid*)]

#PROGRAM Defines the beginning of the main program module.

name The name of the #PROGRAM which identifies it for the Template Registry and Template Language statements. This must be a valid Clarion label.

description A string constant describing the #PROGRAM section for the Template Registry and Application Generator.

target A string constant that specifies the source language the Template generates. If omitted, it defaults to Clarion.

extension A string constant that specifies the source code file extension for the *target*. If omitted, it defaults to .CLW.

HLP Specifies on-line help is available.

helpid A string constant containing the identifier to access the Help system. This may be either a Help keyword or "context string."

The **#PROGRAM** statement defines the beginning of the main program module of the Template. The #PROGRAM section is terminated by the next Template Code Section (#MODULE, #PROCEDURE, #CONTROL, #CODE, #EXTENSION, or #GROUP) statement encountered, or the end of the file. Only one #PROGRAM section is allowed in a Template set.

#BUTTON, #PROMPT, and #DISPLAY statements are not valid within a #PROGRAM section. Global prompts go in the #APPLICATION section.

Example:

```
#PROGRAM(CLARION,'Standard Clarion Shipping Template')
PROGRAM !PROGRAM statement required
INCLUDE('Keycodes.clw')
INCLUDE('Errors.clw')
INCLUDE('Equates.clw')
```

#MODULE (module area)

#MODULE(*name*, *description* [, *target*, *extension*]) [, **HLP**(*helpid*)] [, **EXTERNAL**]

#MODULE Begins the module section.

name The name of the Module which identifies it for the Template Registry and Template Language statements. This must be a valid Clarion label.

description A string constant describing the #MODULE section for the Template Registry and Application Generator.

target A string constant that specifies the source language the Template generates. The word "EXTERNAL" is convention adopted to indicate an external source or object module. If omitted, it defaults to Clarion.

extension A string constant that specifies the source code file extension for the *target*. If omitted, it defaults to .CLW.

HLP Specifies on-line help is available.

helpid A string constant containing the identifier to access the Help system. This may be either a Help keyword or "context string."

EXTERNAL Specifies no source generates into the module.

The **#MODULE** statement defines the beginning of the section of the template which puts data into each generated source module's data area. The #MODULE Section is terminated by the next Template Code Section (#PROGRAM, #MODULE, #PROCEDURE, #CONTROL, #CODE, #EXTENSION, or #GROUP) statement encountered, or the end of the file. A Template set may contain multiple #MODULE statements.

Code generated by a #MODULE section is (usually) placed at the beginning of a source code file generated by the Application Generator.

#BUTTON, #PROMPT, and #DISPLAY statements are not valid within a #MODULE section.

Example:

```
#MODULE(ExternalOBJ,'External .OBJ module','EXTERNAL','.OBJ'),EXTERNAL
#MODULE(ExternalLIB,'External .LIB module','EXTERNAL','.LIB'),EXTERNAL
#MODULE(GENERATED,'Clarion MEMBER module')
    MEMBER('%Program')                !MEMBER statement is required
%ModuleData                          #!Data declarations local to the Module
```


#PROCEDURE (begin a procedure template)

#PROCEDURE(*name*, *description* [, *target*]) [, **REPORT**] [, **WINDOW**] [, **HLP**(*helpid*)]
[, **PRIMARY**(*message* [, *flag*])] [, **QUICK**(*wizard*)]

#PROCEDURE	Begins a procedure template.
<i>name</i>	The label of the procedure template. This must be a valid Clarion label.
<i>description</i>	A string constant describing the procedure Template.
<i>target</i>	A string constant that specifies the source language the template generates. If omitted, it defaults to Clarion.
REPORT	Tells the Application Generator to make the Report Formatter available.
WINDOW	Tells the Application Generator to make the Window Formatter available.
HLP	Specifies on-line help is available.
<i>helpid</i>	A string constant containing the help identifier. This may be either a Help keyword or "context string."
PRIMARY	Specifies at least one file must be placed in the procedure's File Schematic.
<i>message</i>	A string constant containing a message that appears in the File Schematic next to the procedure's Primary file.
<i>flag</i>	If present, contains OPTIONAL (the file is not required), OPTKEY (the key is not required), or NOKEY (the file is not required to have a key).
QUICK	Specifies the procedure has a wizardwizard #UTILITY that runs when the Use Procedure Wizard box is checked.
<i>wizard</i>	The identifier (including template class, if necessary) of the wizard #UTILITY template.

The **#PROCEDURE** statement begins a Procedure template. A Procedure template contains the Template and *target* language statements used to generate the source code for a procedure within your application. A #PROCEDURE section is terminated by the first occurrence of a Template Code Section (#PROGRAM, #MODULE, #PROCEDURE, #CONTROL, #CODE, #EXTENSION, or #GROUP) statement, or the end of the file. Within a Template set you may have multiple #PROCEDURE sections, but they must all have unique *name* parameters.

Example:

```
#PROCEDURE(ProcName1,'This is a sample window procedure'),WINDOW  
#PROCEDURE(ProcName2,'This is a sample report procedure'),REPORT  
#PROCEDURE(ProcName3,'This is a sample anything procedure'),WINDOW,REPORT  
#PROCEDURE(Browse,'List with Wizard'),WINDOW,QUICK(BrowseWizard(Wizards))
```

#GROUP (reusable statement group)

`#GROUP(symbol [, [type] parameters]) [, AUTO] [, HLP(helpid)]`

#GROUP	Begins a section of template code that may be inserted into another portion of the template.
<i>symbol</i>	A user-defined symbol used as the #GROUP's identifier.
<i>type</i>	The data type of a passed <i>parameter</i> : LONG, REAL, STRING, or * (asterisk). An asterisk (*) indicates it is a variable-parameter (passed by address), whose value may be changed by the #GROUP. LONG, REAL, and STRING indicates it is a value-parameter (passed by value), whose value is not changed by the #GROUP. If <i>type</i> is omitted, the <i>parameter</i> is passed as a STRING.
<i>parameters</i>	User-defined symbols by which values passed to the #GROUP are referenced. You may pass multiple <i>parameters</i> , each separated by commas, to a #GROUP. All specified <i>parameters</i> must be passed to the #GROUP; they may not be omitted.
AUTO	Opens a new scope for the group. This means that any #DECLARE statements in the #GROUP would not be available to the #PROCEDURE being generated. Passing <i>parameters</i> to a #GROUP implicitly opens a new scope.
HLP	Specifies on-line help is available.
<i>helpid</i>	A string constant containing the identifier to access the Help system. This may be either a Help keyword or "context string."

#GROUP defines the beginning of a section of code which is generated into the source. A #GROUP section may contain Template and/or target language code. The #GROUP section is terminated by the first occurrence of a Template Code Section (#PROGRAM, #MODULE, #PROCEDURE, #CONTROL, #CODE, #EXTENSION, or #GROUP) statement, or the end of the file. Within a single Template, separate #GROUP sections may not be defined with the same *symbol*. The *parameters* passed to a #GROUP fall into two categories: **value-parameters** and **variable-parameters**.

Value-parameters are declared as user-defined symbols, with an optional *type* and are "passed by value" (a copy of the value is passed) Either symbols or expressions may be passed as value-parameters. When a multi-valued symbol is passed as a value-parameter, only the current instance is passed.

Variable-parameters are declared as user-defined symbols with a prepended asterisk (*) (and no *type*). A variable-parameter is "passed by address" and any change to its value by the #GROUP code changes the value of the passed symbol. Only symbols may be passed to a #GROUP as variable-parameters. When a multi-valued symbol is passed as a variable-parameter, all instances are passed.

The statements contained in the #GROUP section are generated by the #INSERT statement. A #GROUP may contain #EMBED statements to define embedded source code points.

Example:

```
#GROUP(%GenerateFormulas) #!A #GROUP without parameters
#FOR(%Formula)
  #IF(%FormulaComputation)
%Formula = %FormulaComputation
  #ELSE
IF(%FormulaCondition)
  %Formula = %FormulaTrue
ELSE
  %Formula = %FormulaFalse
END
#ENDIF
```

```
#ENDFOR  
#GROUP(%ChangeProperty,%MyField,%Property,%Value) #!A #GROUP that receives parameters  
%MyField{%Property} = '%Value' #<!Change the %Property of %MyField  
#GROUP(%SomeGroup, * %VarParm, LONG %ValParm)  
#!A #GROUP that receives a variable-parameter and a value-parameter
```

See Also:

[#INSERT](#)

#UTILITY (utility execution section)

#UTILITY(*name*, *description*) [, **HLP**(*helpid*)] [, **WIZARD**]

#UTILITY	Begins a utility generation control.
<i>name</i>	The name of the #UTILITY which identifies it for the Template Registry. This must be a valid Clarion label.
<i>description</i>	A string constant describing the utility section.
HLP	Specifies on-line help is available.
<i>helpid</i>	A string constant containing the identifier to access the Help system. This may be either a Help keyword or "context string."
WIZARD	Specifies the #UTILITY is used as a Wizard to generate a procedure or a complete application.

The **#UTILITY** statement marks the beginning of a utility execution control section. The section is terminated by the next Template Code Section (**#PROGRAM**, **#MODULE**, **#PROCEDURE**, **#CONTROL**, **#CODE**, **#EXTENSION**, **#UTILITY**, or **#GROUP**) statement. The Template statements contained in this section control the utility execution process. Multiple #UTILITY sections are allowed in a single Template set.

The #UTILITY section is very similar to the #APPLICATION section, in that it allows you to produce output from the application. The purpose of #UTILITY is to provide extensible supplemental utilities for such things as program documentation, or a tree diagram of procedure calls. The list of registered utilities appears in the Utilities menu in the Clarion for Windows environment.

#UTILITY with the WIZARD attribute specifies it contains a #SHEET with #TABs that display one tab at a time, guiding the user through the prompts.

Example:

```
#UTILITY(ProcCallTree, 'Output procedure call tree')
#CREATE(%Application & '.TRE')
Procedure Call Tree: for %Application
#INSERT(%DisplayTree, %FirstProcedure, '| ' )
#CLOSE
#!*****
#GROUP(%DisplayTree, %ThisProc, %Level, %NextIndent)
#FIX(%Procedure, %ThisProc)
%Level+-%ThisProc (%ProcedureTemplate)
#FOR(%ProcedureCalled)
#IF(INSTANCE(%ProcedureCalled) = ITEMS(%ProcedureCalled))
#INSERT(%DisplayTree, %ProcedureCalled, %Level & %NextIndent, '| ')
#ELSE
#INSERT(%DisplayTree, %ProcedureCalled, %Level & %NextIndent, '| ')
#ENDIF
#ENDFOR
```

#CODE (define a code template)

```
#CODE( name, description [, target ] ), SINGLE [, HLP( helpid )] [, PRIMARY( message [, flag ] )  
[, DESCRIPTION( expression ) ] [, ROUTINE ]  
[, REQ( addition [, | BEFORE | ] ) ] [, | FIRST | ]  
| AFTER | | LAST |
```

#CODE	Begins a code template that generates source into an embedded source code point.
<i>name</i>	The label of the code template. This must be a valid Clarion label.
<i>description</i>	A string constant describing the code template. The total number of characters in the #CODE statement must be less than 255. Therefore, the <i>description</i> must not be so long that the entire #CODE statement exceeds this limit.
<i>target</i>	A string constant that specifies the source language the code template generates. If omitted, it defaults to Clarion. This restricts the #CODE to matching <i>target</i> language use, only.
SINGLE	Specifies the #CODE may be used only once in a given procedure (or program, if the embedded source code point is global).
HLP	Specifies on-line help is available.
<i>helpid</i>	A string constant containing the identifier to access the Help system. This may be either a Help keyword or "context string."
PRIMARY	Specifies a primary file for the code template must be placed in the procedure's File Schematic.
<i>message</i>	A string constant containing a message that appears in the File Schematic next to the #CODE's Primary file.
<i>flag</i>	Either OPTIONAL (the file is not required), OPTKEY (the key is not required), or NOKEY (the file is not required to have a key).
DESCRIPTION	Specifies the display description of a #CODE that may be used multiple times in a given application or procedure.
<i>expression</i>	A string constant or expression that contains the description to display.
ROUTINE	Specifies the generated code is not automatically indented from column one.
REQ	Specifies the #CODE requires a previously placed #CODE, #CONTROL, or #EXTENSION before it may be used. It also means all prompts and variables of the required <i>addition</i> are available to it.
<i>addition</i>	The name of the previously placed #CODE, #CONTROL, or #EXTENSION template, from any template set.
BEFORE	Specifies the code is generated before the code is generated for the <i>addition</i> .
AFTER	Specifies the code is generated after the code is generated for the <i>addition</i> .
FIRST	Specifies the code is generated at the beginning of the embedded source code point, before any other code.
LAST	Specifies the code is generated at the end of the embedded source code point, after any other code.

#CODE defines the beginning of a code template which can generate code into embedded source code points. A #CODE section may contain Template and/or target language code. The #CODE section is

terminated by the first occurrence of a Template Code Section (**#PROGRAM**, **#MODULE**, **#PROCEDURE**, **#CONTROL**, **#CODE**, **#EXTENSION**, or **#GROUP**) statement, or the end of the file. Within a single Template set, separate **#CODE** sections may not be defined with the same *name*.

#CODE generates its code into a **#EMBED** embedded source code point. The generated code is automatically indented when placed in ROUTINES, unless the ROUTINE attribute is present. A **#CODE** section may contain **#PROMPT** statements to prompt for the values needed to generate proper source code. It may also contain **#EMBED** statements, which become active only if the **#CODE** section is used.

You can use the **#WHERE** statement to limit the availability of the **#CODE** to those embedded source code points where the generated code would be appropriate. A **#CODE** may contain multiple **#WHERE** statements to explicitly define all the valid embedded source code points in which it may appear. **#RESTRICT** can also further restrict the availability of the **#CODE** based on an expression or Template language statements.

The **#AT/#ENDAT** structure allows a single **#CODE** to generate code into multiple embedded source code points to support its functionality.

Example:

```
#CODE(ChangeProperty,'Change control property')  
#WHERE(%SetupWindow..%ProcedureRoutines)    #!Appropriate only after window open  
#PROMPT('Control to change',CONTROL),%MyField,REQ  
#PROMPT('Property to change',@S20),%Property,REQ  
#PROMPT('New Value',@S20),%Value,REQ  
%MyField{%Property} = '%Value'                #<!Change the %Property of %MyField
```

See Also:

[#EMBED](#)

[#WHERE](#)

[#RESTRICT](#)

[#AT](#)

#CONTROL (define a control template)

```
#CONTROL( name, description ) [, MULTI ] [, PRIMARY( message [, flag ] ) ]  
  [, WINDOW ] [, REPORT ]  
  [, REQ( addition [, BEFORE ] ) ] [, FIRST ] [, DESCRIPTION( expression ) ] ]  
  | AFTER | | LAST |  
CONTROLS  
  control statements [, #REQ ]  
END
```

#CONTROL Begins a code template that generates a set of controls into a window and the source code required to manipulate them into embedded source code points.

name The label of the control template. This must be a valid Clarion label.

description A string constant describing the control template. The total number of characters in the #CONTROL statement must be less than 255. Therefore, the *description* must not be so long that the entire #CONTROL statement exceeds this limit.

MULTI Specifies the #CONTROL may be used multiple times in a given window.

PRIMARY Specifies a primary file for the set of controls must be placed in the procedure's File Schematic.

message A string constant containing a message that appears in the File Schematic next to the #CONTROL's Primary file.

flag Either OPTIONAL (the file is not required), OPTKEY (the key is not required), or NOKEY (the file is not required to have a key).

WINDOW Tells the Application Generator to make the #CONTROL available in the Window Formatter. This is the default setting if both WINDOW and REPORT are omitted.

REPORT Tells the Application Generator to make the #CONTROL available in the Report Formatter. If omitted, the #CONTROL may not be placed in a REPORT.

REQ Specifies the #CONTROL requires a previously placed #CODE, #CONTROL, or #EXTENSION before it may be used.

addition The name of the previously placed #CODE, #CONTROL, or #EXTENSION.

BEFORE Specifies the code is generated before the code is generated for the *addition*.

AFTER Specifies the code is generated after the code is generated for the *addition*.

FIRST Specifies the code is generated at the beginning of the embedded source code point, before any other code.

LAST Specifies the code is generated at the end of the embedded source code point, after any other code.

DESCRIPTION Specifies the display description of a #CONTROL that may be used multiple times in a given application or procedure.

expression A string constant or expression that contains the description to display.

CONTROLS Specifies the *controls* for the #CONTROL, and must be terminated with an END statement. This is a "pseudo-Clarion keyword" in that, if you replace the CONTROLS statement with a WINDOW statement, you can use the Text Editor's Window Formatter to create the *controls*.

controls Window control declarations that specify the control set belonging to the #CONTROL.

#REQ Specifies the *control* is required. If deleted from the window or report, the entire #CONTROL (including all its *controls*) is deleted.

#CONTROL defines the beginning of a code template containing a "matched set" of controls to populate into a window or report as a group. It also generates the source code required for their correct operation into embedded source code points. A #CONTROL section may contain Template and/or target language code. The #CONTROL section is terminated by the first occurrence of a Template Code Section (#PROGRAM, #MODULE, #PROCEDURE, #CONTROL, #CODE, #EXTENSION, or #GROUP) statement, or the end of the file. Within a single Template set, separate #CONTROL sections may not be defined with the same *name*.

#CONTROL generates the code to operate its *controls* into #EMBED embedded source code points using the #AT/#ENDAT structure. #RESTRICT can restrict use of the #CONTROL based on an expression or Template language statements.

A #CONTROL section may contain #PROMPT statements to prompt for the values needed to generate proper source code. These prompts appear on the Actions window in the environment. It may also contain #EMBED statements which become active only if the #CONTROL section is used.

The *x* and *y* parameters of the AT attribute of the *controls* in the #CONTROL set determine the positioning of the *control* relative to the last control in the #CONTROL set placed on screen (or relative to the window, if first). If these parameters are omitted, the programmer is prompted for the position to place the *control*. This makes it simple to populate an entire set of *controls* without requiring the programmer to place each one individually.

Example:

```
#CONTROL(BrowseList,'Add Browse List controls')
#PROMPT('Allow Inserts',CHECK),%InsertAllowed,DEFAULT(1)
#ENABLE(%InsertAllowed)
#PROMPT('Insert Hot Key',@s20),%InsertHotKey,DEFAULT('InsertKey')
#ENDENABLE
#PROMPT('Allow Changes',CHECK),%ChangeAllowed,DEFAULT(1)
#ENABLE(%ChangeAllowed)
#PROMPT('Change Hot Key',@s20),%ChangeHotKey,DEFAULT('CtrlEnter')
#ENDENABLE
#PROMPT('Allow Deletes',CHECK),%DeleteAllowed,DEFAULT(1)
#ENABLE(%DeleteAllowed)
#PROMPT('Delete Hot Key',@s20),%DeleteHotKey,DEFAULT('DeleteKey')
#ENDENABLE
#PROMPT('Update Procedure',PROCEDURE),%UpdateProc
CONTROLS
LIST,AT(,,270,99),USE(?List),IMM,FROM(Queue:Browse),#REQ
BUTTON('Insert'),AT(,,40,15),KEY(%InsertHotKey),USE(?Insert),MSG('Add record')
BUTTON('Change'),AT(,,40,15),KEY(%ChangeHotKey),USE(?Chg),DEFAULT,MSG('Change')
BUTTON('Delete'),AT(,,40,15),KEY(%DeleteHotKey),USE(?Delete),MSG('Delete record')
END
#!
#AT(%ControlEvent),WHERE(%ControlOriginal='?Insert' AND %ControlEvent='Accepted')
#IF(%InsertAllowed)
Action = AddRecord
%UpdateProc
#ENDIF
#ENDAT
#!
#AT(%ControlEvent),WHERE(%ControlOriginal='?Chg' AND %ControlEvent='Accepted')
#IF(%ChangeAllowed)
Action = ChangeRecord
%UpdateProc
#ENDIF
#ENDAT
#!
#AT(%ControlEvent),WHERE(%ControlOriginal='?Delete' AND %ControlEvent='Accepted')
#IF(%DeleteAllowed)
Action = DeleteRecord
%UpdateProc
```


#ENDIF
#ENDAT

See Also:

[#EMBED](#)

[#WHERE](#)

[#RESTRICT](#)

[#AT](#)

#EXTENSION (define an extension template)

```
#EXTENSION( name, description [, target] ) [, MULTI ] [, APPLICATION | ]  
| PROCEDURE |  
[, REQ( addition [, BEFORE | ] )] [, FIRST | ] [, DESCRIPTION( expression ) ] ]  
| AFTER | | LAST | [, PRIMARY( message [, flag ] ) ] ]
```

#EXTENSION Begins an extension template that generates code into embedded source code points to add some functionality not associated with specific controls.

name The label of the extension template. This must be a valid Clarion label.

description A string constant describing the extension template.

target A string constant that specifies the source language the extension template generates. If omitted, it defaults to Clarion.

MULTI Specifies the #EXTENSION may be used multiple times in a given application or procedure.

APPLICATION Tells the Application Generator to make the #EXTENSION available only at the global level.

PROCEDURE Tells the Application Generator to make the #EXTENSION available only at the local level.

REQ Specifies the #EXTENSION requires a previously placed #CODE, #CONTROL, or #EXTENSION before it may be used.

addition The name of the previously placed #CODE, #CONTROL, or #EXTENSION.

BEFORE Specifies the code is generated before the code is generated for the *addition*.

AFTER Specifies the code is generated after the code is generated for the *addition*.

FIRST Specifies the code is generated at the beginning of the embedded source code point, before any other code.

LAST Specifies the code is generated at the end of the embedded source code point, after any other code.

DESCRIPTION Specifies the display description of a #EXTENSION that may be used multiple times in a given application or procedure.

expression A string constant or expression that contains the description to display.

PRIMARY Specifies a primary file for the extension must be placed in the procedure's File Schematic.

message A string constant containing a message that appears in the File Schematic next to the #EXTENSION's Primary file.

flag Either OPTIONAL (the file is not required), OPTKEY (the key is not required), or NOKEY (the file is not required to have a key).

#EXTENSION defines the beginning of an extension template containing code to generate into the application or procedure to provide some functionality not directly associated with any control. A #EXTENSION section may contain Template and/or target language code. The #EXTENSION section is terminated by the first occurrence of a Template Code Section (#PROGRAM, #MODULE, #PROCEDURE, #CONTROL, #CODE, #EXTENSION, or #GROUP) statement, or the end of the file. Within a single Template set, separate #EXTENSION sections may not be defined with the same *name*.

#EXTENSION can only generate code into #EMBED embedded source code points using the #AT/#ENDAT structure. A #EXTENSION section may contain #PROMPT statements to prompt for the values needed to generate proper source code. These prompts appear when you edit an Extension from the Extensions button in the environment. It may also contain #EMBED statements which become active only if the #EXTENSION section is used.

#RESTRICT can restrict appearance of the #EXTENSION in the list of available extensions based on an expression or Template language statements.

Example:

```
#EXTENSION(Security,'Add password'),PROCEDURE
#PROMPT('Password File',FILE),%PasswordFile,REQ
#PROMPT('Password Key',KEY(%PasswordFile)),%PasswordFileKey,REQ
#PROMPT('Password Field',COMPONENT(%PasswordFileKey)),%PasswordFileKeyField,REQ
#AT(%DataSectionBeforeWindow)
LocalPswd  STRING(10)
SecurityWin WINDOW
                ENTRY(@s10),USE(LocalPswd),REQ,PASSWORD
                BUTTON('Cancel'),KEY(EscKey),USE(?CancelPswd)
                END
#ENDAT
#AT(%ProcedureSetup)
OPEN(SecurityWin)
ACCEPT
CASE ACCEPTED()
OF ?LocalPswd
    %PasswordFileKeyField = LocalPswd
    GET(%PasswordFile,%PasswordFileKey)
    IF NOT ERRORCODE()
        LocalPswd = 'OK'
    END
    BREAK
OF ?CancelPswd
    CLEAR(LocalPswd)
    BREAK
END
END
CLOSE(SecurityWin)
IF LocalPswd <> 'OK' THEN RETURN.
#ENDAT
```

See Also:

[#EMBED](#)

[#WHERE](#)

[#RESTRICT](#)

[#AT](#)

Embed Points

- [#EMBED \(define embedded source point\)](#)
- [#AT \(insert code in an embed point\)](#)
- [#ATSTART \(template initialization code\)](#)
- [#ATEND \(template reset code\)](#)
- [#EMPTYEMBED \(generate empty embed point comments\)](#)
- [#POSTEMBED \(generate ending embed point comments\)](#)
- [#PREEMBED \(generate beginning embed point comments\)](#)

#EMBED (define embedded source point)

#EMBED(*identifier*, *descriptor*) [, *symbol*] [, **HLP**(*helpid*)] [, **DATA**] [, **HIDE**]
[, **WHERE**(*expression*)] [, **MAP**(*symbol*, *description*)]

#EMBED	Identifies an explicit position in the Template where the programmer may place their own source code.
<i>identifier</i>	A user-defined template symbol which identifies the embedded source code point for the Application Generator.
<i>descriptor</i>	A string constant containing a description of the embedded source code's position in the Template. This is the string displayed in the list of available embedded source code windows for a procedure Template.
<i>symbol</i>	A built-in multi-valued template symbol. You may have multiple <i>symbols</i> on a single #EMBED statement.
HLP	Specifies on-line help is available for the #EMBED.
<i>helpid</i>	A string constant containing the identifier to access the Help system. This may be either a Help keyword or "context string."
DATA	Specifies the embed point is in a data section, so the Text Editor's Window and Report Formatters can be used.
HIDE	Specifies the source code point does not appear in the tree of available embedded source code points. Therefore, the #EMBED is only available for #CODE, #CONTROL, or #EXTENSION code generation.
WHERE	Specifies the #EMBED is available only for those instances of the <i>symbol</i> where the <i>expression</i> is true.
<i>expression</i>	An expression that specifies the condition.
MAP	Maps the <i>description</i> to the <i>symbol</i> for display in the embedded source tree. You may have as many MAP attributes as <i>symbols</i> .
<i>description</i>	An expression that specifies the text to display in the embedded source tree.

#EMBED identifies an explicit position in the Template where the programmer may call a procedure, generate code from a code template, or place their own custom embedded source code within the procedure or function. The Application Generator prompts the programmer for the procedure to call, or the code template to use, or calls the Text Editor to allow the programmer to write the embedded source code. #EMBED is also used as the destination of all the source automatically generated by #CODE, #CONTROL, and #EXTENSION template sections. If no code is written in the embedded source code point by the programmer or any code template, control template, or extension template, no code is generated.

In a #PROCEDURE section, the source code is automatically placed in the exact column position at which #EMBED is located within the Template. If #EMBED is directly placed in the data section of a #PROGRAM, #MODULE, or #PROCEDURE, it must be in column one (1) of the Template file (so the embedded code may contain data labels). If the #EMBED statement has the DATA attribute, the Window and Report Formatters in the Text Editor are available for use. In executable code sections, #EMBED may be placed in column one, but that is not required.

#EMBED is valid in a #GROUP section, however, this should be used with care. Since it is possible for a #GROUP to be recursive (call itself), it is possible to create embedded source code that is repeated within each iteration of the recursive #GROUP's generated code. The source code is generated in the same relative column position as the code generated from the #GROUP.

#AT (insert code in an embed point)

```
#AT( location [, instances ] ) [, WHERE( expression ) ]  
  statements  
#ENDAT
```

#AT	Specifies a <i>location</i> to generate <i>statements</i> .
<i>location</i>	An #EMBED <i>identifier</i> . This may be a #EMBED for the procedure that comes from another template set.
<i>instances</i>	The <i>location</i> parameters that identify the embedded source code point for a multi-valued #EMBED <i>identifier</i> . There may as many <i>instance</i> parameters as are required to explicitly identify the embedded source code point.
WHERE	More closely specifies the #AT <i>location</i> as only those embed points where the <i>expression</i> is true.
<i>expression</i>	An expression that specifies exact placement.
<i>statements</i>	Template and/or target language code.
#ENDAT	Terminates the section.

The **#AT** structure specifies a *location* to generate *statements*. #AT is valid only in a #CONTROL, #CODE, or #EXTENSION templates, and is used to allow them to generate *statements* into multiple *locations*. The #AT structure must terminate with **#ENDAT**.

The WHERE clause allows you to create an *expression* that can specify a single specific instance of a #EMBED that has a *symbol* attribute.

Example:

```
#CONTROL(BrowseList,'Add Browse List controls')  
  #AT(%ControlEvent,'?Insert','Accepted')  
    #IF(%InsertAllowed)  
      Action = AddRecord  
      %UpdateProc  
    #ENDIF  
  #ENDAT  
#!
```

See Also:

[#EMBED](#)

[#CODE](#)

[#CONTROL](#)

[#EXTENSION](#)

[#RESTRICT](#)

#ATSTART (template initialization code)

```
#ATSTART
  statements
#ENDAT
```

#ATSTART Specifies template code to execute before the #PROCEDURE, #CODE, #CONTROL, or #EXTENSION generates.

statements Template language code.

#ENDAT Terminates the section.

The **#ATSTART** structure specifies template code to execute before the #PROCEDURE, #CODE, #CONTROL, or #EXTENSION generates its code. Therefore, the *statements* should normally only contain Template language. #ATSTART is usually used to initialize internal template variables.

Example:

```
#CONTROL(BrowseList,'Add Browse List controls')
  #ATSTART
  #DECLARE(%ListQueue)
#ENDAT
```

See Also:

[#PROCEDURE](#)

[#CODE](#)

[#CONTROL](#)

[#EXTENSION](#)

#ATEND (template reset code)

```
#ATEND
  statements
#ENDAT
```

#ATEND Specifies template code to execute after the #PROCEDURE, #CODE, #CONTROL, or #EXTENSION generates.

statements Template language code.

#ENDAT Terminates the section.

The **#ATEND** structure specifies template code to execute after the #PROCEDURE, #CODE, #CONTROL, or #EXTENSION generates its code. Therefore, the *statements* should only contain Template language. #ATEND is usually used to reset internal template variables.

Example:

```
#CONTROL(BrowseList,'Add Browse List controls')
  #ATEND
  #SET(%ListQueue,%NULL)
#ENDAT
```

See Also:

[#PROCEDURE](#)

[#CODE](#)

[#CONTROL](#)

[#EXTENSION](#)

#EMPTYEMBED (generate empty embed point comments)

#EMPTYEMBED(*text* [, *condition*])

#EMPTYEMBED Generates comments into empty embed points.

text A string constant or constant expression containing the text to place in the empty embed point.

condition An expression that, when true, allows the comments to generate.

The **#EMPTYEMBED** statement specifies that comments generate into all embed points in which the user has not entered code. This will not generate comments for embed points in which the user has entered code or in which the templates have generated code.

This is valid only in a #PROGRAM or #MODULE section. The output *condition* is usually the value of a global prompt.

The comment *text* may use the %EmbedID, %EmbedDescription, and %EmbedParameters built-in symbols to identify the embed point:

%EmbedID The current embed point's identifying symbol.

%EmbedDescription
The current embed point's description.

%EmbedParameters
The current embed point's current instance, as a comma-delimited list.

Example:

```
#EXTENSION(EmptyEmbeds,'Empty Embed Comments'),APPLICATION  
#PROMPT('Generate Empty EMBED Comments',CHECK),%EmptyEmbeds  
#EMPTYEMBED('!Embed: ' & %EmbedDescription & '' & %EmbedParameters,%EmptyEmbeds)
```

See Also:

[#PREEMBED](#)

[#POSTEMBED](#)

#POSTEMBED (generate ending embed point comments)

#POSTEMBED(*text* [, *condition*])

#POSTEMBED Generates comments at the end of embed point code.

text A string constant or constant expression containing the text to place in the embed point.

condition An expression that, when true, allows the comments to generate.

The **#POSTEMBED** statement specifies that comments generate at the end of embed points that contain code. This is valid only in a **#PROGRAM** or **#MODULE** section. The output *condition* is usually the value of a global prompt.

The comment *text* may use the `%EmbedID`, `%EmbedDescription`, and `%EmbedParameters` built-in symbols to identify the embed point:

`%EmbedID` The current embed point's identifying symbol.

`%EmbedDescription`
The current embed point's description.

`%EmbedParameters`
The current embed point's current instance, as a comma-delimited list.

Example:

```
#POSTEMBED('! After Embed Point: ' & %EmbedID & ' ' & %EmbedDescription & ' ' & |  
%EmbedParameters,%GenerateEmbedComments)
```

See Also:

[#PREEMBED](#)

[#EMPTYEMBED](#)

#PREEMBED (generate beginning embed point comments)

#PREEMBED(*text* [, *condition*])

#PREEMBED Generates comments at the beginning of embed point code.

text A string constant or constant expression containing the text to place in the embed point.

condition An expression that, when true, allows the comments to generate.

The **#PREEMBED** statement specifies that comments generate at the beginning of embed points that contain code. This is valid only in a #PROGRAM or #MODULE section. The output *condition* is usually the value of a global prompt.

The comment *text* may use the %EmbedID, %EmbedDescription, and %EmbedParameters built-in symbols to identify the embed point:

%EmbedID The current embed point's identifying symbol.

%EmbedDescription
 The current embed point's description.

%EmbedParameters
 The current embed point's current instance, as a comma-delimited list.

Example:

```
#PREEMBED('! Before Embed Point: ' & %EmbedID & ' ' & %EmbedDescription & ' ' & |  
                  %EmbedParameters,%GenerateEmbedComments)
```

See Also:

[#POSTEMBED](#)

[#EMPTYEMBED](#)

Template Code Section Constraints

_____ #WHERE (define #CODE embed point availability)

_____ #RESTRICT (define section use constraints)

_____ #ACCEPT (section valid for use)

_____ #REJECT (section invalid for use)

#WHERE (define #CODE embed point availability)

#WHERE(*embeds*)

#WHERE Limits the availability of a #CODE to only those specific embedded source code points where the generated code would be appropriate.

embeds A comma-delimited list of #EMBED *identifiers* that specifies the embedded source code points that may use the #CODE to generate source code.

The **#WHERE** statement limits the availability of a #CODE to only those #EMBED embedded source code points where the generated code would be appropriate. A single #CODE may contain multiple #WHERE statements to explicitly define all the valid #EMBED embedded source code points. All the #WHERE statements in a #CODE are evaluated to determine which embedded source code points have been specifically enabled.

The *embeds* list must contain individual #EMBED *identifiers* delimited by commas. It may also contain ranges of embed points in the form *FirstIdentifier..LastIdentifier*, also delimited by commas. The *embeds* list may contain both types in a "mix and match" manner to define all suitable embedded source code points.

Example:

```
#CODE(ChangeProperty,'Change control property')
  #WHERE(%AfterWindowOpening..%CustomRoutines)
                                #!Appropriate everywhere after window open
  #PROMPT('Control to change',CONTROL),%MyField,REQ
  #PROMPT('Property to change',@S20),%MyProperty,REQ
  #PROMPT('New Value',@S20),%MyValue,REQ
  %MyField{%MyProperty} = '%MyValue'
```

See Also:

[#EMBED](#)

[#CODE](#)

[#RESTRICT](#)

#RESTRICT (define section use constraints)

```
#RESTRICT [ , WHERE( expression ) ]
           statements
#ENDRESTRICT
```

#RESTRICT Specifies conditions where a Template Code Section (#CODE, #CONTROL, #EXTENSION, #PROCEDURE, #PROGRAM, or #MODULE) can be used.

WHERE The #RESTRICT *statements* are executed only when the *expression* is true.

expression A logical expression to limit execution of the #RESTRICT *statements*.

statements Template language code to #ACCEPT or #REJECT use of the section which contains the #RESTRICT structure.

#ENDRESTRICT Terminates the #RESTRICT structure.

The **#RESTRICT** structure provides a mechanism to limit the availability of a Template Code Section (#CODE, #CONTROL, #EXTENSION, #PROCEDURE, #PROGRAM, or #MODULE) at application design time to only those points where the generated code would be appropriate. Any WHERE clause on the Template Code Section is evaluated first, before #RESTRICT.

The #ACCEPT statement may be used to explicitly declare the section as appropriate for use. An implicit #ACCEPT also occurs if the #RESTRICT *statements* execute without encountering a #REJECT statement. The #REJECT statement must be used to specifically exclude the section from use. Both the #ACCEPT and #REJECT statements immediately terminate processing of the #RESTRICT code.

Example:

```
#CODE(ChangeControlSize,'Change control size')
#RESTRICT
#CASE(%ControlType)
#OF('LIST')
#OROF('BUTTON')
#REJECT
#ELSE
#ACCEPT
#ENDCASE
#ENDRESTRICT
#PROMPT('Control to change',CONTROL),%MyField,REQ
#PROMPT('New Width',@n04),%NewWidth
#PROMPT('New Height',@n04),%NewHeight
%MyField{PROP:Width} = %NewWidth
%MyField{PROP:Height} = %NewHeight
```

See Also:

[#ACCEPT](#)

[#REJECT](#)

#ACCEPT (section valid for use)

#ACCEPT

The **#ACCEPT** statement terminates **#RESTRICT** processing, indicating that the Template Code Section (**#CODE**, **#CONTROL**, **#EXTENSION**, **#PROCEDURE**, **#PROGRAM**, or **#MODULE**) is valid.

The **#RESTRICT** structure contains Template language *statements* that evaluate the propriety of generating the section's source code. The **#ACCEPT** statement may be used to explicitly declare the section as appropriate. An implicit **#ACCEPT** also occurs if the **#RESTRICT** *statements* execute without encountering a **#REJECT** statement. The **#REJECT** statement must be used to specifically exclude the section from use. Both the **#ACCEPT** and **#REJECT** statements immediately terminate processing of the **#RESTRICT** code.

Example:

```
#CODE(ChangeControlSize,'Change control size')
#WHERE(%EventHandling)
#RESTRICT
#CASE(%ControlType)
#OF 'LIST'
#OROF 'BUTTON'
#REJECT
#ELSE
#ACCEPT
#ENDCASE
#ENDRESTRICT
#PROMPT('Control to change',CONTROL),%MyField,REQ
#PROMPT('New Width',@n04),%NewWidth
#PROMPT('New Height',@n04),%NewHeight
%MyField{PROP:Width} = %NewWidth
%MyField{PROP:Height} = %NewHeight
```

See Also:

[#RESTRICT](#)

[#REJECT](#)

#REJECT (section invalid for use)

#REJECT

The **#REJECT** statement terminates **#RESTRICT** processing, indicating that the Template Code Section (**#CODE**, **#CONTROL**, **#EXTENSION**, **#PROCEDURE**, **#PROGRAM**, or **#MODULE**) is invalid.

The **#RESTRICT** structure contains Template language *statements* that evaluate the propriety of generating the section's source code. The **#ACCEPT** statement may be used to explicitly declare the section as appropriate. An implicit **#ACCEPT** also occurs if the **#RESTRICT** *statements* execute without encountering a **#REJECT** statement. The **#REJECT** statement must be used to specifically exclude the section from use. Both the **#ACCEPT** and **#REJECT** statements immediately terminate processing of the **#RESTRICT** code.

Example:

```
#CODE(ChangeControlSize,'Change control size')  
#WHERE(%EventHandling)  
#RESTRICT  
#CASE(%ControlType)  
#OF 'LIST'  
#OROF 'BUTTON'  
#REJECT  
#ELSE  
#ACCEPT  
#ENDCASE  
#ENDRESTRICT  
#PROMPT('Control to change',CONTROL),%MyField,REQ  
#PROMPT('New Width',@n04),%NewWidth  
#PROMPT('New Height',@n04),%NewHeight  
%MyField{PROP:Width} = %NewWidth  
%MyField{PROP:Height} = %NewHeight
```

See Also:

[#RESTRICT](#)

[#ACCEPT](#)

Defaults and Template Data

Default Data and Code

#WINDOWS (default window structures)

#REPORTS (default report structures)

#LOCALDATA (default local data declarations)

#GLOBALDATA (default global data declarations)

#DEFAULT (default global data declarations)

Symbol Management Statements

#DECLARE (declare a user-defined symbol)

#ALIAS (access a symbol from another instance)

#ADD (add to multi-valued symbol)

#DELETE (delete a multi-valued symbol instance)

#DELETEALL (delete multiple multi-valued symbol instances)

#PURGE (delete all single or multi-valued symbol instances)

#CLEAR (clear single-valued symbol)

#FREE (free a multi-valued symbol)

#FIX (fix a multi-value symbol)

#FIND (super-fix multi-value symbols)

#SELECT (fix a multi-value symbol)

#SET (assign value to a user-defined symbol)

#UNFIX (unfix a multi-value symbol)

#DECLARE Attributes

UNIQUE (no duplicates allowed)

SAVE (save symbol between generations)

Default Data and Code

[#WINDOWS \(default window structures\)](#)

[#REPORTS \(default report structures\)](#)

[#LOCALDATA \(default local data declarations\)](#)

[#GLOBALDATA \(default global data declarations\)](#)

[#DEFAULT \(default global data declarations\)](#)

#WINDOWS (default window structures)

```
#WINDOWS
  structures
#ENDWINDOWS
```

#WINDOWS Begins a default window data structure section.

structures Default APPLICATION or WINDOW structures.

#ENDWINDOWS Terminates the default window section.

The **#WINDOWS** structure contains default APPLICATION or WINDOW data structures for a procedure Template. The default window *structures* provide a starting point for the procedure's window design.

The **#WINDOWS** section may contain multiple *structures* which may be chosen as the starting point for the procedure's window design. If there is more than one window structure to choose from, the Application Generator displays a list of those *structures* available the first time the procedure's window is edited. The names of the windows which appear in the Application Generator's list comes from a preceding comment beginning with two exclamation points and a right angle bracket (!!>).

If the procedure template contains a #DEFAULT procedure, there is no need for #WINDOWS, since the default window is already in the #DEFAULT. Therefore, the list does not appear when the window is first edited.

Example:

```
#WINDOWS
!!> Window
Label WINDOW('Caption'),AT(0,0,100,100)
  END
!!> Window with OK & Cancel
Label WINDOW('Caption'),AT(0,1,185,92)
  BUTTON('OK'),AT(144,10,35,14),DEFAULT,USE(?Ok)
  BUTTON('Cancel'),AT(144,28,36,14),USE(?Cancel)
  END
#ENDWINDOWS
```

#REPORTS (default report structures)

#REPORTS
structures
#ENDREPORTS

#REPORTS Begins a default report data structure section.

structures Default REPORT structures.

#ENDREPORTS Terminates the default report section.

The **#REPORTS** structure contains default REPORT data structures for a procedure Template. The default report *structures* provide a starting point for the procedure's report design.

The **#REPORTS** section may contain multiple *structures* which may be chosen as the starting point for the procedure's report design. If there is more than one report structure to choose from, the Application Generator displays a list of those *structures* available the first time the procedure's report is edited. The names of the windows which appear in the Application Generator's list comes from a preceding comment beginning with two exclamations and a right angle bracket (!!>).

If the procedure template contains a **#DEFAULT** procedure, there is no need for **#REPORT**, since the default report is already in the **#DEFAULT**. Therefore, the list does not appear when the report is first edited.

Example:

```
#REPORTS
!!> Report
Label  REPORT, AT (1000, 2500, 6000, 6000) , THOUS
        HEADER, AT (1000, 1000, 6000, 1000)
        END
Detail  DETAIL
        END
        FOOTER, AT (1000, 10000, 6000, 1000)
        END
        FORM, AT (1000, 1000, 6000, 9000)
        END
        END
#ENDREPORTS
```

#LOCALDATA (default local data declarations)

```
#LOCALDATA
  declarations
#ENDLOCALDATA
```

#LOCALDATA Begins a default local data declaration section.

declarations Default data declarations.

#ENDLOCALDATA

Terminates the default local data declarations.

The **#LOCALDATA** structure contains default data *declarations* local to the procedure generated by the #PROCEDURE procedure Template. #LOCALDATA may only be placed in a #PROCEDURE, #CODE, #CONTROL, or #EXTENSION section of the Template. The *declarations* will appear in the generated procedure between the keywords PROCEDURE (or FUNCTION) and CODE.

Example:

```
#LOCALDATA
Action  BYTE           !Disk action variable
TempFile CTRING(65)    !Temporary filename variable
#ENDLOCALDATA
```

#GLOBALDATA (default global data declarations)

```
#GLOBALDATA
  declarations
#ENDGLOBALDATA
```

#GLOBALDATA Begins a default global data declaration section.

declarations Default data declarations.

#ENDGLOBALDATA

Terminates the default global data declarations.

The **#GLOBALDATA** structure contains default data *declarations* global to the program. **#GLOBALDATA** may be placed in a **#PROGRAM**, **#PROCEDURE**, **#CODE**, **#CONTROL**, or **#EXTENSION** section of the Template. The *declarations* will appear in the global data section of the generated source code.

Example:

```
#GLOBALDATA
Action  BYTE           !Disk action variable
TempFile CTRING(65)    !Temporary filename variable
#ENDGLOBALDATA
```

#DEFAULT(default global data declarations)

```
#DEFAULT
  procedure
#ENDDDEFAULT
```

#DEFAULT Begins a default procedure declaration section.

procedure Default procedure in .TXA format.

#ENDDDEFAULT Terminates the default procedure declaration.

The **#DEFAULT** structure contains a single default *procedure* declaration in .TXA format as generated by the Application generator's Export function. #DEFAULT may only be placed at the end of a #PROCEDURE section of the Template. You may have multiple #DEFAULT structures for a single #PROCEDURE. The enclosed *procedure* section of a .TXA file should contain a procedure of the preceding #PROCEDURE's type. The recommended way to create these #DEFAULT structures is to edit the default procedures in the template registry, and then export the template as text.

Example:

```
#DEFAULT
NAME DefaultForm
[COMMON]
DESCRIPTION 'Default record update'
FROM Clarion Form
[PROMPTS]
%WindowOperationMode STRING ('Use WINDOW setting')
%INISaveWindow LONG (1)
[ADDITION]
NAME Clarion SaveButton
[FIELDPROMPT]
[INSTANCE]
INSTANCE 1
PROCPROP
[PROMPTS]
%InsertAllowed LONG (1)
%InsertMessage @S30 ('Record will be Added')
%ChangeAllowed LONG (1)
%ChangeMessage @S30 ('Record will be Changed')
%DeleteAllowed LONG (1)
%DeleteMessage @S30 ('Record will be Deleted')
%MessageHeader LONG (0)
[ADDITION]
NAME Clarion CancelButton
[FIELDPROMPT]
[INSTANCE]
INSTANCE 2
[PROMPTS]
[WINDOW]
Label WINDOW('Caption'),AT(34,20,289,159),CENTER,STATUS,SYSTEM,GRAY,MDI

STRING(@s40),AT(123,138,,),USE(ActionMessage),CENTER,#SEQ(1),#ORIG(FileIOButtons),#LINK(?OK)
  BUTTON('OK'),AT(5,133,45,15),USE(?OK),#SEQ(1),#ORIG(?OK),#LINK(?Cancel)
  BUTTON('Cancel'),AT(59,133,45,15),USE(?Cancel),#SEQ(2),#ORIG(?Cancel)
END
#ENDDDEFAULT
```


Symbol Management Statements

[#DECLARE \(declare a user-defined symbol\)](#)
[#ALIAS \(access a symbol from another instance\)](#)
[#ADD \(add to multi-valued symbol\)](#)
[#DELETE \(delete a multi-valued symbol instance\)](#)
[#DELETEALL \(delete multiple multi-valued symbol instances\)](#)
[#PURGE \(delete all single or multi-valued symbol instances\)](#)
[#CLEAR \(clear single-valued symbol\)](#)
[#FREE \(free a multi-valued symbol\)](#)
[#FIX \(fix a multi-value symbol\)](#)
[#FIND \(super-fix multi-value symbols\)](#)
[#SELECT \(fix a multi-value symbol\)](#)
[#SET \(assign value to a user-defined symbol\)](#)
[#UNFIX \(unfix a multi-value symbol\)](#)


```
#DECLARE(%ModuleFile,%Module),UNIQUE,MULTI#!Level-1 dependent symbol
#DECLARE(%ModuleFilePut,%ModuleFile)      #!Level-2 dependent symbol
#DECLARE(%ModuleFileDelete,%ModuleFile)    #!Second Level-2 dependent symbol
```

See Also:

[#FIX](#)

[#FOR](#)

[#ADD](#)

[#DELETE](#)

[#FREE](#)

#ALIAS (access a symbol from another instance)

#ALIAS(*oldsymbol* , *newsymbol* [, *instance*])

#ALIAS Re-declares a user-defined symbol.

oldsymbol The name of the symbol being re-declared. This must meet all the requirements of a user-defined symbol. This must not be a #PROMPT symbol or a variable in the same scope.

newsymbol Specifies the new name of the *oldsymbol*.

instance An expression containing the instance of the addition containing the *oldsymbol*.

The **#ALIAS** statement re-declares a user-defined *oldsymbol* declared in a #CODE, #CONTROL, or #EXTENSION template prompt for use in another.

Example:

```
#EXTENSION(GlobalSecurity,'Global Password Check'),APPLICATION
#DECLARE(%PasswordFile)
#DECLARE(%PasswordFileKey)

#EXTENSION(LocalSecurity,'Local Procedure Password Check'),PROCEDURE
#ALIAS(%PasswordFile,%PswdFile,'GlobalSecurity(Clarion)')
#ALIAS(%PasswordFileKey,%PswdFileKey,'GlobalSecurity(Clarion)')
```

See Also:

[#CODE](#)

[#CONTROL](#)

[#EXTENSION](#)

#ADD (add to multi-valued symbol)

#ADD(*symbol*, *expression* [, *position*])

#ADD	Adds a new instance to a multi-valued user-defined symbol.
<i>symbol</i>	A multi-valued user-defined symbol.
<i>expression</i>	An expression containing the value to place in the <i>symbol's</i> instance.
<i>position</i>	An integer constant or symbol containing the instance number to add to the <i>symbol</i> . Instance numbering begins with one (1). If the <i>position</i> is greater than the number of previously existing instances plus one, the new instance is appended and no intervening instances are instantiated.

Adds a value to a multi-valued user-defined *symbol*. An implied #FIX to that *symbol's* instance occurs. If the *symbol* is not a multi-valued user-defined symbol then a source generation error is produced.

If the *symbol* has been declared with the UNIQUE attribute, then the #ADD is a union operation into the existing set of *symbol's* values. Only one instance of the value being added may exist. Also, the UNIQUE attribute implies the #ADD is a sorted insert into the existing set of *symbol's* values. After each #ADD, all of the *symbol's* values will be in sorted order.

If the *symbol* has been declared without the UNIQUE attribute, duplicate values are allowed. The new value is added to the end of the list and may be a duplicate. If the *symbol* is a duplicate, then any dependent children instances are inherited.

Example:

```
#DECLARE(%ProcFilesPrefix),MULTI,UNIQUE    #!Declare unique multi-valued symbol
#FIX(%File,%Primary)                      #!Build list of all file prefixes in proc
#ADD(%ProcFilesPrefix,%FilePre)           #!Start with primary file
#FOR(%Secondary)                           #!Then add all secondary files
    #FIX(%File,%Secondary)
    #ADD(%ProcFilesPrefix,%FilePre)
#ENDFOR
```

See Also:

[#DECLARE](#)

#DELETE (delete a multi-valued symbol instance)

#DELETE(*symbol* [, *position*])

#DELETE Deletes the value from one instance of a multi-valued user-defined symbol.

symbol A multi-valued user-defined symbol.

position An integer constant or symbol containing the instance number in the *symbol*. Instance numbering begins with one (1). If omitted, the default is the current fixed instance.

The **#DELETE** statement deletes the value from one instance of a multi-valued user-defined symbol. If there are any symbols dependent upon the *symbol*, they are also cleared. If this is the last instance in the *symbol*, the instance is removed. You can get the current instance number to which a symbol is fixed by using the `INSTANCE(%symbol)` built-in template function.

Example:

```
#DECLARE(%ProcFilesPrefix),MULTI #!Declare multi-valued symbol
#ADD(%ProcFilesPrefix,'SAV') #!Add a value
#ADD(%ProcFilesPrefix,'BAK') #!Add a value
#ADD(%ProcFilesPrefix,'PRE') #!Add a value
#ADD(%ProcFilesPrefix,'QUE') #!Add a value
#!%ProcFilesPrefix contains: SAV, BAK, PRE, QUE
#DELETE(%ProcFilesPrefix,1) #!Delete first value (SAV)
#!%ProcFilesPrefix contains: BAK, PRE, QUE
#FIX(%ProcFilesPrefix,'PRE') #!Fix to a value
#DELETE(%ProcFilesPrefix) #!Delete it
#!%ProcFilesPrefix contains: BAK, QUE
```

See Also:

[#DECLARE](#)

[#ADD](#)

#DELETEALL (delete multiple multi-valued symbol instances)

`#DELETEALL(symbol, expression)`

#DELETEALL Deletes the values from specified instances of a multi-valued user-defined symbol.

symbol A multi-valued user-defined symbol.

expression An expression that defines the instances to delete.

The **#DELETEALL** statement deletes all values from the *symbol* that meet the *expression*.

Example:

```
#DECLARE(%ProcFilesPrefix),MULTI #!Declare multi-valued symbol
#ADD(%ProcFilesPrefix,'SAV') #!Add a value
#ADD(%ProcFilesPrefix,'BAK') #!Add a value
#ADD(%ProcFilesPrefix,'PRE') #!Add a value
#ADD(%ProcFilesPrefix,'BAK') #!Add a value
#ADD(%ProcFilesPrefix,'QUE') #!Add a value
#!%ProcFilesPrefix contains: SAV, BAK, PRE, BAK, QUE
#DELETEALL(%ProcFilesPrefix,'BAK') #!Delete all BAK instances
#!%ProcFilesPrefix now contains: SAV, PRE, QUE
```

See Also:

[#DECLARE](#)

[#ADD](#)

#PURGE (delete all single or multi-valued symbol instances)

#PURGE(*symbol*)

#PURGE Deletes the values from all instances of a user-defined symbol.

symbol A user-defined symbol.

The **#PURGE** statement deletes all values from the *symbol*. If there are any symbols dependent upon the *symbol*, they are also cleared. If the *symbol* is dependent upon a multi-valued symbol, all instances of that dependent *symbol* are purged for all instances of the symbol upon which it is dependent.

Example:

```
#DECLARE(%ProcFilesPrefix),MULTI #!Declare multi-valued symbol
#ADD(%ProcFilesPrefix,'SAV') #!Add a value
#ADD(%ProcFilesPrefix,'BAK') #!Add a value
#ADD(%ProcFilesPrefix,'PRE') #!Add a value
#ADD(%ProcFilesPrefix,'BAK') #!Add a value
#ADD(%ProcFilesPrefix,'QUE') #!Add a value
#!%ProcFilesPrefix contains: SAV, BAK, PRE, BAK, QUE
#PURGE(%ProcFilesPrefix) #!Delete all instances
```

See Also:

[#DECLARE](#)

[#ADD](#)

#CLEAR (clear single-valued symbol)

#CLEAR(*symbol*)

#CLEAR Removes the value from a single-valued user-defined symbol.

symbol A single-valued user-defined symbol.

The **#CLEAR** statement removes the value from a single-valued user-defined symbol. This statement is approximately the same as using **#SET** to assign a null value to the *symbol*, except it is more efficient.

Example:

```
#DECLARE(%SomeSymbol)  #!Declare symbol
#SET(%SomeSymbol,'Value')  #!Assign a value
#!%SomeSymbol now contains: 'Value'
#CLEAR(%SomeSymbol)  #!Clear value
#!%SomeSymbol now contains: ''
```

See Also:

[#DECLARE](#)

[#ADD](#)

#FREE (free a multi-valued symbol)

#FREE(*symbol*)

#FREE Clears all instances of a multi-valued user-defined symbol.

symbol A multi-valued user-defined symbol.

The **#FREE** statement clears all instances of a multi-valued user-defined symbol. If there are any symbols dependent upon the *symbol*, they are also cleared.

Example:

```
#DECLARE(%ProcFilesPrefix),MULTI #!Declare multi-valued symbol
#ADD(%ProcFilesPrefix,'SAV') #!Add a value
#ADD(%ProcFilesPrefix,'BAK') #!Add a value
#ADD(%ProcFilesPrefix,'PRE') #!Add a value
#ADD(%ProcFilesPrefix,'BAK') #!Add a value
#ADD(%ProcFilesPrefix,'QUE') #!Add a value
#!%ProcFilesPrefix contains: SAV, BAK, PRE, BAK, QUE
#DELETEALL(%ProcFilesPrefix,'BAK') #!Delete all BAK instances
#!%ProcFilesPrefix now contains: SAV, PRE, QUE
#FREE(%ProcFilesPrefix) #!Free the symbol
#!%ProcFilesPrefix now contains nothing
```

See Also:

[#DECLARE](#)

[#ADD](#)

#FIX (fix a multi-value symbol)

#FIX(*symbol*, *fixsymbol*)

#FIX Fixes a multi-valued symbol to the value of a single instance.

symbol A multi-valued symbol.

fixsymbol A symbol or expression containing the value to fix the *symbol* to.

The **#FIX** statement fixes the current value of the multi-valued *symbol* to the value contained in the *fixsymbol*. This is done so that one instance of the *symbol* may be referenced outside a **#FOR** loop structure, or so you can reference the symbols dependent upon the multi-valued *symbol*.

The *fixsymbol* must contain a valid instance of one of the *symbol*'s multiple values. If the *fixsymbol* does not contain a valid instance, the *symbol* is cleared and contains no value when referenced. Unless **#ADD** has been used to add a new value and fix to that instance, **#FIX** or **#SELECT** must be used to set the value in a *symbol* before it contains any value for Template processing outside of a **#FOR** loop.

#FIX is completely independent of **#FOR** in that **#FOR** always loops through every instance of the *symbol*, whether there is a previous **#FIX** for that *symbol* or not. If there is a previous **#FIX** statement for that *symbol* before the **#FOR** loop, that *symbol* reverts to that previous *fixvalue* after the **#FOR** terminates.

If **#FIX** is used within a **#FOR** structure, the scope of the **#FIX** is limited to within the **#FOR** in which it is used. It does not change the **#FOR** symbol's iteration value if both the **#FOR** and **#FIX** happen to use the same symbol.

Example:

```
#SET(%OneFile,'HEADER')  #! Put values into two User-defined symbols
#SET(%TwoFile,'DETAIL')
#FIX(%File,%OneFile)    #! %File refers to 'HEADER'
#FOR(%File)             #! %File iteratively refers to all file names
    #FIX(%File,%TwoFile) #! %File refers to 'DETAIL'
#ENDFOR
#! %File refers to 'HEADER' again
```

See Also:

[#SELECT](#)

#FIND ("super-fix" multi-value symbols)

#FIND(*symbol*, *fixsymbol* [, *limit*])

#FIND Fixes all multi-valued parent symbols to values that point to a single child instance.

symbol A multi-valued symbol.

fixsymbol A symbol or expression containing the value to fix the *symbol* to.

limit A parent symbol which limits the search scope to the children of the *limit* symbol.

The **#FIND** statement finds the first instance of the *fixsymbol* contained within the *symbol* then fixes it and all the "parent" symbols on which the *symbol* is dependent to the values that "point to" the value of the *fixsymbol* contained in the *symbol*. This is done so that all the symbol dependencies are aligned and you can reference other symbols dependent on "parent" symbols of the *symbol*.

For example, assume %ControlUse contains CUS:Name. The **#FIND(%Field,%ControlUse,%Control)** statement:

Finds the first instance of %Field that matches the current value in %ControlUse (the first instance of CUS:Name in %Field) in the current procedure.

Fixes %Field to that value (CUS:Name).

Fixes %File to the name of the file containing that field (Customer).

This allows the Template code to reference other the symbols dependent upon %File (like %FilePre to get the file's prefix).

The *fixsymbol* must contain a valid instance of one of the *symbol*'s multiple values. If the *fixsymbol* does not contain a valid instance, the *symbol* is cleared and contains no value when referenced.

Example:

```
#FIND(%Field,%ControlUse)          #!Fixes %Field and %File to %ControlUse parents
```

See Also:

[#SELECT](#)

[#FIX](#)

#SELECT (fix a multi-value symbol)

#SELECT(*symbol*, *instance*)

#SELECT Fixes a multi-valued symbol to a particular *instance* number.

symbol A multi-valued symbol.

instance An expression containing the number of the instance to which to fix.

The **#SELECT** statement fixes the current value of the multi-valued *symbol* to a specific *instance*. The result of **#SELECT** is exactly the same as **#FIX**. Each *instance* in the multi-valued *symbol* is numbered starting with one (1).

The *instance* must contain a valid instance number of one of the *symbol's* multiple values. If the *instance* is not valid, the *symbol* is cleared and contains no value when referenced. The **INSTANCE** built-in template function can return the instance number.

Unless **#ADD** has been used to add a new value and fix to that instance, **#FIX** or **#SELECT** must be used to set the value in a *symbol* before it contains any value for Template processing outside of a **#FOR** loop.

Example:

```
#SELECT(%File,1)      #!Fix to first %File instance
```

#SET (assign value to a user-defined symbol)

`#SET(symbol,value)`

#SET	Assigns a value to a single-valued user-defined symbol.
<i>symbol</i>	A single-valued user-defined symbol. This must have been previously declared with the #DECLARE statement.
<i>value</i>	A built-in or user-defined symbol, string constant, or an expression.

The **#SET** statement assigns the *value* to the *symbol*. If the *value* parameter contains an expression, you may perform mathematics during source code generation. The expression may use any of the arithmetic, Boolean, and logical operators documented in the *Language Reference*. If the modulus division operator (%) is used in the expression, it must be followed by at least one blank space (to explicitly differentiate it from the Template symbols). Logical expressions always evaluate to 1 (True) or 0 (False). Clarion language function calls (those supported in EVALUATE()) and built-in template functions are allowed.

Example:

```
#SET(%NetworkApp, 'Network')
#SET(%MySymbol, %Primary)
#FOR(%File)
    #SET(%FilesCounter, %FilesCounter + 1)
%FileStructure
#ENDFOR
```

#UNFIX (unfix a multi-value symbol)

`#UNFIX(symbol)`

#UNFIX Unfixes a multi-valued symbol.

symbol A multi-valued symbol.

The **#UNFIX** statement unfixes the current value of the multi-valued *symbol*. If the unfixed *symbol* is referenced outside a **#FOR** loop structure, it has no value and you cannot reference any other symbols dependent upon the multi-valued *symbol*.

Example:

```
#SET(%OneFile,'HEADER')  #! Put values into two User-defined symbols
#SET(%TwoFile,'DETAIL')
#FIX(%File,%OneFile)    #! %File refers to 'HEADER'
#FOR(%File)             #! %File iteratively refers to all file names
  #FIX(%File,%TwoFile)  #! %File refers to 'DETAIL'
#ENDFOR
  #! %File refers to 'HEADER' again
#UNFIX(%File)          #! %File refers to no specific value
```

#DECLARE Attributes

UNIQUE (no duplicates allowed)

SAVE (save symbol between generations)

UNIQUE (no duplicates allowed)

UNIQUE

The **UNIQUE** attribute of a #DECLARE statement specifies the multi-valued symbol being declared cannot contain duplicate values. To accomplish this, the #ADD statement always adds instances to the symbol in ascending order.

Example:

```
#DECLARE(%ProcFilesPrefix),MULTI,UNIQUE #!Declare unique multi-valued symbol
#FIX(%File,%Primary)    #!Build list of all file prefixes in proc
#ADD(%ProcFilesPrefix,%FilePre)    #!Start with primary file
#FOR(%Secondary)        #!Then add all secondary files
    #FIX(%File,%Secondary)
    #ADD(%ProcFilesPrefix,%FilePre)
#ENDFOR
```

See Also:

[#DECLARE](#)

SAVE (save symbol between generations)

SAVE

The **SAVE** attribute on a #DECLARE statement causes the value(s) of the declared symbol to be saved at the end of source generation and restored at the beginning of the next source generation session. A #DECLARE statement with the SAVE attribute may only appear in the #APPLICATION section.

Example:

```
#APPLICATION('Sample One')
#DECLARE(%UserSymbol),SAVE      #!Value saved after generation
    #! and restored for next generation
#DECLARE(%ModuleFile,%Module),UNIQUE,MULTI #!Level-1 dependent symbol
#DECLARE(%ModuleFilePut,%ModuleFile) #!Level-2 dependent symbol
#DECLARE(%ModuleFileDelete,%ModuleFile) #!Second Level-2 dependent symbol
```

See Also:

[#DECLARE](#)

Chapter 4 - Programmer Input

Input and Validation Statements

- #PROMPT (prompt for programmer input)
- #VALIDATE (validate prompt input)
- #ENABLE (enable/disable prompts)
- #BUTTON (call another page of prompts)
- #FIELD (control prompts)
- #PREPARE (setup prompt symbols)

#PROMPT Entry Types

- CHECK (check box)
- COMPONENT (list of KEY fields)
- CONTROL (list of window fields)
- DROP (droplist of items)
- EMBED (enter embedded source)
- EMBEDBUTTON (enter embedded source)
- FIELD (list of data fields)
- FILE (list of files)
- FORMAT (call listbox formatter)
- FROM (list of symbol values)
- KEY (list of keys)
- KEYCODE (list of keycodes)
- OPTION (display radio buttons)
- PICTURE (call picture formatter)
- PROCEDURE (add to logical procedure tree)
- RADIO (one radio button)
- SPIN (spin box)

Display and Formatting Statements

- #BOXED (prompt group box)
- #DISPLAY (display-only prompt)
- #IMAGE (display graphic)
- #SHEET (declare a group of #TAB controls)
- #TAB (declare a page of a #SHEET control)

Input and Validation Statements

#PROMPT (prompt for programmer input)

#VALIDATE (validate prompt input)

#ENABLE (enable/disable prompts)

#BUTTON (call another page of prompts)

#FIELD (control prompts)

#PREPARE (setup prompt symbols)

#PROMPT (prompt for programmer input)

#PROMPT(*string, type*) [, *symbol*] [, **REQ**] [, **DEFAULT**(*value*)] [, **ICON**(*file*)] [, **AT**()]
[, **PROMPTAT**()] [, **MULTI**(*description*)] [, **INLINE**] [, **SELECTION**(*description*)]

#PROMPT	Asks the programmer for input.
<i>string</i>	A string constant containing the text to display as the input prompt. This may contain an ampersand (&) denoting a "hot" key used in conjunction with the ALT key to get to this field on the properties screen.
<i>type</i>	A picture token or prompt keyword.
<i>symbol</i>	A User-defined symbol to receive the input. A #PROMPT with a RADIO or EMBED <i>type</i> cannot have a <i>symbol</i> , all other <i>types</i> must have a <i>symbol</i> .
REQ	Specifies the prompt cannot be left blank or zero.
DEFAULT	Specifies an initial value (which may be overridden).
<i>value</i>	A string constant containing the initial value.
ICON	Specifies an icon for the button face of a #PROMPT with the MULTI attribute.
<i>file</i>	A string constant containing the name of the .ICO file to display on the button face.
AT	Specifies the position of the prompt entry area in the window, relative to the first prompt placed on the window from the Template (excluding the standard prompts on every procedure properties window). This attribute takes the same parameters as the Clarion language AT attribute.
PROMPTAT	Specifies the position of the prompt <i>string</i> in the window, relative to the first prompt placed on the window from the Template (excluding the standard prompts on every procedure properties window). This attribute takes the same parameters as the Clarion language AT attribute.
MULTI	Specifies the programmer may enter multiple values for the #PROMPT. The prompt appears as a button which pops up a list box allowing the programmer to enter multiple values, unless the INLINE attribute is also present.
<i>description</i>	A string constant containing the name to display on the button face and at the top of the list of prompt values.
INLINE	The multiple values the programmer enters for the #PROMPT appears as a list box with update buttons which allow the programmer to enter multiple values. The MULTI attribute must also be present.
SELECTION	Specifies the programmer may select multiple values for the #PROMPT from the list of choices presented by the FROM <i>type</i> . The prompt appears as a button which pops up a list box allowing the programmer to choose multiple values, unless the INLINE attribute is also present.

The **#PROMPT** statement asks the programmer for input. A #PROMPT statement may be placed in #APPLICATION, #PROCEDURE, #CODE, #CONTROL, #EXTENSION, #UTILITY, or #FIELD sections. It may not be placed in a #PROGRAM, #MODULE, #TEMPLATE, or #GROUP section.

When the #PROMPT is placed in a template section, the prompt *string* and its associated entry field are placed:

Section Name Window Name

#APPLICATION	Global Settings
#PROCEDURE	Procedure Properties
#CODE	Embeds Dialog
#CONTROL	Control Properties Actions Tab
#EXTENSION	Extensions Dialog
#FIELD	Control Properties Actions Tab

The *type* parameter may contain a picture token to format the programmer's input, or one of the following keywords:

PROCEDURE	The label of a procedure
FILE	The label of a data file
KEY	The label of a key (can be limited to one file)
COMPONENT	The label of a key component field (can be limited to one key)
FIELD	The label of a file field (can be limited to one file)
FORMAT	Calls the listbox formatter.
PICTURE	Calls the picture token formatter.
DROP	Creates a droplist of items specified in its parameter
KEYCODE	A keycode or keycode EQUATE
OPTION	Creates a radio button structure
RADIO	Creates a radio button
CHECK	Creates a check box
CONTROL	A window control
FROM	Creates a droplist of items contained in its symbol parameter
EMBED	Allows the user to edit a specified embedded source code point
EMBEDBUTTON	Allows the user to edit a specified embedded source code point
SPIN	Creates a spin control

For all *types* except RADIO and CHECK (and MULTI attribute prompts), the #PROMPT *string* is displayed on the screen immediately to the left of its data input area.

A #PROMPT with the REQ attribute cannot be left blank or zero; it is a required input field. The DEFAULT attribute may be used to provide the programmer with an initial *value* in the #PROMPT, which may be overridden at design time.

A #PROMPT with a RADIO *type* creates one Radio button for the immediately preceding #PROMPT with an OPTION *type*. There may be multiple RADIOS for one OPTION. Each RADIO's *string*, when selected, is placed in the closest preceding OPTION's *symbol*. The OPTION structure is terminated by the first #PROMPT following it that is not a RADIO.

The MULTI attribute specifies the programmer may enter multiple values for the #PROMPT. A button appears on the Properties window with the *description* on its face. Alternatively, this can have an ICON attribute to name an .ICO file to display on the button face. This button calls a window containing a list box to display all the multiple values entered for the #PROMPT, along with Insert, Change, and Delete buttons. These three buttons call another window containing the #PROMPT *string* and its data entry field to allow the programmer to update the entries in the list.

When the programmer has entered a value for the #PROMPT, the input value is assigned to the *symbol*. The value entered by the programmer may be checked for validity by one or more #VALIDATE statements immediately following the #PROMPT statement.

The value(s) placed in the *symbol* may be used or evaluated elsewhere within the Template. A *symbol* defined by a #PROMPT in the #APPLICATION section of the Template is Global, it can be used or evaluated anywhere in the Template. A *symbol* defined by #PROMPT in a #PROCEDURE section is Local, and is a dependent symbol to %Procedure; it can be used or evaluated only within that #PROCEDURE section. A *symbol* defined by #PROMPT in a #CODE, #CONTROL, or #EXTENSION

section of the Template can be used or evaluated only within that section.

Example:

#PROMPT('Ask for Input',@s20),%InputSymbol	#!Simple input
#PROMPT('Ask for FileName',FILE),%InputFile,REQ	#!Required filename
#PROMPT('Pick One',OPTION),%InputChoice	#!Mutually exclusive options
#PROMPT('Choice One',RADIO)	
#PROMPT('Choice Two',RADIO)	
#PROMPT('Next Procedure',PROCEDURE),%NextProc	#!Prompt for procedure name
#PROMPT('Ask for Multiple Input',@s20),%MultiSymbol,MULTI('Input Values...')	#!Prompt for multiple input

See Also:

[#DISPLAY](#)

[#VALIDATE](#)

[#GROUP](#)

[#BOXED](#)

[#ENABLE](#)

[#BUTTON](#)

#VALIDATE (validate prompt input)

#VALIDATE(*expression,message*)

#VALIDATE Validates the data entered into the immediately preceding #PROMPT field.

expression The expression to use to validate the entered data.

message A string constant containing the error message to display if the data is invalid.

The **#VALIDATE** statement validates the data entered into the #PROMPT field immediately preceding the #VALIDATE. The *expression* is evaluated when the OK button is pressed on the Procedure Properties window. If the *expression* is false, the *message* is displayed to the programmer in a message box, and control is given to the #PROMPT field that immediately precedes the #VALIDATE. There may be multiple #VALIDATE statements following a #PROMPT to validate the entry.

Example:

```
#PROMPT('Input Value, Even numbers from 100-200',@N3),%Value
#VALIDATE((%Value > 100) AND (%Value < 200),'Value must be between 100 and 200')
#VALIDATE((%Value % 2 = 0),'Value must be an even number')
#PROMPT('Screen Field',WINDOWCONTROL),%SomeField
#VALIDATE(%ScreenFieldType = 'LIST','Must select a list box')
```

See Also:

[#PROMPT](#)

#ENABLE (enable/disable prompts)

```
#ENABLE( expression ) [, CLEAR ]  
    prompts  
#ENDENABLE
```

#ENABLE Begins a group of *prompts* which may be enabled or disabled based upon the evaluation of the *expression*.

expression The expression which controls the prompt enable/disable.

CLEAR Specifies the *prompts* symbol values are cleared when disabled.

prompts One or more #PROMPT, #BUTTON, #DISPLAY, #ENABLE, and/or #VALIDATE statements.

#ENDENABLE Terminates the group of *prompts*.

The **#ENABLE** structure contains *prompts* which may be enabled or disabled based upon the evaluation of the *expression*. If the *expression* is true, the *prompts* are enabled, otherwise they are disabled. The *prompts* appear dimmed when disabled and the programmer may not enter data in them.

Example:

```
#PROMPT('Pick One',OPTION),%InputChoice           #!Mutually exclusive options  
#PROMPT('Choice One',RADIO)  
#PROMPT('Choice Two',RADIO)  
#ENABLE(%InputChoice = 'Choice Two')  
    #PROMPT('Screen Field',WINDOWCONTROL),%SomeField  #!Enabled only for Choice Two  
    #VALIDATE(%ScreenFieldType = 'LIST','Must select a list box')  
#ENDENABLE
```

See Also:

[#PROMPT](#)

[#GROUP](#)

[#BOXED](#)

[#BUTTON](#)

#BUTTON (call another page of prompts)

```
#BUTTON( string [, icon ] ) [, HLP( id ) ] [, AT() ] [, REQ ] [, INLINE ]  
      [, | FROM( multisymbol, expression ) [, WHERE( condition ) ] | ]  
      | MULTI( fromsymbol, expression ) |  
      prompts  
#ENDBUTTON
```

#BUTTON	Creates a command button to call another page of <i>prompts</i> .
<i>string</i>	A string constant containing the text to display on the button's face. This may contain an ampersand (&) to indicate the "hot" letter for the button.
<i>icon</i>	A string constant containing the name of an .ICO file or standard icon to display on the button's face. The <i>string</i> then serves only for "hot" key definition.
HLP	Specifies on-line help is available for the #BUTTON.
<i>id</i>	A string constant containing the identifier to access the Help system. This may be either a Help keyword or "context string."
AT	Specifies the position of the button in the window, relative to the first prompt placed on the window from the Template (excluding the standard prompts on every procedure properties window). This attribute takes the same parameters as the Clarion language AT attribute.
REQ	Specifies the programmer must press the button at least once when the procedure is created.
FROM	Specifies the programmer may enter a set of values for the <i>prompts</i> for each instance of the <i>fromsymbol</i> .
<i>fromsymbol</i>	A built-in multi-valued symbol which pre-defines all instances on which the <i>prompts</i> symbols are dependent. The programmer may not add, change, or delete instances of the <i>fromsymbol</i> .
<i>expression</i>	A string expression to format data display in the multiple value display list box.
WHERE	Specifies the #BUTTON displays only those instances of the <i>fromsymbol</i> where the <i>condition</i> is true.
<i>condition</i>	An expression that specifies the condition for use.
MULTI	Specifies the programmer may enter multiple sets of values for the prompts. This allows multiple related groups of prompts.
<i>multisymbol</i>	A user-defined symbol on which all the <i>prompts</i> symbols are dependent. This symbol is internally assigned a unique value for each set of <i>prompts</i> .
INLINE	The multiple values the programmer enters for the #BUTTON appears as a list box with update buttons which allow the programmer to enter multiple values. The MULTI or FROM attribute must also be present.
<i>prompts</i>	One or more #PROMPT statements. This may also contain #DISPLAY, #VALIDATE, #ENABLE, and #BUTTON statements.
#ENDBUTTON	Terminates the group of <i>prompts</i> which are on the page called by the #BUTTON.

The **#BUTTON** statement creates a command button displaying either the *string* or the *icon* on its face. When the programmer presses the button, a new page of *prompts* appears for selection and entry.

Each new page of *prompts* has its own OK, CANCEL, and TEMPLATE HELP buttons as standard fields. All other fields on the page are generated from the *prompts* within the #BUTTON structure.

Each page's OK button closes the current page of *prompts*, saving the data the programmer entered in the *prompts*, then returns to the prior window. The CANCEL button closes the current page of *prompts* without saving, then returns to the prior window. If the page calls another page with a nested #BUTTON statement and the programmer presses OK on the lowest level page, then CANCEL on the page that called it, the entire transaction is cancelled.

The MULTI attribute specifies the programmer may enter multiple sets of values for the *prompts*. The button calls a window containing a list box to display all the multiple values entered for the sets of *prompts*, along with Insert, Change, and Delete buttons. These three buttons call another window containing all the *prompts* to allow the programmer to update the entries in the list. The *expression* is used to format the information for display in the list box.

The FROM attribute also specifies the programmer may enter multiple sets of values for the *prompts*. The button calls a window containing a list box that displays each instance of the *fromsymbol*, along with an Edit button. This button calls another window containing all the *prompts* to allow the programmer to update the entries associated with that instance of the *fromsymbol*. The *expression* is used to format the information for display in the list box. The WHERE attribute may be used to limit the instances of the *fromsymbol* to only those that meet the WHERE *condition*.

Example:

```
#PROMPT('Name a File',FILE),%FileName          #!Prompt on the first page

#BUTTON('Page Two')
#PROMPT('Pick One',OPTION),%InputChoice        #!Button on first page calls
#PROMPT('Choice One',RADIO)                    #!These prompts on second page
#PROMPT('Choice Two',RADIO)
#ENABLE(%InputChoice = 'Choice Two')
#PROMPT('Screen Field',WINDOWCONTROL),%SomeField
#VALIDATE(%ScreenFieldType = 'LIST','Must select a list box')
#ENDENABLE
#ENDBUTTON                                     #!Terminate second page prompts

#PROMPT('Enter some value',@S20),%InputValue1  #!Another prompt on first page

#BUTTON('Multiple Names'),MULTI(%ButtonSymbol,%ForeName & ' ' & %SurName)
#PROMPT('First Name',@S20),%ForeName
#PROMPT('Last Name',@S20),%SurName
#ENDBUTTON                                     #!Terminate second page prompts

#PROMPT('Enter another value',@S20),%InputValue2 #!Another prompt on first page
#!Multiple input button dependent on %File:
#BUTTON('File Options'),FROM(%File)
#PROMPT('Open Access Mode',DROP('Open|Share'),%FileOpenMode
#ENDBUTTON                                     #!Terminate second page prompts
```

See Also:

[#PROMPT](#)

[#VALIDATE](#)

[#ENABLE](#)

#FIELD (control prompts)

```
#FIELD, WHERE( expression )
    prompts
#ENDFIELD
```

#FIELD	Begins a control prompts section.
WHERE	Specifies the #FIELD is used only for those instances where the <i>expression</i> is true.
<i>expression</i>	An expression that specifies the condition for use.
<i>prompts</i>	Prompt (#PROMPT, #BUTTON, etc.) statements.
#ENDFIELD	Terminates the section.

The **#FIELD** structure contains *prompts* for controls that are populated onto a window. These *prompts* appear in the Actions... dialog.

The list of field prompts appearing in the Actions... dialog is built in the following manner:

1. #CONTROL prompts.
2. #PROCEDURE-level #FIELD prompts (also from inserted #GROUPs).
3. #PROCEDURE-level #FIELD prompts from active #EXTENSION sections.
4. #CONTROL-level #FIELD prompts.
5. #CODE-level #FIELD prompts.

The values the user inputs into the #FIELD prompts are used to generate the source to govern the behavior of the control.

Example:

```
#FIELD, WHERE(%ControlType = 'BUTTON')
    #PROMPT('Enter procedure call',PROCEDURE),%ButtonProc
#ENDFIELD
```

#PREPARE (setup prompt symbols)

```
#PREPARE
  statements
#ENDPREPARE
```

#PREPARE Begins a prompts symbol setup section.

statements Template language statements to fix multi-valued symbols to the values needed to process the #PROMPT or #BUTTON statement following the #PREPARE.

#ENDPREPARE Terminates the section.

The **#PREPARE** structure contains Template language statements to fix multi-valued symbols to the values needed to process the #PROMPT or #BUTTON statements preceding the #PREPARE.

Example:

```
#BUTTON('Customize Colors'),FROM(%ControlField,%ControlField),WHERE(%CntrlHasColor)
  #PREPARE
    #FIND(%ControlInstance,%ActiveTemplateInstance,%Control)
  #ENDPREPARE
  #BOXED('Default Colors')
    #PROMPT('&Fore Normal:',COLOR),%ControlFieldForeNormal,DEFAULT(-1)
    #PROMPT('&Back Normal:',COLOR),%ControlFieldBackNormal,DEFAULT(-1)
    #PROMPT('&Fore Selected:',COLOR),%ControlFieldForeSelected,DEFAULT(-1)
    #PROMPT('&Back Selected:',COLOR),%ControlFieldBackSelected,DEFAULT(-1)
  #ENDBOXED
  #BOXED('Conditional Color Assignments')
    #BUTTON('Conditional Colors'),MULTI(%ConditionalColors,%ColorCondition),INLINE
      #PROMPT('&Condition:',@S255),%ColorCondition
      #PROMPT('&Fore Normal:',COLOR),%CondControlFieldForeNormal,DEFAULT(-1)
      #PROMPT('&Back Normal:',COLOR),%CondControlFieldBackNormal,DEFAULT(-1)
      #PROMPT('&Fore Selected:',COLOR),%CondControlFieldForeSelected,DEFAULT(-1)
      #PROMPT('&Back Selected:',COLOR),%CondControlFieldBackSelected,DEFAULT(-1)
    #ENDBUTTON
  #ENDBOXED
#ENDBUTTON
```

#PROMPT Entry Types

- CHECK (check box)
- COMPONENT (list of KEY fields)
- CONTROL (list of window fields)
- DROP (droplist of items)
- EMBED (enter embedded source)
- EMBEDBUTTON (enter embedded source)
- FIELD (list of data fields)
- FILE (list of files)
- FORMAT (call listbox formatter)
- FROM (list of symbol values)
- KEY (list of keys)
- KEYCODE (list of keycodes)
- OPTION (display radio buttons)
- PICTURE (call picture formatter)
- PROCEDURE (add to logical procedure tree)
- RADIO (one radio button)
- SPIN (spin box)
- Display and Formatting Statements
- #BOXED (prompt group box)
- #DISPLAY (display-only prompt)
- #IMAGE (display graphic)
- #SHEET (declare a group of #TAB controls)
- #TAB (declare a page of a #SHEET control)

CHECK (check box)

CHECK

The **CHECK** *type* in a #PROMPT statement indicates the prompt's *symbol* is a toggle switch which is used only for on/off, yes/no, or true/false evaluation. CHECK puts a check box on screen in the entry area for the #PROMPT. When the Check box is toggled on, the prompt's *symbol* contains one (1). When the Check box is toggled off, the prompt's *symbol* contains zero (0).

Example:

```
#PROMPT('Network Application',CHECK),%NetworkApp
```

COMPONENT (list of KEY fields)

COMPONENT [(*scope*)]

COMPONENT Displays a list of KEY component fields.

scope A symbol containing a KEY. If omitted, the list displays all KEY components for all KEYS in all FILES.

The **COMPONENT** *type* in a #PROMPT statement indicates the prompt's *symbol* must contain the label of one of the component fields of a KEY. A list of available KEY fields pops up when the #PROMPT is encountered on the Properties screen.

The COMPONENT may have a *scope* parameter that limits the KEY components available in the list. If *scope* is the label of a KEY, the list displays all KEY components for that KEY.

Example:

```
#PROMPT('Record Selector',COMPONENT(%Primary)),%RecordSelector
```


CONTROL (list of window fields)

CONTROL

The **CONTROL** *type* in a #PROMPT statement indicates the prompt's *symbol* must contain the field equate label of a window control. A list of available controls pops up when the #PROMPT is encountered on the Properties screen.

Example:

```
#PROMPT('Locator Field',CONTROL),%Locator
```

DROP (droplist of items)

DROP [(*scope*)]

DROP	Creates a droplist of items.
<i>scope</i>	A string constant containing the items for the list, delimited by the vertical bar () character.

The **DROP** *type* in a #PROMPT statement indicates the prompt's *symbol* must contain one item from the list specified in the *scope* parameter. The *scope* must contain all the items for the list. The list of items drops down just like a Clarion language LIST control with the DROP attribute. If no default value is specified, the prompt's symbol defaults to the first value in the *scope* list.

Example:

```
#PROMPT('If file not found',DROP('Create the file|Halt Program')),%FileNotFound
```

EMBED (enter embedded source)

EMBED(*identifier* [, *instance*])

EMBED	Specifies the prompt directly edits an embedded source code point.
<i>identifier</i>	The user-defined template symbol which identifies the #EMBED embedded source code point to edit.
<i>instance</i>	A string constant or expression containing one of the values in the multi-valued symbol used by the #EMBED. You must have as many <i>instances</i> as are necessary to explicitly identify the single #EMBED point instance to edit.

The **EMBED** *type* in a #PROMPT statement indicates the prompt is used to directly edit an embedded source code point. This places an an entry area with an ellipsis (...) button next to the prompt to allow the user access to the embedded source code point. The programmer may enter a procedure call in the entry area, or press the ellipsis (...) button to go into the normal source dialog.

If the #EMBED is associated with a multi-valued symbol, you must identify the specific *instance* of the #EMBED. If you use a multi-valued symbol as an *instance* expression, it must be fixed to a single value. Most commonly, this would be used in a #FIELD structure.

Example:

```
#PROMPT('Embedded Data Declarations',EMBED(%DataSection))  
#FIELD, WHERE(%ControlType = 'BUTTON')  
  #PROMPT('Action when button is pressed',EMBED(%ControlEvent,%Control,'Accepted'))  
#ENDFIELD
```

EMBEDBUTTON (enter embedded source)

EMBEDBUTTON(*identifier* [, *instance*])

EMBEDBUTTON Specifies the prompt directly edits an embedded source code point.

identifier The user-defined template symbol which identifies the #EMBED embedded source code point to edit.

instance A string constant or expression containing one of the values in the multi-valued symbol used by the #EMBED. You must have as many *instances* as are necessary to explicitly identify the single #EMBED point instance to edit.

The **EMBEDBUTTON** *type* in a #PROMPT statement indicates the prompt is used to directly edit an embedded source code point. This places a button next to the prompt allow the user access to the embedded source code point. The programmer may press the button to enter the embed dialog.

If the #EMBED is associated with a multi-valued symbol, you must identify the specific *instance* of the #EMBED. If you use a multi-valued symbol as an *instance* expression, it must be fixed to a single value. Most commonly, this would be used in a #FIELD structure.

Example:

```
#PROMPT('Embedded Data Declarations',EMBEDBUTTON(%DataSection))  
#FIELD, WHERE(%ControlType = 'BUTTON')  
    #PROMPT('Action for button press',EMBEDBUTTON(%ControlEvent,%Control,'Accepted'))  
#ENDFIELD
```

FIELD (list of data fields)

FIELD [(*scope*)]

FIELD Displays a list of fields in FILEs.

scope A symbol containing a FILE label. If omitted, the list displays all fields for all FILEs.

The **FIELD** *type* in a #PROMPT statement indicates the prompt's *symbol* must contain the label of a field in a data file. A list of available fields pops up when the #PROMPT is encountered on the Properties screen.

There may be a *scope* parameter that limits the fields available in the list. If *scope* names a FILE, the list displays all fields in the FILE. If there is no *scope* parameter, the list displays all fields in all FILEs.

Example:

```
#PROMPT('Locator Field',FIELD(%Primary)),%Locator
```

FILE (list of files)

FILE

The **FILE** type in a #PROMPT statement indicates the prompt's *symbol* must contain the label of a data file. A list of available files from the procedure's File Schematic pops up when the #PROMPT is encountered on the Properties screen.

Example:

```
#PROMPT('Logout File',FILE),%LogoutFile
```

FORMAT (call listbox formatter)

FORMAT

The **FORMAT** *type* in a #PROMPT statement indicates the prompt's *symbol* must contain a LIST or COMBO control's FORMAT attribute string, so it calls the listbox formatter to create it.

Example:

```
#PROMPT('Alternate LIST format',FORMAT),%AlternateFormatString
```

FROM (list of symbol values)

FROM(*symbol* [, *expression*] [, *value*])

FROM	Specifies a drop-down list of values from the <i>symbol</i> .
<i>symbol</i>	A multi-valued symbol.
<i>expression</i>	An expression which controls which <i>symbol</i> values are displayed. Only <i>symbol</i> values where the <i>expression</i> is true are displayed in the drop list.
<i>value</i>	The symbol containing the values to display for the prompt and assigned into the <i>symbol</i> .

The **FROM** *type* in a #PROMPT statement indicates the user must select one item from the list contained in the *symbol*. The *expression* can be used to limit the *values* displayed, while the *value* defines the display elements.

Example:

```
#PROMPT('Select an Event',FROM(%ControlEvent)),%WhichEvent
#PROMPT('Select a Button',FROM(%ControlField,%ControlType = 'BUTTON')),%WhichButton
#PROMPT('Pick a Field',FROM(%Control,%ControlUse <> ',,%ControlUse)),%MyButton
```


KEY (list of keys)

KEY [(*scope*)]

KEY Displays a list of KEYS.

scope A symbol containing a FILE. If omitted, the list displays all KEYS in all FILEs.

The **KEY** *type* in a #PROMPT statement indicates the prompt's *symbol* must contain the label of a KEY. A list of available keys from the data dictionary pops up when the #PROMPT is encountered on the Properties screen.

There may be a *scope* parameter that limits the KEYS available in the list. If *scope* names a FILE, the list displays all KEYS in the FILE. If there is no *scope* parameter, the list displays all KEYS in all FILEs.

Example:

#PROMPT('Which Key',KEY(%Primary)),%UseKey

KEYCODE (list of keycodes)

KEYCODE

The **KEYCODE** *type* in a #PROMPT statement indicates the prompt's *symbol* must contain a keycode or keycode equate label. A selection list of keycode equate labels from KEYCODES.EQU pops up when the user presses the ellipsis button next to the prompt on the Properties screen.

Example:

```
#PROMPT('Hot Key',KEYCODE),%ActiveKey
```

OPTION (display radio buttons)

OPTION

The **OPTION** type in a #PROMPT statement indicates the prompt's *symbol* must contain the value of one of the *strings* in one of the following RADIO #PROMPT statements. Each of the *strings* displays a radio button on the Properties screen when the #PROMPT is encountered.

Example:

```
#PROMPT('Ask for Choice',OPTION),%OptionSymbol  
#PROMPT('Option One',RADIO)  
#PROMPT('Option Two',RADIO)  
#PROMPT('Option Three',RADIO)
```

PICTURE (call picture formatter)

PICTURE

The **PICTURE** *type* in a #PROMPT statement calls the picture formatter to create a picture token used to format data for display.

Example:

```
#PROMPT('Display Format',PICTURE),%DisplayPicture
```

PROCEDURE (add to logical procedure tree)

PROCEDURE

The **PROCEDURE** *type* in a #PROMPT statement indicates the value placed in the *symbol* is the name of a procedure in your application. This procedure name is added to the Application Generator's logical procedure call tree in the appropriate place.

Example:

```
#PROMPT('Next Procedure',PROCEDURE),%NextProcedure
```

RADIO (one radio button)

RADIO

The **RADIO** type in a #PROMPT statement creates one RADIO button for the closest preceding OPTION prompt. When selected, the RADIO's *string* is placed in the OPTION's *symbol*.

Example:

```
#PROMPT('Ask for Choice',OPTION),%OptionSymbol  
#PROMPT('Option One',RADIO)  
#PROMPT('Option Two',RADIO)  
#PROMPT('Option Three',RADIO)
```

SPIN (spin box)

SPIN(*picture*, *low*, *high* [, *step*])

SPIN	Creates a spin control.
<i>picture</i>	A data entry picture token.
<i>low</i>	A numeric constant or expression containing the lowest valid value.
<i>high</i>	A numeric constant or expression containing the highest valid value.
<i>step</i>	A numeric constant or expression containing the amount to change each increment between lowest and highest valid values. If omitted, the default is 1.

The **SPIN** type in a #PROMPT statement creates a spin control for the programmer to select a valid number.

Example:

```
#PROMPT('How Many?',SPIN(@n2,1,10)),%SpinSymbol
```

Display and Formatting Statements

[Display and Formatting Statements](#)

[#BOXED \(prompt group box\)](#)

[#DISPLAY \(display-only prompt\)](#)

[#IMAGE \(display graphic\)](#)

[#SHEET \(declare a group of #TAB controls\)](#)

[#TAB \(declare a page of a #SHEET control\)](#)

#BOXED (prompt group box)

```
#BOXED( [ string ] ) [, AT( ) ] [, WHERE( expression ) ] [, CLEAR ] [, HIDE ]  
      prompts  
#ENDBOXED
```

#BOXED	Creates a group box of <i>prompts</i> .
<i>string</i>	A string constant containing the text to display as the group box caption.
AT	Specifies the position of the group in the window, relative to the first prompt placed on the window from the Template (excluding the standard prompts on every procedure properties window). This attribute takes the same parameters as the Clarion language AT attribute.
WHERE	Specifies the #BOXED is visible only for those instances where the <i>expression</i> is true.
<i>expression</i>	An expression that specifies the condition for use.
CLEAR	Specifies the <i>prompts</i> symbol values are cleared when disabled.
<i>prompts</i>	One or more #PROMPT statements. This may also contain #DISPLAY, #VALIDATE, #ENABLE, and #BUTTON statements.
HIDE	Specifies the <i>prompts</i> are hidden if the WHERE <i>expression</i> is false when the dialog is first displayed.

#ENDBOXED Terminates the group box of *prompts*.

The **#BOXED** statement creates a group box displaying the *string* as its caption. If the WHERE attribute is present, the *prompts* are hidden or visible based upon the evaluation of the *expression*. If the *expression* is true, the *prompts* are visible, otherwise they are hidden.

Example:

```
#PROMPT('Pick One',OPTION),%InputChoice           #!These prompts on second page  
#PROMPT('Choice One',RADIO)  
#PROMPT('Choice Two',RADIO)  
#BOXED('Choice Two Options'),WHERE(%InputChoice = 'Choice Two')  
  #PROMPT('Screen Field',WINDOWCONTROL),%SomeField  
  #VALIDATE(%ScreenFieldType = 'LIST','Must select a list box')  
#ENDBOXED
```

See Also:

[#PROMPT](#)

[#VALIDATE](#)

#IMAGE (display graphic)

#IMAGE(*string*) [, **AT**()]

#IMAGE Displays a graphic image on a properties window.

picture A string expression containing the name of the image file to display.

AT Specifies the size and position of the *picture* display area in the window. This attribute takes the same parameters as the Clarion language AT attribute.

The **#IMAGE** statement displays the *picture* graphic image on a properties window. **#IMAGE** is not valid in a **#MODULE** section.

Example:

```
#IMAGE('SomePic.BMP')          #!Display a bitmap
```

#SHEET (declare a group of #TAB controls)

```
#SHEET
  tabs
#ENDSHEET
```

#SHEET Declares a group of #TAB controls.

tabs Multiple #TAB control declarations.

#ENDSHEET Terminates the group box of *prompts*.

#SHEET declares a group of #TAB controls that offer the user multiple "pages" of prompts for the window. The multiple #TAB controls in the SHEET structure define the "pages" displayed to the user.

Example:

```
#UTILITY(ApplicationWizard,'Create a New Database Application'),WIZARD
#!
#SHEET
  #TAB('Application Wizard')
    #IMAGE('CMPAPP.BMP')
    #DISPLAY('This wizard will create a new Application. '),AT(90,8,235,24)
    #DISPLAY('To begin creating your new Application, click Next. '),AT(90)
  #ENDTAB
  #TAB('Application Wizard - File Usage'),FINISH(1)
    #IMAGE('WINAPP.BMP')
    #DISPLAY('You can gen procs for all files, or select them'),AT(90,8,235,24)
    #PROMPT('Use all files in DCT',CHECK),%GenAllFiles,AT(90,,180),DEFAULT(1)
  #ENDTAB
  #TAB('Select Files to Use'),WHERE(NOT %GenAllFiles),FINISH(1)
    #IMAGE('WINAPP.BMP')
    #PROMPT('File Select',FROM(%File)),%FileSelect,INLINE,SELECTION('File Select')
  #ENDTAB
  #TAB('Application Wizard - Finally...'),FINISH(1)
    #IMAGE('WINAPP.BMP')
    #DISPLAY('Old procs can be overwritten or new procs suppressed')
    #PROMPT('Overwrite existing procs',CHECK),%OverwriteAll,AT(90,,235),DEFAULT(0)
    #IMAGE('<255,1,4,127>'),AT(90,55)
    #DISPLAY('Your First Procedure is always overwritten!'),AT(125,54,200,20)
  #ENDTAB
#ENDSHEET
```

#TAB (declare a page of a #SHEET control)

```
#TAB( text ) [,FINISH( )] [,WHERE( )]  
    prompts  
#ENDTAB
```

#TAB	Declares a group of <i>prompts</i> that constitute one of the multiple "pages" within a #SHEET structure.
<i>text</i>	A string constant containing the text to display on the tab, or as the title of the window, if the WIZARD attribute is present on the #UTILITY.
FINISH	Specifies the "Finish" button is present. Valid only in a #UTILITY with the WIZARD attribute.
WHERE	Specifies the #BOXED is visible only for those instances where the <i>expression</i> is true.
<i>expression</i>	An expression that specifies the condition for use.
<i>prompts</i>	One or more #PROMPT statements. This may also contain #DISPLAY, #VALIDATE, #ENABLE, and #BUTTON statements.
#ENDTAB	Terminates the page of <i>prompts</i> .

The **#TAB** structure declares a group of *prompts* that constitute one of the multiple "pages" of controls contained within a #SHEET structure. The multiple #TAB controls in the #SHEET structure define the "pages" displayed to the user.

Example:

```
#UTILITY(ApplicationWizard,'Create a New Database Application'),WIZARD  
#!  
#SHEET  
  #TAB('Application Wizard')  
    #IMAGE('CMPAPP.BMP')  
    #DISPLAY('This wizard will create a new Application. '),AT(90,8,235,24)  
    #DISPLAY('To begin creating your new Application, click Next. '),AT(90)  
  #ENDTAB  
  #TAB('Application Wizard - File Usage'),FINISH(1)  
    #IMAGE('WINAPP.BMP')  
    #DISPLAY('You can gen procs for all files, or select them'),AT(90,8,235,24)  
    #PROMPT('Use all files in DCT',CHECK),%GenAllFiles,AT(90,,180),DEFAULT(1)  
  #ENDTAB  
  #TAB('Select Files to Use'),WHERE(NOT %GenAllFiles),FINISH(1)  
    #IMAGE('WINAPP.BMP')  
    #PROMPT('File Select',FROM(%File)),%FileSelect,INLINE,SELECTION('File Select')  
  #ENDTAB  
  #TAB('Application Wizard - Finally...'),FINISH(1)  
    #IMAGE('WINAPP.BMP')  
    #DISPLAY('Old procs can be overwritten or new procs suppressed')  
    #PROMPT('Overwrite existing procs',CHECK),%OverwriteAll,AT(90,,235),DEFAULT(0)  
    #IMAGE('<255,1,4,127>'),AT(90,55)  
    #DISPLAY('Your First Procedure is always overwritten!'),AT(125,54,200,20)  
  #ENDTAB  
#ENDSHEET
```

Logic and Source Generation Control

Template Logic Control Statements

#FOR (generate code multiple times)

#IF (conditionally generate code)

#LOOP (iteratively generate code)

#CASE (conditional execution structure)

#INSERT (insert code from a #GROUP)

#BREAK (break out of a loop)

#CYCLE (cycle to top of loop)

#RETURN (return from #GROUP)

#GENERATE (generate source code section)

#ABORT (abort source generation)

File Management Statements

#CREATE (create source file)

#OPEN (open source file)

#CLOSE (close source file)

#READ (read one line of a source file)

#REDIRECT (change source file)

#APPEND (add to source file)

#REMOVE (delete a source file)

#REPLACE (conditionally replace source file)

#PRINT (print a source file)

Conditional Source Generation Statements

#SUSPEND (begin conditional source)

#RELEASE (commit conditional source generation)

#RESUME (delimit conditional source)

#? (conditional source line)

Template Logic Control Statements

[#FOR \(generate code multiple times\)](#)

[#IF \(conditionally generate code\)](#)

[#LOOP \(iteratively generate code\)](#)

[#CASE \(conditional execution structure\)](#)

[#INSERT \(insert code from a #GROUP\)](#)

[#BREAK \(break out of a loop\)](#)

[#CYCLE \(cycle to top of loop\)](#)

[#RETURN \(return from #GROUP\)](#)

[#GENERATE \(generate source code section\)](#)

[#ABORT \(abort source generation\)](#)

#FOR (generate code multiple times)

```
#FOR( symbol ) [, WHERE( expression ) ] [, REVERSE ]  
    statements  
#ENDFOR
```

#FOR	Loops through all instances of a multi-valued symbol.
<i>symbol</i>	A multi-valued symbol.
WHERE	Specifies the <i>statements</i> in the #FOR loop are executed only for those instances of the <i>symbol</i> where the <i>expression</i> is true.
<i>expression</i>	An expression that specifies the condition for execution.
REVERSE	Specifies the #FOR loops through the instances of the <i>symbol</i> in reverse order.
<i>statements</i>	Target and/or Template Language statements.
#ENDFOR	Terminates the #FOR structure.

#FOR is a loop structure which generates its *statements* once for each value contained in its *symbol* during source code generation. If there are no values in the *symbol*, no code is generated. #FOR must be terminated by **#ENDFOR**. If there is no #ENDFOR, an error message is issued during Template file pre-processing. A #FOR loop may be nested within another #FOR loop.

The #FOR loop begins with the first instance of the *symbol* (or last, if the **REVERSE** attribute is present) and processes through all instances of the *symbol*—it is not affected by any #FIX statements. If the **WHERE** attribute is present, the #FOR *statements* are executed only for those instances of the *symbol* where the *expression* is true. This creates a conditional #FOR loop.

Since #FOR is a loop structure, the #BREAK and #CYCLE statements may be used to control the loop. #BREAK immediately terminates #FOR loop processing and continues with the statement following the #ENDFOR that terminates the #FOR. #CYCLE immediately returns control to the #FOR statement to continue with the next instance of the *symbol*.

Example:

```
#FOR(%ScreenField),WHERE(%ScreenFieldType = 'LIST')  
    #INSERT(%ListQueueBuild) #!Generate only for LIST controls  
#ENDFOR
```

See Also:

[#BREAK](#)

[#CYCLE](#)

#IF (conditionally generate code)

```
#IF( expression )
    statements
[ #ELSIF( expression )
    statements ]
[ #ELSE
    statements ]
#ENDIF
```

#IF	A conditional execution structure.
<i>expression</i>	Any Template Language expression which can evaluate to false (blank or zero) or true (any other value). The expression may contain Template symbols, constant values, and any of the arithmetic, Boolean, and logical operators documented in the <i>Language Reference</i> . Function calls are allowed. If the modulus division operator (%) is used in the expression, it must be delimited by at least one blank space on each side (to explicitly differentiate it from the Template symbols).
<i>statements</i>	One or more Clarion and/or Template Language statements.
#ELSIF	Provides an alternate <i>expression</i> to evaluate when preceding #IF and #ELSIF <i>expressions</i> are false.
#ELSE	Provides alternate <i>statements</i> to execute when all preceding #IF and #ELSIF <i>expressions</i> are false.
#ENDIF	Terminates the #IF structure.

#IF selectively generates a group of *statements* depending on the evaluation of the *expression(s)*. The #IF structure consists of a #IF statement and all statements following it until the structure is terminated by **#ENDIF**. If there is no #ENDIF, an error message is issued during Template file pre-processing. #IF structures may be nested within other #IF structures.

#ELSIF and **#ELSE** are logical separators which separate the #IF structure into *statements* groups which are conditionally generated depending upon the evaluation of the *expression(s)*. There may be multiple #ELSIF statements within one #IF structure, but only one #ELSE.

When #IF is encountered during code generation:

If the *expression* evaluates as true, only the *statements* following #IF are generated, up to the next following #ELSIF, #ELSE, or #ENDIF.

If the *expression* evaluates as false, #ELSIF (if present) is evaluated in the same manner. If the #ELSIF *expression* is true, only the *statements* following it are generated, up to the following #ELSIF, #ELSE, or #ENDIF.

If all preceding #IF and #ELSIF conditions evaluate false, only the *statements* following #ELSE (if present) are generated, up to the following #ENDIF. If there is no #ELSE, no code is generated.

Example:

```
#FOR(%Formula)
  #IF(%FormulaComputation) #!If computed field
    %Formula = %FormulaComputation
  #ELSIF(%FormulaFalse) #!If Conditional with false formula
    IF %FormulaCondition
      %Formula = %FormulaTrue
    ELSE
```

```
    %Formula = %FormulaFalse
  END
#ELSE  #!Else Conditional without false formula
  IF %FormulaCondition
    %Formula = %FormulaTrue
  END
#ENDIF
#ENDFOR
```

#LOOP (iteratively generate code)

```
#LOOP [, | UNTIL( expression ) | ]  
        | WHILE( expression ) |  
        | FOR( counter, start, end ) [, BY( step ) ] |  
statements  
#ENDLOOP
```

#LOOP	Initiates an iterative statement execution structure.
UNTIL	Evaluates its <i>expression</i> before each iteration of the #LOOP. If its <i>expression</i> evaluates to true, the #LOOP control sequence terminates.
<i>expression</i>	Any Template language expression which can evaluate to false (blank or zero) or true (any other value).
WHILE	Evaluates its <i>expression</i> before each iteration of the #LOOP. If its <i>expression</i> evaluates to false, the #LOOP control sequence terminates.
FOR	Initializes its <i>counter</i> to the <i>start</i> value, and increments it by the <i>step</i> value each time through the loop. When the <i>counter</i> is greater than the <i>end</i> value, the #LOOP control sequence terminates.
<i>counter</i>	A user-defined symbol used as the loop counter.
<i>start</i>	An expression containing the initial value to which to set the loop <i>counter</i> .
<i>end</i>	An expression containing the ending value of the loop <i>counter</i> .
BY	Explicitly defines the increment value for the <i>counter</i> .
<i>step</i>	An expression containing the increment value for the <i>counter</i> . If omitted, the <i>step</i> defaults to one (1).
<i>statements</i>	One or more target and/or Template Language statements.
#ENDLOOP	Terminates the #LOOP structure.

A **#LOOP** structure repetitively executes the *statements* within its structure. The #LOOP structure must be terminated by **#ENDLOOP**. If there is no #ENDLOOP, an error message is issued during Template file pre-processing. A #LOOP structure may be nested within another #LOOP structure.

The **#LOOP,UNTIL** or **#LOOP,WHILE** statements create exit conditions for the #LOOP. Their *expressions* are always evaluated at the top of the #LOOP, before the #LOOP is executed. A #LOOP WHILE structure continuously loops as long as the *expression* is true. A #LOOP UNTIL structure continuously loops as long as the *expression* is false. The *expression* may contain Template symbols, constant values, and any of the arithmetic, Boolean, and logical operators documented in the *Language Reference*. Function calls are allowed. If the modulus division operator (%) is used in the *expression*, it must be followed by at least one blank space (to explicitly differentiate it from the Template symbols).

The **#LOOP,FOR** statement also creates an exit condition for the #LOOP. The #LOOP initializes the *counter* to the *start* value on its first iteration. The #LOOP automatically increments the *counter* by the *step* value on each subsequent iteration, then evaluates the *counter* against the *end* value. When the *counter* is greater than the *end*, the #LOOP control sequence terminates.

#LOOP (without WHILE, UNTIL, or FOR) loops continuously, unless a #BREAK or #RETURN statement is executed. #BREAK terminates the #LOOP and continues execution with the statement following the #LOOP structure. All *statements* within a #LOOP structure are executed unless a #CYCLE statement is executed. #CYCLE immediately gives control back to the top of the #LOOP for the next iteration, without executing any statements following the #CYCLE in the #LOOP.

Example:

```
#SET(%LoopBreakFlag,'NO')
#LOOP    #!Continuous loop
  #INSERT(%SomeRepeatedCodeGroup)
  #IF(%LoopBreakFlag = 'YES')  #!Check break condition
    #BREAK
  #ENDIF
#ENDLOOP
#SET(%LoopBreakFlag,'NO')
#LOOP,UNTIL(%LoopBreakFlag = 'YES')  #!Loop until condition is true
  #INSERT(%SomeRepeatedCodeGroup)
#ENDLOOP
#SET(%LoopBreakFlag,'NO')
#LOOP,WHILE(%LoopBreakFlag = 'NO')  #!Loop while condition is true
  #INSERT(%SomeRepeatedCodeGroup)
#ENDLOOP
```

See Also:

[#BREAK](#)

[#CYCLE](#)

#CASE (conditional execution structure)

```
#CASE( condition )
#OF( expression )
[ #OROF( expression ) ]
  statements
[ #ELSE
  statements ]
#ENDCASE
```

#CASE	Initiates a selective execution structure.
<i>condition</i>	Any Template Language expression which returns a value.
#OF	The #OF <i>statements</i> are executed when the #OF <i>expression</i> is equal to the <i>condition</i> of the CASE. There may be many #OF options in a #CASE structure.
<i>expression</i>	Any Template Language expression which returns a value.
#OROF	The #OROF <i>statements</i> are executed when the #OROF <i>expression</i> is equal to the <i>condition</i> of the #CASE. There may be many #OROF options associated with one #OF option.
#ELSE	The #ELSE <i>statements</i> are executed when all preceding #OF and #OROF <i>expressions</i> are not equal to the <i>condition</i> of the #CASE. #ELSE (if used) must be the last option in the #CASE structure.
<i>statements</i>	Any valid executable source code.
#ENDCASE	Terminates the #CASE structure.

A **#CASE** structure selectively executes *statements* based on equivalence between the #CASE *condition* and one of the #OF or #OROF *expressions*. If there is no exact match, the *statements* following #ELSE are executed. The #CASE structure must be terminated by **#ENDCASE**. If there is no #ENDCASE, an error message is issued during Template file pre-processing. #CASE structures may be nested within other #CASE structures.

Example:

```
#CASE %ScreenField
#OF '?Ok'
  #INSERT(%OkButtonGroup)
#OF '?Cancel'
#OROF '?Exit'
  #INSERT(%CancelButtonGroup)
#ELSE
  #INSERT(%OtherControlsGroup)
#ENDCASE
```

#INSERT (insert code from a #GROUP)

`#INSERT(symbol [(set)] [, parameters])`

#INSERT	Inserts code from a #GROUP.
<i>symbol</i>	A symbol that names a #GROUP section.
<i>set</i>	The #TEMPLATE <i>name</i> parameter for the template set to which the #GROUP belongs. If omitted, the #GROUP must be of the same template set <i>name</i> as the #PROCEDURE in which it is used.
<i>parameters</i>	The parameters passed to the #GROUP. Each parameter must be separated by a comma. All parameters defined for the #GROUP must be passed; they may not be omitted.

The **#INSERT** statement places, at the exact position the #INSERT is located within the Template code, the code from the #GROUP named by the *symbol*. The *set* parameter specifies the #TEMPLATE that contains the #GROUP. This allows any Template to use #GROUP code from any other registered Template.

The *parameters* passed to the #GROUP fall into two categories: value-parameters and variable-parameters. Value-parameters are declared by the #GROUP as a user-defined symbol, while variable-parameters are declared by the #GROUP as a user-defined symbol with a prepended asterisk (*). Either a symbol or an expression may be passed as a value-parameter. Only a symbol may be passed as a variable-parameter.

Example:

```
#INSERT(%SomeGroup)      #!Ordinary insert
#INSERT(%GenerateFormulas('Clarion')) #!Insert #GROUP from Clarion Template
#INSERT(%FileRecordFilter,%Secondary) #!Insert #GROUP with passed parameter
#INSERT(%FileRecordFilter(Clarion),%Primary,%Secondary)
      #!#GROUP from Clarion Template with two passed parameters
```

See Also:

[#GROUP](#)

#BREAK (break out of a loop)

#BREAK

The **#BREAK** statement immediately breaks out of the #FOR or #LOOP structure in which it is enclosed. Control passes to the next statement following the #ENDFOR or #ENDLOOP. #BREAK is only valid within a #FOR or #LOOP structure, else an error is generated during Template file pre-processing.

Example:

```
#SET(%StopFile, 'CUSTOMER')
#FOR(%File)
  #IF (UPPER(%File) = %StopFile)
    #BREAK
  #ENDIF
  OPEN(%File)
#ENDFOR
```

#CYCLE (cycle to top of loop)

#CYCLE

The **#CYCLE** statement immediately passes control back to the top of the **#FOR** or **#LOOP** structure in which it is enclosed to begin the next iteration. **#CYCLE** is only valid within a **#FOR** or **#LOOP** structure, else an error is generated during Template file pre-processing.

Example:

```
#SET(%StopFile, 'CUSTOMER')
#FOR(%File)
  #IF (UPPER(%File) <> %StopFile)
    OPEN(%File)
    #CYCLE
  #ELSE
    #BREAK
  #ENDIF
#ENDFOR
```


#RETURN (return from #GROUP)

#RETURN

The **#RETURN** statement immediately returns control to the statement following the **#INSERT** that called the **#GROUP** containing the **#RETURN** statement. **#RETURN** is only valid in a **#GROUP** section.

Example:

```
#GROUP (%ProcessListGroup, %PassedControl)
#FIX (%ScreenField, %PassedControl)
#IF (%ScreenFieldType <> 'LIST')
    #UNFIX (%ScreenField)
    #RETURN
#ENDIF
```

#GENERATE (generate source code section)

#GENERATE(*section*)

#GENERATE Generates a section of the application.

section One of the following built-in symbols: %Program, %Module, or %Procedure. This symbol indicates the portion of the application to generate.

The **#GENERATE** statement generates the source code for the specified *section* of the application by executing the Template Language statements contained within that *section*. **#GENERATE** should only be used within the **#APPLICATION** or a **#UTILITY** section of the Template.

When *section* is:

%Program The **#PROGRAM** section of the Template is generated.

%Module The appropriate **#MODULE** section of the Template is generated.

%Procedure The appropriate **#PROCEDURE** section of the Template for the current value of %Procedure is generated.

Example:

```
#GENERATE (%Program)           #!Generate program header
#FOR (%Module)                 #!
  #GENERATE (%Module)          #!Generate module header
  #FOR (%ModuleProcedure)      #!For all procs in module
    #FIX (%Procedure, %ModuleProcedure) #!Fix current procedure
    #GENERATE (%Procedure)     #!Generate procedure code
  #ENDFOR                      #!EndFor all procs in module
#ENDFOR                        #!EndFor all modules
```

#ABORT (abort source generation)

#ABORT

The **#ABORT** statement immediately terminates source generation by the previous **#GENERATE** statement. **#ABORT** may be placed in any template section.

Example:

```
#IF(%ValidRangeKey=%Null)
  #ERROR(%Procedure & ' Range Error: The range field is not in the primary key!')
  #ABORT
#ENDIF
```

See Also:

[#GENERATE](#)

File Management Statements

#CREATE (create source file)

#OPEN (open source file)

#CLOSE (close source file)

#READ(read one line of a source file)

#REDIRECT (change source file)

#APPEND (add to source file)

#REMOVE (delete a source file)

#REPLACE (conditionally replace source file)

#PRINT (print a source file)

#OPEN (open source file)

#OPEN(*file*) [, READ]

#OPEN	Opens a disk file to receive generated source code.
<i>file</i>	A string constant, template symbol, or expression containing a DOS file specification. This may be a fully qualified DOS pathname.
READ	Opens the file as read-only. The file cannot be already open for output.

The **#OPEN** statement opens a disk file to receive the source code generated by **#GENERATE**. If the *file* does not exist, it is created. If the *file* already exists, it is opened in "append source" mode. If the *file* is already open, a source generation error is produced. The *file* is automatically selected as the active source output destination.

If the **READ** attribute is present, the file is opened in read-only mode so the **#READ** statement can read it as an ASCII text file. Only one file can be open for input at one time.

Example:

```
#SET(%ProgramFile, (%Application & '.$$$'))           #!Temp program filename
#OPEN(%ProgramFile)                                  #!Open existing program file
#GENERATE(%Program)                                  #!Generate main program header
#CLOSE(%ProgramFile)                                #!Close output file

#OPEN(%ProgramFile),READ                             #!Open it in read-only mode
#DECLARE(%ASCIIFileRecord)
#LOOP
  #READ(%ASCIIFileRecord)
  #! Parse the line and do something with it
  #IF(%ASCIIFileRecord = %EOF)
    #BREAK
  #ENDIF
#ENDLOOP
#CLOSE(%ProgramFile),READ
```

See Also:

[#READ](#)

[#CLOSE](#)

#CLOSE (close source file)

#CLOSE([*file*] [, READ]

#CLOSE Closes an open generated source code disk file.

file A string constant, template symbol, or expression containing a DOS file specification. This may be a fully qualified DOS pathname. If omitted, the current disk file receiving generated source code is closed.

READ Closes the read-only input file.

The **#CLOSE** statement closes an open disk file receiving the generated source code. If the *file* is omitted, the current disk file receiving generated source code is closed. If the *file* does not exist, or is already closed, a source generation error is produced.

Example:

```
#SET(%NewProgramFile, (%Application & '.$$$'))      #!Temp new program filename
#CREATE(%NewProgramFile)                          #!Create new program file
#GENERATE(%Program)                                #!Generate main program header
#CLOSE(%NewProgramFile)                            #!Create new program file

#OPEN(%ProgramFile), READ                          #!Open it in read-only mode
#DECLARE(%ASCIIFileRecord)
#LOOP
  #READ(%ASCIIFileRecord)
  #! Parse the line and do something with it
  #IF(%ASCIIFileRecord = %EOF)
    #BREAK
  #ENDIF
#ENDLOOP
#CLOSE(%ProgramFile), READ                          #!Close the read-only file
```

See Also:

[#OPEN](#)

[#READ](#)

#READ(read one line of a source file)

#READ(*symbol*)

#READ Reads the next record from the opened read-only file.

symbol The symbol to receive the text from the file.

The **#READ** statement reads the next record (up to the next CR/LF encountered) from open read-only file. The *symbol* receives the text from the file. If the last record has been read, the *symbol* will contain a value equivalent to the %EOF built-in symbol.

Example:

```
#OPEN(%ProgramFile),READ                #!Open it in read-only mode
#DECLARE(%ASCIIFileRecord)
#LOOP
  #READ(%ASCIIFileRecord)
  #! Parse the line and do something with it
  #IF(%ASCIIFileRecord = %EOF)
    #BREAK
  #ENDIF
#ENDLOOP
#CLOSE(%ProgramFile),READ                #!Close the read-only file
```

See Also:

[#OPEN](#)

[#CLOSE](#)

#REDIRECT (change source file)

#REDIRECT([*file*])

#REDIRECT Changes the current generated source destination file.

file A string constant, template symbol, or expression containing a DOS file specification that has already been opened with #OPEN or #CREATE. This may be a fully qualified DOS pathname. If omitted, the source generation destination returns to the previous file that received generated source.

The **#REDIRECT** statement changes the destination *file* for generated source code. All source generation output is directed to the specified *file* until a #OPEN or another #REDIRECT statement is executed. If the file has not been previously opened (or created), or is closed, then a source generation error is produced.

The destination files for generated source are kept as a LIFO (Last In, First Out) "stack" list. When #REDIRECT is issued without a *file* parameter, the source generation destination reverts to the previous destination file.

Example:

```
#SET(%NewProgramFile, (%Application & '.CLW'))      #!Temp new program filename
#CREATE(%NewProgramFile)                          #!Create new program file
#FOR(%Module)
  #CREATE(%Module & '.CLW')                        #!Make module files
#ENDFOR
#REDIRECT(%NewProgramFile)                        #!Redirect output to program file
#GENERATE(%Program)                               #!Generate main program header
#CLOSE(%NewProgramFile)                          #!Create new program file
#FOR(%Module)
  #REDIRECT(%Module & '.CLW')                      #!Redirect output to module file
  #GENERATE(%Module)                               #!Generate module header
  #FOR(%ModuleProcedure)
    #FIX(%Procedure, %ModuleProcedure)             #!Fix current procedure
    #GENERATE(%Procedure)                          #!Generate procedure code
  #ENDFOR                                          #!EndFor all procs in module
#ENDFOR
#!The following code demonstrates the LIFO files list:
#REDIRECT('F1.CLW')  #!List contains:  F1
#REDIRECT('F2.CLW')  #!List contains:  F1,  F2
#REDIRECT('F3.CLW')  #!List contains:  F1,  F2,  F3
#REDIRECT( )         #!List contains:  F1,  F2
#REDIRECT( )         #!List contains:  F1
```


#REPLACE (conditionally replace source file)

#REPLACE(*oldfile*, *newfile*)

#REPLACE Performs "intelligent" file replacement.

oldfile A string constant, template symbol, or expression containing a DOS file specification. This may be a fully qualified DOS pathname.

newfile A string constant, template symbol, or expression containing a DOS file specification. This may be a fully qualified DOS pathname.

The **#REPLACE** statement performs a binary comparison between the contents of the *oldfile* and *newfile*. If the contents of the *oldfile* are different from the contents of the *newfile* (or the *oldfile* does not exist), then the *oldfile* is deleted and the *newfile* is renamed to the *oldfile*. If the two files are identical, then no action is taken. If the *newfile* does not exist, **#REPLACE** is ignored and source generation continues.

Example:

```
#FOR(%Module)
  #SET(%TempModuleFile, (%Module & '.$$$'))
  #CREATE(%TempModuleFile)
  #GENERATE(%Module)
  #FOR(%ModuleProcedure)
    #FIX(%Procedure, %ModuleProcedure)
    #GENERATE(%Procedure)
  #ENDFOR
  #SET(%ModuleFile, (%Module & '.CLW'))
  #REPLACE(%ModuleFile, %TempModuleFile)
#ENDFOR
```

```
#!Set temp module file
#!Create temp module file
#!Generate module header
#!For all procs in module
#!Fix current procedure
#!Generate procedure code
#!EndFor all procs in module
#!Set to existing module file
#!Replace old with new (if changed)
```

#PRINT (print a source file)

#PRINT(*file*, *title*)

#PRINT Prints a *file* to the current Windows printer.

file A string constant, template symbol, or expression containing a DOS file specification. This may be a fully qualified DOS pathname.

title A string constant, template symbol, or expression containing the title to generate for the *file*.

The **#PRINT** statement prints the contents of the *file* to the Windows default printer.

Example:

```
#FOR(%Module)
    #SET(%ModuleFile, (%Module & '.CLW'))           #!Set to existing module file
    #PRINT(%ModuleFile, "Printout ' & %ModuleFile)
#ENDFOR
```

Conditional Source Generation Statements

[#SUSPEND \(begin conditional source\)](#)

[#RELEASE \(commit conditional source generation\)](#)

[#RESUME \(delimit conditional source\)](#)

[#? \(conditional source line\)](#)

#SUSPEND (begin conditional source)

#SUSPEND

The **#SUSPEND** statement marks the start of a section of source that is generated only if a **#RELEASE** statement is encountered. This allows empty unnecessary "boiler-plate" code to be easily removed from the generated source. The end of the section must be delimited by a matching **#RESUME** statement.

These **#SUSPEND** sections may be nested within each other to as many levels as necessary. A **#RELEASE** encountered in an inner nested section commits source generation for all the outer nested levels in which it is contained, also.

A **#EMBED** that contains source to generate performs an implied **#RELEASE**. Any generated source output also performs an implied **#RELEASE**. Therefore, an explicit **#RELEASE** statement is not always necessary. The **#!** statement defines an individual conditional source line that does not preform the implied **#RELEASE**.

Example:

```
ACCEPT
#SUSPEND  #!Begin suspended generation
  #?CASE SELECTED()
  #FOR(%ScreenField)
    #SUSPEND
  #?OF %ScreenField
    #EMBED(%ScreenSetups,'Control selected code'),%ScreenField
  #!Implied #RELEASE from the #EMBED of both nested sections
  #RESUME
END
#RESUME  #!End suspended generation
#SUSPEND  #!Begin suspended generation
  #?CASE EVENT()
  #SUSPEND
  #?OF EVENT:AlertKey
    #SUSPEND
    #?CASE KEYCODE()
      #FOR %HotKey
        #RELEASE #!Explicit #RELEASE
      #?OF %HotKey
        #EMBED(%HotKeyProc,'Hot Key code'),%HotKey
      #ENDFOR
    #?END
  #RESUME
#?END
#RESUME  #!End suspended generation
END
```

See Also:

[#RELEASE](#)

[#RESUME](#)

[#!](#)

#RELEASE (commit conditional source generation)

#RELEASE

The **#RELEASE** enables source generation in a **#SUSPEND** section. This allows empty unnecessary "boiler-plate" code to be easily removed from the generated source. The code in a **#SUSPEND** section is generated only when a **#RELEASE** statement is encountered.

#SUSPEND sections may be nested within each other to as many levels as necessary. A **#RELEASE** encountered in an inner nested section commits source generation for all the outer nested levels in which it is contained, also.

A **#EMBED** that contains source to generate performs an implied **#RELEASE**. Any generated source output also performs an implied **#RELEASE**. Therefore, an explicit **#RELEASE** statement is not always necessary. The **#!** statement defines an individual conditional source line that does not preform the implied **#RELEASE**.

Example:

```
ACCEPT
#SUSPEND  #!Begin suspended generation
  #?CASE SELECTED()
  #FOR(%ScreenField)
    #SUSPEND
    #?OF %ScreenField
      #EMBED(%ScreenSetups,'Control selected code'),%ScreenField
      #!Implied #RELEASE from the #EMBED of both nested sections
      #RESUME
    #?END
  #RESUME  #!End suspended generation
#SUSPEND  #!Begin suspended generation
  #?CASE EVENT()
  #SUSPEND
  #?OF EVENT:AlertKey
    #SUSPEND
    #?CASE KEYCODE()
      #FOR %HotKey
        #RELEASE #!Explicit #RELEASE
      #?OF %HotKey
        #EMBED(%HotKeyProc,'Hot Key code'),%HotKey
      #ENDFOR
    #?END
  #RESUME
#?END
#RESUME  #!End suspended generation
END
```

See Also:

[#SUSPEND](#)

[#RESUME](#)

[#!](#)

#RESUME (delimit conditional source)

#RESUME

The **#RESUME** statement marks the end of a section of source that is generated only if a **#RELEASE** statement is encountered. This allows empty unnecessary "boiler-plate" code to be easily removed from the generated source. The beginning of the section must be delimited by a matching **#SUSPEND** statement.

These **#SUSPEND** sections may be nested within each other to as many levels as necessary. A **#RELEASE** encountered in an inner nested section commits source generation for all the outer nested levels in which it is contained, also.

A **#EMBED** that contains source to generate performs an implied **#RELEASE**. Any generated source output also performs an implied **#RELEASE**. Therefore, an explicit **#RELEASE** statement is not always necessary. The **#!** statement defines an individual conditional source line that does not preform the implied **#RELEASE**.

When a **#RESUME** is executed without the output to the file being released, any conditional lines of code are un-done back to the matching **#SUSPEND**.

Example:

```
ACCEPT
#SUSPEND  #!Begin suspended generation
  #?CASE SELECTED ()
  #FOR (%ScreenField)
    #SUSPEND
  #?OF %ScreenField
    #EMBED (%ScreenSetups, 'Control selected code'), %ScreenField
  #!Implied #RELEASE from the #EMBED of both nested sections
  #RESUME
  #?END
#RESUME  #!End suspended generation
#SUSPEND  #!Begin suspended generation
  #?CASE EVENT ()
  #SUSPEND
  #?OF EVENT:AlertKey
    #SUSPEND
    #?CASE KEYCODE ()
      #FOR %HotKey
        #RELEASE #!Explicit #RELEASE
      #?OF %HotKey
        #EMBED (%HotKeyProc, 'Hot Key code'), %HotKey
      #ENDFOR
    #?END
  #RESUME
  #?END
#RESUME  #!End suspended generation
END
```

See Also:

[#SUSPEND](#)

[#RELEASE](#)

[#!](#)

#? (conditional source line)

#?statement

#? Defines a single line of source code generated only if #RELEASE commits the conditional source section.

statement A single line of target language code. This may contain template symbols.

The #? statement defines a single line of source code that is generated only if a #RELEASE statement is encountered. This allows empty unnecessary "boiler-plate" code to be easily removed from the generated source.

A #EMBED that contains source to generate performs an implied #RELEASE. Any generated source output also performs an implied #RELEASE. Therefore, an explicit #RELEASE statement is not always necessary. The #? statement defines an individual conditional source line that does not preform the implied #RELEASE. When a #RESUME is executed without the output to the file being released, any conditional lines of code are un-done back to the matching #SUSPEND.

Example:

```
ACCEPT  #!Unconditional source line
#SUSPEND
  #?CASE SELECTED()  #!Conditional source line
  #FOR(%ScreenField)
    #SUSPEND
    #?OF %ScreenField  #!Conditional source line
    #EMBED(%ScreenSetups,'Control selected code'),%ScreenField
    #RESUME
    #?END  #!Conditional source line
  #RESUME
#SUSPEND
  #?CASE EVENT()  #!Conditional source line
  #SUSPEND
  #?OF EVENT:AlertKey  #!Conditional source line
  #SUSPEND
  #?CASE KEYCODE()  #!Conditional source line
  #FOR %HotKey
    #RELEASE
  #?OF %HotKey  #!Conditional source line
  #EMBED(%HotKeyProc,'Hot Key code'),%HotKey
  #ENDFOR
  #?END  #!Conditional source line
  #RESUME
  #?END  #!Conditional source line
#RESUME
END  #!Unconditional source line
```

See Also:

[#SUSPEND](#)

[#RELEASE](#)

[#RESUME](#)

Chapter 6 - Miscellaneous

Miscellaneous Statements

- #! (template code comments)
- #< (aligned target language comments)
- #CLASS (define a formula class)
- #COMMENT (specify comment column)
- #ERROR (display source generation error)
- #EXPORT (export symbol to text)
- #HELP (specify template help file)
- #INCLUDE (include a template file)
- #IMPORT (import from text script)
- #MESSAGE (display source generation message)
- #PROTOTYPE (procedure prototype)
- #PROJECT (add file to project)

Built-in Template Functions

- EXTRACT (return attribute)
- EXISTS (return embed point existence)
- FILEEXISTS (return file existence)
- INLIST (return item exists in list)
- INSTANCE (return current instance number)
- ITEMS (return multi-valued symbol instances)
- QUOTE (replace string special characters)
- REPLACE (replace attribute)
- SEPARATOR (return attribute string delimiter position)

Miscellaneous Statements

- #! (template code comments)
- #< (aligned target language comments)
- #CLASS (define a formula class)
- #COMMENT (specify comment column)
- #ERROR (display source generation error)
- #EXPORT (export symbol to text)
- #HELP (specify template help file)
- #INCLUDE (include a template file)
- #IMPORT (import from text script)
- #MESSAGE (display source generation message)
- #PROTOTYPE (procedure prototype)
- #PROJECT (add file to project)

#! (template code comments)

#! comments

#! Initiates Template Language comments.

comments Any text.

Example:

**#! These are Template comments which
#! will not end up in the generated code**

#< (aligned target language comments)

#<*comments*

#< Initiates an aligned target language comment.

comments Any text. This must start with the target language comment initiator.

Example:

#COMMENT(50)

#! This Template file comment will not be in the generated code

#<! This is a Clarion comment which appears in the generated code in column 50

! This Clarion comment appears in the generated code in column 2

#<// This is a C++ comment which appears in the generated code beginning in column 50

// This C++ comment appears in the generated code in column 2

See Also:

[#COMMENT](#)

#CLASS (define a formula class)

#CLASS(*string*, *description*)

#CLASS Defines a formula class.

string A string constant containing the formula class.

description A string expression containing the description of the formula class to display in the list of those available in the Formula Editor.

Example:

```
#PROCEDURE(SomeProc,'An Example Template'),WINDOW
#CLASS('START','At beginning of procedure')
#CLASS('LOOP','In process loop')
#CLASS('END','At end of procedure')
%Procedure PROCEDURE
%ScreenStructure
CODE
#INSERT(%GenerateFormulas,'START')      #!Generate START class formulas
OPEN(%Screen)
ACCEPT
  #INSERT(%GenerateFormulas,'LOOP')      #!Generate LOOP class formulas
END
#INSERT(%GenerateFormulas,'END')        #!Generate END class formulas
```


#COMMENT (specify comment column)

#COMMENT(*column*)

#COMMENT Sets the default column number for aligned comments.

column A numeric constant in the range 1 to 255.

Example:

```
#COMMENT(50)    #!Set comment column  
IF Action = 1  #<!If adding a record  
    SomeVariable = InitVariable  
END
```

See Also:

[#< \(aligned target language comments\)](#)

#ERROR (display source generation error)

#ERROR(*message*)

#ERROR Displays a source generation error.

message A string constant, user-defined symbol, or expression containing an error message to display in the Source Generation window.

Example:

```
#PROCEDURE(SampleProc,'This is a sample procedure')  
#PROMPT('Access Key',KEY),%SampleAccessKey  
#IF(%SampleAccessKey = %NULL)                    ##!IF the user did not enter a Key  
#SET(%ErrorSymbol,(%Procedure & ' Access Key blank')  
#ERROR(%ErrorSymbol)  
#ERROR('This error is Fatal -- DO NOT CONTINUE')  
#ABORT  
#ENDIF
```

#EXPORT (export symbol to text)

#EXPORT(*symbol*)

#EXPORT Creates a .TXA text file from a *symbol*.

symbol The template symbol to export.

Example:

```
#OPEN('MyExp.TXA')  
#FOR(%Procedure)  
    #EXPORT(%Procedure)  
#ENDFOR
```

See Also:

[#CREATE](#)

[#OPEN](#)

[#IMPORT](#)

#HELP (specify template help file)

#HELP(*helpfile*)

#HELP Specifies the Template's help file.

helpfile A string constant containing the name of the template's help file.

Example:

#HELP('Template.HLP')

#INCLUDE (include a template file)

#INCLUDE(*filename*)

#INCLUDE Adds a template file to the Template file chain.

filename A string constant containing the name of the template file to include.

Example:

```
#TEMPLATE(Clarion,'Clarion Standard Shipping Templates')  
#INCLUDE('Clarion1.TPX') ##!Include a template file  
#INCLUDE('Clarion2.TPX') ##!Include another template file
```

#IMPORT (import from text script)

```
#IMPORT( source ) [, | RENAME | ]  
| REPLACE |
```

#IMPORT Creates an .APP for Clarion for Windows from a .TXA script *source* file.

source The name of the .TXA script file from which to create the .APP file.

RENAME Overrides the **Procedure Name Clash** prompt dialog and renames all procedures.

REPLACE Overrides the **Procedure Name Clash** prompt dialog and replaces all procedures.

Example:

```
#UTILITY(SomeUtility,'Some Utility Template')  
#PROMPT('File to import',@s64),%ImportFile  
#IMPORT(%ImportFile)
```

#MESSAGE (display source generation message)

#MESSAGE(*message*, *line*)

#MESSAGE Displays a source generation message.

message A string constant, or a user-defined symbol, containing a message to display in the Source Generation dialog.

line An integer constant or symbol containing the line number on which to display the *message*. If out of the range 1 through 3, the *message* is displayed in the title bar as the window caption.

Example:

```
#MESSAGE('Generating ' & %Application,0)  
#MESSAGE('Generating ' & %Procedure,2)
```

```
#!Display Title bar text  
#!Display Progress message on line 2
```

#PROTOTYPE (procedure prototype)

#PROTOTYPE(*parameter list*)

#PROTOTYPE Assigns the *parameter list* to the **Prototype** entry field.

parameter list A string constant containing the procedure's prototype parameter list (the entire procedure prototype without the leading procedure name) for the application's MAP structure (see the discussion of Function and Procedure Prototypes in the *Language Reference*).

Example:

```
#PROCEDURE(SomeProc,'Some Procedure Template')
%Procedure PROCEDURE(Parm1,Parm2,Parm3)
  #PROTOTYPE('(STRING,*LONG,<*SHORT>')
    #!This procedure expects three parameters:
    #! a STRING passed by value
    #! a LONG passed by address
    #! a SHORT passed by address which may be omitted

#PROCEDURE(SomeFunc,'Some Template Function')
%Procedure FUNCTION(Parm1,Parm2,Parm3)
  #PROTOTYPE('(STRING,*LONG,<*SHORT>),STRING')
    #!This function expects three parameters:
    #! a STRING passed by value
    #! a LONG passed by address
    #! a SHORT passed by address which may be omitted
    #!It returns a STRING
```


#PROJECT (add file to project)

#PROJECT(*module*)

#PROJECT Includes a source or object code library, or Project file, in the application's Project file.

module A string constant which names a source (.CLW, if Clarion is the target language), object (.OBJ), or library (.LIB) file containing procedures and/or functions required by the procedure Template. This may also name a Project (.PRJ) file to be called by the application's Project. The type of file being imported is determined by the file extension.

Example:

```
#AT(%CustomGlobalDeclarations)  
    #PROJECT('Party3.LIB')  
#ENDAT
```

Built-in Template Functions

- EXTRACT (return attribute)
- EXISTS (return embed point existence)
- FILEEXISTS (return file existence)
- INLIST (return item exists in list)
- INSTANCE (return current instance number)
- ITEMS (return multi-valued symbol instances)
- QUOTE (replace string special characters)
- REPLACE (replace attribute)
- SEPARATOR (return attribute string delimiter position)

EXTRACT (return attribute)

EXTRACT(*string*, *attribute* [, *parameter*])

EXTRACT Returns the complete form of the specified *attribute* from the property *string* symbol.

string The symbol containing the properties to parse.

attribute A string constant or symbol containing the name of the property to return.

parameter An integer constant or symbol containing the number of the property's parameter to return. Zero (0) returns the entire parameter list (without the *attribute*). If omitted, the *attribute* and all its *parameters* are returned.

Return Data Type: STRING

Example:

```
#SET(%MySymbol,EXTRACT(%ControlStatement,'DROPID')    #!Return DROPID attribute
#SET(%MySymbol,EXTRACT(%ControlStatement,'DROPID',0) #!Return all DROPID parameters
```

See Also:

[REPLACE](#)

EXISTS (return embed point existence)

EXISTS(*symbol*)

EXISTS Returns TRUE if the embedded source code point is available for use.

symbol The *identifier* symbol for a #EMBED embedded source code point.

Return Data Type: LONG

Example:

```
#IF(EXISTS(%CodeTemplateEmbed))  
!Generate some source  
#ENDIF
```

FILEEXISTS (return file existence)

FILEEXISTS(*file*)

FILEEXISTS Returns TRUE if the *file* available on disk.

file An expression containing the DOS filename.

Return Data Type: LONG

Example:

```
#IF(FILEEXISTS(%SomeFile))  
  #OPEN(%SomeFile)  
  #READ(%SomeFile)  
  !some source  
#ENDIF
```

INLIST (return item exists in list)

`INLIST(item, symbol)`

INLIST Returns the instance number of the *item* in the *symbol*.

item A string constant or symbol containing the name of the item to return.

symbol A multi-valued symbol that may contain the item.

Return Data Type: LONG

Example:

```
#IF(INLIST('?MyControl',%Control))  
!Generate some source  
#ENDIF
```

INSTANCE (return current instance number)

INSTANCE(*symbol*)

INSTANCE Returns the current instance number to which the *symbol* is fixed.

symbol A multi-valued symbol.

Return Data Type: LONG

Example:

#DELETE(%Control,INSTANCE(%Control))

#!Delete current instance

ITEMS (return multi-valued symbol instances)

ITEMS(*symbol*)

ITEMS Returns the number of instances contained by the *symbol*.

symbol A multi-valued symbol.

Return Data Type: LONG

Example:

#DELETE(%Control,ITEMS(%Control))

#!Delete last instance

QUOTE (replace string special characters)

QUOTE(*symbol*)

QUOTE Expands the *symbol's* string data, "doubling up" single quotes ('), and all un-paired left angle brackets (<) and left curly braces (}) to prevent compiler errors.

symbol The symbol containing the properties to parse.

Return Data Type: STRING

Example:

```
#PROMPT('Filter Expression',@S255),%FilterExpression  
#SET(%ValueConstruct,QUOTE(%FilterExpression))  #!Expand single quotes and angle brackets
```

REPLACE (replace attribute)

REPLACE(*string*, *attribute*, *new value* [, *parameter*])

REPLACE Finds the complete form of the specified *attribute* from the property *string* symbol and replaces it with the *new value*.

string The symbol containing the properties to parse.

attribute A string constant or symbol containing the name of the property to find.

new value A string constant or symbol containing the replacement value for the *attribute*.

parameter An integer constant or symbol containing the number of the property's parameter to affect. Zero (0) affects the entire parameter list (without the *attribute*). If omitted, the *attribute* and all its *parameters* are affected.

Return Data Type: STRING

Example:

```
#SET(%ValueConstruct,REPLACE(%ValueConstruct,'MSG',''))    #!Remove MSG attribute
```

See Also:

[EXTRACT](#)

Chapter 7 - Template Symbols

Symbol Overview

Expansion Symbols

Symbol Hierarchy Overview

Built-in Symbols

Symbols Dependent on %Application

Symbols Dependent on %File

Symbols Dependent on %ViewFiles

Symbols Dependent on %Field

Symbols Dependent on %Key

Symbols Dependent on %Relation

Symbols Dependent on %Module

Symbols Dependent on %Procedure

Window Control Symbols

Report Control Symbols

Formula Symbols

File Schematic Symbols

File Driver Symbols

Miscellaneous Symbols

Symbol Overview

[Expansion Symbols](#)

[Symbol Hierarchy Overview](#)

Expansion Symbols

- %% Expands to a single percent (%) sign. This allows the Application Generator to generate the modulus operator without confusion with any symbol.
- %# Expands to a single pound (#) sign. This allows the Application generator to generate an implicit LONG variable without confusion with any Template Language statement.
- %(*picture*)@*symbol* Formats the *symbol* with the specified *picture* when source generates. For example, %(D1)@MyDate expands the %MyDate symbol, formatted for the @D1 *picture*.
- %(*number*]*symbol* Expands the *symbol* to fill at least the *number* of spaces specified. This allows proper comment and data type alignment in the generated source.
- %| Expands the next generated source onto the same line as the last. This is the Template line continuation character.
- %'*symbol* Expands the *symbol's* string data, "doubling up" single quotes ('), and all un-paired left angle brackets (<) and left curly braces (}) to prevent compiler errors.
- %(*expression*) Expands the *expression* into the generated source.

Example:

```
%(ALL(' ', %indent))%[20]Field %@d3@Date
    #!Generate an indent, expand %Field to occupy at least 20 spaces, then
    #! generate the date in mmm dd, yyyy format

%[30]Null          #!Generate 30 spaces

#! %MySymbol contains: Gavin's Holiday
StringVar = '%MySymbol'    #!Expands as a valid Clarion string constant
                           #! to 'Gavin''s Holiday"
```

Symbol Hierarchy Overview

- %Application**
 - %DictionaryFile**
 - %File**
 - %Field**
 - %Key**
 - %Relation**
 - %Program**
 - %GlobalData**
 - %Module**
 - %ModuleProcedure**
 - %MapItem**
 - %ModuleData**
 - %Procedure**
 - %Report**
 - %ReportControl**
 - %ReportControlField**
 - %Window**
 - %WindowEvent**
 - %Control**
 - %ControlEvent**
 - %ProcedureCalled**
 - %LocalData**
 - %ActiveTemplate**
 - %ActiveTemplateInstance**
 - %Formula**
 - %FormulaExpression**

Built-in Symbols

- Symbols Dependent on %Application
- Symbols Dependent on %File
- Symbols Dependent on %ViewFiles
- Symbols Dependent on %Field
- Symbols Dependent on %Key
- Symbols Dependent on %Relation
- Symbols Dependent on %Module
- Symbols Dependent on %Procedure
- Window Control Symbols
- Report Control Symbols
- Formula Symbols
- File Schematic Symbols
- File Driver Symbols
- Miscellaneous Symbols

Symbols Dependent on %Application

- %Application** The name of the .APP file. The hierarchy of built-in symbols starts with %Application.
- %ApplicationDebug**
Contains 1 if the application has debug enabled.
- %ApplicationLocalLibrary**
Contains 1 if the application is linking in the Clarion runtime library.
- %Target32** Contains 1 if the application is producing a 32-bit program.
- %DictionaryChanged**
Contains 1 if the .DCT file has changed since the last source generation.
- %RegistryChanged**
Contains 1 if the .REGISTRY.TRF file has changed since the last source generation.
- %ProgramDateCreated**
The program creation date (a Clarion standard date).
- %ProgramDateChanged**
The date the program was last changed (a Clarion standard date).
- %ProgramTimeCreated**
The program creation time (Clarion standard time).
- %ProgramTimeChanged**
The time the program was last changed (a Clarion standard time).
- %FirstProcedure** The label of the application's first procedure.
- %HelpFile** The name of the application's help file.
- %ProgramExtension**
Contains EXE, DLL, or LIB.
- %DictionaryFile** The name of the .DCT file for the application.
- %File** Contains all file declarations in the .DCT file. Multi-valued. Dependent on %DictionaryFile.
- %Program** The name of the PROGRAM file without extension).
- %GlobalData** The labels of all global variable declarations made through the Global Data button on the Global Settings window. Multi-valued.
- %GlobalDataStatement**
The variable's declaration statement (data type and all attributes). Dependent on %GlobalData.
- %Module** The names of all source code modules other than the PROGRAM module. Multi-valued.
- %QuickProcedure** The name of the procedure type a #UTILITY with the WIZARD attribute is creating.
- %Procedure** The names of all procedures and functions in the application. Multi-valued.

Symbols Dependent on %File

%File	Contains all file declarations in the .DCT file. Multi-valued. Dependent on %DictionaryFile.
%FilePrefix	Contents of the PRE attribute (the file prefix).
%FileDescription	A short description of the file.
%FileType	Contains FILE, VIEW, or ALIAS.
%FileDriver	Contents of the DRIVER attribute first parameter.
%FileDriverParameter	Contents of the DRIVER attribute second parameter.
%FileName	Contents of the FILE statement's NAME attribute.
%FileOwner	Contents of the OWNER attribute.
%FileCreate	Contains 1 if the file has the CREATE attribute.
%FileReclaim	Contains 1 if the file has the RECLAIM attribute.
%FileEncrypt	Contains 1 if the file has the ENCRYPT attribute.
%FileBindable	Contains 1 if the file has the BINDABLE attribute.
%FileLongDesc	A long description of the file.
%FileStruct	The FILE statement (the label and all attributes).
%FileStructEnd	The keyword END.
%FileStructRec	The RECORD statement (including label and any attributes).
%FileStructRecEnd	The keyword END.
%FileStatement	Contains the FILE statement's attributes (only).
%FileThreaded	Contains 1 if the file has the THREAD attribute.
%FileExternal	Contains 1 if the file has the EXTERNAL attribute.
%FileExternalModule	Contents of the file's EXTERNAL attribute parameter.
%FilePrimaryKey	The label of the file's primary key.
%FileQuickOptions	A comma-delimited string containing the choices the user made on the Options tab for the file.
%FileUserOptions	A string containing the entries the user made in the User Options text box on the Options tab for the file.
%ViewFilter	Contents of the FILTER attribute.
%ViewStruct	The VIEW statement (including the label and all attributes).
%ViewStructEnd	The keyword END.
%ViewStatement	The VIEW statement's attributes (only).
%ViewPrimary	The label of the VIEW's primary file.
%ViewPrimaryFields	

The labels of all fields in the VIEW from the primary file. Multi-valued.

%ViewPrimaryField

Dependent on %ViewPrimaryFields. Contains the label of a field in the VIEW from the primary file.

%ViewFiles The labels of all files in the VIEW. Multi-valued.

%AliasFile The label of the ALIASed file.

%Field The labels of all fields in the file (including MEMO fields). Multi-valued.

%Key The labels of all keys and indexes for the file. Multi-valued.

%Relation The labels of all files that are related to the file. Multi-Valued.

Symbols Dependent on %ViewFiles

- %ViewFiles** The labels of all files in the VIEW. Multi-valued. Dependent on %File.
- %ViewFileStruct** The JOIN statement for a secondary file in the VIEW.
- %ViewFileStructEnd**
 The keyword END.
- %ViewFile** Contains the label of the file.
- %ViewJoinedTo** The label of the file to which the file is JOINed.
- %ViewFileFields** The labels of all fields in the file used in the VIEW. Multi-valued.
- %ViewFileField** Contains the label of the field in the file used in the VIEW. Dependent on
 %ViewFileFields.

Symbols Dependent on %Field

%Field	The labels of all fields in the file (including MEMO fields). Multi-valued. Dependent on %File.
%FieldDescription	A short description of the field.
%FieldLongDesc	A long description of the field.
%FieldFile	The label of the file containing the field.
%FieldID	Label of the field without prefix.
%FieldDisplayPicture	Default display picture.
%FieldRecordPicture	STRING field storage definition picture.
%FieldDimension1	Maximum value of first array dimension.
%FieldDimension2	Maximum value of second array dimension.
%FieldDimension3	Maximum value of third array dimension.
%FieldDimension4	Maximum value of fourth array dimension.
%FieldHelpID	Contents of the HLP attribute.
%FieldName	Contents of the field's NAME attribute.
%FieldRangeLow	The lower range of valid values for the field.
%FieldRangeHigh	The upper range of valid values for the field.
%FieldType	Data type of the field.
%FieldPlaces	Number of decimal places for the field.
%FieldMemoSize	Maximum size of the MEMO.
%FieldMemoImage	Contains 1 if the MEMO has a BINARY attribute.
%FieldInitial	Initial value for the field.
%FieldLookup	File to access to validate this field's value.
%FieldStruct	The field's declaration statement (label, data type, and all attributes).
%FieldStatement	The field's declaration statement (data type and all attributes).
%FieldHeader	The field's default report column header.
%FieldPicture	Default display picture.
%FieldJustType	Contains L, R, C, or D for the field's justification.
%FieldJustIndent	The justification offset amount.
%FieldFormatWidth	The default width for the field's ENTRY control.
%FieldChoices	The choices the user entered for a Must Be In List field. Multi-valued.
%FieldQuickOptions	A comma-delimited string containing the choices the user made on the Options tab for the

field.

`%FieldUserOptions`

A string containing the entries the user made in the User Options text box on the Options tab for the field.

Symbols Dependent on %Key

%Key	The labels of all keys and indexes for the file. Multi-valued.
%KeyDescription	A short description of the key.
%KeyLongDesc	A long description of the key.
%KeyFile	The label of the file to which the key belongs.
%KeyID	The label of the key (without prefix).
%KeyIndex	Contains KEY, INDEX, or DYNAMIC.
%KeyName	Contents of the key's NAME attribute.
%KeyAuto	Contains the label of the auto-incrementing field.
%KeyDuplicate	Contains 1 if the key has the DUP attribute.
%KeyExcludeNulls	Contains 1 if the key has the OPT attribute.
%KeyNoCase	Contains 1 if the key has the NOCASE attribute.
%KeyPrimary	Contains 1 if the key is the file's primary key.
%KeyStruct	The key's declaration statement (label and all attributes).
%KeyStatement	The key's attributes (only).
%KeyField	The labels of all component fields of the key. Multi-valued.
%KeyFieldSequence	Contains ASCENDING or DESCENDING. Dependent on %Keyfield.
%KeyQuickOptions	A comma-delimited string containing the choices the user made on the Options tab for the key.
%KeyUserOptions	A string containing the entries the user made in the User Options text box on the Options tab for the key.

Symbols Dependent on %Relation

- %Relation** The labels of all files that are related to the file. Multi-Valued.
- %RelationPrefix** The prefix of the related file.
- %FileRelationType** Contains 1:MANY or MANY:1.
- %RelationKey** The label of the related file's linking key.
- %FileKey** The label of the file's linking key.
- %RelationConstraintDelete**
 May contain: RESTRICT, CASCADE, or CLEAR.
- %RelationConstraintUpdate**
 May contain: RESTRICT, CASCADE, or CLEAR.
- %RelationKeyField** The labels of all linking fields in the related file's key. Multi-valued.
- %RelationKeyFieldLink**
 The label of the linking field in the file's key. Dependent on %RelationKeyField.
- %FileKeyField** The labels of all linking fields in the file's key. Multi-valued.
- %FileKeyFieldLink**
 The label of the linking field in the related file's key. Dependent on %FileKeyField.
- %RelationQuickOptions**
 A comma-delimited string containing the choices the user made on the Options tab for the relation.
- %RelationUserOptions**
 A string containing the entries the user made in the User Options text box on the Options tab for the relation.

Symbols Dependent on %Module

%Module	Thes names of all source code modules other than the PROGRAM module. Multi-valued.
%ModuleDescription	%Module
%ModuleLanguage	Contains the module target language.
%ModuleTemplate	The name of the Module Template used to generate the module.
%ModuleChanged	Contains 1 if anything in the module has changed since the last source generation.
%ModuleExternal	Contains 1 if the module is external. (not generated by Clarion for Windows).
%ModuleExtension	The file extension for the module.
%ModuleBase	The name of the module (without extension).
%ModuleInclude	The fiel to INCLUDE in the program MAP containing the module's prototypes.
%ModuleProcedure	The names of all procedures and functions in the module. Multi-valued.
%ModuleData	The labels of all module variable declarations made through the Data button on the Module Properties window. Multi-valued.
%ModuleDataStatement	The variable's declaration statement (data type and all attributes). Dependent on %ModuleData.

Symbols Dependent on %Procedure

- %Procedure** These names of all procedures and functions in the application. Multi-valued.
- %ProcedureType** Contains PROCEDURE or FUNCTION.
- %ProcedureReturnType**
 The data type returned, if the procedure is a FUNCTION.
- %ProcedureDateCreated**
 The procedure creation date (a Clarion standard date).
- %ProcedureDateChanged**
 The date the procedure was last changed (a Clarion standard date).
- %ProcedureTimeCreated**
 The time the procedure was created (a Clarion standard time).
- %ProcedureTimeChanged**
 The time the procedure was last changed (a Clarion standard time).
- %Prototype** The procedure's prototype for the MAP structure.
- %ProcedureTemplate**
 The name of the Procedure Template used to generate the procedure.
- %ProcedureDescription**
 A short description of the procedure.
- %ProcedureExported**
 Contains 1 if the procedure is in a DLL and is callable from outside the DLL.
- %ProcedureLongDescription**
 A long description of the procedure.
- %ProcedureLanguage**
 The target language the procedure template generates.
- %ProcedureCalled** The names of all procedures listed by the Procedures button on the Procedure Properties window. Multi-valued.
- %LocalData** The labels of all local variable declarations made through the Data button on the Procedure Properties window. Multi-valued.
- %LocalDataStatement**
 The variable's declaration statement (data type and all attributes). Dependent on %LocalData.
- %ActiveTemplate** The name of all control templates used in the procedure. Multi-valued.
- %ActiveTemplateInstance**
 The instance numbers of all control templates used in the procedure. Multi-valued. Dependent on %ActiveTemplate.
- %ActiveTemplateParentInstance**
 The instance number of the control template's parent control template. This is the control template that it is "attached" to. Dependent on %ActiveTemplateInstance.
- %ActiveTemplatePrimaryInstance**
 The instance number of the control template's primary control template. This is the first control template in a succession of multiple related control templates. Dependent on

%ActiveTemplateInstance.

Window Control Symbols

- %Window** The label of the procedure's window. Dependent on %Procedure.
- %WindowStatement**
The WINDOW or APPLICATION declaration statement (and all attributes). Dependent on %Window.
- %MenuBarStatement**
The MENUBAR declaration statement (and all attributes). Dependent on %Window.
- %ToolbarStatement**
The TOOLBAR declaration statement (and all attributes). Dependent on %Window.
- %WindowEvent** All field-independent events, as listed in the EQUATES.CLW file (without EVENT: prepended). Multi-valued. Dependent on %Window.
- %Control** The field equate labels of all controls in the window. Multi-valued. Dependent on %Window.
- %ControlUse** The control's USE variable (not field equate). Dependent on %Control.
- %ControlStatement** The control's declaration statement (and all attributes). Dependent on %Control.
- %ControlType** The type of control (MENU, ITEM, ENTRY, BUTTON, etc.). Dependent on %Control.
- %ControlTemplate** The name of the control template which populated the control onto the window. Dependent on %Control.
- %ControlTool** Contains 1 if the control is in a TOOLBAR. Dependent on %Control.
- %ControlMenu** Contains 1 if the control is in a MENUBAR. Dependent on %Control.
- %ControlIndent** The control declaration's indentation level in the generated data structure. Dependent on %Control.
- %ControlInstance** The instance number of the control template which populated the control onto the window. Dependent on %Control.
- %ControlOriginal** The original field equate label of the control as listed in the control template from which it came. Dependent on %Control.
- %ControlFrom** The FROM attribute of a LIST or COMBO control. Dependent on %Control.
- %ControlAlert** All ALERT attributes for the control. Multi-valued. Dependent on %Control.
- %ControlEvent** All field-specific events appropriate for the control, as listed in the EQUATES.CLW file (without the EVENT: prepended). Multi-valued. Dependent on %Control.
- %ControlField** All fields populated into the LIST, COMBO, or SPIN control. Multi-valued. Dependent on %Control.
- %ControlFieldHasIcon**
Contains 1 if the field in the LIST or COMBO control is formatted to have an icon. Dependent on %ControlField.
- %ControlFieldHasColor**
Contains 1 if the field in the LIST or COMBO control is formatted to have colors. Dependent on %ControlField.
- %ControlFieldHasTree**
Contains 1 if the field in the LIST or COMBO control is formatted to be a tree.

Dependent on %ControlField.

%ControlFieldHasLocator

Contains 1 if the field in the LIST or COMBO control is formatted to be a locator.

Dependent on %ControlField.

Report Control Symbols

- %Report** The label of the procedure's report. Dependent on %Procedure.
- %ReportStatement** The REPORT declaration statement (and all attributes). Dependent on %Report.
- %ReportControl** The field equate labels of all controls in the report. Multi-valued. Dependent on %Report.
- %ReportControlUse**
 The control's USE variable (not field equate). Dependent on %ReportControl.
- %ReportControlStatement**
 The control's declaration statement (and all attributes). Dependent on %ReportControl.
- %ReportControlType**
 The type of control (MENU, ITEM, ENTRY, BUTTON, etc.). Dependent on %ReportControl.
- %ReportControlTemplate**
 The name of the control template which populated the control onto the report. Dependent on %ReportControl.
- %ReportControlIndent**
 The control declaration's indentation level in the generated data structure. Dependent on %ReportControl.
- %ReportControlInstance**
 The instance number of the control template which populated the control onto the report. Dependent on %ReportControl.
- %ReportControlOriginal**
 The original field equate label of the control as listed in the control template from which it came. Dependent on %ReportControl.
- %ReportControlLabel**
 The label of the report STRING control. Dependent on %ReportControl.
- %ReportControlField**
 All fields populated into the LIST, COMBO, or SPIN control. Multi-valued. Dependent on %ReportControl.

Formula Symbols

- %Formula** The label of the result field for each formula. Multi-valued. Dependent on %Procedure.
- %FormulaDescription**
 A description of the formula.
- %FormulaClass** An identifier for the position in generated source to place the formula.
- %FormulaInstance** The control template instance number for a formula whose class has been declared in a control template.
- %FormulaExpression**
 The expression to conditionally evaluate or assign to the result field for each formula. Multi-valued. Dependent on %Formula.
- %FormulaExpressionType**
 Contains =, IF, ELSE, CASE, or OF. Dependent on %FormulaExpression.
- %FormulaExpressionTrue**
 Contains the line number of the true expression in the generated formula. Dependent on %FormulaExpression.
- %FormulaExpressionFalse**
 Contains the line number of the false expression in the generated formula. Dependent on %FormulaExpression.
- %FormulaExpressionOf**
 Contains the line number of the OF expression in the generated formula. Dependent on %FormulaExpression.
- %FormulaExpressionCase**
 Contains the line number of the assignment in the generated formula. Dependent on %FormulaExpression.

File Schematic Symbols

- %Primary** The label of a Primary file listed in the procedure's File Schematic for the procedure or a control template used in the procedure.
- %PrimaryKey** The label of the access key for the primary file. Dependent on %Primary.
- %PrimaryInstance** The control template instance number for which the file is primary. Dependent on %Primary.
- %Secondary** The labels of all Secondary files listed in the File Schematic for the procedure or a control template used in the procedure. Multi-valued. Dependent on %Primary.
- %SecondaryTo** The label of the Secondary or Primary file to which the Secondary file is related (the file "above" it as listed in the procedure's File Schematic). Dependent on %Secondary.
- %SecondaryType** Contains 1:MANY or MANY:1. Dependent on %Secondary.
- %OtherFiles** The labels of all Other Data files listed for the procedure. Multi-valued.

File Driver Symbols

%Driver	The names of all registered file drivers.
%DriverDLL	The name of the driver's .DLL file. Dependent on %Driver.
%DriverLIB	The name of the driver's .LIB file. Dependent on %Driver.
%DriverDescription	A description of the file driver. Dependent on %Driver.
%DriverCreate	Contains 1 if the driver supports the CREATE attribute. Dependent on %Driver.
%DriverOwner	Contains 1 if the driver supports the OWNER attribute. Dependent on %Driver.
%DriverEncrypt	Contains 1 if the driver supports the ENCRYPT attribute. Dependent on %Driver.
%DriverReclaim	Contains 1 if the driver supports the RECLAIM attribute. Dependent on %Driver.
%DriverMaxKeys	The maximum number of keys the driver supports for each data file. Dependent on %Driver.
%DriverUniqueKey	Contains 1 if the driver supports unique (no DUP attribute) keys. Dependent on %Driver.
%DriverRequired	Contains 1 if the driver supports the RECLAIM attribute. Dependent on %Driver.
%DriverMemo	Contains 1 if the driver supports MEMO fields. Dependent on %Driver.
%DriverBinMemo	Contains 1 if the driver supports the BINARY attribute on MEMO fields. Dependent on %Driver.
%DriverSQL	Contains 1 if the driver is an SQL driver. Dependent on %Driver.
%DriverType	All data types supported by the driver. Multi-valued. Dependent on %Driver.
%DriverOpcode	All operations supported by the driver. Multi-valued. Dependent on %Driver.

Miscellaneous Symbols

<code>%ConditionalGenerate</code>	Contains 1 if the Conditional Generation box is checked on the Application Options window.
<code>%Null</code>	Contains nothing. This is used for comparison to detect empty symbols.
<code>%True</code>	Contains 1.
<code>%False</code>	Contains an empty string (").
<code>%EOF</code>	Contains the value that flags the end of file when reading a file with <code>#READ</code> .
<code>%BytesOutput</code>	Contains the number of bytes written to the current output file. This can be used to detect empty embed points (if no bytes were written, it contained nothing).
<code>%EmbedID</code>	Contains the current embed point's identifying symbol.
<code>%EmbedDescription</code>	The current embed point's description.
<code>%EmbedParameters</code>	The current embed point's current instance, as a comma-delimited list.

Chapter 8 - Annotated Examples

Procedure Template: Window

_____ %StandardWindowCode #GROUP

_____ %StandardWindowHandling #GROUP

_____ %StandardAcceptedHandling #GROUP

_____ %StandardControlHandling #GROUP

Code Template: ControlValueValidation

_____ %CodeTPLValidationCode #GROUP

Control Template: DOSFileLookup

Extension Template: DateTimeDisplay

_____ %DateTimeDisplayCode #GROUP

Procedure Template: Window

```
#PROCEDURE(Window,'Generic Window Handler'),WINDOW,HLP('~TPLProcWindow')
#LOCALDATA
LocalRequest      LONG,AUTO
OriginalRequest   LONG,AUTO
LocalResponse     LONG,AUTO
WindowOpened     LONG
WindowInitialized LONG
ForceRefresh     LONG,AUTO
#ENDLOCALDATA
#CLASS('Procedure Setup','Upon Entry into the Procedure')
#CLASS('Before Lookups','Refresh Window ROUTINE, before lookups')
#CLASS('After Lookups','Refresh Window ROUTINE, after lookups')
#CLASS('Procedure Exit','Before Leaving the Procedure')
#PROMPT('&Parameters:',@s255),%Parameters
#ENABLE(%ProcedureType='FUNCTION')
#PROMPT('Return Value:',FIELD),%ReturnValue
#ENDENABLE
#PROMPT('Window Operation Mode:',DROP('Use WINDOW setting|Normal|MDI|Modal')) %|
,%WindowOperationMode
#ENABLE(%INIActive)
#BOXED('INI File Settings')
#PROMPT('Save and Restore Window Location',CHECK) %|
,%INISaveWindow,DEFAULT(1),AT(10,,150)
#ENDBOXED
#ENDENABLE
#AT(%CustomGlobalDeclarations)
#INSERT(%StandardGlobalSetup)
#ENDAT
#INSERT(%StandardWindowCode)
```

%StandardWindowCode #GROUP

```
#GROUP(%StandardWindowCode)
#IF(NOT %Window)
  #ERROR(%Procedure & ' Error: No Window Defined!')
  #RETURN
#ENDIF
#DECLARE(%FirstField)
#DECLARE(%LastField)
#DECLARE(%ProgressWindowRequired)
#INSERT(%FieldTemplateStandardButtonMenuPrompt)
#INSERT(%FieldTemplateStandardEntryPrompt)
#INSERT(%FieldTemplateStandardCheckBoxPrompt)
#EMBED(%GatherSymbols,'Gather Template Symbols'),HIDE
#INSERT(%FileControlInitialize)
%Procedure %ProcedureType%Parameters

#FOR(%LocalData)
%[20]LocalData %LocalDataStatement
#ENDFOR
#INSERT(%StandardWindowGeneration)
#IF(%ProgressWindowRequired)
#INSERT(%StandardProgressWindow)
#ENDIF
CODE
#EMBED(%ProcedureInitialize,'Initialize the Procedure')
LocalRequest = GlobalRequest
OriginalRequest = GlobalRequest
LocalResponse = RequestCancelled
ForceRefresh = False
CLEAR(GlobalRequest)
CLEAR(GlobalResponse)
#EMBED(%ProcedureSetup,'Procedure Setup')
IF KEYCODE() = MouseRight
  SETKEYCODE(0)
END
#INSERT(%StandardFormula,'Procedure Setup')
#INSERT(%FileControlOpen)
#INSERT(%StandardWindowOpening)
#EMBED(%PrepareAlerts,'Preparing Window Alerts')
#EMBED(%BeforeAccept,'Preparing to Process the Window')
#MESSAGE('Accept Handling',3)
ACCEPT
  #EMBED(%AcceptLoopBeforeEventHandling,'Accept Loop, Before CASE EVENT() handling')
  CASE EVENT()
  #EMBED(%EventCaseBeforeGenerated,'CASE EVENT() structure, before generated code')
  #INSERT(%StandardWindowHandling)
  #EMBED(%EventCaseAfterGenerated,'CASE EVENT() structure, after generated code')
  END
  #EMBED(%AcceptLoopAfterEventHandling,'Accept Loop, After CASE EVENT() handling')
  #SUSPEND
  #?CASE ACCEPTED()
  #INSERT(%StandardAcceptedHandling)
  #?END
  #RESUME
  #EMBED(%AcceptLoopBeforeFieldHandling,'Accept Loop, Before CASE FIELD() handling')
  #SUSPEND
  #?CASE FIELD()
  #EMBED(%FieldCaseBeforeGenerated,'CASE FIELD() structure, before generated code')
  #INSERT(%StandardControlHandling)
  #EMBED(%FieldCaseAfterGenerated,'CASE FIELD() structure, after generated code')
  #?END
  #RESUME
END
DO ProcedureReturn
!-----
ProcedureReturn ROUTINE
#INSERT(%FileControlClose)
#INSERT(%StandardWindowClosing)
#EMBED(%EndOfProcedure,'End of Procedure')
#INSERT(%StandardFormula,'Procedure Exit')
IF LocalResponse
  GlobalResponse = LocalResponse
```

```

ELSE
  GlobalResponse = RequestCancelled
END
#IF(%ProcedureType='FUNCTION')
RETURN(%ReturnValue)
#ELSE
RETURN
#ENDIF
!-----
InitializeWindow ROUTINE
#EMBED(%WindowInitializationCode,'Window Initialization Code')
DO RefreshWindow
!-----
RefreshWindow ROUTINE
IF %Window{Prop:AcceptAll} THEN EXIT.
#EMBED(%RefreshWindowBeforeLookup,'Refresh Window routine, before lookups')
#INSERT(%StandardFormula,'Before Lookups')
#INSERT(%StandardSecondaryLookups)
#INSERT(%StandardFormula,'After Lookups')
#EMBED(%RefreshWindowAfterLookup,'Refresh Window routine, after lookups')
#EMBED(%RefreshWindowBeforeDisplay,'Refresh Window routine, before DISPLAY()')
DISPLAY()
ForceRefresh = False
!-----
SyncWindow ROUTINE
#EMBED(%SyncWindowBeforeLookup,'Sync Record routine, before lookups')
#INSERT(%StandardFormula,'Before Lookups')
#INSERT(%StandardSecondaryLookups)
#INSERT(%StandardFormula,'After Lookups')
#EMBED(%SyncWindowAfterLookup,'Sync Record routine, after lookups')
!-----
#EMBED(%ProcedureRoutines,'Procedure Routines')

```

%StandardWindowHandling #GROUP

```
#GROUP(%StandardWindowHandling)
#FOR(%WindowEvent)
#SUSPEND
#?OF EVENT:%WindowEvent
#EMBED(%WindowEventHandling,'Window Event Handling'),%WindowEvent
#CASE(%WindowEvent)
#OF('OpenWindow')
IF NOT WindowInitialized
DO InitializeWindow
END
#IF(%FirstField)
SELECT(%FirstField)
#ENDIF
#OF('GainFocus')
ForceRefresh = True
IF NOT WindowInitialized
DO InitializeWindow
WindowInitialized = True
ELSE
DO RefreshWindow
END
#ENDCASE
#RESUME
#ENDFOR
#SUSPEND
#?ELSE
#EMBED(%WindowOtherEventHandling,'Other Window Event Handling')
#RESUME
```

%StandardAcceptedHandling #GROUP

```
#GROUP(%StandardAcceptedHandling)
#FOR(%Control),WHERE(%ControlMenu)
  #FIX(%ControlEvent,'Accepted')
  #MESSAGE('Control Handling: ' & %Control,3)
  #SUSPEND
#?OF %Control
  #EMBED(%ControlPreEventHandling,'Control Event Handling, before generated code') %|
  ,%Control,%ControlEvent
  #INSERT(%FieldTemplateStandardHandling)
  #EMBED(%ControlEventHandling,'Internal Control Event Handling') %|
  ,%Control,%ControlEvent,HIDE
  #EMBED(%ControlPostEventHandling,'Control Event Handling, after generated code') %|
  ,%Control,%ControlEvent
#RESUME
#ENDFOR
```


Code Template: ControlValueValidation

```
#CODE(ControlValueValidation,'Control Value Validation')
#RESTRICT
#CASE(%ControlType)
#OF('ENTRY')
#OROF('SPIN')
#OROF('COMBO')
#CASE(%ControlEvent)
#OF('Accepted')
#OROF('Selected')
#ACCEPT
#ELSE
#REJECT
#ENDCASE
#ELSE
#REJECT
#ENDCASE
#ENDRESTRICT
#DISPLAY('This Code Template is used to perform a control value')
#DISPLAY('validation. This Code Template only works for')
#DISPLAY('the Selected or Accepted Events for an Entry Control.')
#DISPLAY('')
#PROMPT('Lookup Key',KEY),%LookupKey,REQ
#PROMPT('Lookup Field',COMPONENT),%LookupField,REQ
#PROMPT('Lookup Procedure',PROCEDURE),%LookupProcedure
#DISPLAY('')
#DISPLAY('The Lookup Key is the key used to perform the value validation.')
#DISPLAY('If the Lookup Key is a multi-component key, you must insure that')
#DISPLAY('other key elements are primed BEFORE this Code Template is used.')
#DISPLAY('')
#DISPLAY('The Lookup field must be a component of the Lookup Key. Before')
#DISPLAY('execution of the lookup code, this field will be assigned the value of')
#DISPLAY('the control being validated, and the control will be assigned the value')
#DISPLAY('of the lookup field if the Lookup procedure is successful.')
#DISPLAY('')
#DISPLAY('The Lookup Procedure is called to let the user to select a value. ')
#DISPLAY('Request upon entrance to the Lookup will be set to SelectRecord, and ')
#DISPLAY('successful completion is signalled when Response = RequestCompleted.')
#IF(%ControlEvent='Accepted')
IF %Control{PROP:Req} = False AND NOT %ControlUse #<! If not required and empty
ELSE
#INSERT(%CodeTPLValidationCode)
END
#ELSIF(%ControlEvent='Selected')
#INSERT(%CodeTPLValidationCode)
#ELSE
#ERROR('This Code Template must be used for Accepted or Selected Events!')
#ENDIF
```

%CodeTPLValidationCode #GROUP

```
#GROUP(%CodeTPLValidationCode)
%LookupField = %ControlUse
#FIND(%Field,%LookupField)
GET(%File,%LookupKey)
IF ERRORCODE()
    GlobalRequest = SelectRecord
    %LookupProcedure
    LocalResponse = GlobalResponse
    GlobalResponse = RequestCancelled
    IF LocalResponse = RequestCompleted
        %ControlUse = %LookupField
#IF(%ControlEvent='Accepted')
    ELSE
        SELECT(%Control)
        CYCLE
#ENDIF
    END
#IF(%ControlEvent='Selected')
    SELECT(%Control)
#ENDIF
    END
    #<! Move value for lookup
    #! FIX field for lookup
    #<! Get value from file
    #<! IF record not found
    #<! Set Action for Lookup
    #<! Call Lookup Procedure
    #<! Save Returned Action
    #<! Clear the Action Value
    #<! IF Lookup successful
    #<! Move value to control field
    #! IF a Post-Edit Validation
    #<! ELSE (IF Lookup NOT...)
    #<! Select the control
    #<! Go back to ACCEPT
    #! END (IF a Pre-Edit...)
    #<! END (IF Lookup successful)
    #! IF a Pre-Edit Validation
    #<! Select the control
    #! END (IF a Pre-Edit...)
    #<! END (IF record not found)
```

Control Template: DOSFileLookup

```
#CONTROL(DOSFileLookup,'Lookup a DOS file name'),WINDOW
CONTROLS
    BUTTON('...'),AT(,12,12),USE(?LookupFile)
END
#BOXED('DOS File Lookup Prompts')
#PROMPT('File Dialog Header:',@S60),%DOSFileDialogHeader,REQ,DEFAULT('Choose a File')
#PROMPT('DOS FileName Variable:',FIELD),%DOSFileField,REQ
#PROMPT('Default Directory:',@S80),%DOSInitialDirectory
#PROMPT('Variable File Mask',CHECK),%DOSVariableMask
#ENABLE(%DOSVariableMask)
    #PROMPT('Variable Mask Value:',FIELD),%DOSVariableMaskValue
#ENDENABLE
#ENABLE(NOT %DOSVariableMask)
    #PROMPT('File Mask Description:',@S40),%DOSMaskDesc,REQ,DEFAULT('All Files')
    #PROMPT('File Mask',@S50),%DOSMask,REQ,DEFAULT('*.*)
    #BUTTON('More File Masks'),MULTI(%DOSMoreMasks,%DOSMoreMaskDesc & ' - ' & %|
                                                %DOSMoreMask)
        #PROMPT('File Mask Description:',@S40),%DOSMoreMaskDesc,REQ
        #PROMPT('File Mask',@S50),%DOSMoreMask,REQ
#ENDBUTTON
#ENDENABLE
#ENDBOXED
#LOCALDATA
DOSDialogHeader    CSTRING(40)
DOSExtParameter    CSTRING(250)
DOSTargetVariable  CSTRING(80)
#ENDLOCALDATA
#ATSTART
#DECLARE(%DOSExtensionParameter)
#DECLARE(%DOSLookupControl)
#FOR(%Control),WHERE(%ControlInstance = %ActiveTemplateInstance)
    #SET(%DOSLookupControl,%Control)
#ENDFOR
#IF(%DOSVariableMask)
    #SET(%DOSExtensionParameter,%DOSVariableMask)
#ELSE
    #SET(%DOSExtensionParameter,%DOSMaskDesc & '|' & %DOSMask)
    #FOR(%DOSMoreMasks)
        #SET(%DOSExtensionParameter,%DOSExtensionParameter & '|' & %DOSMoreMaskDesc %|
                                                    & '|' & %DOSMoreMask)
    #ENDFOR
#END
#ENDAT
#AT(%ControlEventHandling,%DOSLookupControl,'Accepted')
IF NOT %DOSFileField
    #INSERT(%StandardValueAssignment,'DOSTargetVariable',%DOSInitialDirectory)
ELSE
    DOSTargetVariable = %DOSFileField
END
#INSERT(%StandardValueAssignment,'DOSDialogHeader',%DOSFileDialogHeader)
#INSERT(%StandardValueAssignment,'DOSExtParameter',%DOSExtensionParameter)
IF FILEDIALOG(DOSDialogHeader,DOSTargetVariable,DOSExtParameter,0)
    %DOSFileField = DOSTargetVariable
    DO RefreshWindow
END
#ENDAT
```

Extension Template: DateTimeDisplay

```
#EXTENSION(DateTimeDisplay,'Display the date and/or time in the current window') %|
,HLP('~TPLExtensionDateTimeDisplay'),PROCEDURE
#BUTTON('Date and Time Display'),AT(10,,180)
#BOXED('Date Display...')
#PROMPT('Display the current day/date in the window',CHECK) %|
,%DisplayDate,DEFAULT(0),AT(10,,150)

#ENABLE(%DisplayDate)
#PROMPT('Date Picture:',DROP('October 31, 1959|OCT 31,1959|10/31/59| %|
10/31/1959|31 OCT 59|31 OCT 1959|31/10/59| %|
31/10/1959|Other')),%DatePicture %|
,DEFAULT('October 31, 1959')

#ENABLE(%DatePicture = 'Other')
#PROMPT('Other Date Picture:',@S20),%OtherDatePicture,REQ
#ENDENABLE
#PROMPT('Show the day of the week before the date',CHECK),%ShowDayOfWeek %|
,DEFAULT(1),AT(10,,150)
#PROMPT('&Location of Date Display:',DROP('Control|Status Bar')) %|
,%DateDisplayLocation
#ENABLE(%DateDisplayLocation='Status Bar')
#PROMPT('Status Bar Section:',@n1),%DateStatusSection,REQ,DEFAULT(1)
#ENDENABLE
#ENABLE(%DateDisplayLocation='Control')
#PROMPT('Date Display Control:',CONTROL),%DateControl,REQ
#ENDENABLE
#ENDENABLE
#ENDBOXED
#BOXED('Time Display...')
#PROMPT('Display the current time in the window',CHECK),%DisplayTime %|
,DEFAULT(0),AT(10,,150)

#ENABLE(%DisplayTime)
#PROMPT('Time Picture:',DROP('5:30PM|5:30:00PM|17:30|17:30:00| %|
1730|173000|Other')),%TimePicture %|
,DEFAULT('5:30PM')

#ENABLE(%TimePicture = 'Other')
#PROMPT('Other Time Picture:',@S20),%OtherTimePicture,REQ
#ENDENABLE
#PROMPT('&Location of Time Display:',DROP('Control|Status Bar')) %|
,%TimeDisplayLocation
#ENABLE(%TimeDisplayLocation='Status Bar')
#PROMPT('Status Bar Section:',@n1),%TimeStatusSection,REQ,DEFAULT(2)
#ENDENABLE
#ENABLE(%TimeDisplayLocation='Control')
#PROMPT('Time Display Control:',CONTROL),%TimeControl,REQ
#ENDENABLE
#ENDENABLE
#ENDBOXED
#ENDBUTTON
#ATSTART
#DECLARE(%TimerEventGenerated)
#IF(%DisplayDate)
#DECLARE(%DateUsePicture)
#CASE(%DatePicture)
#OF('10/31/59')
#SET(%DateUsePicture,'@D1')
#OF('10/31/1959')
#SET(%DateUsePicture,'@D2')
#OF('OCT 31,1959')
#SET(%DateUsePicture,'@D3')
#OF('October 31, 1959')
#SET(%DateUsePicture,'@D4')
#OF('31/10/59')
#SET(%DateUsePicture,'@D5')
#OF('31/10/1959')
#SET(%DateUsePicture,'@D6')
#OF('31 OCT 59')
#SET(%DateUsePicture,'@D7')
#OF('31 OCT 1959')
#SET(%DateUsePicture,'@D8')
#OF('Other')
#SET(%DateUsePicture,%OtherDatePicture)
#ENDCASE
```

```

#ENDIF
#IF(%DisplayTime)
#DECLARE(%TimeUsePicture)
#CASE(%TimePicture)
#OF('17:30')
#SET(%TimeUsePicture,'@T1')
#OF('1730')
#SET(%TimeUsePicture,'@T2')
#OF('5:30PM')
#SET(%TimeUsePicture,'@T3')
#OF('17:30:00')
#SET(%TimeUsePicture,'@T4')
#OF('173000')
#SET(%TimeUsePicture,'@T5')
#OF('5:30:00PM')
#SET(%TimeUsePicture,'@T6')
#OF('Other')
#SET(%TimeUsePicture,%OtherTimePicture)
#ENDCASE
#ENDIF
#ENDAT
#AT(%DataSectionBeforeWindow)
#IF(%DisplayDate AND %ShowDayOfWeek)
DisplayDayString STRING('Sunday Monday Tuesday WednesdayThursday %|
Friday Saturday ')
DisplayDayText STRING(9),DIM(7),OVER(DisplayDayString)
#ENDIF
#ENDAT
#AT(%BeforeAccept)
#IF(%DisplayTime OR %DisplayDate)
IF NOT INRANGE(%Window{Prop:Timer},1,100)
%Window{Prop:Timer} = 100
END
#INSERT(%DateTimeDisplayCode)
#ENDIF
#ENDAT
#AT(%WindowEventHandling,'Timer')
#SET(%TimerEventGenerated,%True)
#IF(%DisplayDate OR %DisplayTime)
#INSERT(%DateTimeDisplayCode)
#ENDIF
#ENDAT
#AT(%WindowOtherEventHandling)
#IF(%DisplayDate OR %DisplayTime)
#IF(NOT %TimerEventGenerated)
IF EVENT() = EVENT:Timer
#INSERT(%DateTimeDisplayCode)
END
#ENDIF
#ENDIF
#ENDAT

```

%DateTimeDisplayCode #GROUP

```
#GROUP(%DateTimeDisplayCode)
  #IF(%DisplayDate)
    #IF(%ShowDayOfWeek)
      #CASE(%DateDisplayLocation)
        #OF('Control')
          %DateControl{Prop:Text} = CLIP(DisplayDayText[(TODAY()%%7)+1]) & ', ' & %|
                                  FORMAT(TODAY(),%DateUsePicture)
          DISPLAY(%DateControl)
        #ELSE
          %Window{Prop:StatusText,%DateStatusSection} = CLIP(DisplayDayText[( %|
                                  TODAY()%%7)+1]) & ', ' & FORMAT(TODAY(),%DateUsePicture)
          #ENDCASE
        #ELSE
          #CASE(%DateDisplayLocation)
            #OF('Control')
              %DateControl{Prop:Text} = FORMAT(TODAY(),%DateUsePicture)
              DISPLAY(%DateControl)
            #ELSE
              %Window{Prop:StatusText,%DateStatusSection} = FORMAT(TODAY(),%DateUsePicture)
              #ENDCASE
            #ENDIF
          #ENDIF
          #IF(%DisplayTime)
            #CASE(%TimeDisplayLocation)
              #OF('Control')
                %TimeControl{Prop:Text} = FORMAT(CLOCK(),%TimeUsePicture)
                DISPLAY(%DateControl)
              #ELSE
                %Window{Prop:StatusText,%TimeStatusSection} = FORMAT(CLOCK(),%TimeUsePicture)
                #ENDCASE
              #ENDIF
```

