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APIs by Example: UIM & Work Management APIs, Part 1

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The Work Management APIs, User Interface Manager (UIM) APIs, and UIM List Panels are a strong combination if you want to extend or specialize the functions, screens, and reports that the native i5/OS work management commands offer. The Work with Subsystem Activity (WRKSBSACT) command that I include in today's installment of APIs by Example demonstrates how this can be done and also offers an interface to a couple of other new work management commands, which I will present in upcoming installments of APIs by Example.

Today I explain the different components of a UIM List Panel Group and the UIM tag language, which is used to define and create a panel group object. But first, let me show you the command prompt of the WRKSBSACT command:

```

Work with Subsystem Activity (WRKSBSACT)

Type choices, press Enter.

Subsystem . . . . . *ACTIVE   Name, generic*, *ACTIVE, *ALL
Library . . . . .          Name, *LIBL, *CURLIB...
Exclude subsystem lib . *NONE   Name, generic*, *NONE
  
```

You can enter either a specific name, a generic name, or *ALL for subsystem name and, combined with the possible library name values, you can display many different subsets of the subsystems on your system. The single value *ACTIVE simply displays all currently active subsystems.

The Exclude subsystem library parameter is useful if you want to avoid the many duplicate IBM subsystems that you find in system libraries, such as QINMEDIA, QINPRIOR, and QINSYS. To exclude these libraries, specify EXCLUDE(QIN*) on the WRKSBSACT command.

Here's a sample display of the Work with Subsystem Activity list panel resulting from running the command WRKSBSACT SBS(Q*):

```

Work with Subsystem Activity                                WYNDHAMW
                                                         25-05-06  15:11:09

Type options, press Enter.

2=Change   4=Delete   5=Display   8=Work with subsystem jobs

9=Start subsystem   10=End subsystem
12=Work with subsystem job queues
  
```

Opt	Subsystem	Library	Status	Max jobs	Current active
	QBASE	QSYS	*INACTIVE	*NOMAX	0
	QBATCH	QSYS	*INACTIVE	*NOMAX	0
	QCMN	QSYS	*ACTIVE	*NOMAX	7
	QCTL	QSYS	*ACTIVE	*NOMAX	2
	QDSNX	QGPL	*INACTIVE	*NOMAX	0
	QFNC	QGPL	*INACTIVE	*NOMAX	0
	QINTER	QSYS	*INACTIVE	*NOMAX	0
	QLPINSTALL	QSYS	*INACTIVE	*NOMAX	0
	QMOM	QMOM	*ACTIVE	*NOMAX	29
	QPGMR	QSYS	*INACTIVE	*NOMAX	0
	QSERVER	QSYS	*ACTIVE	*NOMAX	42
					More...
Parameters or command					
===>					
F3=Exit F4=Prompt F5=Refresh F6=Create subsystem F9=Retrieve					
F11=Display text F12=Cancel F21=Print list					

Most of the available options are well known from either the Work with Subsystems (WRKSBS) or the Work with Subsystem Description (WRKSBSD) commands, but option 12 takes you to the new Work with Subsystem Job Queues (WRKSBSJOBQ) command, which I will include in the next APIs by Example. Online, cursor-sensitive help provides detailed explanation of all available options, function keys, and list panel fields.

As in the previous API by Example (see references and links at the end of this article), the CPP of the WRKSBSACT command mainly takes care of the retrieval of the information presented in either the header or the list part of the display and print panel. When the information is retrieved and loaded into the variable pool of the list panel group, the UIM performs the list presentation and screen dialog.

Last time, I explained some of the basic UIM panel group concepts, namely Application Handle, UIM Exit Programs, and Variable Pool. To further expand on the topic, let me continue with the actual UIM tags as they are coded in the CBX156P panel group source. Here's the required order of UIM tags in a panel group source, as well as a short description of each. Please note that the indented tags are valid only in the context in which they appear. An (O) following the tag description indicates that the tag is optional.

:PNLGRP	- Panel group	Defines the beginning of a panel group.
:COPYR	- Copyright	Presents a copyright notice in the message area of the first panel displayed. (O)
:IMPORT	- Import	Makes help modules in other panel groups available in the current panel group. This makes keeping all help modules in one panel group possible, as in this example. (O)
:CLASS	- Data class	Defines the variable types of the fields in the variable pool. Value translation and value checks are defined as part of the class definition.
	:TL	Translation list. Performs translation between internal and external values, for example -1 is displayed as *NOMAX (and vice versa).
	:CHECK	Validity checking. Specifies a range, a list of values, or a relational condition to check the variable value against.
:VAR	- Variable	Declares a dialog variable in the panel group. The variable's data type (including value translation and check) is defined by the assigned class name.
:VARRCD	- Record	The variable record or structure used to pass data between application and variable pool. Defines the variables included in the specified record and the sequence in which they must appear.
:LISTDEF	- List	Defines the lists or data structures that UIM uses to build the actual panel lists displayed or printed. A list entry is based on the data in the variable record.
:COND	- Condition	Specifies a certain condition that can be used to control the appearance and behavior of the panel group -- for example, if a specific function key should be displayed and allowed. (O)
:TT	- Truth table	Used by the compiler to define how many different sets of conditions can be true at any given time. An individual panel format is generated for each set. (O)
	:TTROW	Truth table row. Specifies a set of truth table rows to define mutually exclusive conditions to the compiler.
:KEYL	- Key list	Defines sets of available function keys and the function they perform. A key list

		is eventually assigned to each panel definition.
	:KEYI	Key list item. Defines a single function key and the action that it should perform. A number of UIM predefined actions are available -- for example, CHGVIEW, CANCEL, CMD, and CALL.
:PANEL	- Panel	The panel tag defines the beginning of a display panel format and many other panel related attributes -- for example, panel name, user exit program, panel dialog variables, and much more.
	:DATA	Data presentation area. Describes a data presentation area in a panel. In a list panel, this tag is used to describe the format heading the list, if there is any. The DATA tag is also used to define non-list panels. (O)
	:LIST	List area. Defines the list area of the panel, including separator attributes, view dialog variable, parms dialog variable, and of course the list definition (LISTDEF) that the current list is defined by.
	:TOPINST	Top instruction. Text that appears in the top section of the list.
	:LISTACT	List action. Defines the options available to perform against the list entries.
	:LISTGRP	List column group. Specifies a list of list columns that are related and should appear in the list as such.
	:LISTCOL	List column. Specifies each list column and a number of attributes related to it.
	:LISTVIEW	List view. Defines the different list views, meaning the actual constellation of list columns and list groups, and the order in which they appear. More than one view can be defined, using the CHGVIEW dialog command to toggle between them.
	:CMDLINE	Command line. Defines a command-line area in which commands and list action parameters are entered. (O)
:PRTHEAD	- Print head panel	Contains the tags defining the header section of a printed list as well as a number of related attributes.
	:PRTRAIL	Print trailer message. Specifies a message

```

                                to indicate the end of the printed list.
                                (O)

:PRTPNL  - Print panel  Defines one or more area definitions for a
                                print panel:

                                :DATA      Data presentation area. Describes a data
                                presentation area in a panel. In a list
                                panel, this tag is used to describe the
                                format heading the list. (O)

                                :LIST      List area. Defines the list area of the
                                panel, including separator attributes
                                and the list definition (LISTDEF) that the
                                current list is defined by. Most of
                                the tags defined for the LIST tag in the
                                PANEL context tag also apply in the
                                PRTPNL context.

```

This list is by no means exhaustive in terms of UIM tags available or their description, but it gives you a brief overview of the tags used in this and following UIM list panel group examples.

For the full list of UIM tags and a detailed explanation of each, refer to the Application Display Programming manual, Appendix A. A link is provided at the end of this article. For an explanation of UIM objects and functions, Chapter 17 is also a great source of information and provides detailed descriptions of UIM concepts and characteristics.

For more information about the concepts and components of UIM list panel groups, also refer to Ozubike Oguine's article, "Creating a UIM List Application" (a link is provided at the end of this article).

I will continue my investigation and explanation of UIM list panel groups next time around. And I as I mentioned at the beginning of this article, I will also add the WRKSBSJOBQ command to my suite of new work management commands.

This APIs by Example includes the following sources:

```

CBX156  -- Work with Subsystem Activity - CCP
CBX156E -- Work with Subsystem Activity - UIM Exit Program
CBX156H -- Work with Subsystem Activity - Help
CBX156P -- Work with Subsystem Activity - Panel Group
CBX156V -- Work with Subsystem Activity - VCP
CBX156X -- Work with Subsystem Activity

CBX156M -- Work with Subsystem Activity - Build command

```

To create all these objects, compile and run CBX156M. Compilation instructions are in the source headers, as usual.

Creating a UIM List Application, by Azubike Oguine:

<http://www2.systeminetwork.com/article.cfm?id=1732>

Previously published UIM-related APIs by Example articles:

<http://www2.systeminetwork.com/article.cfm?id=52457>

<http://www2.systeminetwork.com/article.cfm?id=52574>

UIM APIs — printable PDF:

http://publib.boulder.ibm.com/infocenter/iseres/v5r4/topic/apis_web/uim.pdf

Application Display Programming (see pages 271-660) — printable PDF:

<http://publib.boulder.ibm.com/infocenter/iseres/v5r4/topic/books/sc415715.pdf>

This article demonstrates the following APIs:

Retrieve Subsystem Information (QWDRSBSD) API:

<http://publib.boulder.ibm.com/infocenter/iseres/v5r3/topic/apis/qwdrsbsd.htm>

Open List of Objects (QGYOLOBJ) API:

<http://publib.boulder.ibm.com/infocenter/iseres/v5r3/topic/apis/qgyolobj.htm>

Get List Entries (QGYGTLE) API:

<http://publib.boulder.ibm.com/infocenter/iseres/v5r3/topic/apis/qgygtle.htm>

Close List (QGYCLST) API:

<http://publib.boulder.ibm.com/infocenter/iseres/v5r3/topic/apis/qgyclst.htm>

Open Display Application (QUIOPNDA) API:

<http://publib.boulder.ibm.com/infocenter/iseres/v5r4/topic/apis/quiopnda.htm>

Close Application (QUICLOA) API:

<http://publib.boulder.ibm.com/infocenter/iseres/v5r4/topic/apis/quicloa.htm>

Display Panel (QUIDSPP) API:

<http://publib.boulder.ibm.com/infocenter/iseres/v5r4/topic/apis/quidspp.htm>

Display Long Text (QUILNGTX) API:

<http://publib.boulder.ibm.com/infocenter/iseres/v5r4/topic/apis/quilngtx.htm>

Put Dialog Variable (QUIPUTV) API:

<http://publib.boulder.ibm.com/infocenter/iseres/v5r4/topic/apis/quiputv.htm>

Get Dialog Variable (QUIGETV) API:

<http://publib.boulder.ibm.com/infocenter/iseres/v5r4/topic/apis/quigetv.htm>

Add List Entry (QUIADDLE) API:

<http://publib.boulder.ibm.com/infocenter/iseres/v5r4/topic/apis/quiaddle.htm>

Get List Entry (QUIGETLE) API:

<http://publib.boulder.ibm.com/infocenter/iseres/v5r4/topic/apis/quigetle.htm>

Update List Entry (QUIUPDLE) API:

<http://publib.boulder.ibm.com/infocenter/iseres/v5r4/topic/apis/quiupdle.htm>

Remove List Entry (QUIRMVLE) API:

<http://publib.boulder.ibm.com/infocenter/iseres/v5r4/topic/apis/quirmvle.htm>

Retrieve List Attributes (QUIRTVLA) API:

<http://publib.boulder.ibm.com/infocenter/iserics/v5r4/topic/apis/quirtvla.htm>

Set List Attributes (QUISETLA) API:

<http://publib.boulder.ibm.com/infocenter/iserics/v5r4/topic/apis/quisetla.htm>

Delete List (QUIDLTL) API:

<http://publib.boulder.ibm.com/infocenter/iserics/v5r4/topic/apis/quidltl.htm>

Print Panel (QUIPRTP) API:

<http://publib.boulder.ibm.com/infocenter/iserics/v5r3/topic/apis/quiprtp.htm>

Add Print Application (QUIADDPA) API:

<http://publib.boulder.ibm.com/infocenter/iserics/v5r3/topic/apis/quiaddpa.htm>

Remove Print Application (QUIRMVPA) API:

<http://publib.boulder.ibm.com/infocenter/iserics/v5r3/topic/apis/quirmvpa.htm>

Process Commands (QCAPCMD) API:

<http://publib.boulder.ibm.com/infocenter/iserics/v5r3/topic/apis/qcapcmd.htm>

Retrieve Message (QMHRTVM) API:

<http://publib.boulder.ibm.com/infocenter/iserics/v5r3/topic/apis/QMHRTVM.htm>

Send Program Message (QMHSNDPM) API:

<http://publib.boulder.ibm.com/infocenter/iserics/v5r3/topic/apis/QMHSNDPM.htm>

Retrieve Object Description (QUSROBJD) API:

<http://publib.boulder.ibm.com/infocenter/iserics/v5r3/topic/apis/qusrobid.htm>

You can retrieve the source code for this API example from

http://www.pentontech.com/IBMContent/Documents/article/52665_72_UimWrkMgt1.zip.

Source URL: <http://iprodeveloper.com/rpg-programming/apis-example-uim-work-management-apis-part-1>