

SYSBPM - List Objects

This function invokes the List Objects screen where you can obtain statistical data on the directories of Natural programming objects currently loaded in the buffer pool (BP) or the BP cache (if used).

Below is information on the statistical data displayed on the List Objects screen and the commands and functions available for selecting an object or a range of objects, manipulating their current status or navigating in the List Objects screen.

See also the function Display Sorted Extract for a sorted display of objects.

- Invoking List Objects
 - Columns and Selection Options
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-

Invoking List Objects

To invoke the List Objects screen

- On the SYSBPM Main Menu, in the Code field, enter Function Code **L** and specify the object(s): see the valid field input values as described in the section Invoking and Operating SYSBPM.

Or, go directly to the list of objects in the buffer pool:

In the command line, enter

`DISPLAY LIST library-name object-name dbid fnr.`

Or, go directly to the list of objects in the BP cache:

In the command line, enter

`DISPLAY CLIST library-name object-name dbid fnr.`

The List Objects screen appears:

```

17:13:17          ***** NATURAL SYSBPM UTILITY *****          2002-09-16
BPNAME QA41GBP          - List Objects -          Type Global Nat
BPPROP OFF          Loc DAEF QA41
C  Library  Object    DBID  FNR  Loc  RLD  Use  Max  Reuse  TotalUC  ObjSize  Sto
*  *
__ SYSBPM   BPMCALL   10  1640 B      1  1      5  8,516  12
__ SYSBPM   BPMNSC    10   410 B      1      4  3,380   4
__ SYSDLINP PCNDL02   255  253 B  R      1      19   292   4
__ SYSLIBS  NAT00017   10   410 B      1      1  5,000   8
__ SYSLIB   ATEST    10  1640 B  R      1      340 16,148  16
__ SYSLIB   CATAL10   10   410 B      1      1  4,256   8
__ SYSBPM   BPM141-M   10  1640 B      1      1  5,944   8
__ SYSDLINS U246005   255  253 B  R      1      14    52   4
__ SYSBPM   MENU      10  1640 B      1      5 10,392  12
__ SYSLIBS  NAT00040   10   410 B      1      1  2,816   4
__ SYSLIBS  NAT00034   10   410 B      1      1  2,672   4
__ SYSDLIND DNDL01   255  253 B  R      3      42   552   4
__ SYSLIB   ACATAL1   10   410 B      1      3 55,728  56
__ SYSDLINS U246004   255  253 B  R      2      28   172   4

Top of List
Command ==>
Enter-PF1---PF2---PF3---PF4---PF5---PF6---PF7---PF8---PF9---PF10--PF11--PF12---
      Help      Exit  Last  Cache --  -  +  ++>  Canc
    
```

The List Objects screen lists all individual objects

1. currently loaded in the buffer pool (first part of the display) and
2. currently loaded in the BP cache (second part of the display).

The statistics displayed are snapshots of the contents of the buffer pool which are refreshed every time you press ENTER.

Note for GDA objects loaded in the buffer pool:

On the List Objects screen, two entries may be displayed for a GDA (global data area): one entry contains data on the GDA itself and the other entry contains the internal Natural symbol table for this GDA. This may happen if a program has been cataloged that references a GDA.

Columns and Selection Options

Below is a description of the columns and statistical data displayed on the List Objects screen, and the input field and values provided for specifying object selection criteria.

 **To specify selection criteria for the objects to be displayed**

- In the input fields underneath the column titles, enter a valid value or range as described for the relevant fields. The default value is a blank character or asterisk (*) which selects all objects.

Column	Explanation
C	In this column, enter a line command to perform a function for the object. See also Line Commands below.
Library	The library from which the object was loaded. To specify selection criteria, see Name and Range Specification below.

Column	Explanation
Object	<p>The name of the object.</p> <p>To specify selection criteria, see Name and Range Specification below.</p>
DBID	<p>The database ID (DBID) of the Natural system file from which the object was loaded.</p> <p>To select objects of a specific database, enter a valid numeric value.</p>
FNR	<p>The file number (FNR) of the Natural system file from which the object was loaded.</p> <p>To select objects of a specific FNR, enter a valid numeric value.</p>
Loc	<p>Location of the object :</p> <p>B Buffer pool.</p> <p>B/C Buffer pool and BP cache.</p> <p>C BP cache.</p> <p>C/B BP cache and buffer pool.</p> <p>If B is listed in the first position, the statistical data derive from the buffer pool. If C is listed first, the data derive from the BP cache.</p> <p>Additionally, depending on this positioning, different line commands apply to the fields on the statistics screen (see also Line Commands below).</p> <p>To specify the object location(s), enter any of the values below:</p> <p>B Selects all objects loaded in the buffer pool only.</p> <p>B/C Selects all objects loaded in the buffer pool as well as in the BP cache.</p> <p>B* Selects all objects loaded in the buffer pool or in both the buffer pool and BP cache ($B^* = B + B/C$).</p> <p>C Selects all objects loaded in the BP cache only.</p> <p>C/B Selects all objects loaded in the BP cache as well as in the buffer pool.</p> <p>C* Selects all objects loaded in the BP cache or in both the BP cache and buffer pool ($C^* = C + C/B$).</p>

Column	Explanation
RLD	<p>Current status of the object in the buffer pool or the BP cache. A BP cache status only refers to object locking and, therefore, is only indicated underneath the L (Locked) of the RLD column.</p> <p>Buffer pool:</p> <p>R Marked as resident. Resident means that the object is not deleted from the buffer pool, not even if the relevant value in the Use column is set to 0.</p> <p>L Locked while load function is ongoing.</p> <p>D A Delete call for the object is pending. The object will be deleted from the buffer pool as soon as the value in the Use column is reset to 0.</p> <p>BP cache:</p> <p>L Locked while load function is ongoing.</p> <p>D Locked for delete.</p> <p>To select all objects of a specific status, as described above, enter the code R, L or D.</p>
Use	<p>Buffer pool only.</p> <p>The number of Natural applications that are currently executing the object.</p> <p>To select objects, enter:</p> <p><i>value</i> A numeric value. Selects all objects with this number. Example: 10</p> <p>><i>value</i> A numeric start value (>). Selects all objects with a number greater than <i>value</i>. Example: >10 Selected: 11, 21 Not selected: 10</p> <p><<i>value</i> A numeric end value(<). Selects all objects with a number less than <i>value</i>. Example: <10 Selected: 9, 8 Not selected: 10</p>
Max	<p>Buffer pool only.</p> <p>The maximum number of applications that have executed the object since it was loaded into the buffer pool.</p> <p>To select objects, see the valid input values in Use above.</p>

Column	Explanation
Reuse	<p>BP cache only.</p> <p>Indicates how many time the object has been loaded (reused) from the BP cache into the buffer pool.</p> <p>To select objects, see the valid input values in Use above.</p>
TotalUC	<p>Total Use Count: The total number of Locate calls of the object since it was loaded into the buffer pool.</p> <p>If a BP cache is used, this value is not lost if the object is removed from the buffer pool and saved to the BP cache. Therefore, this value indicates the number of times the object has been used since it was loaded from the system file.</p> <p>For buffer pool objects, this value is updated regularly. For BP cache objects, this value is only updated after the object was removed from the buffer pool and saved in the BP cache.</p> <p>To select objects, enter:</p> <p><i>value</i> A numeric value or a numeric start value (>). or ><i>value</i> Example: >10 Selected: 10, 11, 21 Not selected: 9</p> <p><<i>value</i> A numeric end value(<). Selects all objects with a number less than <i>value</i> or equal to <i>value</i>. Example: <10 Selected: 10, 9, 8 Not selected: 11</p>
ObjSize	<p>The size of the object.</p> <p>To select objects, see the valid input values in TotalUC above.</p>
Sto	<p>Storage that has to be allocated for the object in the buffer pool or BP cache. The text record size of the buffer pool is defined at buffer pool initialization.</p> <p>To select objects, see the valid input values in Use above.</p>
(*) BP Load Time	<p>The date and time when the object was first loaded into the buffer pool.</p> <p>This date and time will be kept until the object has been removed from both the buffer pool and BP cache (deletion from the BP cache only will not remove the display of date and time).</p> <p>To select objects, see Date Specification and Time Specification below.</p>
(*) BP Last Action	<p>Buffer pool only.</p> <p>The date and time when the object was last used by an application.</p> <p>To select objects, see Date Specification and Time Specification below.</p>

Column	Explanation
(*) BPC Load Time	<p>BP cache (BPC) only.</p> <p>The date and time when the object was first loaded into the BP cache.</p> <p>This date and time will be kept until the object has been removed from the BP cache.</p> <p>To select objects, see Date Specification and Time Specification below.</p>
(*) BPC Last Get	<p>BP cache (BPC) only.</p> <p>The date and time when the object was last swapped from the buffer pool into the BP cache. This time stamp is also updated if the object was already available in the BP cache and had, therefore, not been written to the BP cache again.</p> <p>To select objects, see Date Specification and Time Specification below.</p>
(*) BPC Last Put	<p>BP cache (BPC) only.</p> <p>The date and time when the object was last loaded from the BP cache into the buffer pool.</p> <p>To select objects, see Date Specification and Time Specification below.</p>
(*) 1.BPperiod	<p>BP cache (BPC) only.</p> <p>The time frame the object has been available in the buffer pool starting with the time the object was first loaded and ending with the time the object was first swapped from the buffer pool into the BP cache. After 24 hours, the display of the time frame is canceled and replaced by this sign: **.**.**.**.*</p>

* To display these columns, press PF11 as described in Navigation below.

Name and Range Specification

To specify the objects to be displayed on the List Objects screen, in the input fields for Library or Object, enter a name or a range of names.

In the list of options below, *value* is any combination of one or more characters:

Input Value	Selected Libraries/Objects
*	All libraries/objects. This is the default.
<i>value</i>	All libraries/objects with a name equal to <i>value</i> .
<i>value</i> *	All libraries/objects with a name that starts with <i>value</i> . Example: AB* Selected: AB, AB1, ABC, ABEZ Not selected: AA1, ACB
<i>value</i> ?	All libraries/objects with a name that starts with <i>value</i> and ends with any single character for each question mark (?) entered. Example: ABC? Selected: ABCA, ABCZ Not selected: AXC, ABCAA
<i>value</i> ? <i>value</i> ?	All items that match <i>value</i> combined with asterisk (*) and question mark (?) in any order.
<i>value</i> * <i>value</i> ?	Example: A?C*Z Selected: ABCZ, AXCBBBZ, ANCZ
* <i>value</i> ? <i>value</i> *	Not selected: ACBZ, ABDEZ, AXCBBBZA
<i>value</i> >	All libraries/objects with a name greater than or equal to <i>value</i> . Example: AB> Selected: AB, AB1, BBB, ZZZZZZZ Not selected: AA1, AAB
<i>value</i> <	All libraries/objects with a name less than or equal to <i>value</i> . Example: AX< Selected: AB, AWW, AX Not selected: AXA, AY

Date Specification

To specify the objects to be displayed on the List Objects screen, in the input fields for dates, enter a date, a range of dates, a special date or a range of special dates.

A date must be specified in the format *YYYYMMDD* (*YYYY* = year, *MM* = month, *DD* = day).

In the list of options below, *value* is any combination of one or more digits:

Input Value	Selected Objects
<i>YYYYMMDD</i>	All objects with a date equal to <i>YYYYMMDD</i> . Example: 20020831
<i>value*</i>	All objects with a date that starts with <i>value</i> . Example: 2002* Selected: 20020101, 20021231 Not selected: 20011231, 20030101
<i>value></i>	All objects with a date greater than or equal to <i>value</i> . Example: 2001> Selected: 20010101, 20021231, 20020101 Not selected: 20001231
<i>value<</i>	All objects with a date less than <i>value</i> . Example: 2001< Selected: 19990101, 20001231 Not selected: 20010101, 20011231
Special Dates	
<u>TODAY</u> (+/- <i>nnnn</i>)	All objects with the date of the current day. The day can be followed by +<i>nnnn</i> or -<i>nnnn</i> where <i>nnnn</i> has a maximum of 4 digits. The resulting date is computed as the date of the current day plus or minus <i>nnnn</i> days. Example: the current date is 20020301 TODAY +5 results in 20020306
<u>YESTERDAY</u>	All objects with the date of the day before the current day.
<u>MONTH</u>	All objects with the date range of the current month. Example: the current month is 200209. Selected: 20020901, 20020930. Not selected: 20021001.
<u>YEAR</u>	All objects with the date range of the current year. Example: the current year is 2002. Selected: 20020101, 20021231. Not selected: 20031001.

Time Specification

To specify the objects to be displayed on the List Objects screen, in the input fields for times, enter a time or a range of times.

The time must be specified in the format *HH:II:SS* (*HH* = hours, *II*= minutes, *SS* = seconds).

In the list of options below, *value* can be any combination of one or more digits:

Input Value	Selected Objects
<i>HH:II:SS</i>	All objects with a time equal to <i>HH:II:SS</i> . Example: 14:15:16
<i>value*</i>	All objects with a time that starts with <i>value</i> . Example: 13* Selected: 13:00:00, 13:10:53, 13:59:59 Not selected: 12:59:59, 14:00:00
<i>value></i>	All objects with a time greater than or equal to <i>value</i> . Example: 12:30> Selected: 12:30:00, 12:30:01, 16:34:01 Not selected: 12:29:59
<i>value<</i>	All objects with a time less than <i>value</i> . Example: 12:30< Selected: 12:29:59 Not selected: 12:30:00

Screen Navigation

To scroll in the List Objects screen, use the following PF keys and direct commands:

PF Key	Command	Function
PF1		Help. If chosen with the cursor on Column C: lists all commands and functions available. If chosen with the cursor on the input fields underneath the column titles: lists all possible input values for object selection.
PF5	CACHE	Only applicable if BP cache data exist. Scrolls to the top of the list with statistical data on BP cache objects.
PF6	--	Scrolls to the top of the list with statistical data on buffer pool objects.
PF7	-	Scrolls up one page.
PF8	+	Scrolls down one page.
PF9	++	Scrolls to the end of the list.
PF10	<	Scrolls left in the list.
	LEFT	Press PF11 to scroll to the right.
PF11	>	Scrolls right in the list and displays the additional screen columns: BP Load Time, BP Last Action, BPC Load Time, BPC Last Get, PBC Last Put and 1.BPperiod.
	RIGHT	Press PF10 to scroll to the left.

Line Commands

On the List Objects screen, in Column C, for each object displayed, you can enter any of the line commands listed below:

Command	Function
CL	Buffer pool only. Releases an object marked as resident.
DE	Marks an object to be deleted from the buffer pool or BP cache. The object is deleted as soon as the relevant Use Count is set to 0 . If issued for a buffer pool object, the object will be deleted from both the buffer pool and the BP cache. If issued for a BP cache object, the object will be deleted from the BP cache only.
HD	Buffer pool only. Displays in hexadecimal format the directory information of an object.
HE	Buffer pool only. Corresponds to the function Hexadecimal Display as described in the relevant section.
FO	Buffer pool only. Deletes an object immediately from the buffer pool, regardless of the relevant Use Count.
LD	Corresponds to the function Directory Information as described in the relevant section.
RE	Buffer pool only. Marks an object as resident.
ZO	For the object specified, zooms in the fields Object, Use, Max, Reuse, TotalUC, ObjSize and Sto and displays them in full length. To zoom out, press ENTER.

For each command entered, a confirmation message is displayed for the relevant line overwriting text of rows displayed on the screen. Possible messages are:

- Failed (in response to any function that has not been executed successfully),
- Deleted (in response to the command DE or FO),
- Released (in response to the command CL) and
- Resident (in response to the command RE).