

Resource Utilization

Selecting Resource Utilization (option "U") from the Session Monitoring menu invokes the Resource Utilization menu:

```

14:42:51          ***** A D A B A S  BASIC  SERVICES *****          2006-07-14
                        - Resource Utilization -                          PACU002

Code  Service                                           Code  Service
-----
C    Command usage                                     P    PLOG status
F    File usage                                         S    System status
H    High water marks (pools/queues)                  T    Thread usage
L    Workpool (LWP) usage                             W    WORK status
N    Nucleus File Status                             X    Cluster usage
?    Help
.    Exit
-----

          Code ..... _
          File Number .. 0
          Database ID .. 1955      (WIS1955)              NucID .. 1022

Command ==>
PF1----- PF2----- PF3----- PF4----- PF6----- PF7----- PF8----- PF12-----
Help                Exit                                Menu

```

The resource utilization displays provide a comprehensive overview of Adabas operation.

Each of the resource utilization options contain a refresh capability (PF4) that allows you to refresh the displayed values, a convenience for long-term monitoring of Adabas system functions.

This chapter covers the following topics:

- Command Usage
- File Usage
- High Water Marks
- Work Pool (LWP) Usage
- Nucleus File Status
- Protection Log (PLOG) Status
- System Status
- Thread Usage
- WORK Status

- Cluster Usage

Command Usage

Overall Command Usage (option "C") displays the total and average execution time of each Adabas command type issued during the current session and processed by the Adabas nucleus, and the total of all Adabas commands issued.

The equivalent direct command is

```
DISPLAY CMDUSAGE
```

14:44:36	*****	A D A B A S	BASIC SERVICES	*****	2006-07-14
DBID 105		-	Command Usage	-	PACUC02
Total Commands .. 19051					
CMD-Type	I	Nr. CMDs	I	Aver. Dur.	I
CMD-Type	I	Nr. CMDs	I	Aver. Dur.	I
A1/4	I	592	I	0.7	I
CL	I	1	I	49.3	I
E1/4	I	119	I	7.4	I
L2/5	I		I		I
L9	I	473	I	2.3	I
N1/2	I	204	I	10.3	I
UC	I	70	I	11.3	I
RE	I		I		I
S1/4	I	320	I	21.0	I
S5	I		I		I
S9	I		I		I
BT	I	5	I		I
ET	I	75	I		I
L1/4	I	1570	I	1.1	I
L3/6	I	9842	I	6.7	I
LF	I		I		I
OP	I	10	I	74.2	I
RC	I	5732	I		I
REST	I	38	I		I
S2	I		I		I
S8	I		I		I

File Usage

Overall File Usage (option "F") displays all files of the database used during the session and the number of accesses to each file.

The equivalent direct command is

```
DISPLAY FILUSAGE
```

14:45:31	*****	A D A B A S	BASIC SERVICES	*****	2006-07-14
DBID 105		-	File Usage	-	PACUF12
Fnr	I	Tot. Cmds	Fnr	I	Tot. Cmds
Fnr	I	Tot. Cmds	Fnr	I	Tot. Cmds
0	I	5898	9	I	345
100	I	7939	101	I	4752
			17	I	24
			110	I	39
			50	I	62

If a file number other than zero is specified on the Resource Utilization menu, the File Usage display shows file use information for the specified file:

14:53:02	*****	A D A B A S	BASIC SERVICES	*****	2006-07-14
DBID 105		-	File Usage	-	PACUF02
Usage Numbers for File 100 :					
			ACC Users .. 1	EXU Users ..	
			UPD Users ..	UTI Users ..	
		-- USERS --			
M	TID/User	Jobname	CPU-ID	VM-ID	Open Mode
-	-----	-----	-----	-----	-----
	BADFAM 3	COMPLETE	999999999999		EXF UTI EXU
Mark entry with a 'S' to select a User					
Total Users in this list for this file is 1					Page 1 of 1

High Water Marks

High Water Marks (option "H") displays the maximum percent of use of selected pools and queues in the current session, and the date and time when the high point was reached.

Values are displayed for the user, command, and hold queues; the ISN list and sequential command tables; the format and work pools; and the attached buffers (NAB).

These values are a good starting point when looking for a problem with limited buffer, pool, or queue space, or if you are looking for unused storage resources.

The equivalent direct command is

DISPLAY HWM

15:55:18	*****	A D A B A S	BASIC SERVICES	*****	2006-07-14			
DBID 105		-	High Water Marks	-	PACUH02			
Pool / Queue	I	Size	I	Used	I %Used I	Date	Time	I

Attached Buffer(NAB)	I	204800	I	12032	I 5.8	I		I
Command Queue (NC)	I	34560	I	384	I 1.1	I	2006-07-14 14:55:06	I
Format Pool (LFP)	I	80000	I	4364	I 5.4	I	2006-07-14 14:25:23	I
Hold Queue (NH)	I	350056	I	1736	I 0.4	I	2006-07-14 14:46:04	I
ISN-List Table (LI)	I	50000	I	0	I 0.0	I		I
Seq. Cmd. Table(LQ)	I	32000	I	440	I 1.3	I	2006-07-14 08:00:01	I
User Queue (NU)	I	58644	I	2524	I 4.3	I	2006-07-14 14:44:26	I
Work Pool (LWP)	I	250000	I	92256	I 36.9	I	2006-07-14 14:29:33	I

Work Pool (LWP) Usage

Work Pool (LWP) Usage (option "L") displays the length of the used and unused parts of the work pool as well as the length of the longest single unused part. These numbers can be used to tune the work pool length for the next session.

The equivalent direct command is

```
DISPLAY LWPUSAGE
```

```
16:06:30          ***** A D A B A S  BASIC  SERVICES  *****          2006-07-14
DBID 105              -  Workpool Usage  -                      PACUL02

Workpool (LWP)
Used part .....          1440 Bytes
Unused part .....        248288 Bytes
Biggest unused part ..    248288 Bytes
```

Nucleus File Status

Nucleus File Status (option "N") is the equivalent of the DNFV operator command.

```
16:09:17          ***** A D A B A S  BASIC  SERVICES  *****          2006-07-14
DBID 1955              -  Nucleus File Status  -                      PACUN02
NucID 1021

      Locking
File   NucID  Access count  Update count  State
-----
24          0              0      Access
25          0              0      Access, Update

Last page
PF1----- PF2----- PF3----- PF4----- PF7----- PF8----- PF9----- PF12-----
Help      Repos      Exit      Refresh  -          +          Menu
```

In an Adabas cluster environment, the file may be locked for exclusive use by another cluster nucleus. If this is the case and the file is in the nucleus file status table, the Locking NucID column for the file shows the ID of the nucleus that has exclusive control.

The Access count / Update count fields display the number of access or update users, respectively, that refer to the specified file in their user queue elements (UQEs). These users either have specified the file in an OP command with "R"-option or are using the file in an as yet incomplete transaction.

A State field indicates when the file is used for access only or for access and update. The State field indicates to what extent a nucleus can use a file on its own. If the requested use exceeds the given state, the nucleus must first communicate with the other nuclei in the cluster in order to upgrade the state.

Protection Log (PLOG) Status

Protection Log (PLOG) Status (option "P") displays the status of dual protection logs, if used.

The equivalent direct command is

```
DISPLAY PLOGSTATUS
```

```
16:16:37          ***** A D A B A S  BASIC  SERVICES  *****          2006-07-14
      DBID 105                      - PLOG Status -                      PACUP02

      The nucleus is currently writing on ..... 1
      Size of one PLOG area (in BLKs.) ..... 40
      Last block written ..... 25 ( 62 %)
      Number of switches since nucleus start .. 10
      Date/Time of last switch ..... 2006-07-14 10:31:12
```

System Status

System Status (option "S") displays I/O counts for the ASSO, DATA, WORK, and PLOG datasets; remote and local call distribution; and other current session status information.

Note:

For Adabas 7.4 and above, "Logical Reads" can now display up to 23 digits; "Logical Reads (binary)" has been discarded.

The equivalent direct command is

```
DISPLAY SYSTEMSTATUS
```

16:20:16	***** A D A B A S BASIC SERVICES *****				2006-07-14
DBID 1955	- System Status -				PACUS02
NucID: 1022					
	Physical				
	Reads	Writes	Call Distribution		
ASSO	370	67	Remote Logical		0
DATA	3	18	Remote Physical		0
WORK	2	104	Local Logical		860
PLOG		67	Local Physical		0
Logical Reads:					
....					
Buffer Efficiency		0.9	No. of HQEs active		0
			No. of UQEs in User Queue ..		2
Format Translations ..		51	No. of CQEs waiting in CQ ..		0
Format Overwrites		0			
			Total intern. Autorestarts .		0
Throw Backs for ISN ..		0	No. of PLOG switches		0
Throw Backs for Space.		0	No. of Bufferflushes		18
page 1 of 2					
PF1-----	PF2-----	PF3-----	PF4-----	PF6-----	PF7-----
Help		Exit	Refresh		+
					Menu

If you are running Adabas version 8.1, press PF8 to display an additional screen that indicates if one or more of the following are in progress:

- Online database save running;
- ADAEND in progress;
- Online file save running;
- READONLY/UTIONLY transition;
- READONLY status;
- Update processing suspended;
- ET-sync in progress;
- UTIONLY status; and
- Exclusive-DB-control utility running.

Otherwise, "Adabas operation normal" is displayed.

```
16:37:41          ***** A D A B A S  BASIC  SERVICES *****          2006-07-14
DBID 1955          -  System Status  -          PACUS02
NucID: 1021

                        Nucleus Status Flags
                        -----
                        Adabas operation normal

                                                page 2 of 2

PF1----- PF2----- PF3----- PF4----- PF6----- PF7----- PF8----- PF12-----
Help              Exit      Refresh              +      Menu
```

Thread Usage

Thread Usage (option "T") displays a table of all defined Adabas threads, the status of each, the command type currently in process in each active thread, and the number of commands processed by each thread in the current session.

The equivalent direct command is

```
DISPLAY THREADUSAGE
```

16:54:21		***** A D A B A S BASIC SERVICES *****				2006-07-14	
DBID 6		- Thread Usage -				PACUT02	
Nr.	I	Thread Status	I	Command Type	I	Wait Event	I

1	I	Waiting for event	I	Update	I	Queued Event	I
2	I	Waiting for event	I	Update	I	I/O	I
3	I	Waiting for event	I	Update	I	I/O	I
4	I	Waiting for event	I	Update	I	Async Work I/O	I
5	I	Waiting for event	I	Update	I	Queued Event	I
6	I	Waiting for event	I	Update	I	Async Work I/O	I
7	I	Waiting for event	I	Update	I	PLOG I/O	I
8	I	Waiting for event	I	Update	I	Queued Event	I
9	I	Waiting for event	I	Update	I	Queued Event	I
10	I	Waiting for event	I	Update	I	Queued Event	I
11	I	Waiting for event	I	Update	I	Queued Event	I
12	I	Waiting for event	I	Update	I	Queued Event	I
13	I	Waiting for event	I	Update	I	Queued Event	I
14	I	Active	I	Simple Cmd.	I		I
15	I	Not active	I		I		I

PF1-----		PF2-----		PF3-----		PF4-----	
PF6-----		PF7-----		PF8-----		PF12-----	
Help		Exit		Refresh		Menu	

WORK Status

WORK status (option "W") displays the WORK area sizes (in blocks) for the

- data protection area (Work part 1; ADARUN LP parameter);
- area used for intermediate ISN lists (Work part 2; ADARUN LWKP2 parameter);
- area used for resulting ISN lists (Work part 3);

The equivalent direct command is

DISPLAY WORKSTATUS


```

16:57:32          ***** A D A B A S  BASIC  SERVICES *****          2006-07-14
DBID 1955          -   WORK Status   -                               PACUW02

                                W O R K   Dataset

+-----+
I Protection Area                                500 Blks I
I-----I
I Intermediate ISN Area                          76 Blks I
I-----I
I Resulting ISN Area                            1315 Blks I
I-----I
I Distributed Transaction Processing Area         500 Blks I
+-----+

PF1----- PF2----- PF3----- PF4----- PF6----- PF7----- PF8----- PF12-----
Help          Exit       DTP-area                               Menu

```

If you have DTP=RM in your ADARUN parameter settings, and press PF4 on the new screen, then the new screen DTP Work Area displays (shown below):

```

17:04:47          ***** A D A B A S  BASIC  SERVICES *****          2006-07-14
                                -   DTP Work Area   -                               PACUK02

                                Code      Service
                                -----
                                D      Display PET-status users
                                H      Display heuristically terminated users
                                R      Display DTP rabns
                                U      Work Part 4 usage
                                X      Force heuristic BT/ET
                                ?      Help
                                .      Exit
                                -----

Code ..... _
Selected User ....
Database ID ..... 1955   (WIS1955)

Command ==>
PF1----- PF2----- PF3----- PF4----- PF6----- PF7----- PF8----- PF12-----
Help Clear UID Exit                               Menu

```

The DTP Work Area menu performs the following functions:

Function	Action
Display PET-status users	Displays the current environment of PET-status users. You can select one or more to display additional information.
Display heuristically terminated users	Displays a list of the heuristically terminated users. You can select one or more to display additional information.
Display DTP Rabns	Displays a list of allocated RABNs. You can select a user, display additional information, issue BT or ET, and display total RABNs for a user.
Work Part 4 Usage	Displays the breakdown of information of the Work Part 4.
Force Heuristic BT/ET	Issues a BT or ET for a selected user. Select the user through the "Display DTP RABNs" menu item.
PF2	Clears the selected user.

If you select Display PET-status users, the screen Display PET-Status Users displays (shown below):

17:17:39	***** A D A B A S BASIC SERVICES *****	2006-07-14
DBID 1955	- Display PET-Status Users -	PACUKD2
Mark entries with 'D' (Display):		
M I Global ID	I RMID hex I	
-----	-----	-----
_ I 000F710020640000B96353B18528B38200000000B96353B185286F02	I 044E0059	I
_ I	I	I
_ I	I	I
_ I	I	I
_ I	I	I
_ I	I	I
_ I	I	I
_ I	I	I
_ I	I	I
_ I	I	I
_ I	I	I
PF1----- PF2----- PF3----- PF4----- PF6----- PF7----- PF8----- PF12-----		
Help	Exit	Refresh
	-	+
		Menu

Cluster Usage

Note:

This option is only active in an Adabas nucleus cluster environment.

Cluster usage (option "X") displays nucleus cluster statistics that are equivalent of those displayed using the DXCACHE, DXLOCK, and DXFILE operator commands. See the *Adabas Cluster Services* documentation or the *Adabas Parallel Services* documentation for more information.

The equivalent direct command is

```
DISPLAY CLUSTERSTATUS
```

```

17:20:31          ***** A D A B A S  BASIC  SERVICES *****          2006-07-14
                        - Cluster Usage -                                PACUX02

                        Code      Service
                        ----      -
                        C        Cache statistics
                        F        File statistics
                        L        Lock statistics
                        ?        Help
                        .        Exit
                        ----      -

Code ..... _
File Number .. 0
Database ID .. 1955   (WIS1955)                NucID .. 1021

Command ==>
PF1----- PF2----- PF3----- PF4----- PF6----- PF9----- PF10----- PF12-----
Help              Exit              Fuse      Flist      Menu

```

Cache Statistics

Choosing Cache Statistics (option "C") from the Cluster Usage menu displays the following menu:

```

17:24:23          ***** A D A B A S  BASIC  SERVICES *****          2006-07-14
                        - Cache Statistics -                            PACUX12

                        Code      Service
                        ----      -
                        K        Cast-out / Directory
                        P        Publishing requests
                        X        Individual cache blocks
                        .        Exit
                        ?        Help
                        ----      -

Code .....
Database ID .. 1955   (WIS1955)                NucID .. 1021

PF1----- PF2----- PF3----- PF4----- PF6----- PF7----- PF8----- PF12-----
Help              Exit      Refresh              Menu

```

Cast-out / Directory

Choosing Cast-out / Directory (option "K") from the Cache Statistics menu display the following:

17:31:23	***** A D A B A S BASIC SERVICES *****	2006-07-14
DBID 1955	- Cast-out / Directory -	PACUX12
NucID 1021		
Cast-out Directory Reads		Directory Reads
-----		-----
Total	28	Total
Sync	1	Sync
Async	27	Async
Unlock Cast-out Calls		

Total	28	
Sync	1	
Async	27	
PF1----- PF2----- PF3----- PF4----- PF7----- PF8----- PF9----- PF12-----		
Help Exit Refresh Detail Menu		

Counters have a multiplier column with the following values:

Value	The total shown is in . . .
blank	bytes
K	kilobytes
M	megabytes
G	gigabytes
T	terabytes

If a number has a multiplier shown, it has been divided by the multiplier, showing the significant digits to 9 places with no decimal point.

Press PF9 to see the entire value. This value is the exact count up to 20 digits in length.

Publishing Requests

Choosing Publishing Requests (option "P") from the Cache Statistics menu display the following:

17:36:21	***** A D A B A S BASIC SERVICES *****	2006-07-14
DBID 600	- Publishing Requests -	PACUX12
NucID 2		
	Publishing Request Category	

	Update sync	0
	BT or CL or ET	0
	Redo threshold	12
	Full bufferpool ...	10
	All blocks	2
	Specific RABN	8
	File DS blocks	4
	All DSST blocks ...	0
	File NI blocks	8
PF1-----	PF2-----	PF3-----
PF4-----	PF7-----	PF8-----
PF9-----	PF12-----	
Help	Exit	Refresh
	Detail	Menu

All Cache Blocks

Choosing All Cache Blocks (option "X") from the Cache Statistics menu display the following:

17:43:05	***** A D A B A S BASIC SERVICES *****	2006-07-14
DBID 1955	- All Cache Blocks -	PACUX12
NucID 1021		
Reads	Writes	
-----	-----	
Total	Total	38,176
Sync	Sync	15,148
Async	Async	23,028
In cache	Written	38,176
Not in cache ..	Not written	0
Struc. full ...	Struc. full	0
Cast-out Reads	Other	
-----	-----	
Total	Validates	187,677
Sync	Invalid	43
Async	Deletes	0
	Timeouts	0
	Redo processes	0
PF1-----	PF2-----	PF3-----
PF4-----	PF7-----	PF8-----
PF9-----	PF12-----	
Help	Repos	Exit
Refresh	PrevBlk	NxtBlk
Detail	Menu	

Use PF7 and PF8 to scroll through the cache blocks; use PF2 to reposition.

Statistics are displayed for the following:

- All cache blocks;

- Address converter (AC) cache blocks;
- Data Storage (DS) cache blocks;
- Data Storage space table (DSST) cache blocks;
- File control block (FCB) cache blocks;
- Normal index (NI) cache blocks;
- Upper index (UI) cache blocks.

Press PF9 from the above screen to display the following detail screen:

17:47:09	***** A D A B A S BASIC SERVICES *****	2006-07-14
DBID 1955	- All Cache Blocks -	PACUX12
NucID 1021		
Reads	Writes	

Total	167	Total 38,176
Sync	24	Sync 15,148
Async	143	Async 23,028
In cache..	49	Written ... 38,176
Not in ...	118	Not writ .. 0
Stru.full.	0	Stru.full . 0
Cast-out Reads	Other	

Total	212	Validates ... 187,677
Sync	212	Invalid ... 43
Async	0	Deletes 0
		Timeouts .. 0
		Redo procs .. 0
Press Enter to continue		

File Statistics

Choosing File Statistics (option "F") from the Cluster Usage menu for file 25 displays the following menu:

17:52:02		***** A D A B A S BASIC SERVICES *****				2006-07-14	
DBID 1955		- File 25 Statistics -				PACUX22	
NucID 1021							
Reads		Writes					
-----		-----					
Total 67		Total 20,157					
Sync 0		Sync 7,583					
Async 67		Async 12,574					
In cache 0		Written 20,157					
Not in cache .. 67		Not written 0					
Struc. full ... 0		Struc. full 0					
Cast-out Reads		Other					
-----		-----					
Total 78		Validates 79,248					
Sync 78		Invalid 0					
Async 0		Deletes 0					
		Timeouts 0					
		Redo processes 0					
PF1----- PF2----- PF3----- PF4----- PF7----- PF8----- PF9----- PF12-----							
Help Repos Exit Refresh		Detail		Menu			

Lock Statistics

Choosing Lock Statistics (option "L") from the Cluster Usage menu displays the following menu:

```

17:58:16          ***** A D A B A S  BASIC  SERVICES *****          2006-07-14
                                - Lock Statistics -                                PACUX32

Code      Service                                Code      Service
-----
A      Buffer flush lock                        J      Global update command sync lock
B      Cancel lock                            K      Hold ISN lock
C      Checkpoint lock                        L      New-Data-RABN lock
D      DSF lock                              M      Online save lock
E      ETID lock                             N      Parameter lock
F      File-lock-table lock                  O      Recovery lock
G      FST lock                              P      RLOG lock
H      GCB lock                              Q      Security lock
I      Global ET sync lock                  R      Spats lock
.      Exit                                  S      Unique descriptor lock
?      Help

-----
Code ..... _
Database ID .. 1955      (WIS1955)                        NucID .. 1021

PF1----- PF2----- PF3----- PF4----- PF6----- PF7----- PF8----- PF12-----
Help              Exit      Refresh                                Menu

```

Each of the options on the Lock Statistics menu displays statistics for a particular lock. For each lock, the screen displays obtain and release information about the various types of that lock that are currently in use by a cluster nucleus:

- The system may obtain locks conditionally or unconditionally, synchronously or asynchronously. A conditional request for a lock may be granted or rejected.
- Releases may be issued synchronously or asynchronously.

Hold ISN Lock

Choosing Hold ISN Lock (option "J") from the Lock Statistics menu displays the following:

18:08:16	***** A D A B A S BASIC SERVICES *****	2006-07-14
DBID 1955	- Hold ISN Lock -	PACUX32
NucID 1021		
Obtains		Releases
-----		-----
Conditional	16,017	Issued 16,017
Granted	16,017	Sync 15,971
Rejected	0	Async 46
Unconditional ..	0	
Sync	158	
Async	15,859	
PF1----- PF2----- PF3----- PF4----- PF6----- PF7----- PF8----- PF12-----		
Help Repos Exit Refresh PrevLok NxtLok Menu		

Use PF7 and PF8 to scroll through the locks; use PF2 to reposition.