



# Extending CA-IDMS

## VG-IDMS Gateway Overview

VEGASOFT



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# Contents

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- ◆ CAF Operations
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- ◆ Client/Server Communication

# Introduction

- ◆ VG-IDMS Gateway is required component for:
  - accessing
    - DB2 from CA-IDMS
    - ODBC from CA-IDMS
    - CA-IDMS from Internet with VG-IDMS/Web Server
    - CA-IDMS from VG-Windows Client
    - CA-IDMS from VG-Java Client
  - using
    - TCP/IP in CA-IDMS applications
    - MQSeries in CA-IDMS applications



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# Introduction

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- ◆ Run-time operation is managed by two memory resident control tables
  - Options Table
  - Server Control Table

# Options Table

- ◆ Default values for system variables
  - e.g. date and time formats
- ◆ Source in the dictionary module
  - XDB<v>-OPTIONS-TABLE VERSION <cv version>
- ◆ Settings are defined in module source
  - 'KEYWORD=value'

# Options Table

- ◆ Options Table is loaded into storage pool at startup time by the Server Control Table load task `SR<v>LOAD(S)`
- ◆ It may be reloaded as needed with the task code `OP<v>LOAD(S)`
- ◆ `SR<v>LOAD(S)` loads
  - Options Table
  - Server Control Table

# Options Table Source

```
ADD
MODULE NAME IS XDB2-OPTIONS-TABLE VERSION IS 222
MODULE SOURCE FOLLOWS
SERVER=TEST
PRECOMPILER_ACTION=COMP
PROCESS_VERSION=0001
GENERATE-ACCESS-MODULE=N
LINK_NOSAVE=Y
GENERATE_COMMITS=Y
ISOLATION_LEVEL=CS
ENVIRONMENT=I
COMPILE_ACCESS_MODULE=N
EXPLAIN_ACCESS_PLAN=N
SQL_STRING_DELIMITER='
SQL_DP=.
SQL_DATE=02.02.1992
SQL_TIME_STAMP=1991-02-02-01.01.01.123456
SQL-DB2=DB2SQL
DEFAULT_MIXED_SQL=N
```

(continues...)

# Options Table Source

```
UNIQUE_HOST_VARS=Y
IDD_STORE_OPTIMIZE=Y
DB2_RELEASE=0220
IDMS_RELEASE=1021
CICS_RELEASE=0211
POST_DRIVER=N
APPLICATION_START_POSITION=00
APPLICATION_NAME_LENGTH=0
DYNAMIC-SQL-STMT-LENGTH=2048
JOB-SUBMIT-PRINTER-CLASS=64
MAX_SELECT_COLS=064
MAX_ISQL_CALLS=999999
MAX_ISQL_ROWS=99999
MAX_ISQL_SPACE=99999
MAX_RECORD_DECL=100
MAX_CURSOR_DECL=05
MAX_HOST_VARS=100
WORDS_PER_HOST_VAR=4
STATIC-PLAN=*****
MSEND.
```

# Options Table List

VEGASOFT OY	VEGA	V2R6
OPTIONS TABLE		
-----		
CICS RELEASE	: 0211	DB2 RELEASE : 0230
IDMS RELEASE	: 1021	POST DRIVER : N
SERVER	: CAF	PRECOMPILER ACTION : COMP
PROCESS VERSION	: 1	ENVIRONMENT : I
APPLICATION START POSITION:	0	APPLICATION NAME LENGTH : 0
GENERATE ACCESS MODULE	: N	LINK NOSAVE : Y
GENERATE COMMITS	: Y	ISOLATION LEVEL : CS
DEFAULT MIXED SQL	: N	SQL KEYWORD : DB2SQL
COMPILE ACCESS MODULE	: N	EXPLAIN ACCESS PLAN : N
STATIC SQL PLAN NAME	: *****	DYNAMIC SQL SQLID :
IDD STORE OPTIMISE	: Y	DYNAMIC SQL STMT LENGTH : 2048
JOB SUBMIT PRINTER CLASS	: 64	PRECOMPILER LANGUAGE : DB2PROCESS
RECORD DECLARATIONS	: 50	HOST VARIABLES / WORDS : 128 / 512
CURSOR DECLARATIONS	: 6	DYNAMIC SQL COLUMNS : 100
MAXIMUM ISQL CALLS	: 20000	MAXIMUM ISQL ROWS : 10000
MAXIMUM ISQL SPACE (K)	: 1000	MODULE SOURCE CASE UPLOW : Y
-----		
NEXT TASK CODE: OP2LISTF		

Options Table contents can be viewed with the task code OP2LIST.

# Options Table List

VEGASOFT OY			VG-IDMS GATEWAY			V2R6		
SQL FORMAT PROFILES								
						STA-		
F	DATE	TIME	TIMESTAMP	D	STR	TIC	DBMS	PRE-
-	----	----	-----	P	DLM	SQL	TYPE	PARE
1	01.01.1992	01.01.01	1991-01-01-01.01.01.123456	.	'	Y	DB2	
2	01-JAN-92	01-JAN-9	01-JAN-92	.	'	N	ODBC	YES
3	01 JAN 92	01 JAN 9	JAN 01 92	.	'	N	ODBC	YES
4	01.01.1991	01.01.01	1991-01-01-01.01.01.000000	.	'	Y	DB2	

-----

Up to four different profiles can be defined in the Options Table. Each profile defines a set of properties that are used at precompile and dialog execution time. The profile that a server or a dialog will use is defined with the 'F' keyword in the Server Control Table.

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-

NEXT TASK CODE: OP2LIST



# Server Control Table

- ◆ Define VEGA Servers
  - for Client/Server interface
  - Client connects to a Server based on the Server Control Table (SCT)
- ◆ Define connections
  - CAF, TCP/IP, MQSeries, SVC
- ◆ SCT resides in the Storage Pool

# Server Control Table

```

----- SERVER CONTROL TABLE -----
M SERVER/  RLU/JOB/SSN/  MODEENTR TASK USERID  P TRACE  SUBT/ F COUNT
  DIALOG   IP-ADDR/QMGR
-----
2 T This column indicates the type of the Server Control Table line:
  I
2 T •A..Z, 0, 1, 3 - 9 = dialog/program mask definition
  I •      2 = server definition
2 T •      ! = comment line
  I
2 ODBC1    SNALU123      APPC01  VGO  SCOTT  A
  LOCATION=ORACLE7
D SOS***** CICS02      APPC01  D2S  MARY   A      IDM2  1      0
  LOCATION=
D DDB2****  A93852TE      IDMS SVC D2U2      B      1      4
  LOCATION=
D DXYZ****  DBT1          IDMSCAF      B      04T  1      3
  LOCATION=TESTSRV
D *****  CICS02      APPC01  D2S  APPCUS1 A FDR  IDM2  1      0
  LOCATION=ORACLE7
  
```

# Server Control Table

```

----- SERVER CONTROL TABLE -----
M SERVER/  RLU/JOB/SSN/  MODEENTR TASK USERID  P TRACE  SUBT/ F COUNT
  DIALOG  IP-ADDR/OMGR      SYSI
-----
2 TCPIPA  1          This column is used to search the connection type.
  LOCATION= If the first column is one of the values A..Z, 0, 1, 3 - 9, this column
2 TCPIPB  1          defines the dialog/program mask, e.g. all dialogs starting with 'SOS' use
  LOCATION= APPC connection to CICS02.
2 TCPIBPT 1          If the value of the first column is '2', this column defines the server name.
  LOCATION= The server name definition is used by VEGA tools.
2 ODBC1   9          The server name definition is used by VEGA tools.
  LOCATION=ORACLE7
D SOS***** CICS02          APPC01  D2S  MARY  A          IDM2  1  0
  LOCATION=
D DDB2****  A93852TE          IDMS SVC  D2U2          B          1  4
  LOCATION=
D DXYZ****  DBT1          IDMS SCAF          B          04T  1  3
  LOCATION=TESTSRV
D *****  CICS02          APPC01  D2S  APPCUS1  A FDR      IDM2  1  0
  LOCATION=ORACLE7
  
```

# Server Control Table

```

----- SERVER CONTROL TABLE -----
M SERVER/  RLU/JOB/SSN/  MODEENTR TASK USERID  P TRACE  SUBT/ F COUNT
  DIALOG  IP-ADDR/QMGR
-----
2 TCPIPA  192.89.20.172  The meaning of this column varies depending on the communication
  LOCATION=  method.
2 TCPIPB  192.89.20.230
  LOCATION=
2 TCPIPBT 192.89.20.230
  LOCATION=
2 ODBC1   SNALU123
  LOCATION=ORACLE7
D SOS***** CICS02
  LOCATION=
D DDB2**** A93852TE
  LOCATION=
D DXYZ**** DBT1
  LOCATION=TESTSRV
D ***** CICS02
  LOCATION=ORACLE7
IDMSCAF          B          04T  1          3
APPC01  D2S  APPCUS1  A FDR          IDM2  1          0
  
```

The meaning of this column varies depending on the communication method.

Method	Meaning
APPC	Remote logical unit of the VEGA Server
CAF	DB2 subsystem name
IDMS	CA-IDMS SQL Option Catalog name
MQSeries	Local queue manager name
SVC	MVS job name of CICS
TCP/IP	TCP/IP address in dotted-decimal notation

# Server Control Table

---- SERVER CONTROL TABLE ----										
M	SERVER/ DIALOG	RLU/JOB/SSN/ IP-ADDR/QMGR	MODEENTR	TASK	USERID	P	TRACE	SUBT/ SYSI	F	COUNT
2	TCPIPA	192.89.20.172	IDMSTCP							
	LOCATION=									
2	TCPIPB	192.89.20.230	IDMSTCP							
	LOCATION=									
2	TCPIPBT	192.89.20.230	IDMSTCP							
	LOCATION=									
2	ODBC1	SNALU123	APPC01	V						
	LOCATION=ORACLE7									
D	SOS****	CICS02	APPC01	D						
	LOCATION=									
D	DDB2****	A93852TE	IDMSSVC	D						
	LOCATION=									
D	DXYZ****	DBT1	IDMSCAF			B		04T	1	3
	LOCATION=TESTSRV									
D	*****	CICS02	APPC01	D2S	APPCUS1	A	FDR	IDM2	1	0
	LOCATION=ORACLE7									

The meaning of this column varies depending on the communication method.

Method	Meaning
APPC	The value contains the VTAM Mode Entry
CAF	IDMSCAF defines the method as CAF
IDMS	IDMSSQL defines the method as SQL Option
MQSeries	IDMSMQS defines the method as MQSeries
SVC	IDMSSVC defines the method as SVC
TCP/IP	IDMSTCP defines the method as TCP/IP

# Server Control Table

---- SERVER CONTROL TABLE ----										
M	SERVER/ DIALOG	RLU/JOB/SSN/ IP-ADDR/QMGR	MODEENTR	TASK	USERID	P	TRACE	SUBT/ SYSI	F	COUNT
2	TCPIPA	192.89.20.172	IDMSTCP	691						
	LOCATION=									
2	TCPIPB	192.89.20.230	IDMSTCP	691						
	LOCATION=									
2	TCPIPBT	192.89.20.230	IDMSTCP	691						
	LOCATION=									
2	ODBC1	SNALU123	APPC01	VG0						
	LOCATION=ORACLE7									
D	SOS*****	CICS02	APPC01	D2S						
	LOCATION=									
D	DDB2****	A93852TE	IDMSSVC	D2U2						
	LOCATION=									
D	DXYZ****	DBT1	IDMSCAF			B		04T	1	3
	LOCATION=TESTSRV									
D	*****	CICS02	APPC01	D2S	APPCUS1	A	FDR	IDM2	1	0
	LOCATION=ORACLE7									

The meaning of this column varies depending on the communication method.

Method	Explanation
APPC	VEGA Server task id in CICS or Server TP name in SNA Server
CAF	Not used
IDMS	Not used
MQSeries	Not used
SVC	VEGA Server task id in CICS
TCP/IP	VEGA Server listener port - VG-ODBC Server listens to this port

# Server Control Table

---- SERVER CONTROL TABLE ----

This column only applies to VEGA Client/Server communication.

It is not used in

- Native DB2 access
- TCP/IP sockets
- MQSeries

The user id controls access to the target data source.

If the user id is non-blank.

**DB2** The user id is used at CICS signon.

**ODBC** The UID=<user\_id> parameter is inserted into the connect string.

If the user id is blank.

**DB2** There will be no CICS signon at run time (default).

**ODBC** The default UID from the NT Registry is used (default).

The user id can contain asterisks which will be replaced by characters from equal positions of the current CA-IDMS/DC/UCF user id.

SK	USERID	P	TRACE	SUBT/ SYSI	F	COUNT
91		B		05	1	0
91		B		05	1	0
91		B	*****	05	1	0
O	SCOTT	A			2	6
S	MARY	A		IDM2	1	0
U2		B			1	4
		B		04T	1	3
S	APPCUS1	A	FDR	IDM2	1	0

# Server Control Table

----- SERVER CONTROL TABLE -----					
M	DESCRIPTION	SERVERID	P TRACE	SUBT/ F SYSI	COUNT
-	This column only applies to VEGA Client/Server communication. It is not used in				
2	•Native DB2 access		B	05 1	0
2	•TCP/IP sockets		B	05 1	0
2	•MQSeries		B	05 1	0
2	The password controls access to the target data source in TCP/IP and APPC.		B *****	05 1	0
2	If the password is assigned (A or *)	DTT	A		2 6
D	<b>DB2</b> The password is used at CICS signon.	RY	A	IDM2	1 0
D	<b>ODBC</b> The PWD=<password> parameter is inserted into the connect string.		B		1 4
D	If the password is not assigned (B)		B	04T	1 3
D	<b>DB2</b> n/a		B	04T	1 3
D	<b>ODBC</b> The default PWD from the NT Registry is used (default).	PCUS1	A FDR	IDM2	1 0

# Server Control Table

```

----- SERVER CONTROL TABLE -----
M SERVER/  RLU/JOB/SSN/  MODEENTR TASK USERID  P TRACE  SUBT/ F COUNT
  DIALOG    I
-----
2 TCPIPA   1
LOCATION=
2 TCPIP   1
LOCATION=
2 TCPIPBT 1
LOCATION=
2 ODBC1   S
LOCATION=C
D SOS***** CICS02          APPC01  D2S  MARY  A          IDM2  1  0
LOCATION=
D DDB2**** A93852TE          IDMSVC  D2U2          B          1  4
LOCATION=
D DXYZ**** DBT1          IDMSCAF          B          04T  1  3
LOCATION=TESTSRV
D ***** CICS02          APPC01  D2S  APPCUS1 A FDR      IDM2  1  0
LOCATION=
  
```

This column only applies to VEGA Client/Server communication. It is not used in

- Native DB2 access
- TCP/IP sockets
- MQSeries

All transactions of the specified user will be written to CA-IDMS/DC/UCF log (errors are always logged).

# Server Control Table

----- SERVER CONTROL TABLE -----											
M	SERVER/ DIALOG	RLU/JOB/SSN/ ID ADDR/CMGR	MODE	ENTR	TASK	USERID	P	TRACE	SUBT/ SYSI	F COUNT	
2	TC								05	1	0
2	TC								05	1	0
2	TC								05	1	0
2	OD									2	6
D	SO								IDM2	1	0
D	DD									1	4
D	DX								04T	1	3
D	**								IDM2	1	0

This is the number of MVS subtasks allocated by SR2LOAD. This applies to CAF, MQSeries and TCP/IP.

**CAF** The character after the number of subtask defines how DB2 connections are established and terminated:

- T Long term connection is used for each CAF subtask (default).
- N Long term connection is used for control CAF subtask. Each subtask uses the control subtask connection.
- Y Short term connections are always used in each DB2 thread.
- D Short term connections are used for dynamic SQL operations.

**APPC** This is the connection name (or sysidnt) defined for this particular CA-IDMS/DC system in CICS.

**SVC** The column is not used.

LOCATION=

# Server Control Table

---- SERVER CONTROL TABLE ----										
M	SERVER/ DIALOG	RLU/JOB/SSN/ IP-ADDR/QMGR	MODE	ENTR	TASK	USERID	P	TRACE	SUBT/ SYST	(F) COUNT
2	TCPIPA	192.89.20.172	I							1 0
	LOCATION=									
2	TCPIPB	192.89.20.230	I							1 0
	LOCATION=									
2	TCPIPBT	192.89.20.230	I							1 0
	LOCATION=									
2	ODBC1	SNALU123	A							2 6
	LOCATION=ORACLE7									
D	SOS****	CICS02	APPC01	D2S	MARY		A		IDM2	1 0
	LOCATION=									
D	DDB2****	A93852TE	IDMSSVC	D2U2			B			1 4
	LOCATION=									
D	DXYZ****	DBT1	IDMSCAF				B		04T	1 3
	LOCATION=TESTSRV									
D	*****	CICS02	APPC01	D2S	APPCUS1		A FDR		IDM2	1 0
	LOCATION=									

This column only applies to VEGA Client/Server communication. It is not used in

- Native DB2 access
- TCP/IP sockets
- MQSeries

The number in this column shows the SQL profile number of the current Server or dialog (group).

# Server Control Table

---- SERVER CONTROL TABLE ----										
M	SERVER/ DIALOG	RLU/JOB/SSN/ IP-ADDR/QMGR	MODEENTR	TASK	USERID	P	TRACE	SUBT/ SYSI	F	COUNT
2	TCPIPA	192.89.20.172	IDMSTC							0
	LOCATION=									
2	TCPIPB	192.89.20.230	IDMSTC							0
	LOCATION=									
2	TCPIPBT	192.89.20.230	IDMSTCP	691		B	*****	05	1	0
	LOCATION=									
2	ODBC1	SNALU123	APPC01	VGO	SCOTT	A			2	6
	LOCATION=ORACLE7									
D	SOS****	CICS02	APPC01	D2S	MARY	A		IDM2	1	0
	LOCATION=									
D	DDB2****	A93852TE	IDMSSVC	D2U2		B			1	4
	LOCATION=									
D	DXYZ****	DBT1	IDMSCAF			B		04T	1	3
	LOCATION=TESTSRV									
D	*****	CICS02	APPC01	D2S	APPCUS1	A	FDR	IDM2	1	0
	LOCATION=									

This is the number of conversation allocations within the Server Control Table line. The value can be used to measure the activity of different connection types.

# Server Control Table

-----	This column only applies to VEGA Client/Server communication. It is not used in															
M SER	•Native DB2 access															
DIA	•TCP/IP sockets															
-----	•MQSeries															
2 TCE	If the location name is non-blank.															
LOC	DB2	CONNECT TO	<location_name>	is	executed	before	the	first	Client	call	to	DB2.				
2 TCE	ODBC	The	DSN=<location_name>	parameter	is	inserted	into	the	connect	string.						
LOC																
2 TCE	If the location name is blank.															
LOC	DB2	CONNECT	is	NOT	executed	(default)										
2 ODE	ODBC	The	default	DSN	from	the	NT	Registry	is	used	(default).					
LOC																
D SOS	If the location name is 'DEFAULT'.															
LOC	DB2	n/a														
D DDE	ODBC	If	the	location	name	value	is	'DEFAULT'	(case	insensitive),	only	the	user	id	and/or	password
LOC	will be used during ODBC connect.															
D DXY																
LOCATION=	TESTSRV															
D *****	CICS02	APPC01	D2S	APPCUS1	A	FDR	IDM2	1	0							
LOCATION=																

# Server Control Table

## ◆ SCT display for CAF

```
CAF CONNECTION TO DB2 SUBSYSTEM DBT1 OPEN
NUMBER OF DB2 THREAD OPENS:          4
NUMBER OF DB2 THREAD CLOSES:         3
NUMBER OF ABEND REQUESTS:             0
      -- ACTIVE   CAF LOGICAL TERMINALS --
CAF LTE   TASKID   IDMS LTE   PLAN           STATUS        USAGE
-----
      0           0           0           0           ACTIVE        NOT USED
      1           0           0           0           ACTIVE        USED
      2           777       LTER0022   MDB2CFVU     RUNNING      USED
```

# Server Control Table

## ◆ SCT display for TCP/IP

```
TCP/IP CONNECTION                                OPEN      AT 0083E3E0
NUMBER OF TCP/IP INITAPIS:                       1
NUMBER OF TCP/IP END APIS:                       0
NUMBER OF ABEND REQUESTS:                        0
      -- ACTIVE TCP/IP LOGICAL TERMINALS --
TCP LTE  TASKID  IDMS LTE PROGRAM  STATUS  USAGE # ADDRESS  SYSTEM INFO
-----
      0      4964                MTCPLST1  RUNNING      1 0083E420
      1                ACTIVE      0 0083E680
      2                ACTIVE      0 0083E8E0
      3                ACTIVE      0 0083EB40
      4                ACTIVE      0 0083EDA0
```

# Server Control Table

## ◆ SCT display for MQSeries

```
MQSERIES CONNECTION TO QMGR:  DEFAULT  OPEN      AT 004EEAC8
NUMBER OF MQSERIES INITAPIS:      2
NUMBER OF MQSERIES END APIS:      0
NUMBER OF ABEND REQUESTS:         0
      -- ACTIVE MQSERIES LOGICAL TERMINALS --
MQS LTE  TASKID  IDMS LTE  TASKCODE  STATUS  USAGE #  ADDRESS  SYSTEM INFO
-----  -
      0      245 LD000001 MQSTGM   RUNNING  1  004EEB38
      1      246 LD000002 MQSTGM   RUNNING  1  004EEF60
      2                               ACTIVE    0  004EF388
```

# Server Control Table

## ◆ SCT display for SVC

```
SVC CONNECTION TO CICS JOB A93852TE    OPEN
NUMBER OF ALLOCATIONS:                  20
NUMBER OF DEALLOCATIONS:                18
NUMBER OF ABEND REQUESTS:              5
      -- RESERVED DB2 LOGICAL TERMINALS --
DB2 LTE    TASKID    IDMS LTE    DLG/ID    STATUS
-----
      1      687      LTER0001    TESTDLG1  RUNNING
      2      666      LTER0066    TESTDLG2  ABENDING
-----
```

# Reload Server Control Table

- ◆ Terminate connections
  - CAF
    - SR2COFF(W)
  - MQSeries
    - SR2MOFF(W)
  - TCP/IP
    - SR2TOFF(W)
- ◆ Shutdown autotasks
  - SR2COFF, SR2TOFF and SR2MOFF

# Server Control Table Operations

- ◆ Installation default load
  - SR2LOAD (defined as startup autotask)
  - dictionary pointed by the current DBNAME
- ◆ Alternate tables
  - SR<v>LOAD
    - XDB<v> CONTROL TABLE
    - XDB<v> OPTIONS TABLE
- ◆ System dictionary
  - SR<v>LOADS

# Defining Backup Servers

- ◆ Definitions for backup server(s) immediately follow the definitions for the primary server
- ◆ The search key is the same as in the primary server
- ◆ Other SCT fields are taken from the backup server definition

# Defining Backup Servers

## ◆ Example:

```
D=*****,R=RLU0001,M=APPC01,T=... (primary server using APPC)
D=*****,R=11.22.33.4,M=IDMSTCP,T=... (1. backup server using TCP/IP)
D=*****,R=11.22.33.5,M=IDMSTCP,T=... (2. backup server using TCP/IP)
```

# Server Selection

VEGASOFT OY		VG-IDMS GATEWAY		V2R6		PAGE: 1 / 1	
		SERVER SELECTION					
I/ S/T	SERVER	INTERNET ADDR/ RLU/JOB/SSN	MODE	PORT/ TASK	USER	PASSWORD	NODE;CONNECT STRING
-	TEST	DSNT	IDMSCAF				
-	TEST2	DSNT	IDMSCAF				TESTSERVER
-	APCTEST	CICS02	APPC01	D2S	*****	REQUIRED	
-	APCTEST1	CICS02	APPC01	D2S	*****	REQUIRED	
-	ORACLE7	LW000525	APPC01	OP	SCOTT	ASSIGNED	
-	SQLSERV	LW000525	APPC01	MP			
-	TCPTTEST	123.14.15.1	IDMSTCP	691			

The Server Selection display shows the contents of the Server Control Table.  
 You may use:

- S to set the default Server for the current session
- I to get info about a Server
- T to get Server status

-----  
**ENTER = SELECT,**  
**VG003155 PLEASE USE (S) TO SELECT; (I) TO GET INFO; (T) TO GET STATISTICS**

# Server Information

VEGASOFT OY

VEGA

V2R6

SERVER INFORMATION

PAGE: 0001

-----

1: VGODBCSP.EXE BUILD: 951219  
2: CONNECT\_STRING\_IN:  
3: DSN=Oracle7;UID=scott;PWD=assigned  
4: CONNECT\_STRING\_OUT:  
5: DSN=Oracle7;DBQ=t:nt:,1024;UID=scott;PWD=\*\*\*\*\*  
6: SQL\_ACCESSIBLE\_PROCEDURES: Y  
7: SQL\_ACCESSIBLE\_TABLES: Y  
8: SQL\_ACTIVE\_STATEMENTS: 0  
9: SQL\_CORRELATION\_NAME: <n/a>  
10: SQL\_DATA\_SOURCE\_NAME: Oracle7  
11: SQL\_DATA\_SOURCE\_READ\_ONLY: N  
12: SQL\_DATABASE\_NAME:  
13: SQL\_DBMS\_NAME: Oracle7  
14: SQL\_DBMS\_VER: 07.00.0000  
15: SQL\_DEFAULT\_TXN\_ISOLATION: SQL\_TXN\_REPEATABLE\_READ  
16: SQL\_DRIVER\_NAME: SQORA7.DLL

-----

The Server Information Screen is scrollable and contains information about the selected ODBC driver and data base. See Microsoft ODBC reference for the definition of the keywords.

Note: This is partial listing.

SQLERRM

ENTER = PAGE, PF7 = SROLL BWD, PF8 = SCROLL FWD, PF3 = RETURN

# Server Statistics

VEGASOFT OY

VEGA  
SERVER STATUS

V2R6

PAGE: 0001

-----  
1:Allocate requests: 27  
2:Appc abends: 1  
3:Commit statements: 3  
4:Connect requests: 2  
5:Cursor Close statements: 5  
6:Cursor Fetch statements: 15  
7:Cursor Open statements: 2  
8>Delete statements: 1  
9>Delete statements (positioned): 0  
10:Input messages: 47  
11:Input message average length: 53  
12:Input message maximum length: 306  
13:Insert statements: 5  
14:Odbc Init errors: 0  
15:Other statements: 2  
16:Output messages: 215  
-----

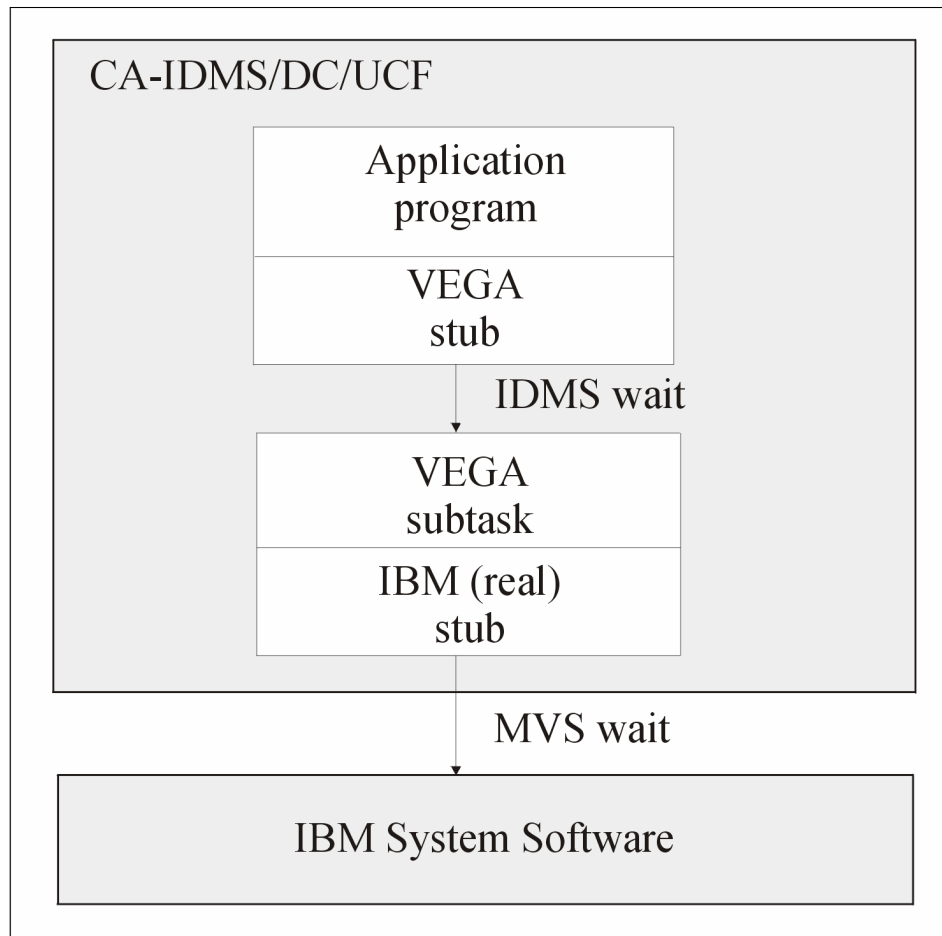
Other items not shown in the sample are:

- Output message average length
- Output message maximum length
- Rollback statements
- Selected columns maximum
- Selected rows maximum
- Select statements
- Server startup time
- Update statements
- Update statements (positioned)

SQLERRM

ENTER = PAGE, PF7 = SROLL BWD, PF8 = SCROLL FWD, PF3 = RETURN

# Subtask Operations



# Subtask Operations

- ◆ Subtasks for CAF, TCP/IP, MQSeries
  - created by SR2LOAD
  - terminated by SR2xOFFw
- ◆ Proprietary VEGA LTE structures
  - CAF LTE, TCP/IP LTE, MQSeries LTE
  - Getmained from the Free Storage Area
- ◆ Each subtask uses one VEGA LTE
  - Contains ECBs, Parameter list etc

# Subtask Operations

- ◆ Application program linked with stub
- ◆ A free VEGA LTE reserved for task
- ◆ Stub calls memory resident routine
  - MxxxHLIX
    - xxx = DB2, TCP or QSE
- ◆ MxxxHLIX posts the subtask
- ◆ Subtask (driver) performs operation
  - MxxxDRV

# Subtask Operations

- ◆ MxxxHLIX waits for response
  - Subtask posts MxxxHLIX
  - Subtask waits for next operation
- ◆ MxxxHLIX returns to the application
- ◆ MxxxHLIP
  - used with storage protect
  - MxxxHLIX #links

# Subtask Operations

- ◆ Abend exit
  - MxxxAE
  - if task abends
    - terminates application thread
    - restarts subtask
- ◆ Check user task SR2C and MQSC
  - always active (SR2LOAD->SR2xOFF)
  - stops non-terminated threads
    - IDMS task ended but thread still open

# Storage Ids

- ◆ Server Control Table: DB2+
- ◆ Options Table: DB2>
- ◆ Address of CAFLTE: DB2(
- ◆ Address of TCP/IP LTE: TCP(
- ◆ Address of MQSeries LTE: QSE(
- ◆ dcmt dis mem id c'xxxx'

# CAF operations

- ◆ Token in application program
  - SQLCA
  - SQLCAX contains application token
- ◆ MDB2HLI stub
  - Csect DSNHLI
- ◆ DB2 subsystem defined in SCT
- ◆ Authorization exit
  - user level authorization

Application Program

SQLCA

SQLCAX

MDB2HLI

Open/Close

MDB2HLIX  
(resident)

CAF Interface  
MDB2CFPI

MDB2HLIP

CAF/SVC Check User  
MDB2CHK

CAF Abend Exit  
MDB2CFAE

CA-IDMS/DC/UCF

Free Storage Area

Post/Wait

CAF Logical Terminal Table	MVS Sub Tasks
CAF/TEH (address of MDB2HLIX)	
CAF LTE 0	0
CAF LTE x	x
CAF LTE n	n

Wait/Post

CAF Driver  
MDB2CFDR

CAF Language  
Interface  
DSNALI  
DSNHIL2

CAF  
Mainline Code  
DSNACAF

# Consistent Update Method

- ◆ Available for DB2/CAF and MQSeries connections
- ◆ Keeps CA-IDMS and external updates in sync
- ◆ External update is first committed, then CA-IDMS
  - data is out of sync, if task or system abend occurs before CA IDMS commit
- ◆ Replay of CA-IDMS updates
  - optional CA-IDMS database program can redo CA IDMS updates in case of a task or system abend

# Consistent Update Method

- ◆ Following components are used to accomplish consistent updates:
  - External synchronization tables or queues
  - CA IDMS synchronization queues
  - CA IDMS database application program
  - VEGA commit program
  - VEGA replay task

# TCP/IP operations

- ◆ APIs
  - EZASOCKET
  - Original CICS
  - LINK PROGRAM in ADS
- ◆ TCP/IP Jobname
  - defined in the Options Table (V90101)
- ◆ Drivers
  - IUCV Driver ( $\leq$  TCP/IP V3R2)
  - HPNS Driver ( $\geq$  TCP/IP V3R1)

CA-IDMS/DC/UCF

Application Program

TOKEN

MTCPHLI (stub)

Check User Task  
MDB2CHK

MTCPHLIX  
(resident)

Program Init  
MTCPIPI

TCP/IP Abend Exit  
MTCPAE

MTCPHLIP  
(storage protect)

Free Storage Area

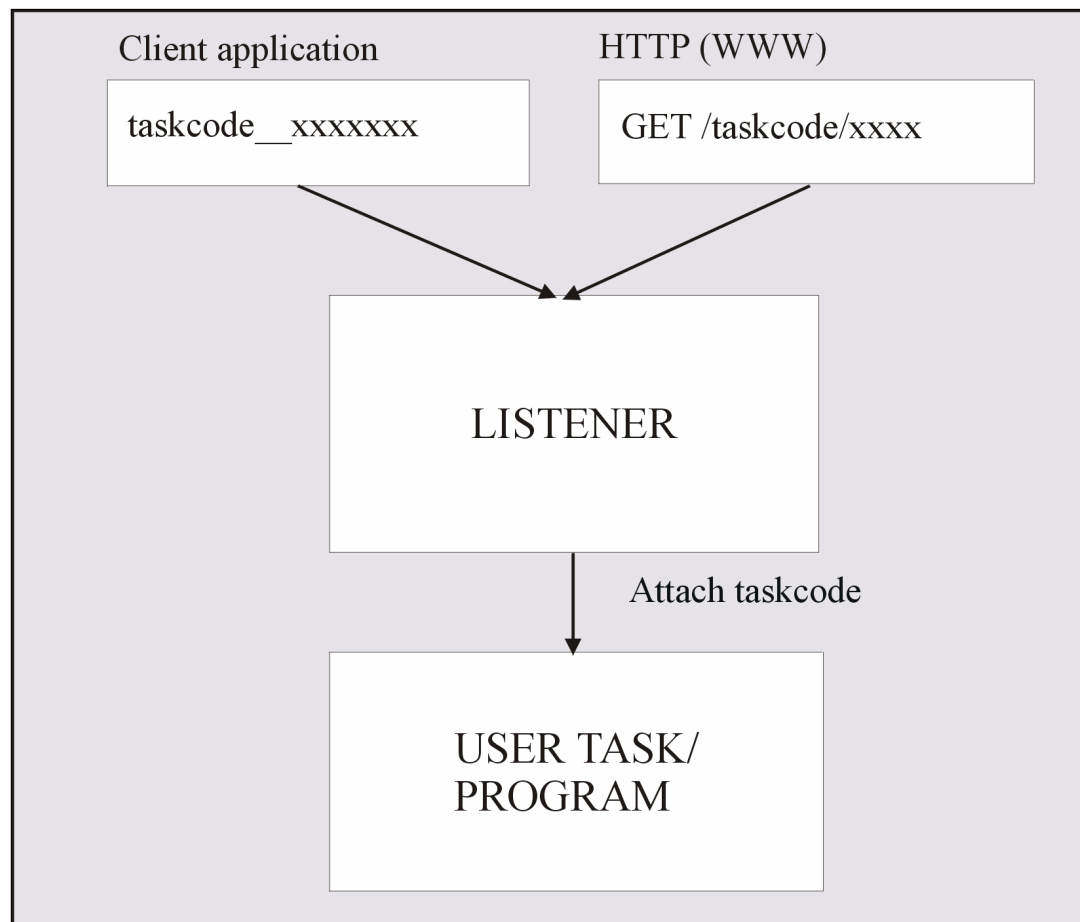
Post/Wait	TCP/IP Logical Terminal Table	MVS Sub Tasks
Wait/Post	TCP/IP LTE 0	0
	TCP/IP LTE x	x
	TCP/IP LTE n	n

TCP/IP Driver  
MTCPPDRV

# TCP/IP listener

- ◆ Task code LISTEN
- ◆ Listens to a specific PORT
  - Options Table LISTENER-PORT
- ◆ Unique PORT within MVS Image
- ◆ Starts Server Task
  - 8 bytes in the first message
  - 2 bytes reserved
- ◆ Recognizes HTTP format

# TCP/IP listener





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# MQSeries operations

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- ◆ MQSEHLID stub
  - Contains entry for each MQI call
- ◆ LINK PROGRAM in ADS
- ◆ Explain utility
  - description of completion and reason codes
- ◆ Test utility

CA-IDMS/DC/UCF

Application Program

MOSEHLID (stub)

TOKEN

Check User Task  
MOSECHK

MOSEHLIX  
(resident)

Program Init  
MOSEIPI

MQSeries Abend Exit  
MOSEAE

MOSEHLIP  
(storage protect)

Free Storage Area

Post/Wait

Wait/Post

MQSeries Logical Terminal Table	MVS Sub Tasks
MQSeries LTE 0	0
MQSeries LTE x	x
MQSeries LTE n	n

MQSeries Driver  
MOSEDRV



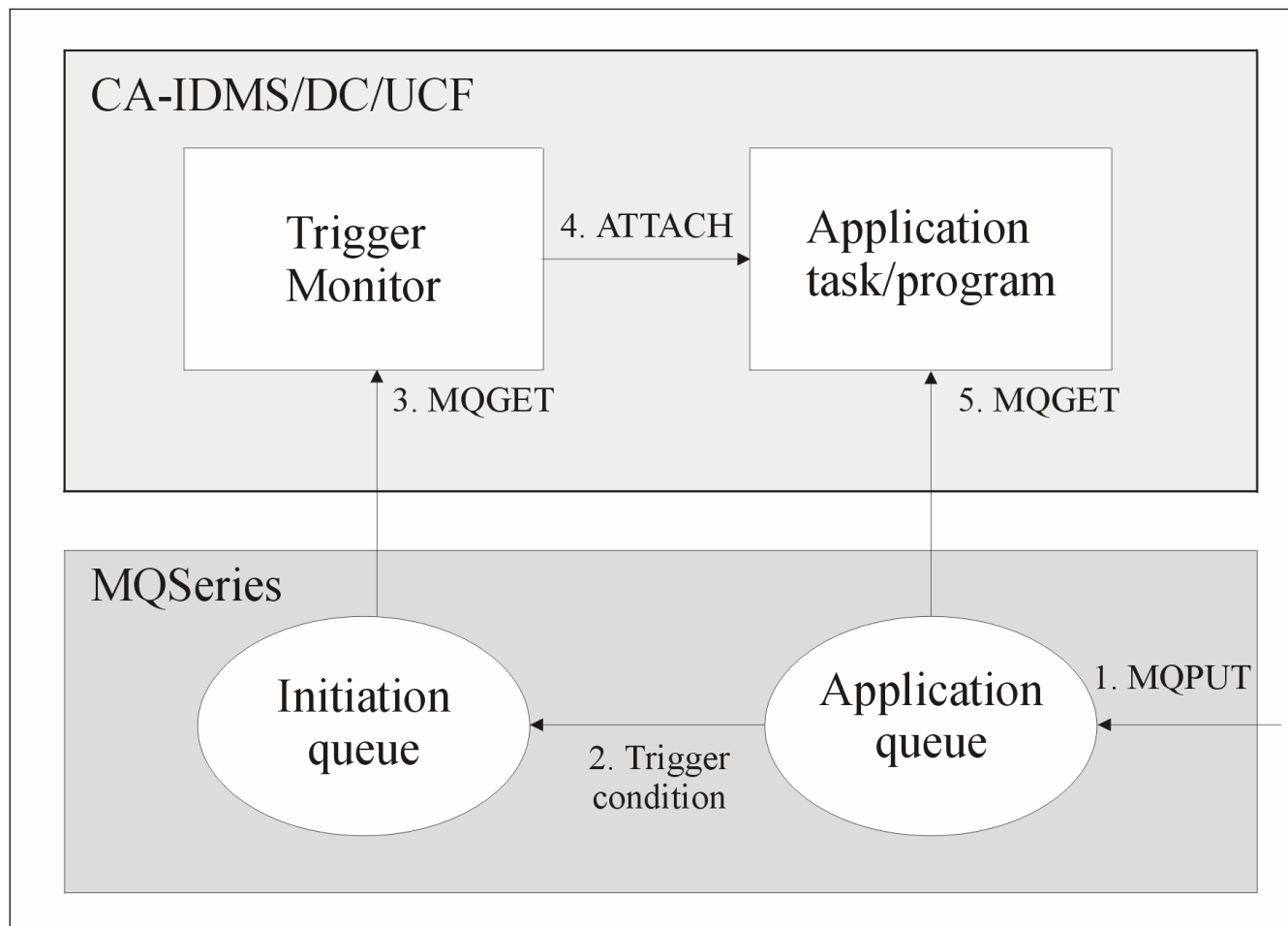
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# MQSeries Trigger Monitor

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- ◆ Multiple Trigger Monitors
- ◆ MQSTGM
  - start, stop or display
- ◆ Initiation queues
  - Defined in module xqse-initiation-queus
- ◆ Starts server task

# MQSeries Trigger Monitor



# Client/Server Communication

- ◆ Caller is CA-ADS app or VEGA Tool
- ◆ Client MDB2CLI
- ◆ Find SCT line
- ◆ Invoke local or remote VEGA Server
- ◆ Arguments
  - Wdb2ctl, inp, out
- ◆ Deallocate

# Client call

- ◆ Link program 'mdb2cli' using (wdb2ctl, inp, out)
- ◆ Wdb2ctl contains SCT search key
  - wdb2type pic x
  - wdb2name pic x(8)
- ◆ Inp
  - input to the server
  - fixed part
  - variable part (max 32KB)



# Client call



- ◆ Out
  - output from the server
  - fixed part
  - variable part (max. 32KB)
- ◆ Record descriptions in System Operations
  - Appendix A

# Client/Server Record Layouts

