

Accessing CA-IDMS from Java

VG-Java Client Overview

VEGASOFT



Contents

- ◆ Overview
- ◆ Java Client functions
- ◆ Application server
- ◆ Tools
- ◆ Benefits



Overview

- ◆ Client/Server architecture
 - Application Server runs within CA-IDMS
 - Java Client runs on any Java platform
- ◆ Applications read and write message pipes
 - Client-to-Server pipe
 - Contains client requests to Application Server
 - Server-to-Client pipe
 - Contains Application Server responses to Client

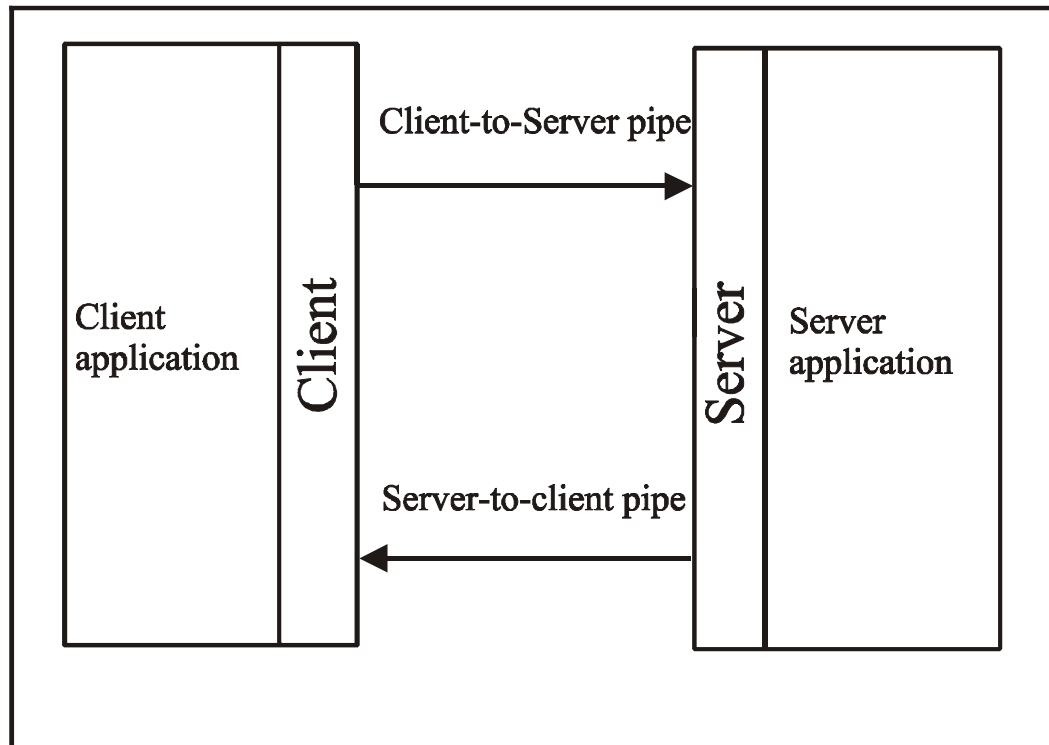


Overview

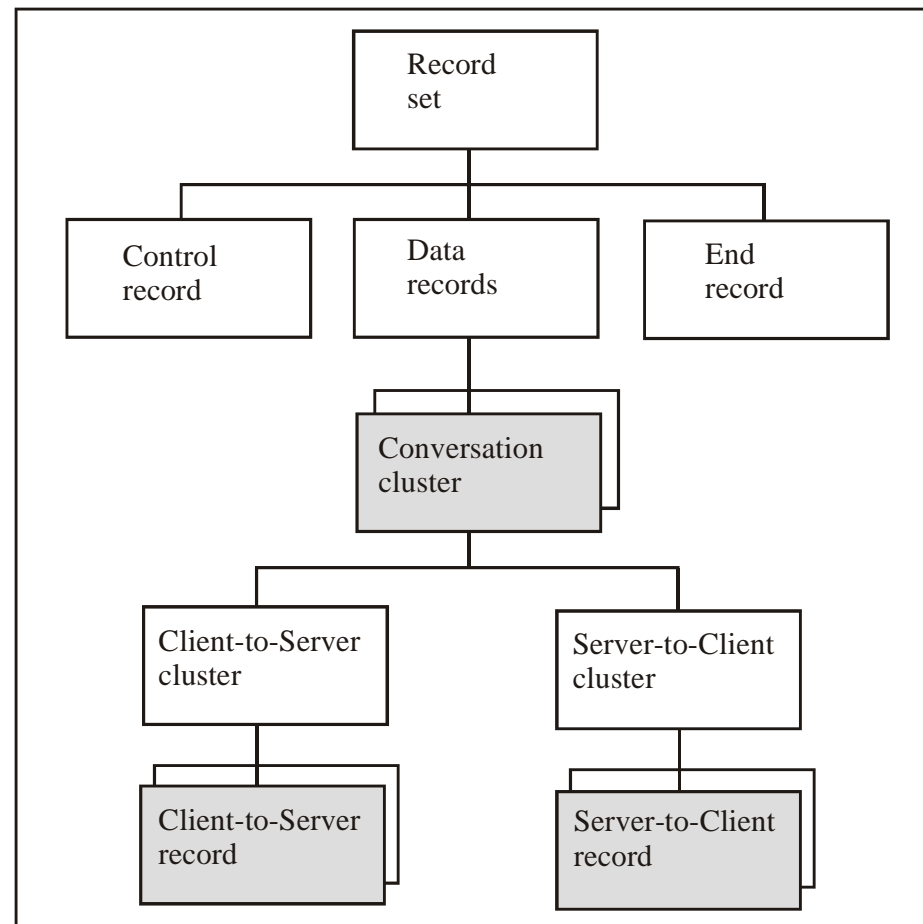


- ◆ Communication
 - TCP/IP sockets
- ◆ JDBC driver
 - built-in driver to access CA-IDMS and DB2
 - type 3 pure Java driver
 - see separate JDBC presentation

Client/Server Model



Client/Server Data Structure





Client/Server Data Structure

- ◆ Control record
 - The first message from Client
 - Dictionary, task, program, encrypted user id and password
- ◆ Client-to-Server Cluster
 - One or more request messages from Client
- ◆ Server-to-Client Cluster
 - One or more response messages from Application Server
- ◆ End Record
 - The last message from Client (Normal end or Abend)

Java Client Methods

- ◆ Setupxxxx
 - Host, Port, User, Password
 - Overrides VEGA.PROPERTIES settings
- ◆ putInt, putString, putFloat, putDouble...
 - Convert Java data types to mainframe format
- ◆ putServer
 - Writes to Client-to-Server pipe



Java Client Methods

- ◆ `getServer`
 - Reads from Server-to-Client pipe
- ◆ `getInt, getString, getFloat, getDouble...`
 - Convert mainframe data types to Java format
- ◆ `endServer`
 - Terminates the connection
- ◆ `abendServer`
 - Abends the connection



Server Application Start



- TCP/IP Listener accepts incoming connect
- Listener optionally executes CA-IDMS signon
- Listener starts Application Server task
- Application Server starts a dialog or a program



Server Application Logic



- ◆ Get Scratch (one or more)
 - Reads from Client-to-Server pipe (populated by Client's putServer)
- ◆ Process the request
- ◆ Put Scratch (one or more)
 - Writes to Server-to-Client pipe (Client reads this with getServer)

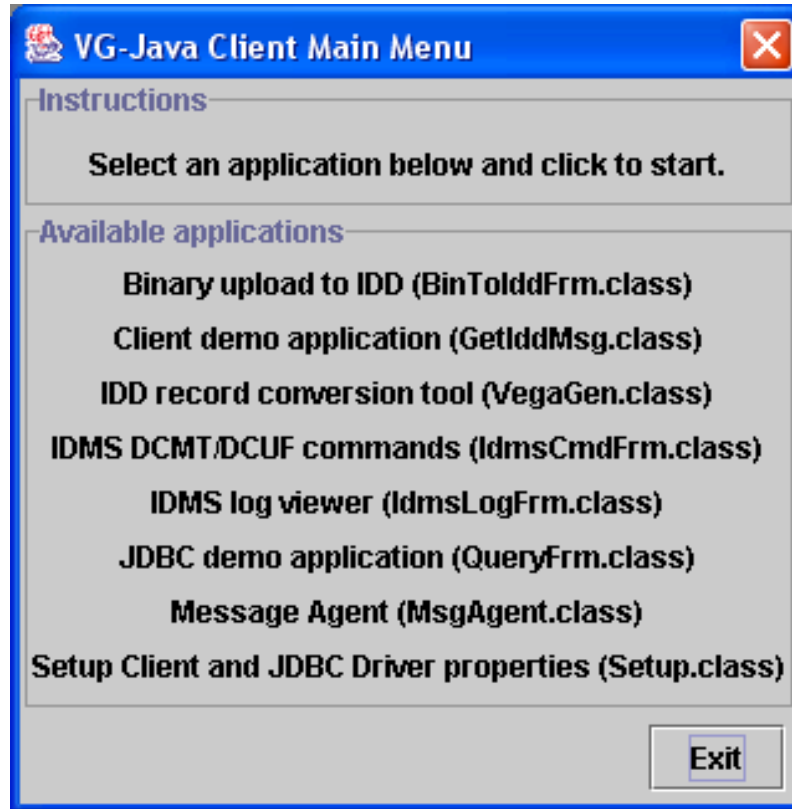


Java Tools



- ◆ Main menu
 - VegaMenu.class
 - starts included tools and demo applications

Main Menu





Java Tools

- ◆ Setup
 - Setup.class
 - set communication attributes
 - activate tracing/logging
 - test connection

Setup

The image shows a screenshot of the 'Vega Java Client Setup' dialog box. The window has a blue title bar with the text 'Vega Java Client Setup' and a close button. Below the title bar are three tabs: 'Setup Client Defaults', 'Setup DataSources', and 'Setup JDBC Driver Defaults'. The 'Setup Client Defaults' tab is selected. The dialog contains several input fields and checkboxes:

- Server IP address: [Empty text box]
- Server port: 1691
- Application server transid: TCPS000
- Message agent port: 0
- User: [Empty text box]
- Password: [Empty text box]
- New password: [Empty text box]
- Reenter new password: [Empty text box]
- Dbname: [Empty text box]
- Dictname: [Empty text box]
- Version: 1
- Conversion table: Canada,Netherlands,USA=cp037 (dropdown menu)
- Receive timeout: 60000
- Send verify: [Empty text box]
- Enable local trace: VEGACLI.TXT
- Enable server trace:
- Enable keepalive:

At the bottom of the dialog are four buttons: 'Apply', 'Refresh', 'Test connection', and 'Exit'.

Java Tools

- ◆ Record Definition Conversion
 - VegaGen.class
 - Input is CA-IDD record
 - Optionally generates a Java Class
 - Optional methods: put, get, display
 - Optional Swing UI
 - Optionally generates XML definition
 - Automatic data conversion

VegaGen

The screenshot shows the 'Vega Java Client Class Generator' application window. The window has a blue title bar and a standard Windows-style border with a close button in the top right corner. The main content area is divided into several sections:

- General options:** This section contains five text input fields: 'Record name' (empty), 'Record version' (containing '1'), 'Dictionary name' (containing 'DICTVEGA'), 'Dictionary user id' (empty), and 'Dictionary password' (empty). Below these fields are five checkboxes: 'Generate Java Class' (checked), 'Generate XML' (unchecked), 'Use local input' (unchecked), 'Process redefinitions' (unchecked), and 'Create debug output' (unchecked).
- Java Class Generation Options:** This section contains five checkboxes: 'Generate get method' (checked), 'Generate put method' (checked), 'Generate display method' (checked), 'Generate Swing UI' (unchecked), and 'Append version number to class name' (unchecked).
- Statistics:** This section contains four lines of text: 'Compiler return code:', 'CIO return code:', 'Total # of output lines:', and '# of lines received:'. All these fields are currently empty.

At the bottom of the window, there is a row of seven buttons: 'Browse', 'Generate', 'View Class', 'View XML', 'View Input', 'View Debug Output', and 'Exit'. The 'Generate' button is highlighted with a darker background.



Java Tools



- ◆ Binary File Upload
 - BinToIddFrm.class and BinToIdd.class
 - Uploads a binary file into a CA-IDD load module
 - Can be used in user-written Java applications

BinToIddFrm

Upload binary file to IDD

Input and processing options

File name to upload C:\Windows\cloud.bmp

Dictionary load module name cloud

Load module version 1

Dicname APPLDICT

Dictionary user

Dictionary password

Replace if load module exists

Echo IDD statements

Debug output

Actions

Select file Upload New copy View report Exit

Instructions

Please fill fields and select action.

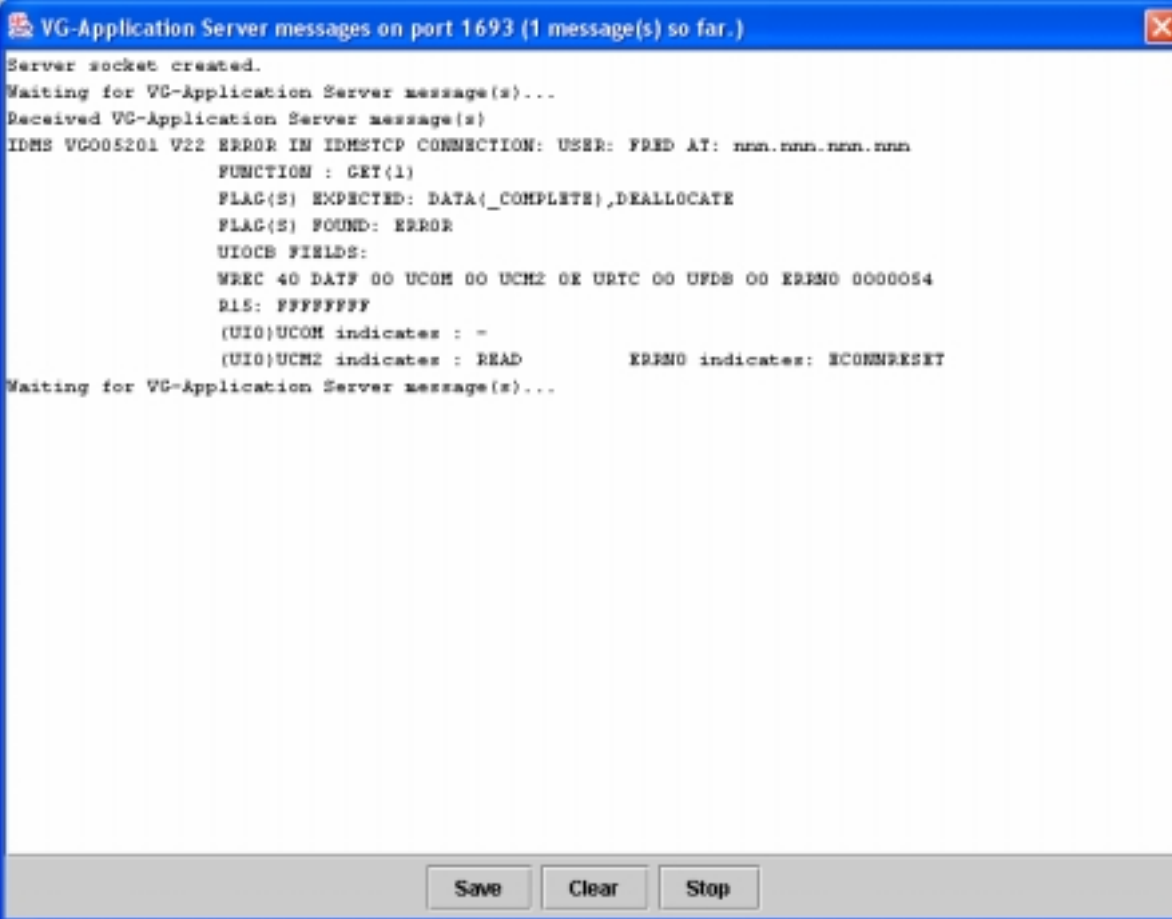


Java Tools



- ◆ Message Agent
 - Retrieves and displays Application Server error messages
 - Highly recommended especially during development and testing

Message Agent



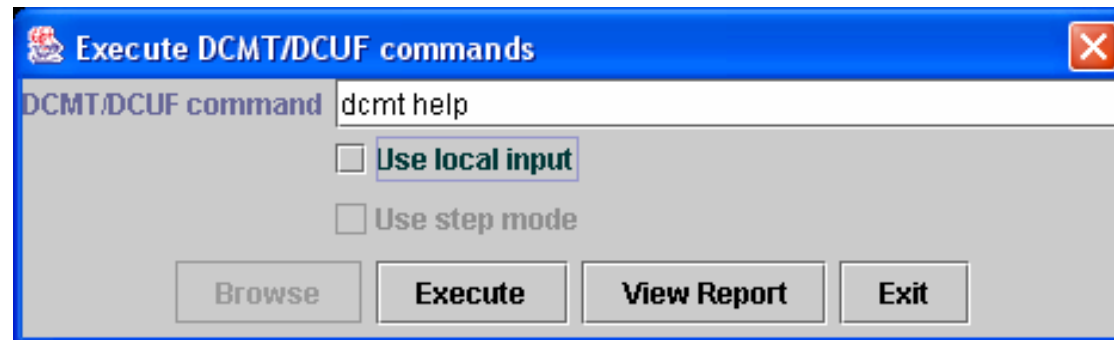
```
VG-Application Server messages on port 1693 (1 message(s) so far.)
Server socket created.
Waiting for VG-Application Server message(s)...
Received VG-Application Server message(s)
IDMS VCO05201 V22 ERROR IN IDMSTCP CONNECTION: USER: FRED AT: nnn.nnn.nnn.nnn
      FUNCTION : GET(1)
      FLAG(S) EXPECTED: DATA(_COMPLETE),DEALLOCATE
      FLAG(S) FOUND: ERROR
      UIOCB FIELDS:
      WREC 40 DATF 00 UCOM 00 UCH2 0E URIC 00 UPDB 00 ERRNO 0000054
      RLS: FFFFFFFF
      (UIO)UCOM indicates : -
      (UIO)UCH2 indicates : READ          ERRNO indicates: ECONNRESET
Waiting for VG-Application Server message(s)...
```

Save Clear Stop

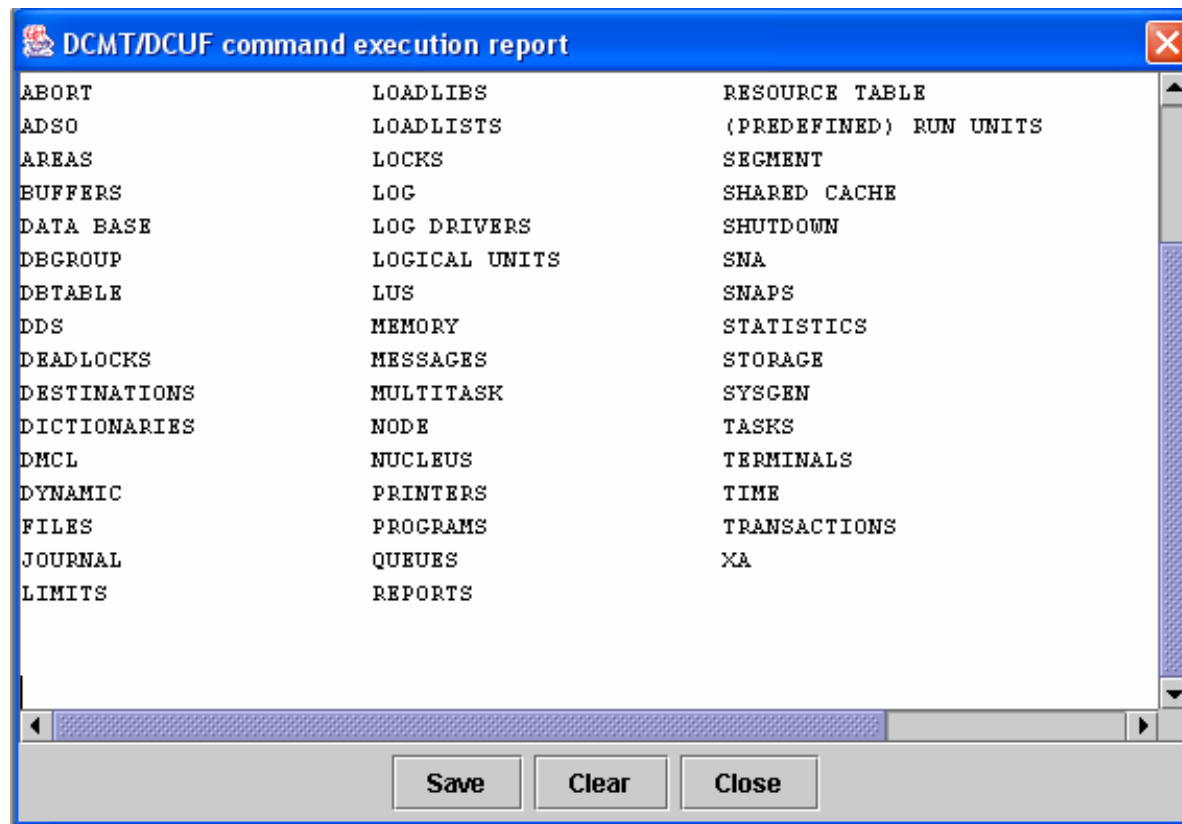
Java Tools

- ◆ DCMT/DCUF Command Utility
 - IdmsCmdFrm.class is the included user interface
 - Uses the IdmsCmd.class below
 - Executes a given DCMT/DCUF command or a command file
 - Displays execution report in a window
 - IdmsCmd.class can be used in any user-written Java application
 - Executes a given DCMT/DCUF command
 - Returns execution report as a String buffer

IDMS Command Utility



IDMS Command Utility Report



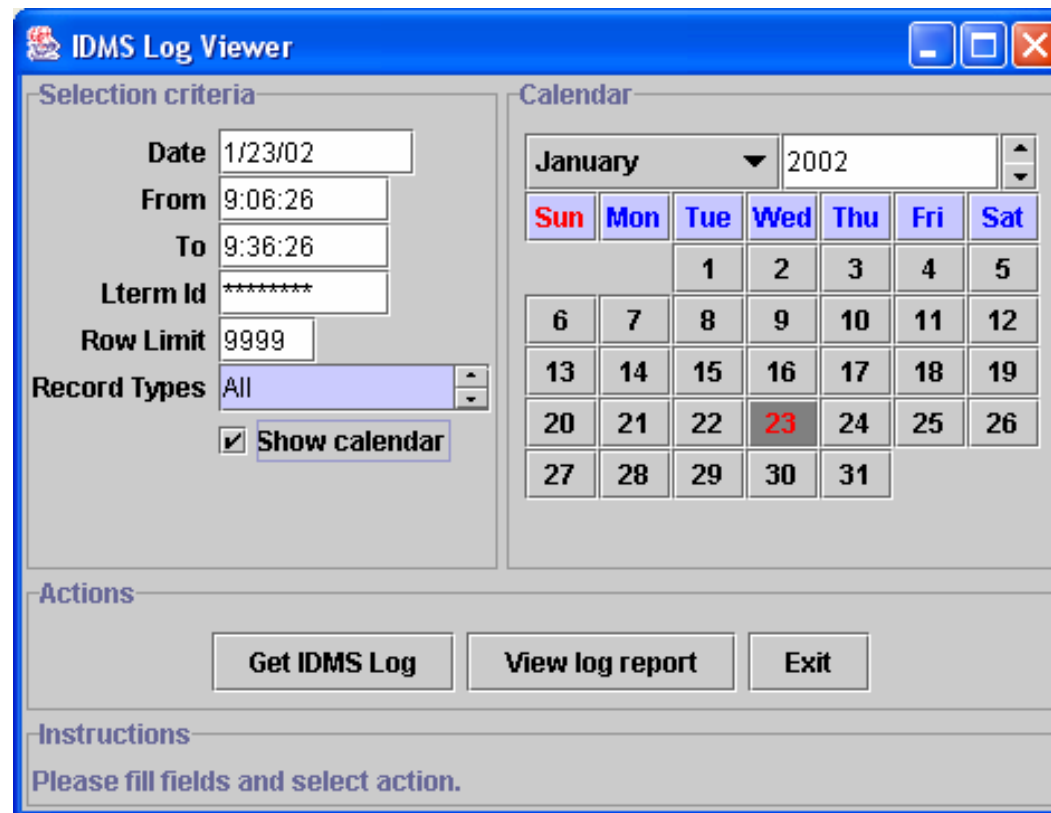


Java Tools



- ◆ IDMS Log View Utility
 - IdmsLogFrm.class
 - Retrieves and displays selected log records

IDMS Log View Utility



IDMS Log Viewer

Selection criteria

Date: 1/23/02
From: 9:06:26
To: 9:36:26
Lterm Id: *****
Row Limit: 9999
Record Types: All
 Show calendar

Calendar

January 2002

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Actions

Get IDMS Log View log report Exit

Instructions

Please fill fields and select action.



Demo Application



- ◆ GetIddMsg class
 - Retrieves and displays a given CA-IDD message

Demo Application

Get a message from IDD

Msg key: DC002001
Builder: D
Date lu: 09/29/00
Date created: 06/08/94
Prep by: EK93390
Rev by: JR94272
Mdrsevc: 3

Message contents

```
DEFINITION DC002001  RUNAWAY TASK <task-code> -- DETECTED WHEN  
DEFINITION  IN SYSTEM PROGRAM  
DEFINITION  
DEFINITION The task has exceeded the runaway interval time.  
DEFINITION This condition occurred within the DC system.  
DEFINITION Either a system internal error has occurred, or the  
DEFINITION value specified for the runaway interval time is too  
DEFINITION low.  If this condition occurs repeatedly, increase  
DEFINITION the time specified in the RUNAWAY INTERVAL parameter  
DEFINITION of the SYSTEM statement of the system.  
COMMENT Module(s) = MEDCWAIT  
COMMENT Additional information...  
COMMENT  
COMMENT
```

Show log window

Get Exit



Benefits



- ◆ Communication isolated from applications
 - No need to be a TCP/IP expert
- ◆ Automatic format conversions
 - ASCII/EBCDIC
 - Binary, packed, floating point, time, date, timestamp, zoned decimal etc.
- ◆ Reuse application code
- ◆ Includes JDBC Type 3 driver



Benefits



- ◆ Terminal emulation
 - For testing Client/Server communication
- ◆ Debugging
 - CA-IDMS debugger can be used
 - Local and server trace
- ◆ Performance
 - Optimized data flow
 - TCP/IP performance

End of Presentation

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