DDTA – DB2 DEADLOCK/TIMEOUT ANALISYS

A reporting tool for DB2 in z/OS Environment

Agenda

- Basic Idea & Goals
- Software Structure
- Main features and example
- Software packaging

BASIC IDEA & GOALS

The basic idea was to have useful tool to have a historical report of DB2 Deadlock/Timeout real-time and batch without starting any trace and using any commercial monitoring software like Omegamon, CA Insigth or other one.

DDTA (DB2 Deadlock/Timeout Analysis) access to SYSLOG DB2 Master Address Space and mapping messages to reveal deadlock/timeout situation.

DDTA has an ISPF Interface to have a report "UP TO THE MINUTES" and a Batch component to update report time based to reduce amount of syslog record analyzed in a run.

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BASIC TECHNICAL STRUCTURE

DDTA is an ISPF application that was developed in REXX language.

The main function are in compiled REXX stored in a CEXEC format to protect and hide the processes and algorithms used. REXX runtime alternative library legally shipped together.

Only few rexx sources needed in runtime to start application to able the user to customize the tool conforming to the own standard.

ISPF Panel library are converted using ISPPREP.

BASIC LIBRARY STRUCTURE

DDTA is structured in following PDS/PDSE Library:

CNTLLIB	– Library contains control files used by application
DEADLIB	– Library contains report files generated by application
JCL	– Example JCL to run batch reporting
LOAD	– REXX Alternate LOAD Library
PANELS	– ISPF Panels in ISPPREP format
PANELSRC	– ISPF Panels in text format
EXEC	– REXX/CEXEC needed to start application
EXECSRC	– REXX program sources of main functions

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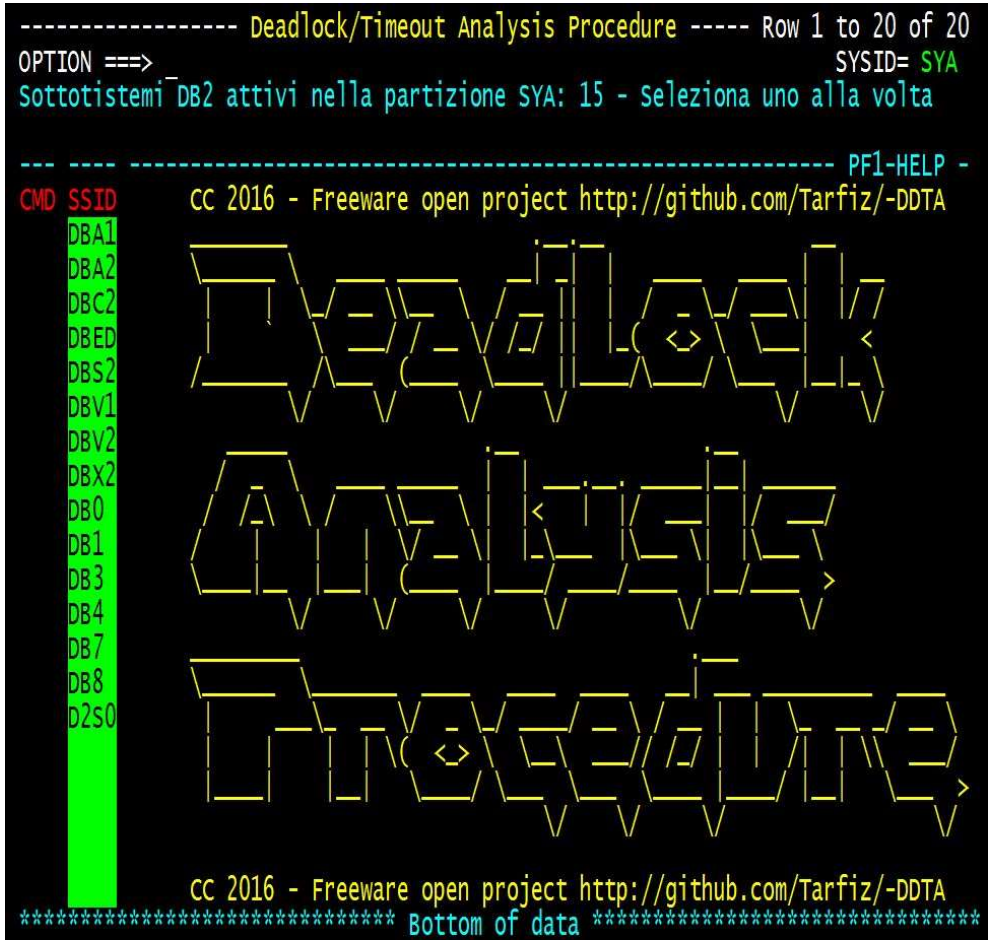
ISPF INTERFACE - MAIN PANEL

Main panel shows all DB2 istances active in a z/OS partition.

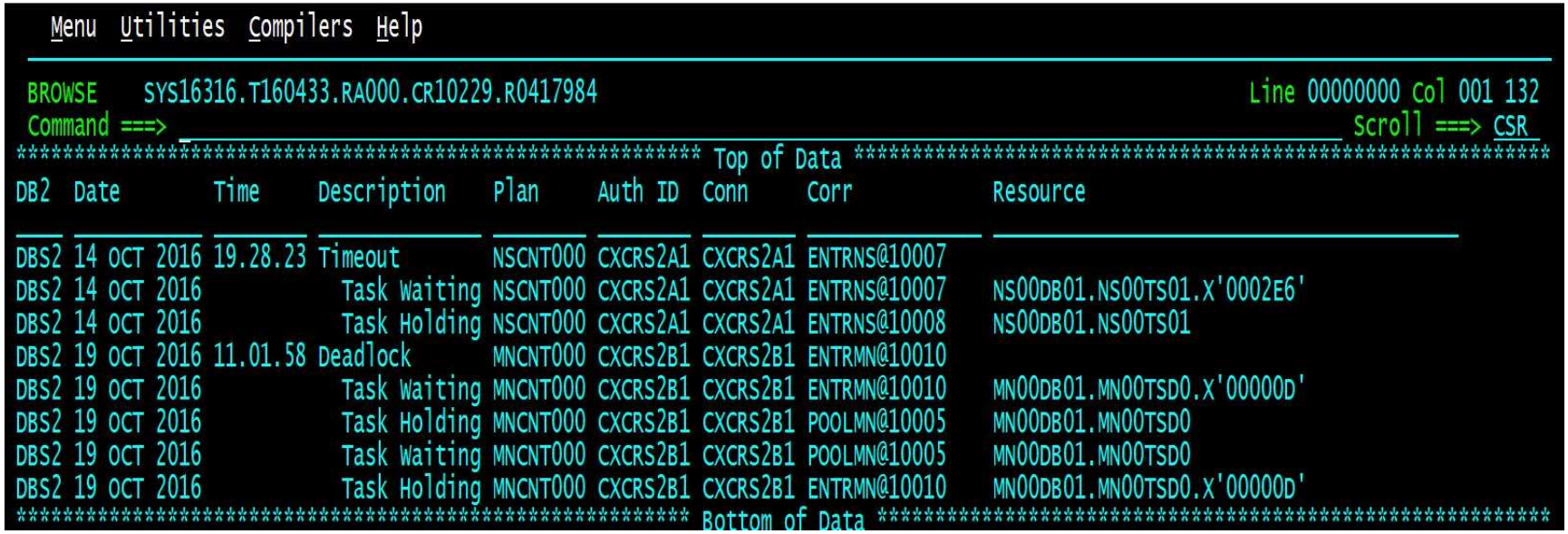
Select one of them putting an «s» in the CMD field to get real-time report.

Start Selection Panel



ISPF INTERFACE – REAL TIME REPORT

Browsed Real Time Report



```
  Menu  Utilities  Compilers  Help
 ------------------------------------------------------------------------------
 BROWSE    SYS16316.T160433.RA000.CR10229.R0417984                Line 00000000 Col 001 132
 Command ===> _                                                   Scroll ===> CSR
********************************************************* Top of Data ***********************************************************
DB2  Date        Time     Description    Plan     Auth ID  Conn     Corr           Resource
____ _________ ________ _____________ ________ ________ ________ _____________ ________________________________________
DBS2 14 OCT 2016 19.28.23 Timeout       NSCNT000 CXCRS2A1 CXCRS2A1 ENTRNS@10007
DBS2 14 OCT 2016          Task Waiting  NSCNT000 CXCRS2A1 CXCRS2A1 ENTRNS@10007   NS00DB01.NS00TS01.X'0002E6'
DBS2 14 OCT 2016          Task Holding  NSCNT000 CXCRS2A1 CXCRS2A1 ENTRNS@10008   NS00DB01.NS00TS01
DBS2 19 OCT 2016 11.01.58 Deadlock      MNCNT000 CXCRS2B1 CXCRS2B1 ENTRMN@10010
DBS2 19 OCT 2016          Task Waiting  MNCNT000 CXCRS2B1 CXCRS2B1 ENTRMN@10010   MN00DB01.MN00TSD0.X'00000D'
DBS2 19 OCT 2016          Task Holding  MNCNT000 CXCRS2B1 CXCRS2B1 POOLMN@10005   MN00DB01.MN00TSD0
DBS2 19 OCT 2016          Task Waiting  MNCNT000 CXCRS2B1 CXCRS2B1 POOLMN@10005   MN00DB01.MN00TSD0
DBS2 19 OCT 2016          Task Holding  MNCNT000 CXCRS2B1 CXCRS2B1 ENTRMN@10010   MN00DB01.MN00TSD0.X'00000D'
********************************************************* Bottom of Data ********************************************************
```

Note: All the reports can be find into DEADLIB Library

BATCH COMPONENT

JCL to run

```
//DDTABT00 JOB .....................................
//* ---------------------------------------------------
//* Deadlock Analysis Procedure - Batch version v.1.0.0
//* Update deadlock report for all DB2 active instances
//*        in a z/OS partition
//* ---------------------------------------------------
//*
// SET HLQ=IBMUSER.DEADLOCK.LIBRARY
//*
//S01      EXEC PGM=IKJEFT01,REGION=0M,DYNAMNBR=50,
//    PARM='%LBDLCK00 &HLQ N'
//* ---------------------------------------------------
//STEPLIB  DD DISP=SHR,DSN=&HLQ..LOAD
//SYSPROC  DD DISP=SHR,DSN=&HLQ..EXEC
//SYSUDUMP DD SYSOUT=*
//SYSTSIN  DD DUMMY
//SYSTSPRT DD SYSOUT=*
//CNTLLIB  DD DISP=OLD,DSN=&HLQ..CNTLLIB
//DEADLIB  DD DISP=OLD,DSN=&HLQ..DEADLIB
//* ---------------------------------------------------
```

Execution sysout

```
**- Deadlock Analysis Procedure - Start LBDLCK00 10 Nov 2016 - 07:01:01 -**


Numero sottotistemi DB2 attivi nella partizione SYA: 15

DBA1 - Aggiornato report SSH.DEADLOCK.BPSYA.SP.DEADLIB(DBA1DEAD)
DBA2 - Aggiornato report SSH.DEADLOCK.BPSYA.SP.DEADLIB(DBA2DEAD)
DBC2 - Aggiornato report SSH.DEADLOCK.BPSYA.SP.DEADLIB(DBC2DEAD)
DBED - Aggiornato report SSH.DEADLOCK.BPSYA.SP.DEADLIB(DBEDDEAD)
DBS2 - Aggiornato report SSH.DEADLOCK.BPSYA.SP.DEADLIB(DBS2DEAD)
DBV1 - Aggiornato report SSH.DEADLOCK.BPSYA.SP.DEADLIB(DBV1DEAD)
DBV2 - Nessun nuovo report da aggiornare
DBX2 - Nessun nuovo report da aggiornare
DB0  - Aggiornato report SSH.DEADLOCK.BPSYA.SP.DEADLIB(DB0DEAD)
DB1  - Aggiornato report SSH.DEADLOCK.BPSYA.SP.DEADLIB(DB1DEAD)
DB3  - Aggiornato report SSH.DEADLOCK.BPSYA.SP.DEADLIB(DB3DEAD)
DB4  - Nessun nuovo report da aggiornare
DB7  - Aggiornato report SSH.DEADLOCK.BPSYA.SP.DEADLIB(DB7DEAD)
DB8  - Aggiornato report SSH.DEADLOCK.BPSYA.SP.DEADLIB(DB8DEAD)
D2S0 - Aggiornato report SSH.DEADLOCK.BPSYA.SP.DEADLIB(D2S0DEAD)

**- Deadlock Analysis Procedure - End   LBDLCK00 10 Nov 2016 - 07:01:44 -**
```

Update report to reduce amount of syslog record analyzed in a run.
Schedule daily early in the morning after application batch window

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SOFTWARE DISTRIBUTION

DDTA can be distributed in ZIP file format in two different distribution forms for vendor and end user containing the with needed library in xmit format.

DDTA.LIBRARY.VENDOR

- JCL
- LOAD
- PANELS
- PANELSRC
- EXEC
- EXECSRC

DDTA.LIBRARY.USER

- JCL
- LOAD
- PANELS
- EXEC

SIMPLE INSTALLATION PROCEDURE

DDTA has a simple and friendly installation procedure that doesn't require depth technical skill.

DDTA - DB2 Deadlock/Timeout Analysis Tools Version 1.0.0 for z/OS Readme

I N S T A L L A T I O N N O T E S

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3.0 REQUIREMENTS

1.0 ABOUT THIS README FILE

This file contains the latest information about installing the
DDTA - DB2 Deadlock/Timeout Analysis Tools Version 1.0.0.

1.1 Who should read this readme file

Users who want to install the DDTA - Deadlock/Timeout Analysis Tools for DB2 for z/OS.

2.0 INSTALLING THE LIBRARY PACKAGE

DDTA is a Library package shipped in XMIT Library file format.

The following steps are required to install IFIT Library:

(1.) Download and unzip DDTA.ZIP in a temporary directory on a PC. Unpack and obtain the following files in XMIT Format:

* EXEC.xmi
* JCL.xmi
* LOAD.xmi
* PANELS.xmi
* This README file with the latest installation information

(2.) Transfer in z/OS server all xmi files in bynary mode in a preallocated sequential (RECFM=FB LRECL=80 BLKSIZE=3120) using FTP or other trasfer program (IND$FILE, etc.)

(3.) In z/OS TSO session restore PDS/PDSE Library using command:

* RECEIVE INDA(-- each one XMI Files --)

using your own library prefix to restore each one

(4.) In z/OS server allocate two new libraries CNTLLIB e DEADLIB using the same library prefix

* CNTLLIB (RECFM=FB LRECL=80 BLKSIZE=3120 - PDS or PDSE)
* DEADLIB (RECFM=FB LRECL=250 BLKSIZE=0 - PDSE)

The two libraries contain control files e deadlock report files

(5.) Customize $DEADLCK in your own library prefix EXEC restored library and put it in a SYSEXEC library concatenation.

(6.) Run $DEADLCK and enjoy for application.

3.0 Final Notes

Deadlock Report for each DB2 in a z/Os partition cna be update in a batch mode using the job in JCL restored library. This jcl can be scheduled every day early in a morning to have a daily updated situation.

The interactive exec "$DEADLCK" instead can be used to have a report "up to the minutes".

In each case a user may need security authorizaton to use the application.