ITM 6 Problem Determination and Troubleshooting

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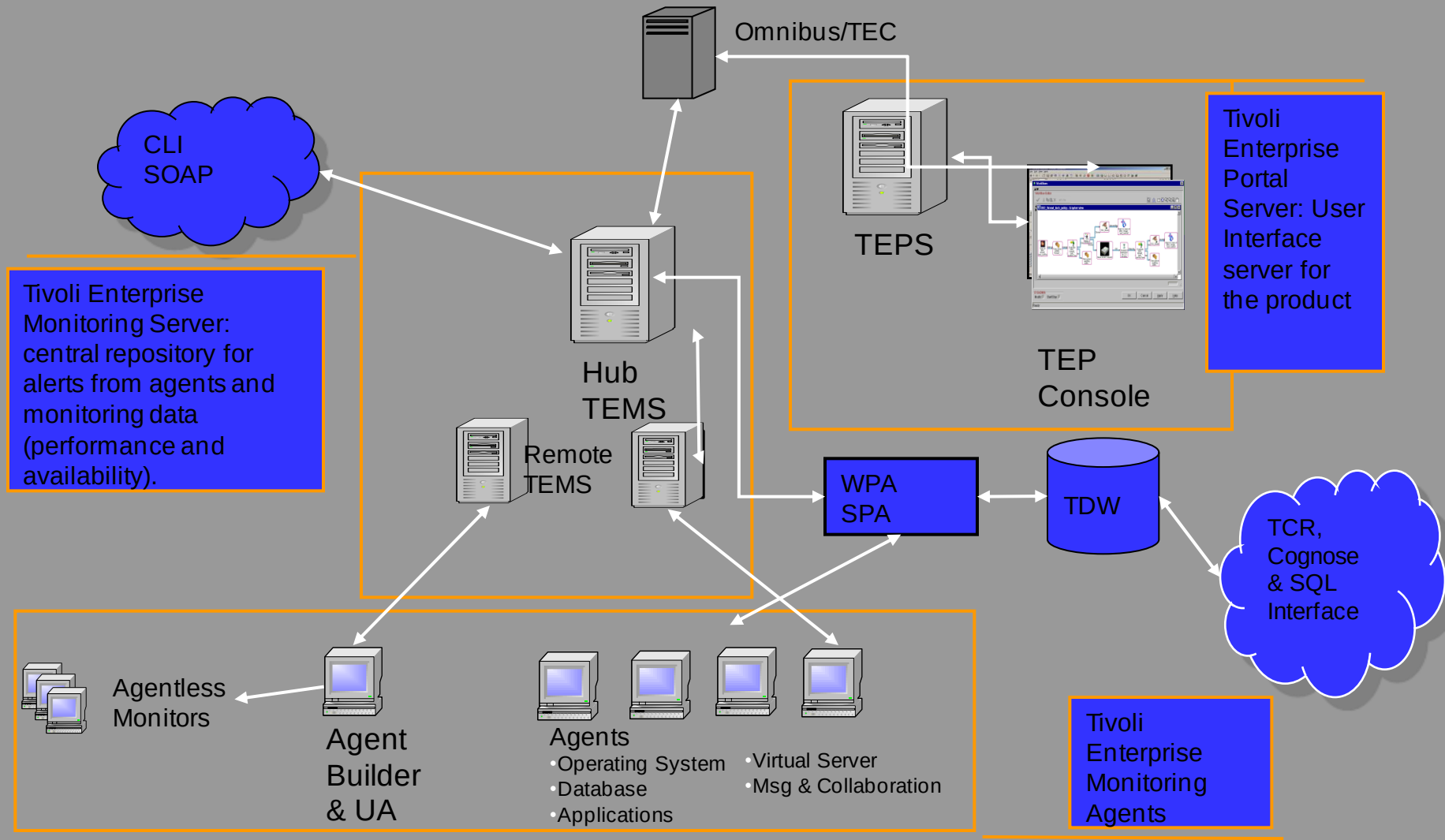
Tivoli software

ON DEMAND BUSINESS

- Architecture Overview
- Available Tools for Troubleshooting
- Common Problems
- Q&A

Tivoli software

Architecture Overview



Available Tools for Troubleshooting

Product Provided

RAS1 log files
KDSTSNS/SPUF1
PDCollect

Support Tools/Resources

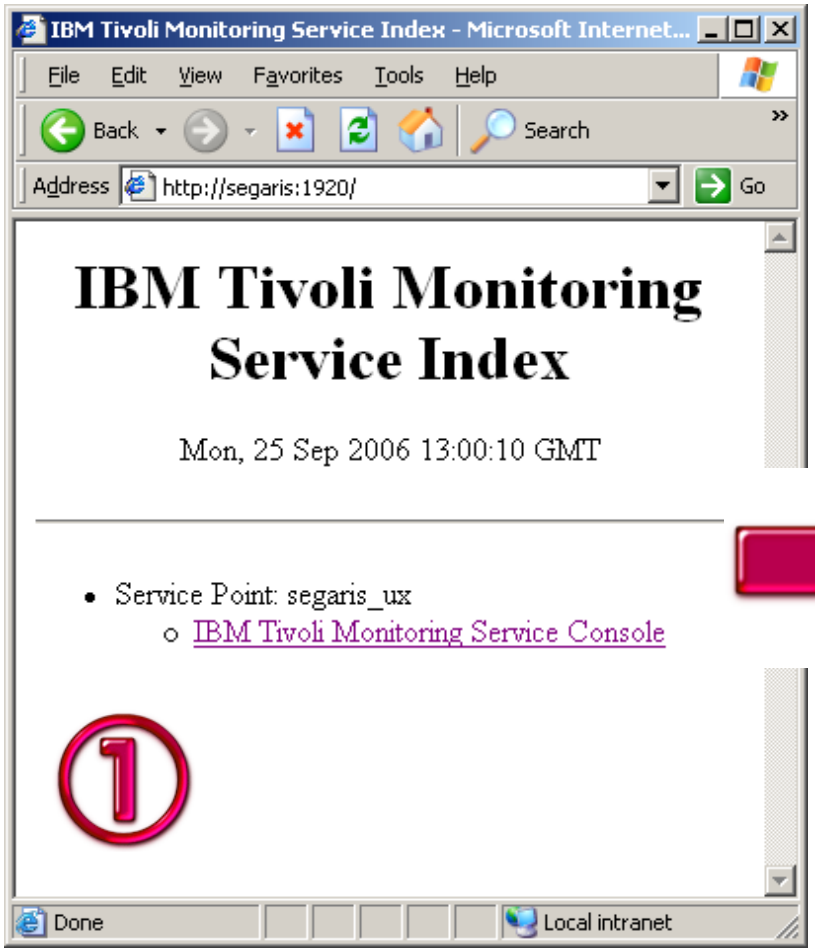
ITMSUPER
IBM Support Assistant (ISA)
Log Analyzer

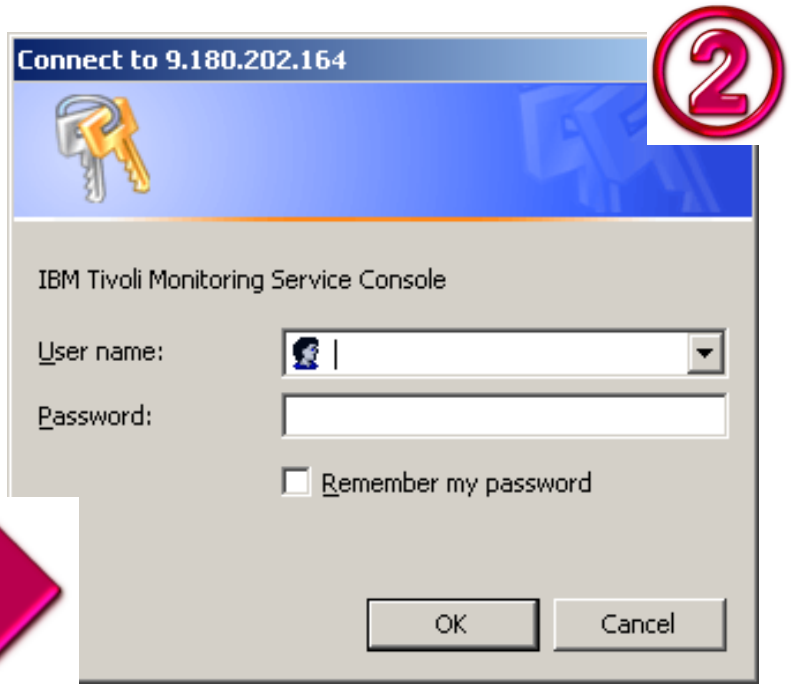
RAS1 logs

- Purpose:
  - The RAS1 acronym means Reliability, Availability and Serviceability. The RAS1 service in this discussion of ITM V6.x refers to the RAS1 building block (Basic Services component) used for diagnostic tracing.
  - The RAS1 log file is the common way to start a debugging session and it is used for diagnostic tracing on all the components
- Operational Steps:
  - Set trace: KBB_RAS1={ERROR} (UNIT:Kxx <ERR, IN,..>)
  - Sample trace levels can be found in ini/env files
  - There are 3 ways to change tracing levels:
    - Service Console
    - MTEMS
    - Configuration files

RAS1 logs – Service Console

- Requires port 1920 open to target
- Requires local Administrator/root credentials
- Provides dynamic changing of trace levels
- Available for all components (TEMS, TEPS, S&P, WP & Agents)
- Technote with excellent details on this:
  - http://www-1.ibm.com/support/docview.wss?rs=2366&uid=swg21266129

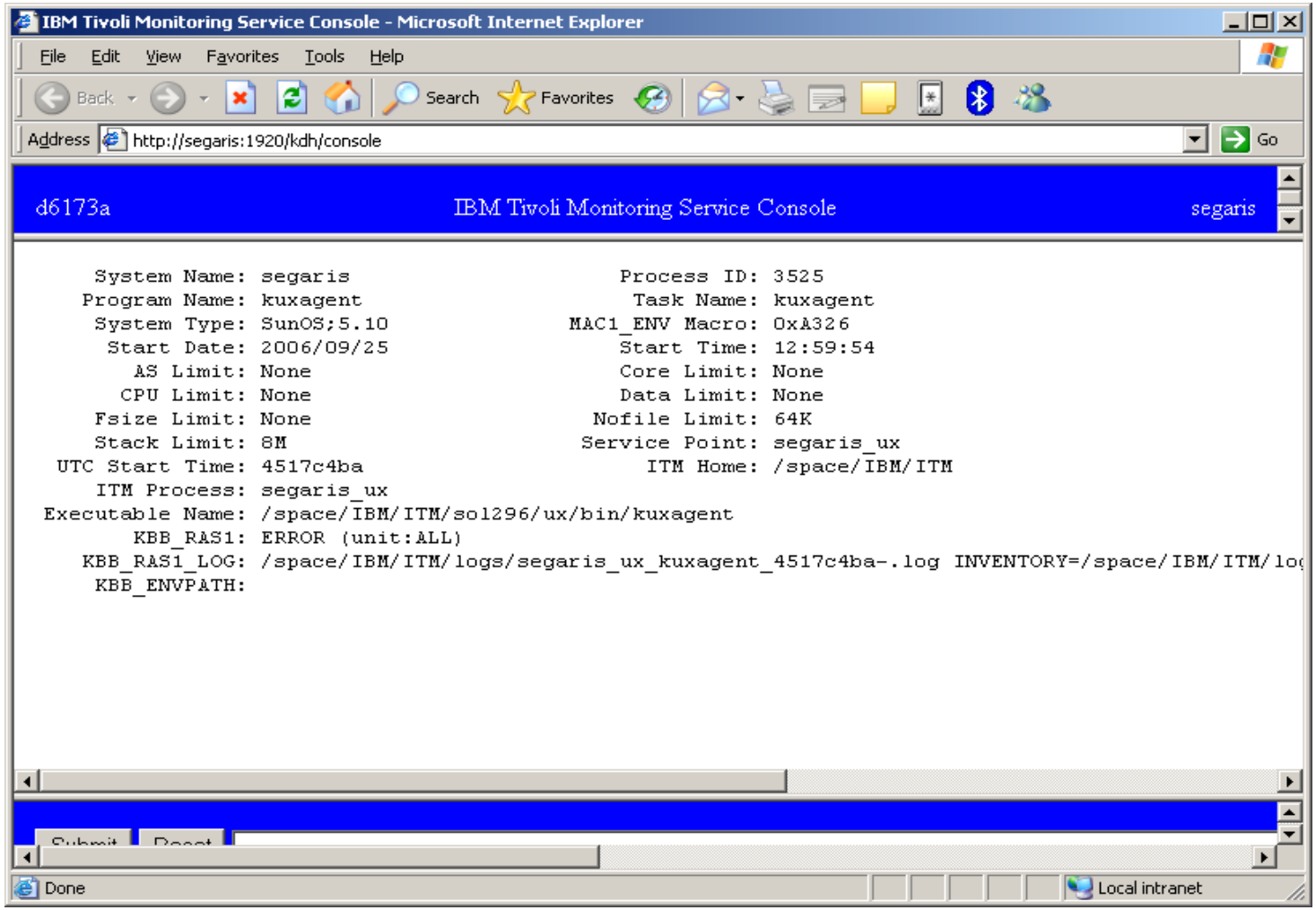




1. Open http://<hostname>:1920

2. Enter Administrator/Root username & Password

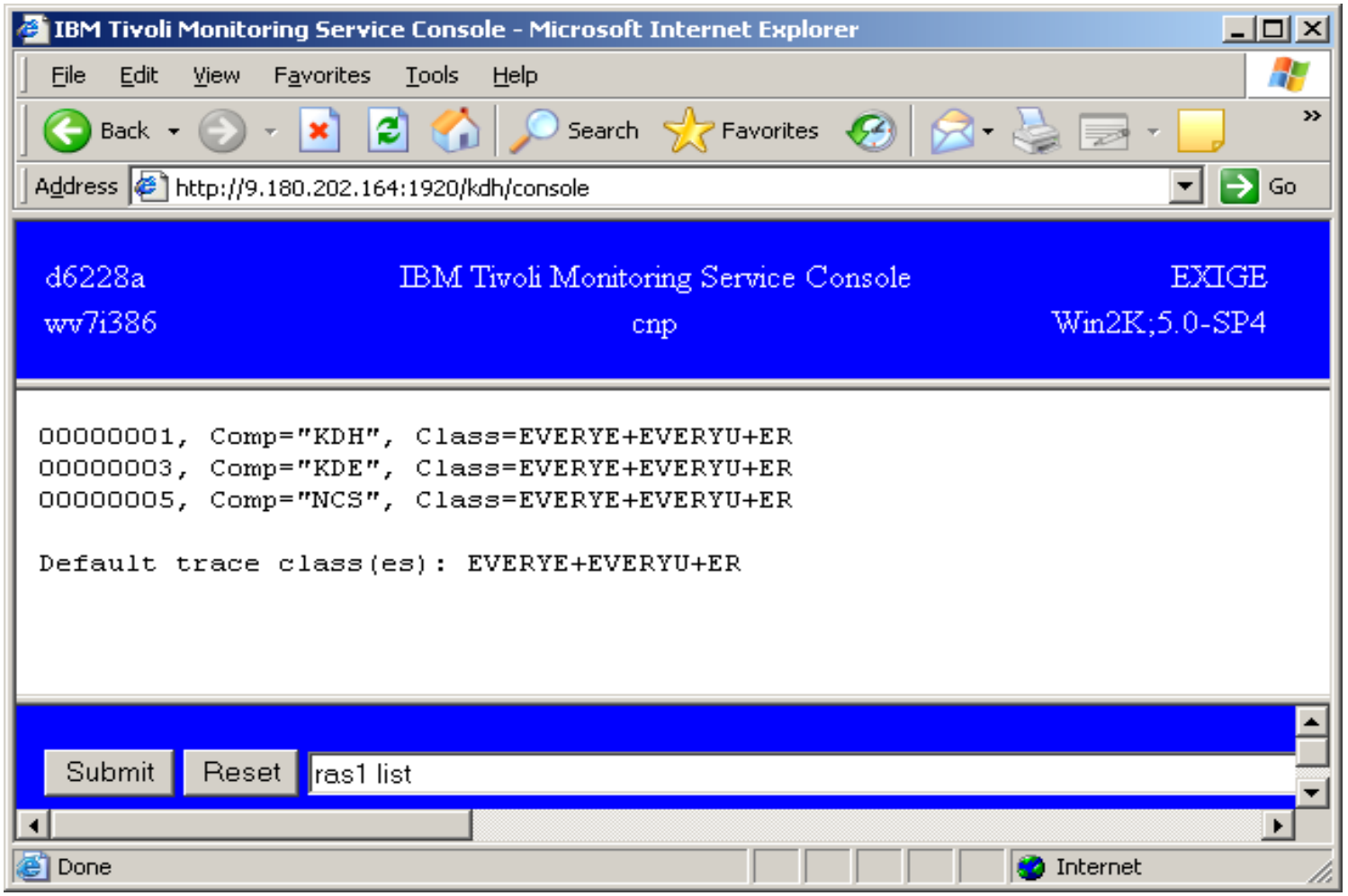
Example opening screen of Service Console



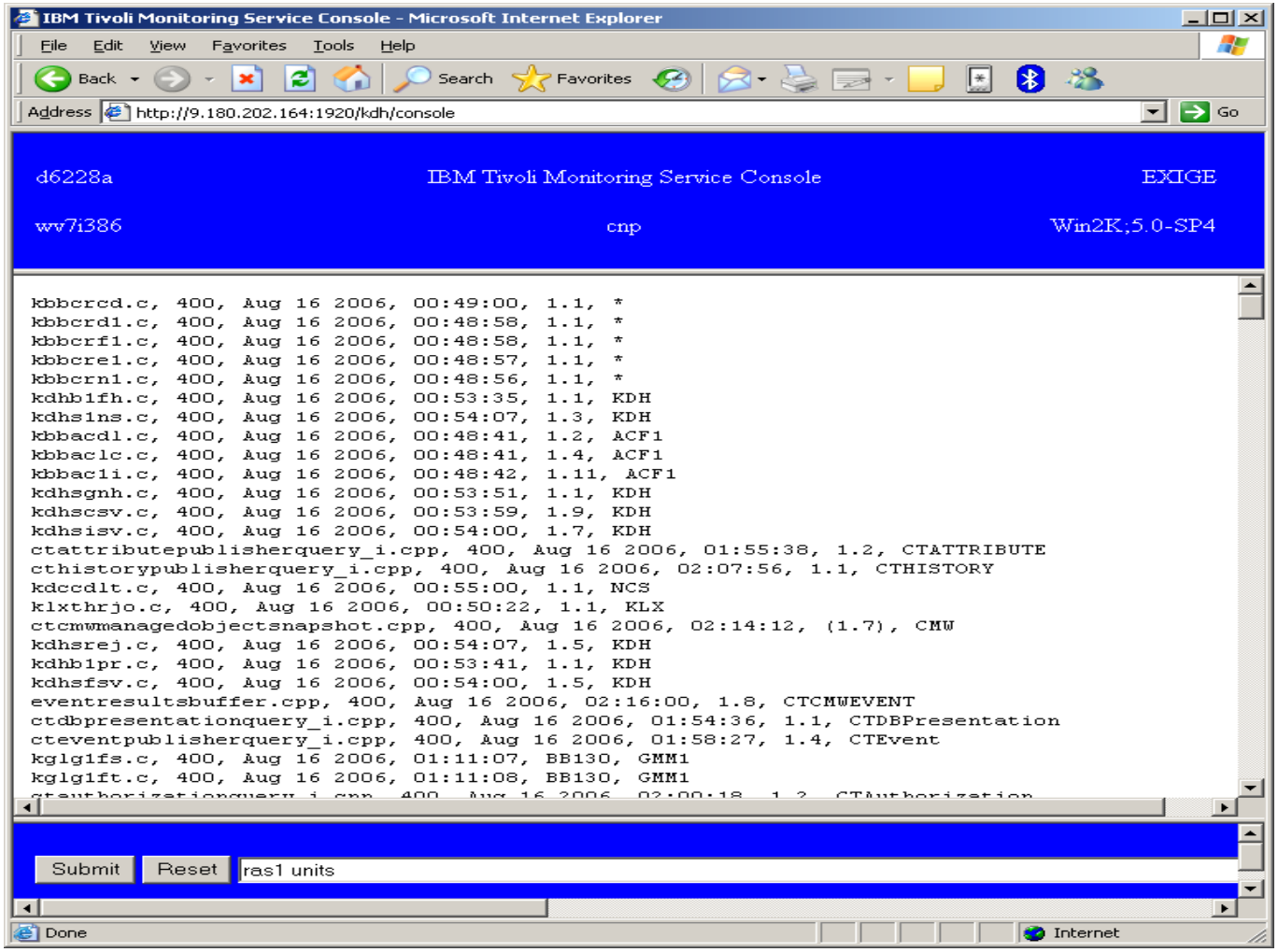
Service Console commands (ras1)

- Type '?' for full list of commands
- RAS1 offers commands to modify ras1 filters and display current ras1 settings
  - *usage : ras1 (command) … (command)*
  - *Options : units, ctbld, set, list & log*
  - ras1 (list)
  - ras1 (list) (log)
  - ras1 – can be used to set or unset a specific trace filter
    - ras1 (UNIT:kdssqprs ALL)
    - ras1 (UNIT:kdssqprs NONE)

Listing current trace settings

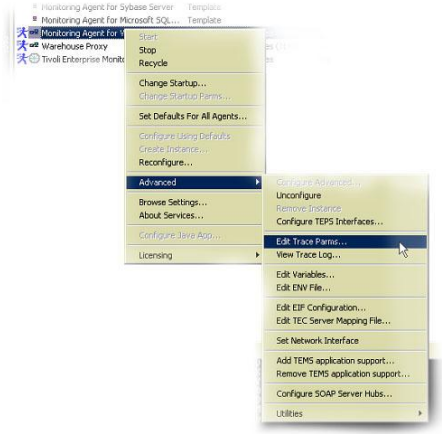


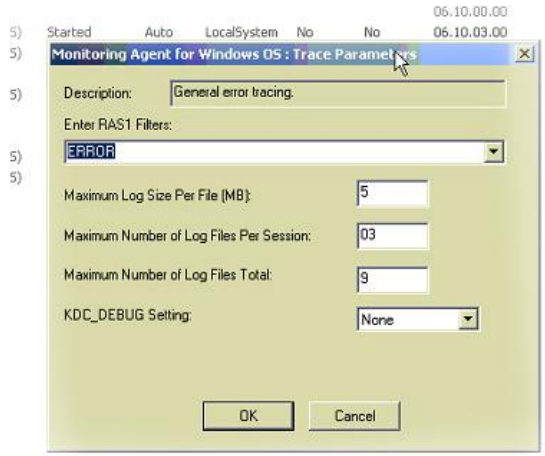
Listing RAS1 units



Setting the Trace Levels - MTEMS

- Manage Tivoli Monitoring Service
  - Requires Recycling after trace level modified
  - All TEMS components including KDC_DEBUG and KDE_DEBUG
  - Can modify trace levels, number of trace files, size of traces and maximum number of log files total
    - RAS1 Filter
    - Maximum Log Size per File
    - Maximum Number of Log Files Per Session
    - Inventory of Log Files
    - How many log files to preserve
  - Trace Parameters are not validated - syntax errors or typos will not be prevented.

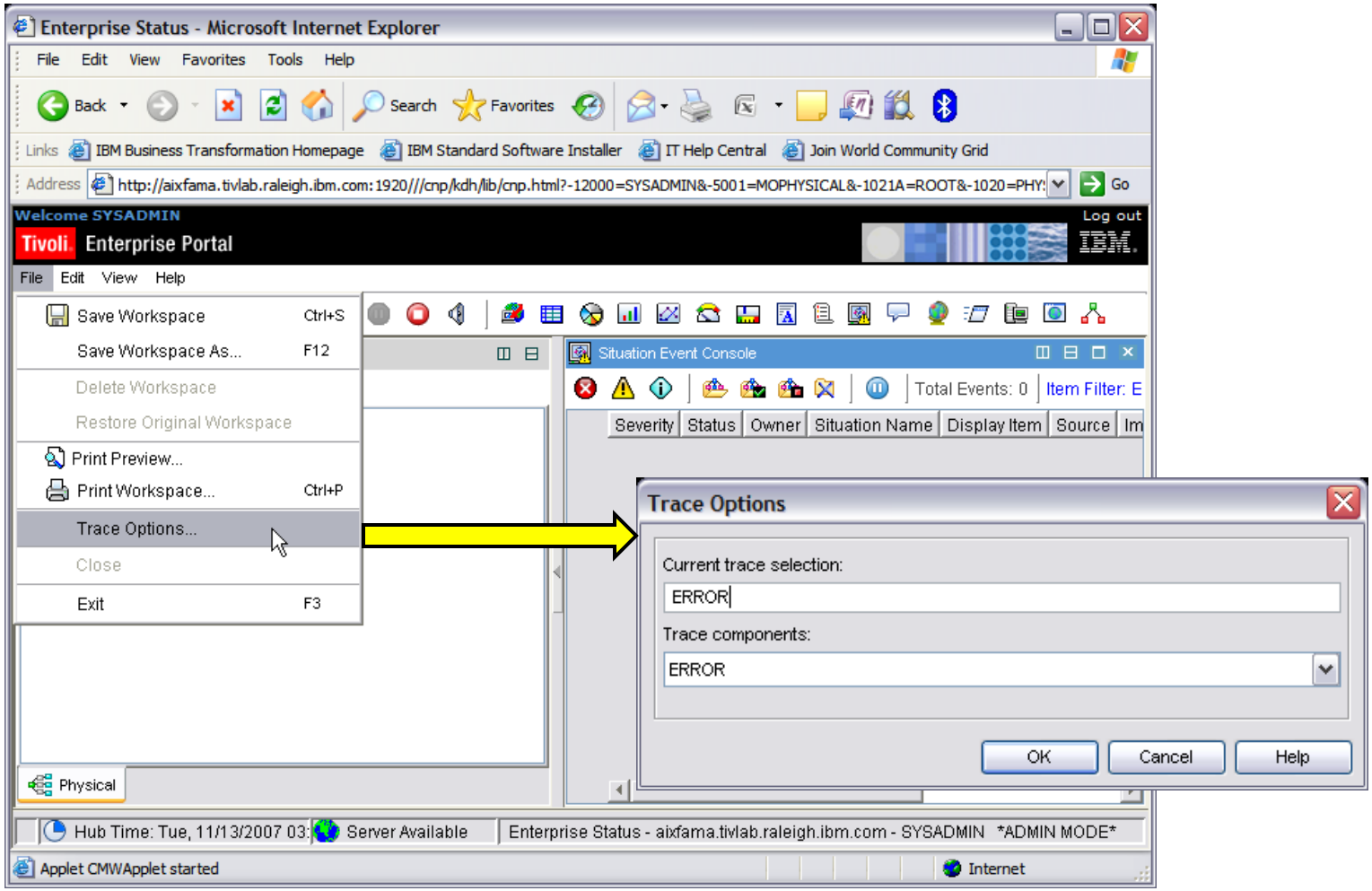




RAS1 logs – Configuration Files

- UNIX/Linux
  - Edit <pc>.ini file directly on the Managed System.
    - $ CANDLEHOME /config/<pc>.ini
    - IE: ux.ini, mq.ini
  - Requires Agent restart
- Windows
  - Edit <pc>ENV file directly on the Managed System
    - %CANDLE_HOME%\TMAITM6\<PC>ENV
    - IE: KNTENV, KMQENV, KSYENV
  - Requires Agent restart

RAS1 logs – TEP Only



RAS1 log files - Location

- Agents
  - Unix/Linux located at $CANDLEHOME/logs
  - Windows located at %CANDLE_HOME%\TMAITM6\logs
- TEMS & TEPS
  - $CANDLEHOME/logs for Unix/Linux
  - %CANDLE_HOME%\logs for Windows platform
- TEP Browser
  - C:\Documents and Settings\<User>\Application Data\IBM\Java\Deployment\log\Plugin142.trace
- TEP Desktop
  - %CANDLE_HOME%\cnp\logs

KDSTSNS/SPUFI

- SQL1 network client program
- Parses an input file that contains a SQL1 query and sends it to wherever it's been directed to connect (REMOTE TEMS or HUB)
- This is the SEED program invoked by INSTALL
- Defaults to SQLLIB for input location
- Query line lengths are limited to 72 characters.
- Some editors (i.e. notepad) do not format the file correctly and a blank line is required at the end
- SPUFI can be used to determine if a TEMS communication subsystem is hung.
- Running SPUFI in on the same machine where there's a running TEMS an sometimes encroach on the current running TEMS, i.e. KDSTSNS will overtake the RAS1 log. SET a local KBB_RAS1 for that SPUFI session and point the KBB_RAS1 to a different location so the RAS1 log is not overwritten by SPUFI.

Running KDSTSNS/SPUFI

- SPUFI input is a file containing a SQL query. SPUFI looks for the path to the .sql file in the environment variable SQLLIB
- Create your SQL and store it in *<CandleHome>\SQLLIB* (for windows) or where ever you've set SQLLIB to refer to. On UNIX, the SQLLIB environment points into the deployment directory (cicatrsq). Either put your SQL file there or set a local SQLLIB environment variable *(i.e. export SQLLIB=/sql*).
- Additionally SPUFI may take over the TEMS log file if you run it on a system with a running TEMS. To prevent this, set a local environment variable to use a different like file *(i.e. set KBB_RAS1_LOG=c:\ibm\itm\logs\spufi.log*
- On Windows, start SPUFI by executing:

  ```
  <CandleHome>\cms\kdstsns.exe
  ```

- On UNIX, start SPUFI by executing:

  ```
  <CandleHome>/<interp>/ms/bin/kdstsns
  ```

- SPUFI will ask questions about how to connect – if you're physically at the HUB, hit enter and the program requires no additional information to connect.
- If you are connecting to a TEMS not locating at this box, enter the connection protocol (ip.pipe, ip, etc)
- Next enter the ip address, or a fully qualified hostname of the TEMS you are connecting to
- Lastly enter the port number for the TEMS (default is 1918)

SPUFIL – zOS Platform

- Purpose

  SPUFIL enables to to access TEMS internal tables and manually retrieve data which are not usually available via TEP.

- Operational Steps

  Create a member in &RHILEV.RKANSQL, of the TEMS you want to see this information on, containing the definition of your SQL query (eg. RKANSQL(NODELIST)).

  Issue the modi(F)y command:

  /F <cms>,CTDS START SPUFIL,<sql-member-name>

  /F CANSDSST,CTDS START SPUFIL,NODELIST

  Output of the query can be found in RKLVLOG of the TEMS

KIB.CAT – Describes the TEMS Database

- Writing a valid and helpful SQL1 TEMS query requires knowledge of the TEMS database (EIB).
- ITM SQL1 API is very close in definition to ANSI SQL.
- The definition of all TEMS tables are in the file KIB.CAT (<*CANDLEHOME*>\cms\RKDSCATL on windows for example). Tables are not explicitly defined, rather sets of columns are listed. the Column Definition Records for a table are tagged by a C in position 1 of a line.
- Here's all the columns in the TNODELST (nodelist) table

```
CO4SRV    TNODELST   AFFINITIES        SM2S44    VSE1EMT1SM2234          YN
CO4SRV    TNODELST   LOCFLAG           SM2S2     VSE1EMT1SM2240          YN
CO4SRV    TNODELST   LSTDATE           SM2S16    VSE1EMT1SM2238          YN
CO4SRV    TNODELST   LSTUSRPRF         SM2S10    VSE1EMT1SM2236          YN
CO4SRV    TNODELST   NODE              SM2S32    VSE1EMT1SM2230          YN
CO4SRV    TNODELST   NODELIST          SM2S32    VSE1EMT1SM2227          YN
CO4SRV    TNODELST   NODETYPE          SM2S1     VSE1EMT1SM2232          YN
CO4SRV    TNODELST   QIBCLASSID        SM2S4     VSE1EMT1SM2228          YN
CO4SRV    TNODELST   RESERVED          SM2S64    VSE1EMT1SM2242          YN
```

- Here's a SQL1 query to return data in the TNODELST table and order it by one of the columns (LSTDATE)

```
SELECT NODELIST, NODE, NODETYPE, LSTUSRPRF, AFFINITIES,
   LSTDATE
  FROM O4SRV.TNODELST ORDER BY LSTDATE;
```

Incore tables and other special tables

- Some tables are persisted only in memory – these are termed incore tables.
  - INODESTS – node status information is only maintained in the INCORE table
  - ISITSTSH – incore situations status history table
  - These work exactly like persisted tables.
- Some tables do not contain data, but drive collection or an action when a SELECT is issued.
  - TADVISOR – this is the table that causes a SITUATION to run. There is no data persisted her, rather this SELECT is issued by SITMON to drive the situation.
  - CLACTLCL – A SELECT on this table will drive a reflecx emulation. The value of the cmd field will be executed.
- Many of the tables are no longer used by the TEMS (i.e. when the TEPS database used to be part of the TEMS).

Example - Connecting to the local HUB

```
C:\>cd ibm\itm\cms

C:\IBM\ITM\cms>set SQLLIB=c:\sql

C:\IBM\ITM\cms>kdstsns

To teminate the program at any time, enter "end"

Enter NCS Address Family or "Node" (default: *HUB):
Path Specification:

NCS:{NODE=*HUB} CT/DS:{SERVER=SRVR01 USER=DSTSNS}
Socket Specifcation:

Server    Version: 400 Build: 06275 Host Type: 6 Host Level: 1 Feature: NLS=Y
Requester Version: 400 Build: 06275 Host Type: 6 Host Level: 1 Feature: NLS=Y
Server Options: Case Matching = 0
Enter SQL member name (or "end" to quit) ...
```

Connection to a non-local TEMS

```
C:\IBM\ITM\cms>kdstsns

To terminate the program at any time, enter "end"

Enter NCS Address Family or "Node" (default: *HUB):ip.pipe

Enter host name/address :elaix04.austin.ibm.com

Enter NCS Server Port Number (eg. 1024, ....):1918
Path Specification:

NCS:{SOCKET=ip.pipe:elaix04.austin.ibm.com[1918]} CT/DS:{SERVER=SRVR01
 USER=DSTSNS}
Socket Specification:

ip.pipe:kate.austin.ibm.com[1918]
Server    Version: 400 Build: 06275 Host Type: 6 Host Level: 1 Feature: NLS=Y
Requester Version: 400 Build: 06275 Host Type: 6 Host Level: 1 Feature: NLS=Y
Server Options: Case Matching = 0
Enter SQL member name (or "end" to quit) ...
```

Example: TEMS not running – SPUFI can't Connect

```
C:\IBM\ITM\cms>kdstsns

To terminate the program at any time, enter "end"

Enter NCS Address Family or "Node" (default: *HUB):ip.pipe

Enter host name/address :elaix04.usca.ibm.com

Enter NCS Server Port Number (eg. 1024, ....):1918
Path Specification:

NCS:{SOCKET=ip.pipe:elaix04.usca.ibm.com[1918]} CT/DS:{SERVER=SRVR01
 USER=DSTSNS}
Socket Specifcation:

ip.pipe:kkawada.usca.ibm.com[1918]

CreatePath status = 172
```

→ *connection error (other error: 164,167,155)*

Example: SQL1 query has a syntax error

- `Enter SQL member name (or "end" to quit) ...` **`Getnodelists`** → *execute SQL1 file*

- `Library Name: c:\sql`
- `Member Name:` **`getnodelists.sql`** → *the SQL1 file to execute*

- `SELECT NODELIST, NODE, NODETYPE, AFFINITIES,`
- `  LSTUSRPRF, LSTDATE,`
- `  FROM O4SRV.TNODELST ORDER BY LSTDATE;`

- **`SQL1_CreateRequest status = 350`** → *syntax error*

- `Total Libraries Processed: 1`
- `Total Members  Processed: 1`
- `Total SQLs  Processed: 1`
- `Total Errors  Encountered: 1`

Example: Successful SPUFI query

```
Enter SQL member name (or "end" to quit) ... getnodes

Library Name: c:\sql
Member Name:  getnodes.sql

SELECT GBLTMSTMP, NODE, THRUNODE, HOSTINFO, HOSTADDR,
   O4ONLINE, NODETYPE, VERSION
   FROM O4SRV.INODESTS ORDER BY GBLTMSTMP;

/*********************************************/
/********** Create Request Was Done **********/
/*********************************************/

1061101151635001 Primary:RED:NT                  HUB_RED                        WinXP~5.1-SP1
  ip.pipe:#9.53.24.71[10111]<NM>RED</NM>
                                                        N V 06.10.04
1061101151640001 HUB_RED                         HUB_RED
  <IP.PIPE>#9.53.24.71[1918]</IP.PIPE>
                                                        Y   06.10.04
```

Row Count: 2 → *2 rows of data returned*

```
Total Libraries Processed: 1
Total Members   Processed: 1
Total SQLs      Processed: 1
Total Errors  Encountered: 0

Enter SQL member name (or "end" to quit) ...
```

SPUFI and capturing results

- SPUFI can be used in non-interactive fashion to capture data results with the following syntax (windows):

  `<CANDLEHOME>\kdstsns <sql_file> <CMS_NODEID> > <output_file_name>`

  - Where:
    - sql_file is the SQL1 file that is located via the SQLLIB environment variable
    - the CMS_NODEID which is the TEMS NODEID
      - name can be substituted with *HUB if issuing to the HUB TEMS.
    - output_file_name – name of the file to store the output results

- For command line operation to work as above the `KDC_FAMILIES` environment variable should be appropriately set and local `glb_site.txt` file pointed to the HUB TEMS correctly.

Example of SPUFI and file output

- c:\IBM\ITM\cms>kdstsns getnodes.sql HUB_ITMDEV21 > output

```
c:\IBM\ITM\cms>type output

Library Name: c:\sql
Member Name:  getnodes.sql

SELECT GBLTMSTMP, NODE, THRUNODE, AFFINITIES, HOSTINFO,
   O4ONLINE, NODETYPE, VERSION
   FROM O4SRV.INODESTS ORDER BY GBLTMSTMP;

/*********************************************/
/********** Create Request Was Done **********/
/*********************************************/

1061103095002000 indaix04.tivlab.austin.ibm.com:K HUB_ITMDEV21
  00f2000000000000000000000000000000800000w0a7  AIX~5.2          Y V 06.10.03
1061103095036000 Primary:ITMDEV21:NT              HUB_ITMDEV21
  0008000000000000000000000000000000G00000w0a7  Win2003~5.2-SP1  Y V 06.10.02
1061103095550000 HUB_ITMDEV21                     HUB_ITMDEV21
  00000000800000000000000000000000000000068f0                    Y   06.10.03
Row Count: 3


Total Libraries Processed: 1
Total Members   Processed: 1
Total SQLs      Processed: 1
Total Errors  Encountered: 0
```

RAS1log

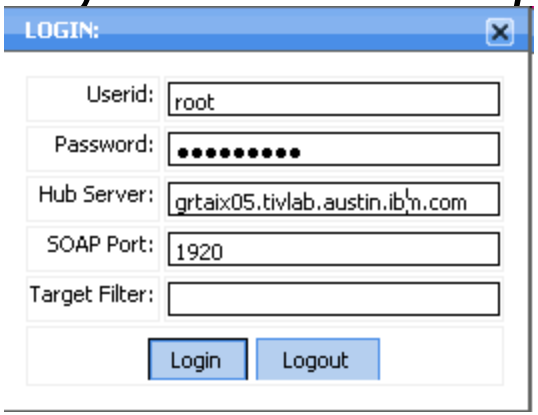
- Ras1log
  - Converts the hex timestamp in the RAS1 logs into either local time or UTC time format
  - Sends the output to standard out
  - Provided for UNIX, Linux and Windows platforms

PDCollect

- PDCollect is a multi-platform problem-determination data collection tool.
- Supported on Windows, Unix/Linux and z/OS
- PDCollect tool output consists of:
  - ITM log and configuration files
    - *Log files*
    - *History files*
    - *Database files*
    - *Configuration files*
  - Operating system/environment information
    - *Windows event logs*
    - *ITM directory listings*
  - Environment data
    - *TCP/IP information (ipconfig/ifconfig/netstat)*
    - *Environment variables*
    - *Disk space*

ITMSUPER

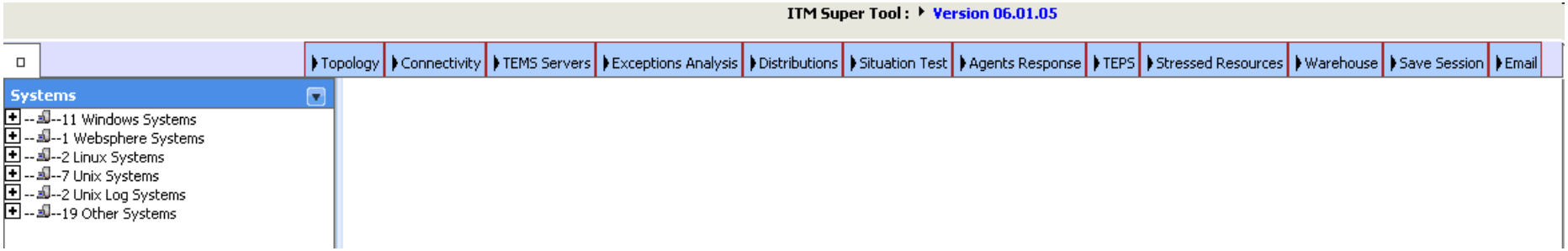
- Downloadable from OPAL
  - Runs stand-alone on Windows and points to a TEMS on z/OS®, AIX®, Linux®, or Windows platform.
  - http://catalog.lotus.com/wps/portal/topal/details?catalog.label=1TW10TM6L
- From the directory where the package was uncompressed go into itmsup directory and run *itmsuper.htm*



Report generated by ITMSUPER

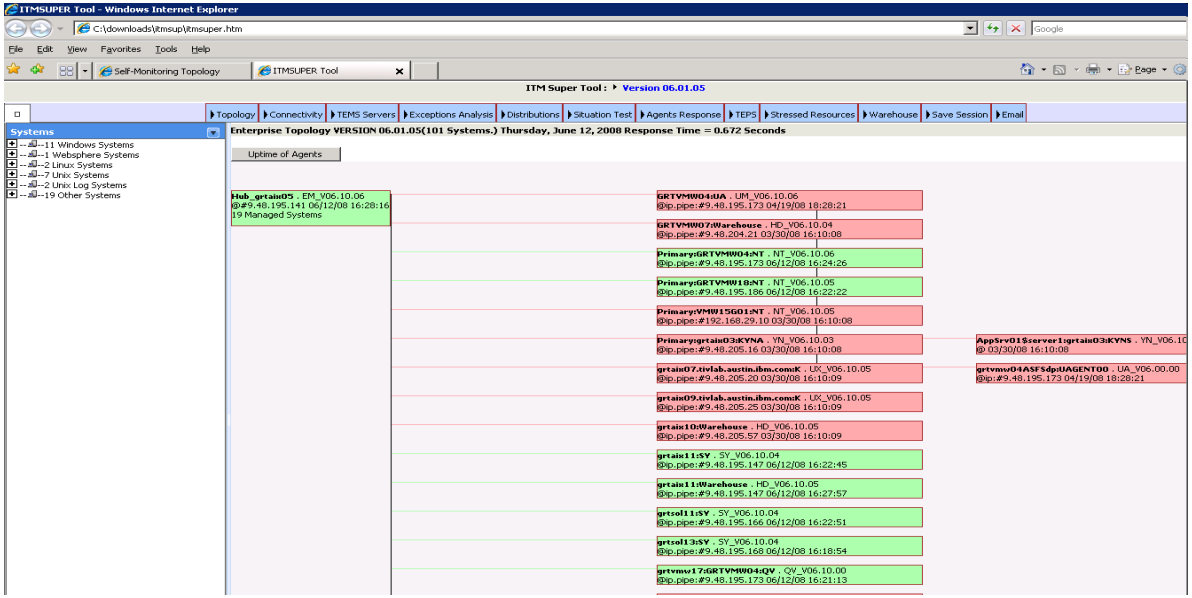
1. Topology/Uptime for Agents
2. Connectivity Tool
3. TEMS Server
4. Exception Analysis
5. Distributions
6. Situation Test

1. Agents Response
2. TEPS
3. Stressed Resourses
4. Warehouse
5. Save Session
6. Email



Topology

Topology contains following information



Green

Red

Uptime for Agents

Enterprise Topology VERSION 06.01.05(101 Systems.) Thursday, June 12, 2008 Response Time = 0.672 Seconds

Uptime of Agents

Uptime of Agents report shows:

1. Name of the agent,
2. Start Time of agent.
3. Local Time of the agent.
4. Agent uptime in minutes.

Agents up for less than 5 days are highlighted in yellow.

Enterprise Agent Inventory

Hub_grtaix05

Agent Name	Up Since	Local Time Now	Agent Uptime Minutes
Primary:GRTVMW04:NT	04/19/08 19:56:45	06/12/08 16:47:50	77571
Primary:GRTVMW18:NT	04/19/08 20:57:53	06/12/08 17:42:51	77564
grtaix11:SY	03/30/08 19:55:09	06/12/08 16:34:30	106359
grtaix11:Warehouse	05/07/08 14:40:20	06/12/08 16:34:30	51954
grtsol11:SY	05/16/08 16:24:58	06/12/08 16:34:12	38889
grtsol13:SY	05/23/08 15:09:17	06/12/08 16:32:28	28883
grtvmw17:GRTVMW04:QV	04/18/08 03:07:36	06/12/08 16:47:50	80020
vmw15g02:LZ	05/05/08 04:24:34	05/20/08 22:56:15	22711

Remote_grtsol10

Agent Name	Up Since	Local Time Now	Agent Uptime Minutes
grtaix01.grt.aus:KUX	03/29/08 18:09:58	06/12/08 16:36:19	107906
grtsol10:grtsol10:SYB	03/29/08 17:06:20	06/12/08 16:26:11	107959

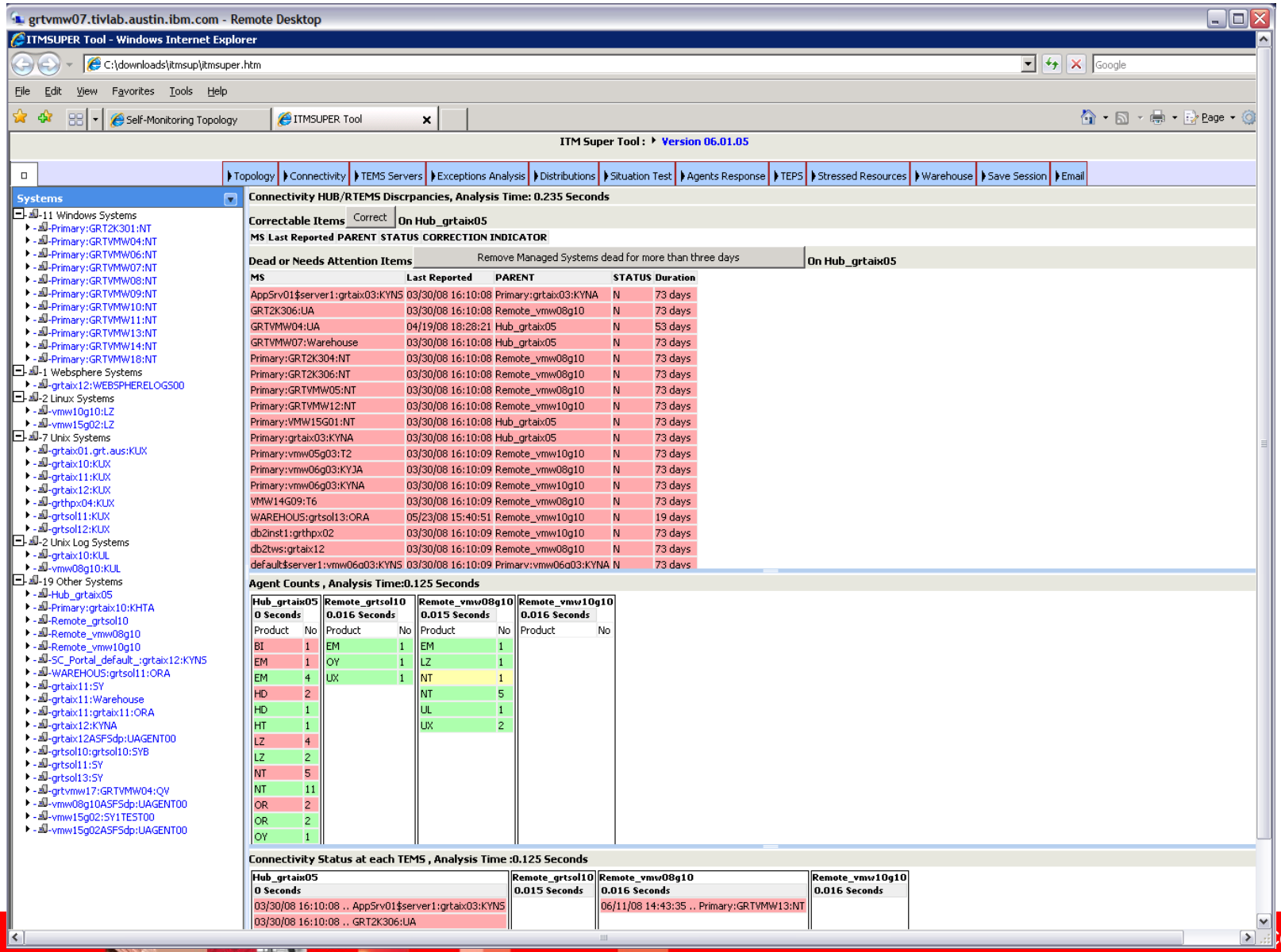
Remote_vmw08g10

Agent Name	Up Since	Local Time Now	Agent Uptime Minutes
Primary:GRT2K301:NT	05/23/08 17:20:52	06/12/08 16:52:51	28771
Primary:GRTVMW06:NT	04/18/08 04:10:23	06/12/08 16:47:16	79956
Primary:GRTVMW07:NT	06/11/08 14:48:27	06/12/08 16:52:33	1564
Primary:GRTVMW09:NT	04/18/08 05:21:22	06/12/08 16:59:36	79898
Primary:GRTVMW10:NT	04/18/08 05:10:46	06/12/08 16:51:25	79900
grtaix10:KUL	04/05/08 21:05:03	06/13/08 16:49:43	99104
grtaix10:KUX	04/05/08 21:14:07	06/13/08 16:49:42	99095
grtsol12:KUX	04/04/08 20:55:30	06/12/08 16:33:59	99098
vmw10g10:LZ	04/18/08 05:14:13	06/12/08 16:51:02	79896

Remote_vmw10g10

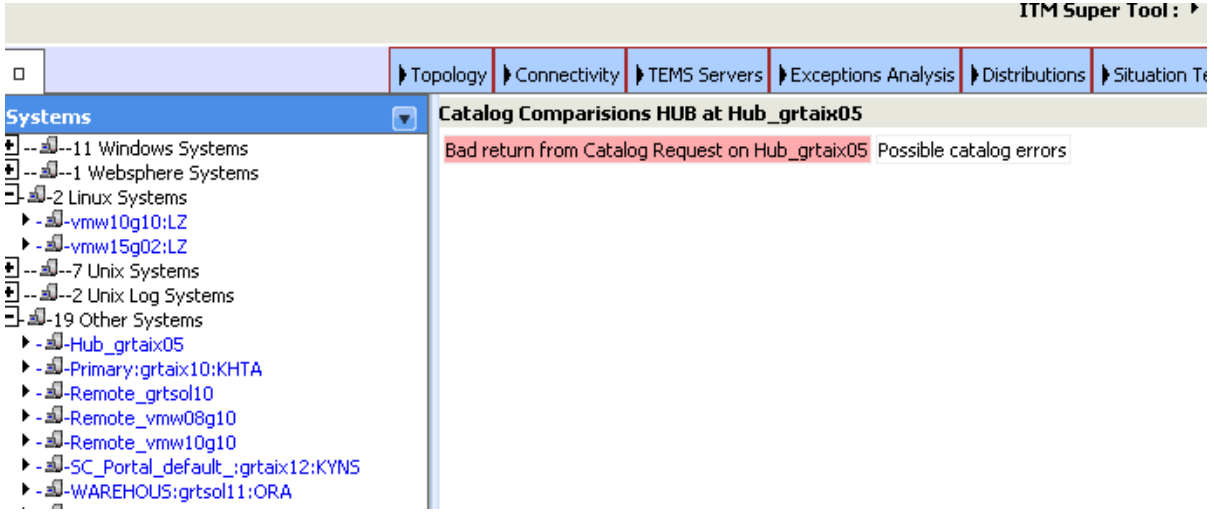
Agent Name	Up Since	Local Time Now	Agent Uptime Minutes

Connectivity



TEMS Server – Catalog problem

- Catalog error on TEMS Server
- Code issue to be resolved by APAR IZ22104: TEMS catalog returns too much data. SYSCOLUMNS

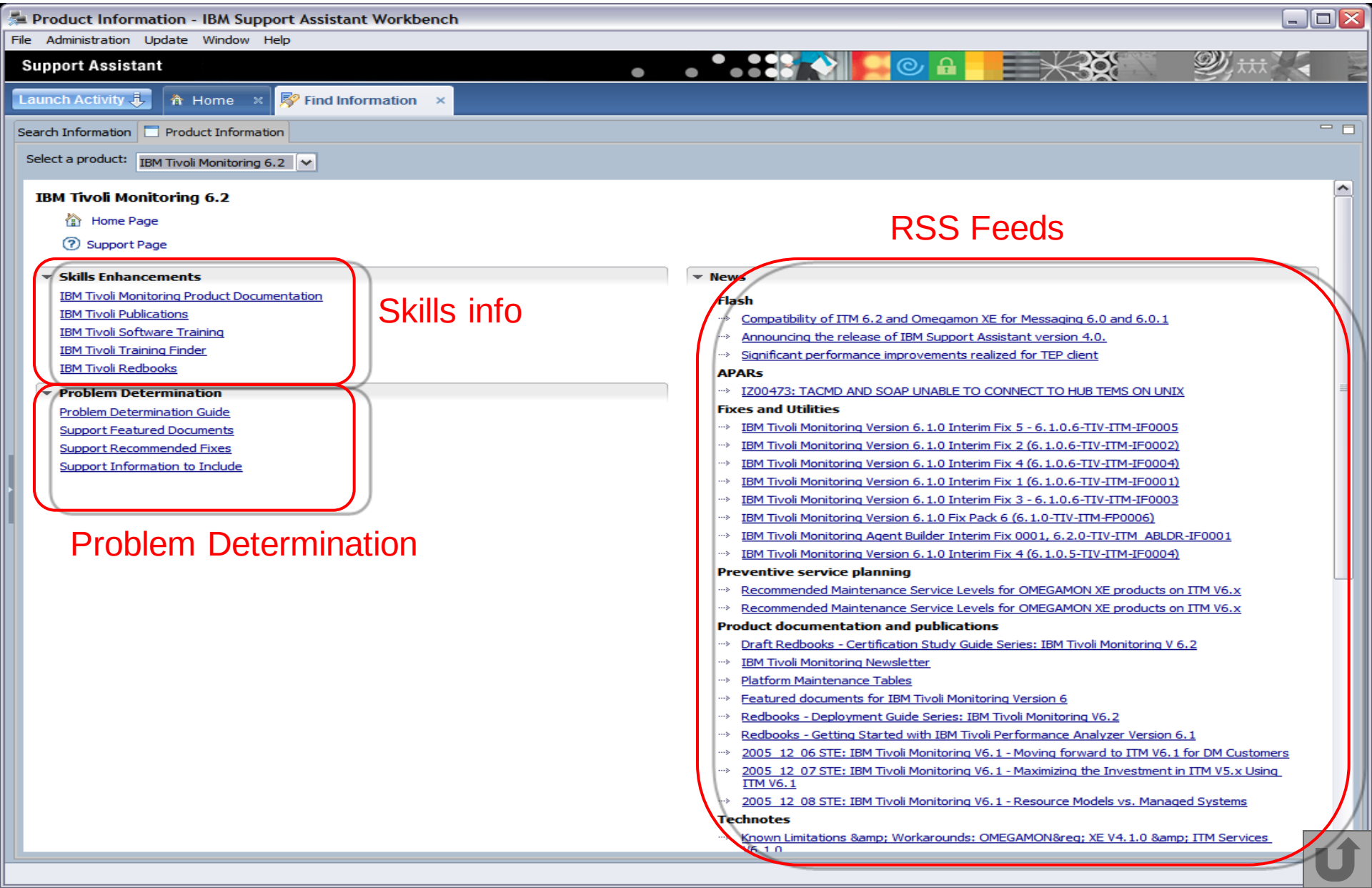


- You can get around the problem corrected by IZ22104 by removing following environment variables until the fix for the APAR is available.

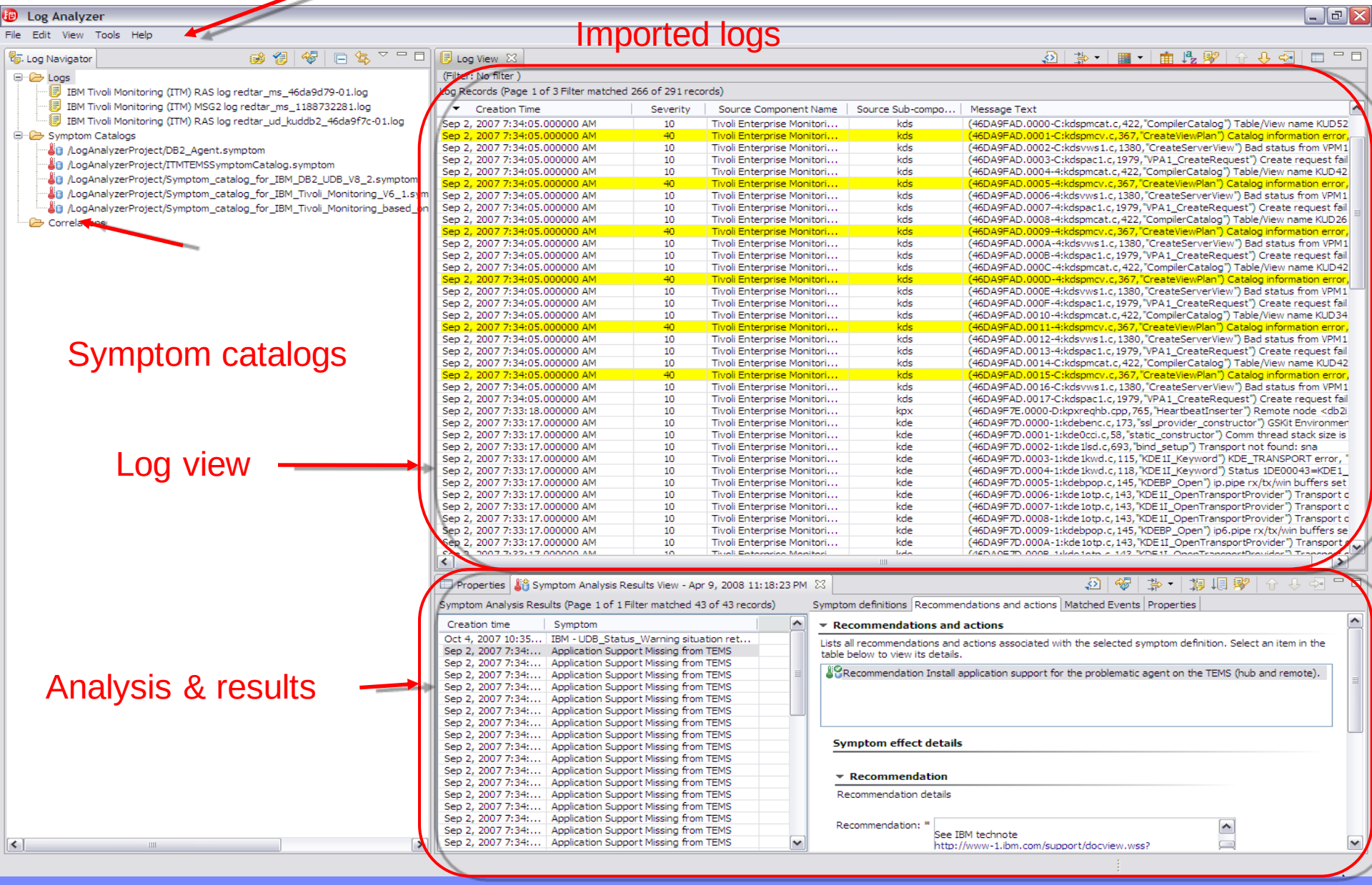
  KGL_GMMSTORE=

  KDS_HEAP_SIZE=

ISA Work Bench



Log Analyzer



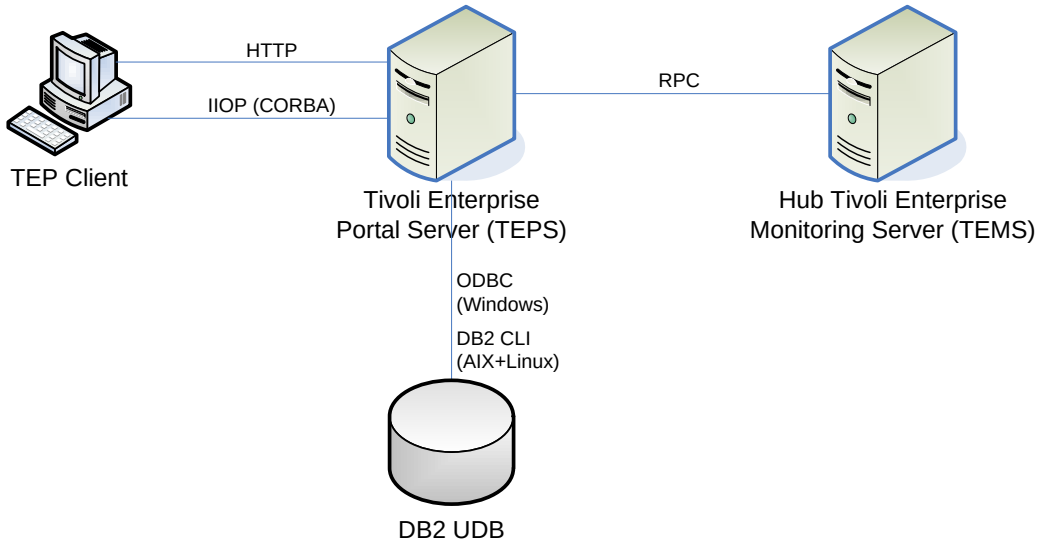
Log Analyzer – ITM Components

- Log Adapters
  - IBM Tivoli Monitoring MSG2 log
  - IBM Tivoli Monitoring OPS XML log
  - IBM Tivoli Monitoring OPS log
  - IBM Tivoli Monitoring RAS log
  - IBM Tivoli Monitoring zOS TEMS RAS log (RKLVLOG)
- Symptom Catalogs
  - IBM Tivoli Monitoring V6.1 (TEMS messages)
  - IBM Tivoli OMEGAMON XE for Storage on zOS V3.1.0 and higher
  - IBM Tivoli Monitoring technotes (top 40 technotes)

TEPS & TEMS General Troubleshooting

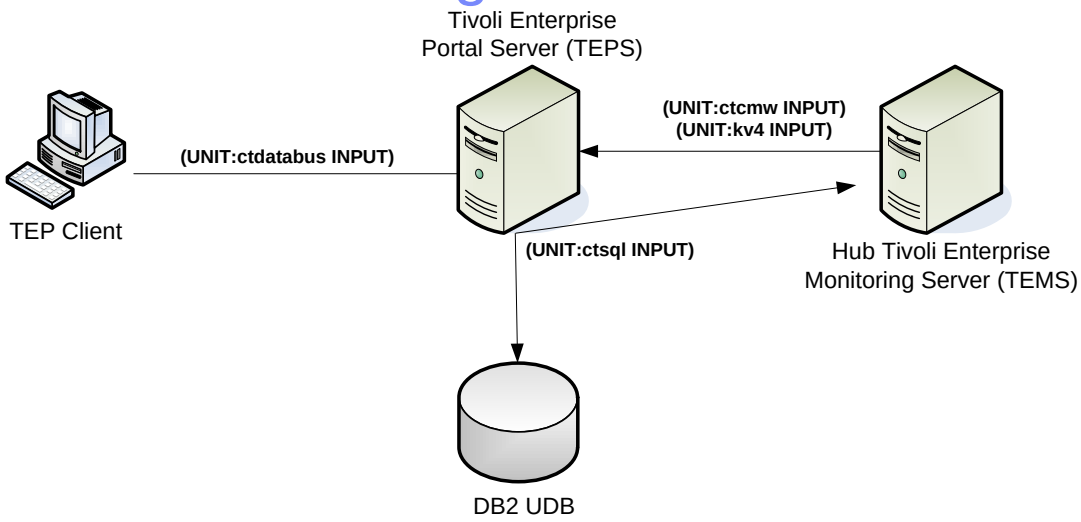
- TEPS db main contents:
  - User records (attributes) and topology
  - Managed Objects and Situation Associations (alert/sound)
  - Presentation data
  - Historical settings
  - Launch-In-Context settings
  - Seed data info
- TEMS db main contents:
  - Situation definitions
  - Policy definitions
  - Distribution lists (situations and policies)
  - Situation status records
  - Node status and node list records
  - Take Action commands

TEPS/TEP Client Communication Flow



- HTTP connection is used by TEP browser to download JAR files and resources files that will be used by TEP client to communicate.
- HTTP server is, by default, installed in TEPS.
- IIOP CORBA layer is used by the client code to connect to TEP server.
- TEPS communicates with TEMS using RPC method.
- TEPS uses ODBC for Windows and DB2 client for Linux to communicate with the database.
- URL for browser: `http://<TEPS>:1920///CNP/client`

TEPS General Troubleshooting



- To answer the question: Is the problem occurring in the TEPS?
- `ctdatabus` unit is used to log all the detail request from TEP client
- `ctcmw` and `kv4` units are used to log node status, situation and EIB update events from TEMS.
- `ctsql` is used to log raw SQL requests to TEMS, DB2 or ODBC and number of rows returned.
- Use: `KFW_DATABUS_INPUT_TRACE_IGNORE_HEARTBEAT=Y` to suppress the heartbeat events in the log. Will greatly reduce the amount of logs.
- Alternatively, `KFW_DATABUS_INPUT_TRACE_FILTER=<service name>` to log only the specified services.

TEPS General Troubleshooting

- Typically, databus and SQL input traces will be set together.

  If left running for long periods of time or if many clients are connected and being actively used, databus and SQL input traces will generate large amounts of data

- Network traffic caused by typical OS agent workspace requests varies widely in size, depending on how many rows of data are returned
  - Workspaces requesting data from a large number of instances (Process, etc.) cause more network traffic
  - Average size of 150KB per request should be useful for planning purposes
- Situation Event processing on TEP client:
  - TEC Event view is the most efficient, then Situation event view and finally Message log view (combinations of the above is even worse)
  - In environments with a high event rate or a large number of active events, consider using the TEC Event view instead of the Message Log or Situation Event view if possible.

Communications

- Name resolution
  - Ping the server/agent using name and IP
  - If configured with fully qualified hostname ensure it can be resolved
- Protocols in use
  - IP.PIPE, IP.SPIPE, IP.UDP & SNA
  - Ensure that the components use a protocol that is configured

Communications

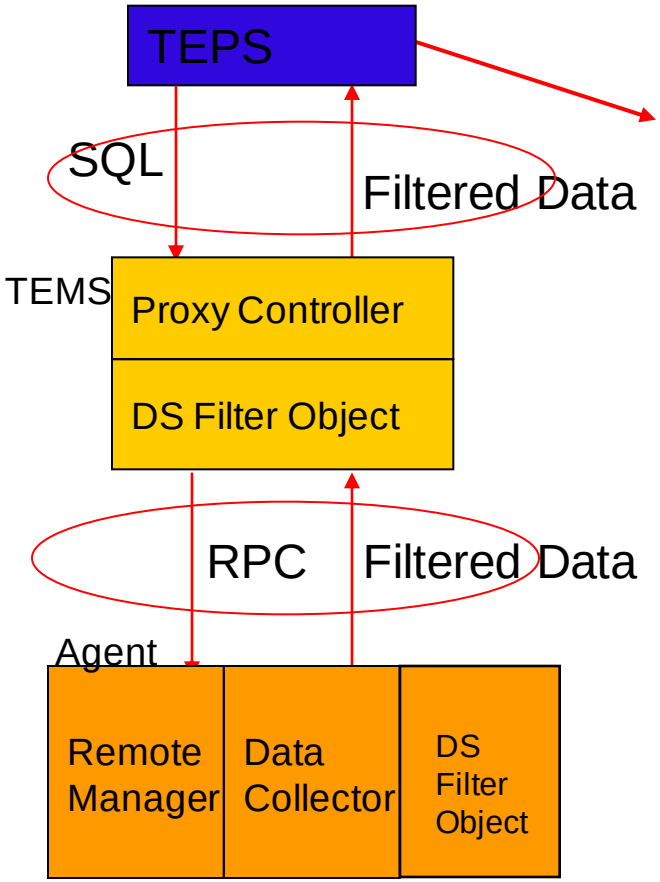
- Firewalls
  - Use the KDE Firewall Gateway tool
- Ports
  - Ensure the ports used by the product are not blocked
  - 1918 default for TEMS
  - 1920 default URL port to connect to TEPS
  - 15001 default TEPS port for IOR
  - 1919 default UA port for primary UA
  - http://www-1.ibm.com/support/docview.wss?&uid=swg21249998

Common Problems

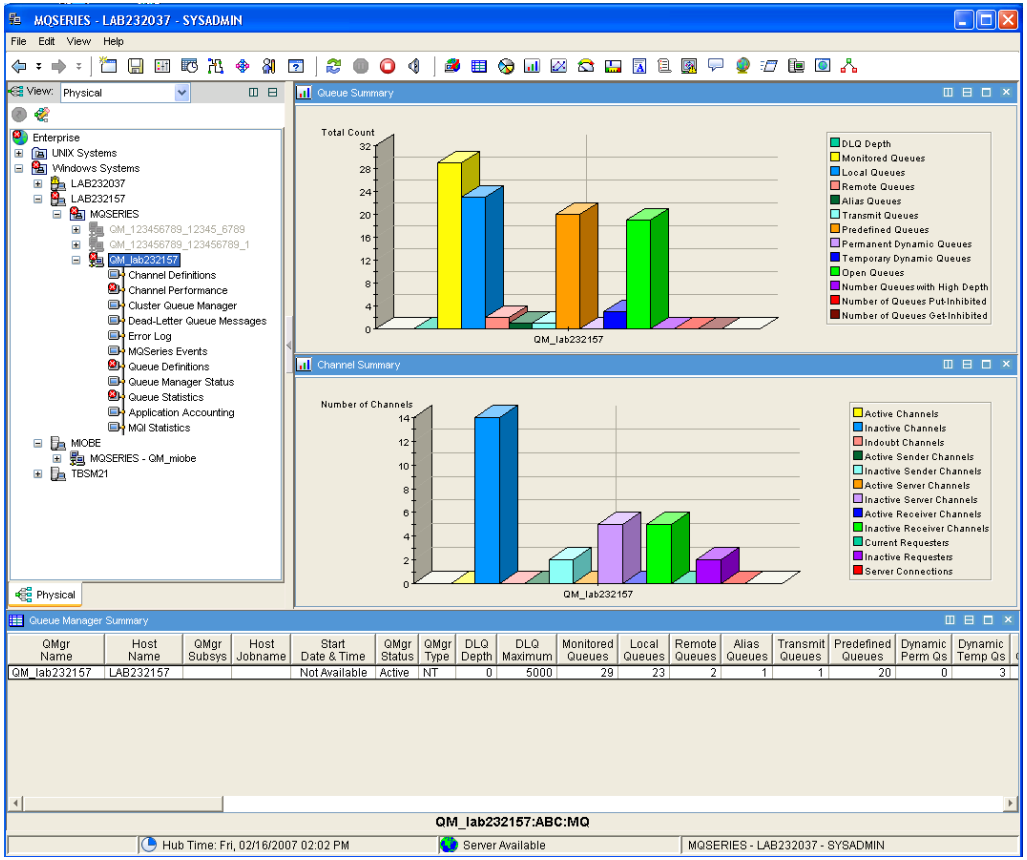
- Agent/Remote TEMS cannot connect to TEMS
  - Wait for the Heartbeat time to be expired and check if reconnection occurs.
  - Check CMS_LIST to point to the correct (R-)TEMS and KDC_FAMILIES parm
  - KPX and KFA traces may be needed for TEMS initialization issues
  - KDC_DEBUG may be needed
- Connection problems between agents and WPA
  - Check the WPA address registered in the Global Location Broker on the TEMS (glb_KHD.txt) and the parm KPX_WAREHOUSE_CHK.
  - Check agent log file for connection errors
- User cannot login to TEP
  - TEPS not started or not yet initialized
  - Broken connection between TEPS
  - TEPS user locked out
  - Collect and check TEP, TEPS and TEMS log files

Real-Time Data Collection

Dataflow



TEP



Real-Time Data Collection

Best Practices

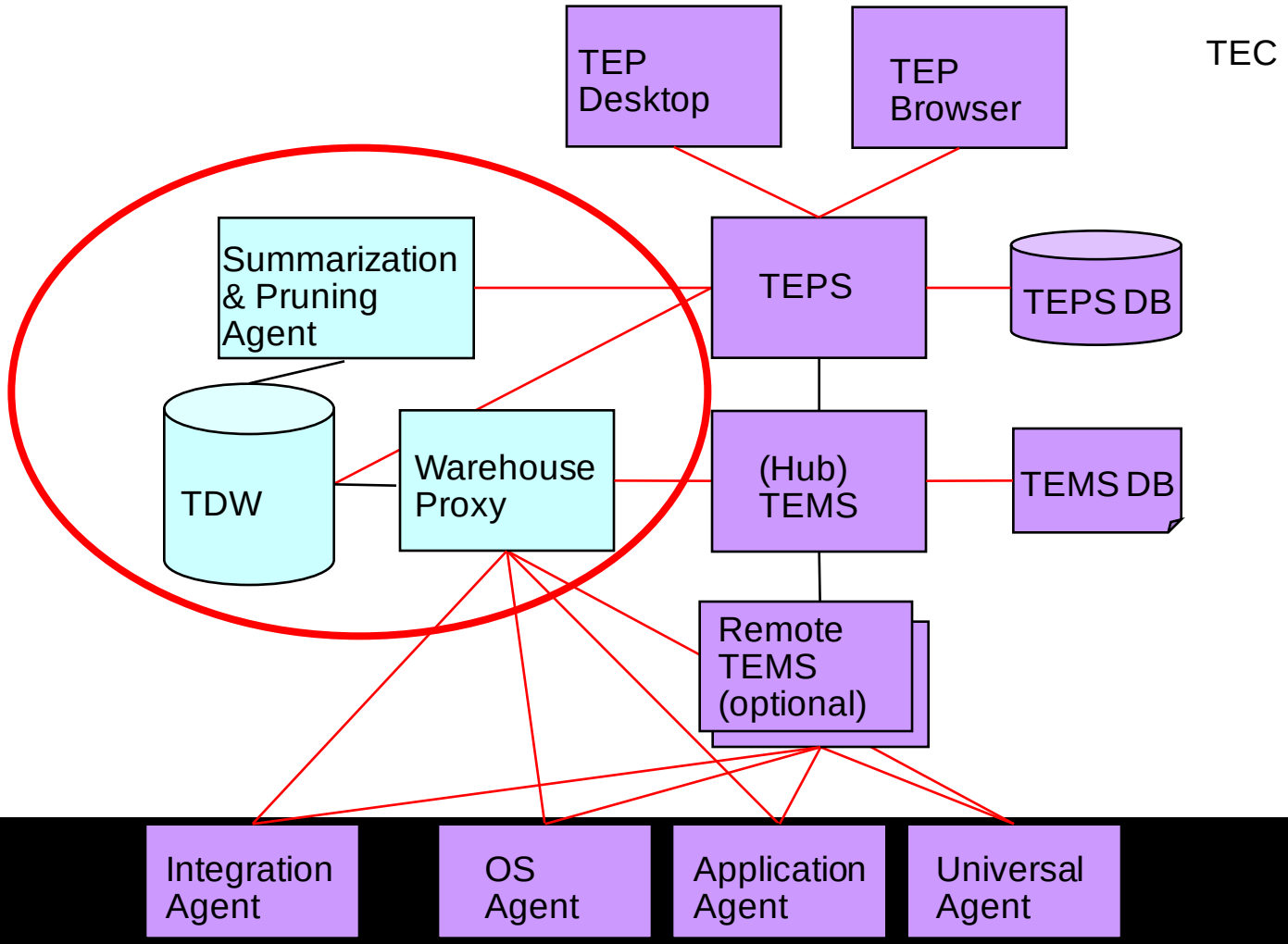
- Check that SQL query is issued by TEPS
  - Trace ctsql and ctdatabus units in TEPS log
- Check that TEMS proxy requests data to the agent
  - Trace KRA/KPX components in TEMS log
- Check that Agent completes the collection of sampling data
  - Agent log (traces vary by agent)
- Check that Agent sends data back to Proxy (TEMS)
  - Trace KRA component in agent log
- Check that TEMS Proxy receives the requested data
  - Trace KRA/KPX components in TEMS log
- Check that SQL query in TEPS returns not zero rows
  - Trace ctsql and ctdatabus units in TEPS log

Real-Time Data Collection

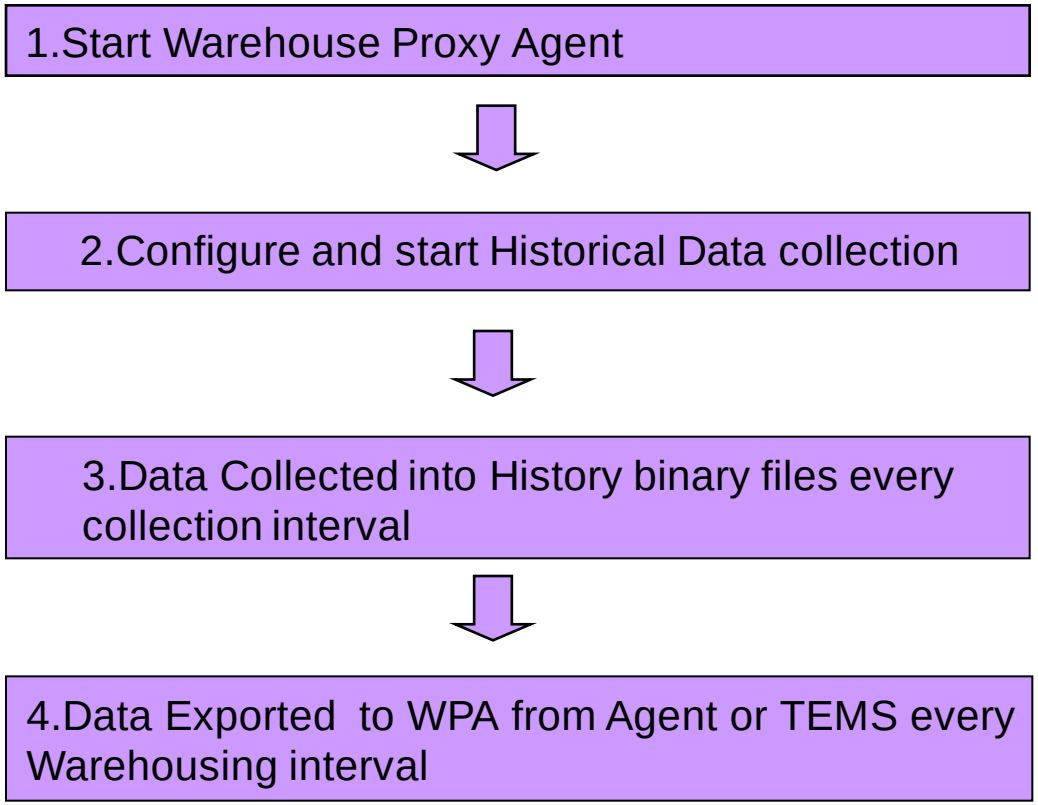
Common Problems

- Views in TEP are empty
  - Agent does not retrieve data
  - Agent not connected to TEMS
  - Workspace created with a bad query
- Views in TEP contain invalid data
  - Compare data gathered from the agent (K<pc> and KRA tracing) with data in TEMS db (KDSTSNS/SPUFIL) and with info on the GUI (TEP client log).
- Agent online status is questioned
  - Check agent log and TEMS log for the ONLINE message
  - Data may be corrupted within core components: compares TEMS db data using SPUFIL/KDSTSNS with data logged in TEPS log

Historical Data Collection



Historical Data Collection



Historical Data Collection

Best Practices

- **Before panicking that no data exists, ensure your "Collection Interval" has expired.**

- **Collect historical data at the agent if at all possible if your ENV is large (200+ agents per TEMS)**
  - Reduces the network bandwidth consumption between agents and TEMS when data is exported
  - Significantly decreases the TEMS workload
  - Reduces binary file sizes since data is only for that TEMA

Historical Data Collection

Common Problems

- **Binary file size grows indefinitely**
  - Connection with Warehouse is not working.
  - Error in export process from TEMS or Agent

- **No historical data collection**
  - Check Historical situation started on the Agent operational log (<hostname>_Warehouse.LG0)
  - Check data are being inserted into Warehouse table
  - Check for Warehouse Exporter Client errors
  - khdexp.cfg timestamp should change every hour

- **Inserted value too large for the column**
  - NLS_LANG should be set to AMERICAN_AMERICA.AL32UTF8
  - The database CHARACTER SET should be set to AL32UTF8 and not UTF16

Best Practices & Common Problems Situations/Policies

- Always check the *MS*.LOG for situation starting messages that further isolates the situation starting error down to missing KFA targets versus KIB accesslist cache problems.
- Typical SITMON/IB traces are “COMP” traces however these log files are quite large and can wrap and important trace data may be lost.
  - (COMP:IBIFACE all) (COMP:SMAF all)
- More granular SITMON/IB traces:
  - Situation Not Starting –
    - Lodge Failed Error with is 1131 with a reason code
    - Error log contains message 1145 or 1133
      - To learn more set the trace to:
        - (UNIT:ko4sit ALL) (UNIT:ko4rul ALL) (UNIT:ko4attr ALL)
  - Situation not starting – no obvious error message an
    - Possible “stage 2 error” – this means that the database synchronization at the REMOTE is not working properly
      - To learn more set the trace at the REMOTE and HUB
        - (UNIT:ko4crtsq ALL) (UNIT:ko4tobje ALL) (UNIT:ko4cache all)
  - Missing situation events
    - Events are firing but not showing up in the TEPS
      - To learn more, set the traces at the REMOTE and HUB
        - (UNIT:ko4sitma ALL) (UNIT:ko4tobje ALL) (UNIT:ko4cache ALL)
  - Problems with Policies
    - Policies not starting or not executing properly
      - To learn more, set the traces at the appropriate TEMS
        - (UNIT:ko4pcy ALL) (UNIT:ko4mem ALL) (UNIT:ko4resul ALL) (UNIT:ko4ac ALL)

Best Practices & Common Problems Situations/Policies

- Situations are monitoring entities that are launched from the Situation Monitor/Automated Facilities (KSMOMS) task within the TEMS Server runtime environment.
  - Situations are used to return results for monitoring (normal case)
  - Situations are used to control flow in Policies
  - Situations are used to drive collectors for History and Reports
- Situation records are kept in the table called TSITDESC and written out to physical DASD/Disk database name QA1CSITF (zOS is RKDSSITF).
- Situations are launched only at TEMS Server locations that have endpoints specified for the Situation to monitor.
  - The table that defines distribution of endpoints for given Situation object monitoring locations is called the access list table. Each record in this table corresponds to a single location for the specified Situation to run at

Situation deployment is defined using the access list defined on TEMS.

Both Policies and Situations are distributed this way

Documentation Needed

- Set of screenshots showing the Historical Data Collection settings
- TEPS Log
  - KBB_RAS1=ERROR (UNIT:ctdatabus INPUT) (UNIT:ctsql INPUT)
  - Check that non zero rows are returned to TEPS
- Agent Logs
  - KBB_RAS1=ERROR (UNIT:KRA ALL)
  - Check UADVISOR situation is started for desired Attribute Group
- TEMS Log
  - KBB_RAS1=ERROR (UNIT:KHD ALL) (UNIT:KRA ALL)
  - Check historical data are being collected:
  - 2006.016 16:10:11.02 (01A7B8A8-F661C77B:kraahbin.cpp,601,"WriteRow")
    Wrote 6 rows history data, KN3.KN3TAS, <36700381,34603246>
- RKANPAR PDS CONTROL MEMBER (ZOS installation only)
  - (KxxCPAL, KxxPDICT, KxxPG, KPDDEFN, KPDCTL)
  - Use QUERY CONNECT and QUERY DATASTORE to verify status of PDS