Resolving IMS System, TM and DB Problems Quickly

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Acknowledgements and Highlights

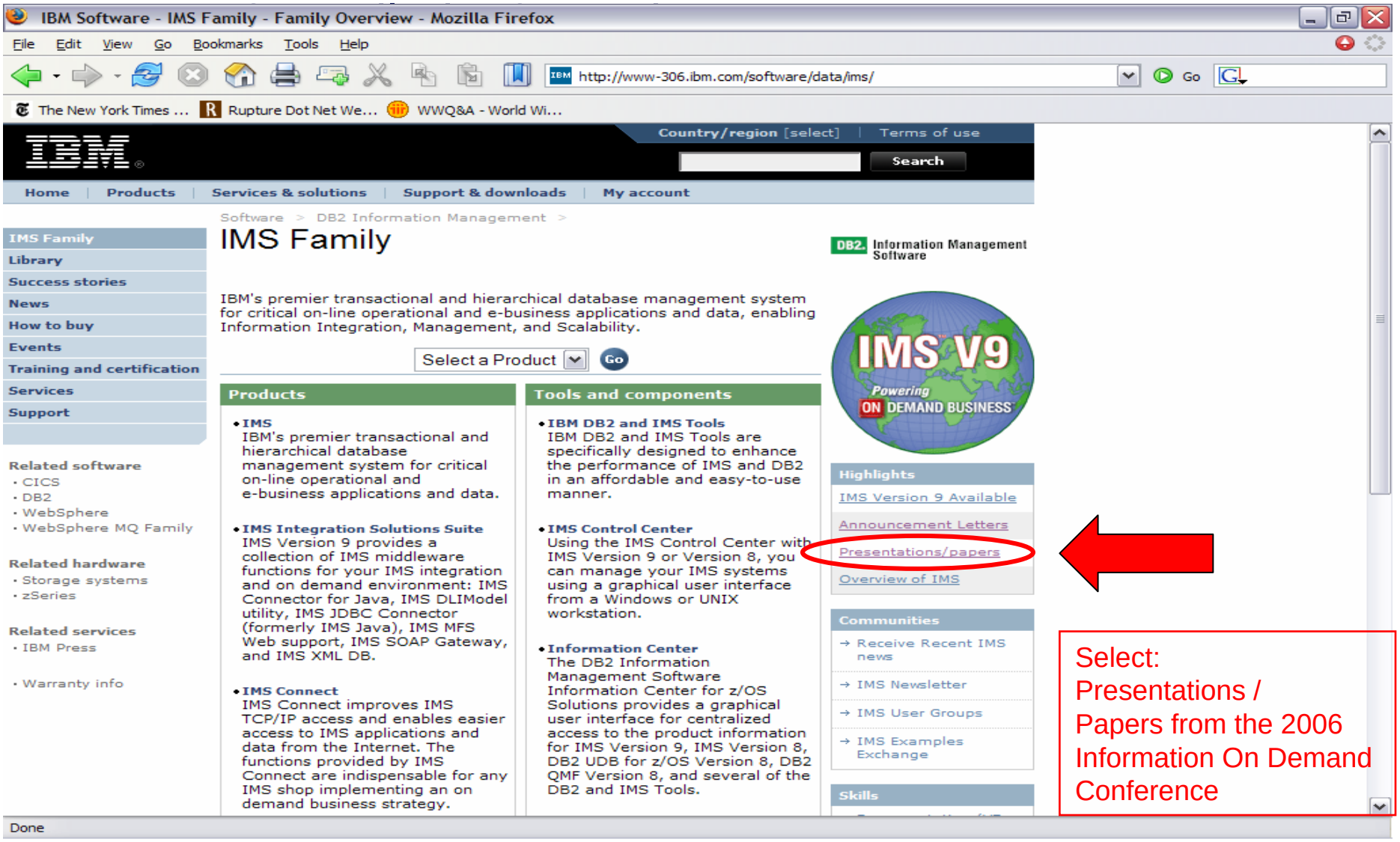
- **I would like to recognize the work of Jeff Maddix (IMS Level 2 Support) in the creation of some of the material used in this presentation and Steve Nathan (IMS Level 2 Support) who created the core structure for this presentation**
- **This presentation will highlight some of the things you can do to make it easier to resolve IMS Systems, TM and DB problems quickly**
- **There are more detailed presentations and papers on these topics available on the IMS Web Site:**
  - www.ibm.com/ims

Factors Delaying IMS Problem Resolution

- **Not obtaining the necessary documentation the first time (FFDC: First Failure Data Capture)**
- **'Losing' the documentation: example – SLDS volumes recycled**
- **Incomplete problem recording**
- **Unsuccessful search process for known problems**
- **Ineffective tracking and escalation**
- **Difficulty applying corrective fixes because of a back level maintenance base requiring many co and pre requisite PTFs**
- **Difficulty applying corrective fixes because of existing user modifications installed**

Agenda

- **Sources of Detailed Information**
- **Upgrade and Maintenance Strategy**
- **Obtaining Dumps**
- **Traces**
- **Documenting Problems**
- **Analyzing Problem**
- **Searching for Known Problems**
- **Opening Electronic Trouble Reports**
- **Communicating via the Trouble Report**



Select:
Presentations / Papers from the 2006 Information On Demand Conference

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- Sources of Detailed Information
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Upgrade and Maintenance Strategy

- **Keep on a supported release of IMS**
  - IMS V7 went out of service on November 8, 2005. If you are on IMS V7, migrate to IMS V9 now. IMS V8 goes out of service in November 2008.
- **Keep up to date on maintenance**
  - Reference the IMS Technical Conference 2006 presentation (#1164)
    IMS Maintenance Recommendations
    http://www-306.ibm.com/software/data/ims/presentations/2006conf_index.html
- **Servicing a new IMS version during its implementation period**
  - Start by installing a current ESO/CBPDO level for a planned production migration date 6 months in the future
  - Use enhanced HOLDDATA and SMPE REPORT ERRORSYMODS to identify HIPER PTFs fixes and apply those 3 months before the planned migration date
  - Resolve PEs in this manner as well
  - A 3 month test cycle is recommended prior to production implementation where problems will be identified and corrected via specific maintenance

Upgrade and Maintenance Strategy

- **Examine the PSP: Preventive Service Planning buckets**
  - PSP buckets can either be ordered via IBMLink or with the software order
  - PSP buckets are organized by UPGRADE and SUBSET names
    - IMS Version 9.1 has UPGRADE name= IMS910
    - IMS Version 10 has UPGRADE name= IMS1010
    - The SUBSET names for V9 and V10 (IMS related FMIDs) are:
      - ***V9:*** *CHG/INDEX HIR2101/0203 HMK9900 JMK9901 JMK9902 JMK9903 JMK9904 JMK9905 JMK9906 HIR2220 HMK9900/GA JMK9901/GA JMK9902/GA JMK9903/GA JMK9904/GA JMK9905/GA JMK9906/GA HIR2220/0408 HMK9900/GA1*
      - ***V10:*** *CHG/INDEX HMK1010 JMK1011 JMK1012 JMK1013 JMK1014 JMK1015 JMK1016 HIR2220/0424 HIR2220/0704 HMK1010/GA JMK1011/GA JMK1012/GA N JMK1013/GA JMK1014/GA JMK1015/GA JMK1016/GA SMU2RACFCON SMU2RACFCON2*
    - Review the Program Directories for these versions from more information

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Dump Data Sets

- **It is very important that the SVC dump data sets (SYS1.DUMPnn) be of sufficient size to capture the complete dump**
  - Update the COMMNDxx SYS1.PARMLIB member to specify the size
    - CD SET,SDUMP,MAXSPACE=1000M
      - *Use 3000M for large multi-address space SVC dumps*
  - Ensure the local page data sets are large enough to hold the SVC dumps plus normal system wide activity

Dump Data Sets …

- **Use the COMMNDxx SYS1.PARMLIB member to specify automatic dump data set allocation**
  - Specify the dump data set name pattern
    - *DUMPDS NAME=&SYSNAME..&JOBNAME..Y&YR4.M&MON..D&DAY.T&HR.&MIN..S&SEQ.*
  - Specify the dump data resources
    - *DUMPDS ADD,VOL=(SCRTH1,HSM111) ---- DASDI VOLUMES*
    - *DUMPDS ADD,SMS=(DUMPDA) ---- SMS CLASS*
  - Activate the automatic dumps
    - *DUMPDS ALLOC=ACTIVE*
- See z/OS V1R9.0 MVS Diagnosis: Tools and Service Aids (GA22-7589-11) for more information

Getting an SVC Dump

- **Set up the IMS Regions**
  - Specify FMTO=D (this is also the default) in member DFSPBxxx
  - In the Control, DL/I, and DBRC regions include a SYSMDUMP DD card. Used as a backup dump in case of SDUMP failures
- **Specify these default SVC dump options in the IEADMR00 member of SYS1.PARMLIB**
  - SDATA=(CSA,PSA,RGN,SQA,SUM,TRT,GRSQ)
- **Do not let vendor dump formatting products capture IMS dumps**
  - These will make the dumps unusable for problem diagnosis
- **Clean out DAE (Dump Analysis and Elimination) regularly**
  - This suppresses duplicate dumps and may suppress needed ones. See *z/OS V1R9.0 MVS Diagnosis: Tools and Service Aids (GA22-7589-11)* for more information

Taking Manual SVC Dumps

- **If there is a problem in IMS and it is still running, take a manual SVC dump**
  - Include all IMS address spaces: CTL, DLI, DBRC, IRLM, ICON
    - JOBNAME=(ctljob,dlijob,dbrcjob,irlmjob,iconjob)
  - Capture all the data:
    - SDATA=(CSA,PSA,RGN,SQA,SUM,TRT,GRSQ)
  - For IMS loops or waits, capture two SVC dumps a few minutes apart
  - The U0020 dump from a F IMS,DUMP command is usually not helpful since IMS cleans up its environment on the way out
  - See the IMS 2006 technical conference presentation (#1217):
    How to Setup and Gather Documentation for IMS Problems

    http://www-306.ibm.com/software/data/ims/presentations/2006conf_index.html

Use of the /DIAGNOSE Command

- **There is a new IMS Version 9 classic command (Type-1 command): /DIAGNOSE**
  - Logs IMS resource data to the OLDS as type X'6701' records
  - Uses existing log record mapping and facilities
  - Allows users to take a snap shot of IMS resources
    - Provides detailed diagnostic information for problem determination
  - The command itself is also logged as a X'02' record
  - Provides information for IMS Level 2 support
- **Benefit**
  - Provides a way to obtain IMS diagnostic information, at any time, without impacting operations
  - No need for a console dump

Use of the /DIAGNOSE Command …

- /DIAGNOSE SNAP BLOCK(ALL)
- /DIAG

CMDB
ESCD
LSCD
MWA
QSCD
SCD
SQM
TSCD
NODE(nodename)
TRAN(tranname)
LTERM(lternname)
USER(username)
ADDRESS(address)
LENGTH(length) KEY (0|7)

This command can be issued from:

- IMS Terminal, Console WTOR, APPC / OTMA Clients, AOI Programs, MCS / EMCS consoles, SPOC or any OM command client

Use of the /DIAGNOSE Command …

- **Usage Procedure**
  - Issue command
  - Switch the OLDS
  - Extract the information using the IMS File Select and Formatting Print Utility DFSERA10 (documented in the IMS Utility Reference Systems manual)
  - Transmit to support center:
    - Cut and paste in an ETR / PMR (Electronic Trouble Report / Problem Management Report) or transmit as a file to IMS support if the amount of data is large (this is the recommended method)
    - FAX
    - E-mail

Getting a SYSUDUMP

- **The SYSUDUMP specification will be used by IMS dependent regions for failure events**
  - Many application dump formatter tools rely on the SYSUDUMP DD statement to be present in the JCL
  - The SYSUDUMP DD statement is specified in the JCL of the IMS dependent regions
  - Specified these options in the SYS1.PARMLIB(IEADMP00) member to ensure that adequate areas of MVS storage are dumped
    - SDATA=(CB,ERR,SUM) PDATA=(JPA,LPA,PSW,REGS,SA,SPLS)

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System Traces

- **The MVS System Trace Table and Master Trace Table in the SVC dump can be very useful**
  - The default System Trace Table size is 64K
    - Use the COMMNDxx member in SYS1.PARMLIB to set it to the maximum size
      - *TRACE ST,999K*
  - The default Master Trace Table size is 24K
    - Use the SCHEDxx member in SYS1.PARMLIB to set it to 500K to keep up to 7000 messages
      - *TRACE MT,500K*

IMS Traces

- **If possible the following 4 traces should always be on**
  - Use the DFSVSMxx member in the IMS PROCLIB
    - DISP=ON,SCHD=ON,DL/I=ON,LOCK=ON
    - See the IMS 2005 technical conference presentation (#B06): *Operationally Managing Your IMS Traces:*
      http://www-306.ibm.com/software/data/ims/presentations/2005conf_index.html
    - These traces have low CPU overhead of about 1% per trace: SCHD being the lowest and DLI being the highest
- **If these traces are not on and there is a problem, turn them on for a few minutes before manually taking an SVC dump**
  - /TRA SET ON TABLE xxxx
  - If you are using the DFSTRAxx data sets make sure they have enough space. External trace logging adds less than 1% overhead.

Program Traces for TM problems

- **If there is a problem with IMS TM calls turn on the "program" trace for all of the PSB's involved**
  - /TRA SET ON PROGRAM psb1 psb2 psb3. Each DL/I call to a TPPCB, issued by the user application program, is traced on entry to and exit from the IMS TM call handler DFSDLA30.
  - This will produce x'6701' DFSDLA30 entry and exit records: LA3A and LA3B
  - These are very useful in analyzing IMS Connect Client problems such as:
    - CM1 input results in CM0 output
    - Resume TPIPE output is not received
    - TPIPEs stuck with a status of WAIT_A or WAIT_H

OTMA Traces

- **If there is a problem with OTMA turn on the OTMT table trace before taking an SVC dump**
  - /TRA SET ON TABLE OTMT OPTION LOG
- **If you know which OTMA MEMBER and TPIPE are having the problem turn on the OTMA TPIPE trace**
  - /TRA SET ON TMEMBER xxxx TPIPE yyyy
  - /TRA SET ON TMEMBER xxxx TPIPE ALL

IMS Connect Traces

- **If there is a problem with an IMS Connect client turn on the Recorder Trace**
  - It records the messages and the headers received from the client and the messages and headers received from OTMA and sent to the client
  - To start enter: R xx,RECORDER OPEN (Respond to the outstanding IMS Connect reply message to open the line trace data set)
  - Allocate plenty of space for the recorder data set. The DD statement is HWSRCORD within the IMS Connect start up JCL
- **To diagnose IMS Connect problems it is often necessary to look at the internal traces**
  - These are specified in the BPECFG member (BPE: Base Primitive Environment)
  - The parameters that should be specified are shown on the next page
    - These will only use more storage – not more CPU

IMS Connect Traces

```
TRCLEV (CBS,HIGH,BPE,PAGES=500)
TRCLEV (CMD,HIGH,BPE,PAGES=10)
TRCLEV (DISP,HIGH,BPE,PAGES=500)
TRCLEV (ERR,HIGH,BPE,PAGES=500)
TRCLEV (HASH,HIGH,BPE,PAGES=2)
TRCLEV (LATC,HIGH,BPE,PAGES=300)
TRCLEV (MISC,HIGH,BPE,PAGES=2)
TRCLEV (SSRV,HIGH,BPE,PAGES=10)
TRCLEV (STG,HIGH,BPE,PAGES=300)
TRCLEV (USRX,HIGH,BPE,PAGES=10)
TRCLEV (CMDT,HIGH,HWS,PAGES=10)
TRCLEV (ENVT,HIGH,HWS,PAGES=10)
TRCLEV (HWSI,HIGH,HWS,PAGES=500)
TRCLEV (HWSN,HIGH,HWS,PAGES=2)
TRCLEV (HWSO,HIGH,HWS,PAGES=10)
TRCLEV (HWSW,HIGH,HWS,PAGES=500)
TRCLEV (OMDR,HIGH,HWS,PAGES=2)
TRCLEV (OTMA,HIGH,HWS,PAGES=500)
TRCLEV (PCDR,HIGH,HWS,PAGES=2)
TRCLEV (PCIF,HIGH,HWS,PAGES=2)
TRCLEV (RRSI,HIGH,HWS,PAGES=10)
TRCLEV (TCPI,HIGH,HWS,PAGES=500
```

IMS Connect Traces

- **TCP/IP Traces**
  - For difficult problems IMS Level 2 may request TCP/IP traces
    - Packet Trace
    - CTRACE
  - Set the trace on for only the IMS Connect ports
  - The output can be formatted with IPCS

```
//        EXEC PGM=IKJEFT01,DYNAMNBR=100,REGION=3500K
//IPCSDDIR DD DSN=USER1.IPCS.DUMPDIR,DISP=SHR
//SYSPROC  DD  DSN=SYS1.SBLSCLI0,DISP=SHR
//SYSTSPRT DD  SYSOUT=*
//SYSUDUMP DD  SYSOUT=*
//SYSTSIN  DD  *
PROFILE MSGID
IPCS NOPARM
SETDEF DSN('USER1.PACKET.TRACE') LIST NOCONFIRM
CTRACE COMP(SYSTCPDA) LOCAL FULL
END
/*
```

Program Traces for DB problems

- **Use of the Application DLI Call Trace and DFSDDLT0**
  - Records all full function IMS DL/I database calls issued for the named PSB. Removes application logic when performing DB PSI
    - /TRA SET ON PSB psb1 COMP
      - *COMP used with the /TRACE SET PSB command to generate PCB and data-compare statement images in X'5F' log records*
    - DFSERA10 with option EXITR=DFSERA50 deblocks, formats, and numbers the DL/I call image capture records to input to DFSDDLT0
    - DFSDDLT0 is the DL/I Test Program, documented in the IMS Application Programming Database Manager manual
    - DFSDDLT0 has some snap options that can be very useful in debugging

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Standard Documentation for all Problems

- **Implement procedures to preserve the following documentation near the time of error**:
  - MVS Console (SYSLOG) and IMS Master Console Log
    - Provides message information. Minimum time frame is two IMS system checkpoints
  - JES JOBLOG of jobs related to failure
    - JCL and job messages for IMS Control, DL/I SAS, DBRC at least
  - SYS1.LOGREC
    - Provides possible additional abend information
  - Any dumps produced
    - For IPCS dump analysis
  - DFSTRAxx data sets if in use
  - Dependent region dumps and JOBLOGs if appropriate
  - IMS OLDS/SLDS. A moderate time frame is the last 24 hours
    - For IMS log record analysis. IMS Version 9.1 KBLA is useful here

Documentation for TM Problems related to VTAM

Obtain the output of the IMS Display Node xxx command	**Obtain the output from the IMS Node trace. Start the trace via command:** **/TRA SET ON NODE xxx** **Type x'6701' trace records contain the trace data.** **Print the x'6701' records using utility DFSERA10 with EXIT DFSERA30**
Obtain the output from the VTAM buffer and VTAM Internal traces **F NET,TRACE,TYPE=BUF,ID=nodename** **F NET,TRACE,TYPE=VTAM,MODE=EXT, OPT=(API,PIU,MSG)** **GTF must be active using the USR option**	**Take an SVC Dump as mentioned earlier in the presentation. Dump the Control, and VTAM address spaces**

Documentation for Database Problems

If the DB is damaged, a copy of the DB dataset	An image copy of the DB before it was damaged
If there are logical relationships, image copies of all of the logically related DBs	All of the OLDS (SLDS) from all data sharing systems from the point where the last image copy of the undamaged DB was taken
Output from a pointer checker of the damaged DB	Sysout from batch jobs that accessed the damaged DB
SMF 60 (VSAM volume data set updated) SMF 62 (VSAM component or cluster opened) SMF 64 (VSAM component or cluster status) records from all BLDS systems	A LIST.RECON and LIST.HISTORY DBD of the damaged DB
If VSAM is the access method: IDCAMS LISTC of the damaged VSAM dataset. IDCAMS DIAGNOSE and EXAMINE of the damaged VSAM KSDS datasets	The pseudo abend dump from the x'67FF' log records if created. ABU0852 is an example of such a pseudo abend code

Documentation for IMS Loops

If the IMS Control, DLI/SAS, DBRC, or Dependent Region enters a loop state obtain the following:

Set the MVS system trace table size to 999K and turn the branch trace on: TRACE ST,999K,BR=ON	**If possible, and not already set, use IMS command: /TRA SET ON TABLE nnnn where nnnn is set to DISP, SCHD, DLI, LOCK and LATCH. It might not be possible to be able to enter these commands in the loop situation**
Take an SVC Dump as mentioned earlier in the presentation. Dump the Control, DLI, DBRC. Dump a dependent region if that region appears to be associated with the loop condition	

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Installing the IMS Dump Formatter

The Interactive Dump Formatter provides ISPF dialog support for offline dump formatter requests

- This allows formatting IMS dumps through a series of interactive menu-driven panels rather than by memorizing the Offline Dump Formatter commands or editing a DFSFRMAT dataset
- IBM course number CM660 *IMS Diagnostic Approaches* is available to teach the processes of analyzing IMS Loop, Wait and Abend related documentation. For more information on this lecture lab course reference:

  http://www-306.ibm.com/software/data/ims/education.html

- Also review the IMS 2005 technical conference presentation (#B54): *Using IPCS with IMS*

  http://www-306.ibm.com/software/data/ims/presentations/2005conf_index.html

IMS Problem Investigator for z/OS, V2.1 (5665-R02)

Allows interrogation of IMS TM and DB system problems

- ISPF dialogue to interactively navigate, investigate and analyze IMS log and monitor records, IMS Common Queue Server (CQS) log records and IMS Connect event data.
- New features and enhancements allow you to:
  - Merge several log files into a single logical view in the dialog. This gives a complete end-to-end picture of transaction lifecycles across IMS Connect, IMS Log, IMS Monitor and CQS log files.
  - Track and display only those records that are associated with a selected transaction to gain a clear picture of that transaction.
  - Diagnose more effectively with detailed OTMA and (RRS) trace reporting.
- http://www-306.ibm.com/software/data/db2imstools/imstools/imsprobleminvest.html

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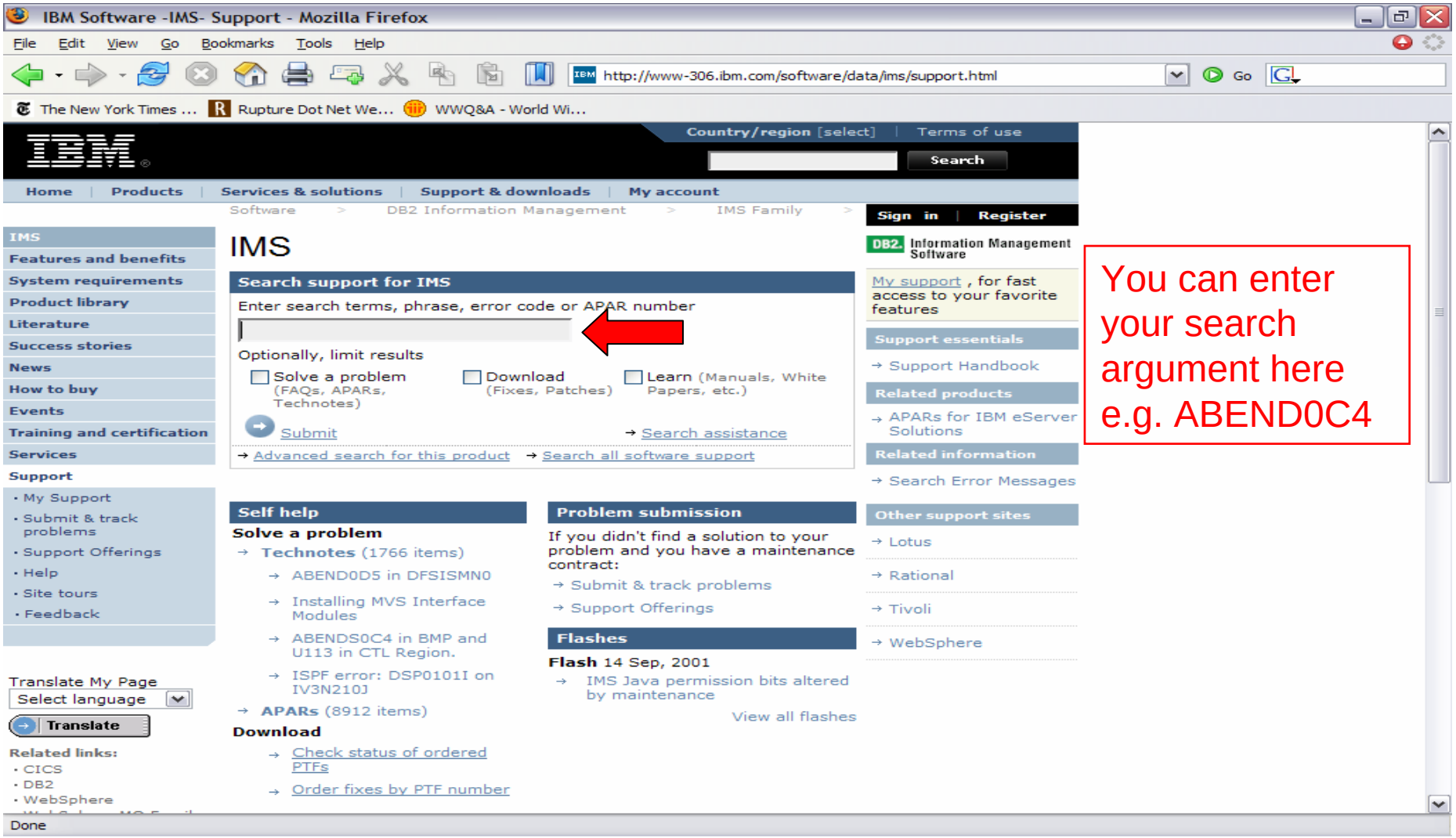
Search for Known Problems First

- **The fastest turnaround on a PMR is the one that you do not have to open**
  - Use the IMS website to search for known problems
    - http://www-306.ibm.com/software/data/ims/support.html
  - Also, problem research is another way to learn about IMS

Sources of Detailed Information

Search for Known Problems First



You can enter your search argument here e.g. ABEND0C4

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Opening Electronic Problem Reports

- **Question: What is the difference between a PMR, an ESR, and an ETR?**
  - A PMR is a Problem Management Report
    - It is the problem report on which IBM support is working
  - An ESR is an Electronic Service Request
    - It is a PMR which is submitted electronically by the customer
  - An ETR is an Electronic Trouble Request
    - It is a PMR which is submitted electronically by the customer
      - *But via a different mechanism than an ESR*

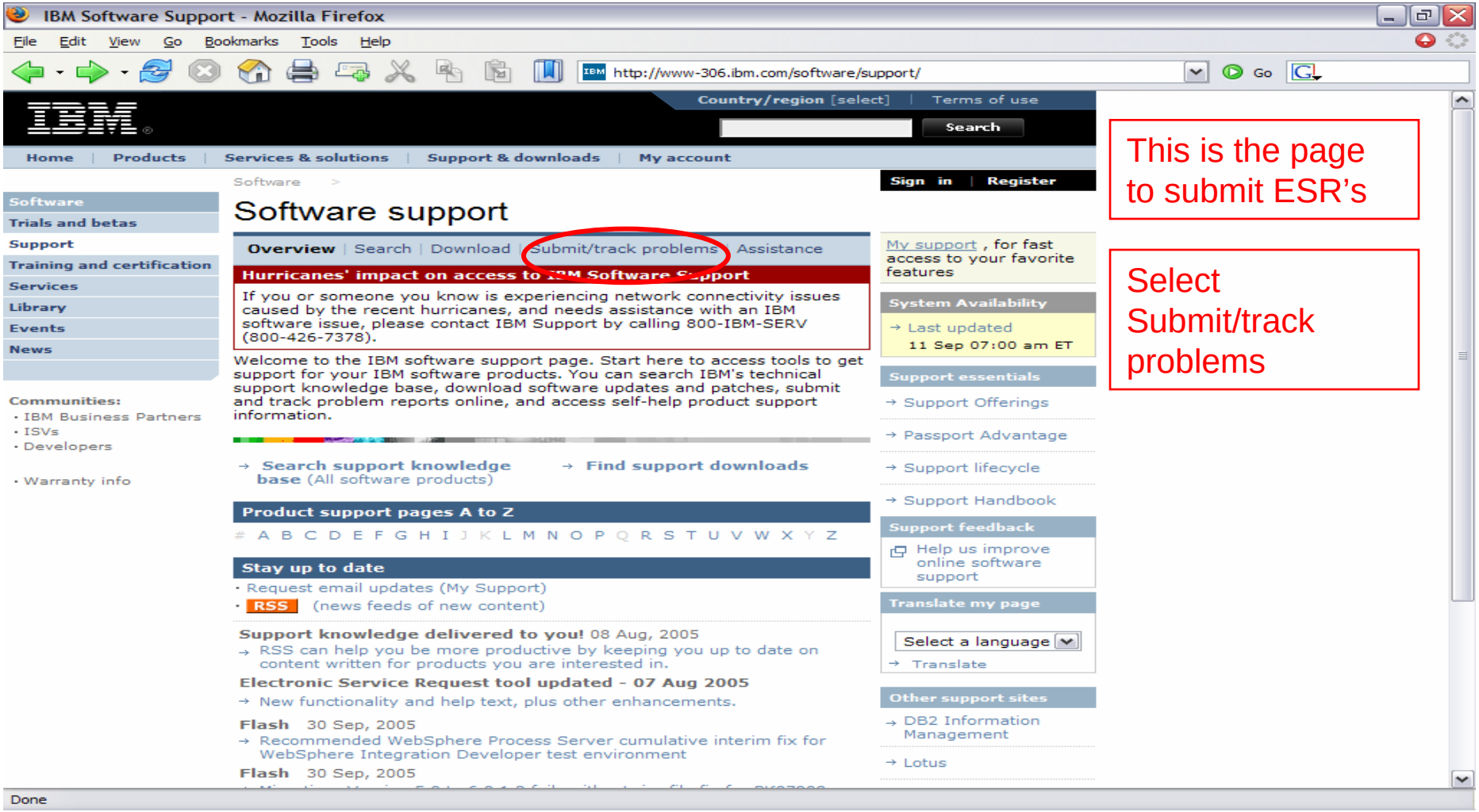
Opening Electronic Problem Reports …

- **It is easiest to communicate and send information if the trouble report is opened electronically**
  - For an ESR:
    - *www-306.ibm.com/software/support/*
  - For an ETR:
  - ***https://www-304.ibm.com/usrsrvc/account/userservices/jsp/login.jsp?persistPage=true***

    This will require you to obtain an IBM ID and password from your local branch office or IBM representative
  - The following screen captures may not appear the same in future on the web

Opening Electronic Problem Reports … ESRs

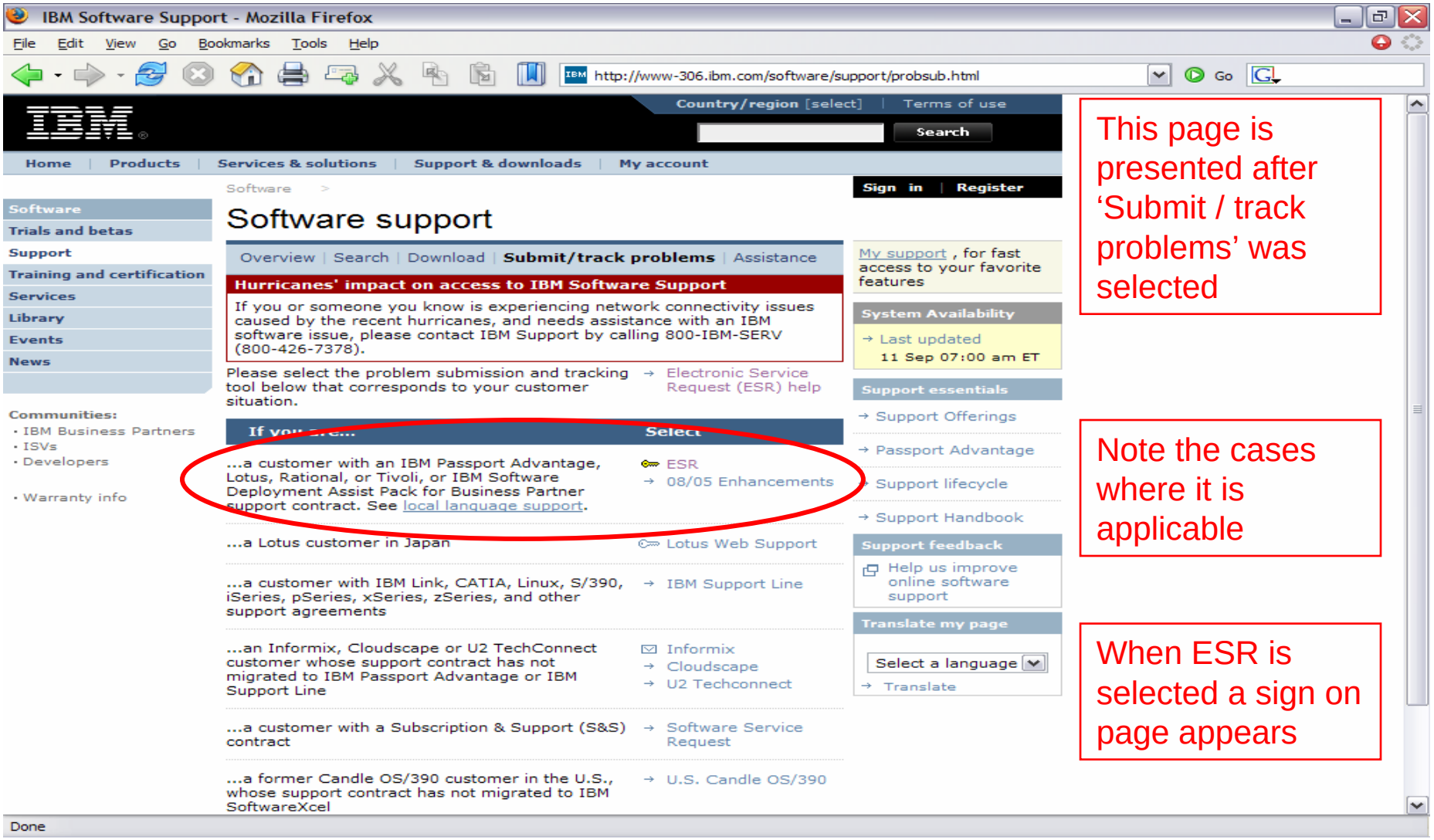
- http://www-306.ibm.com/software/support/



This is the page to submit ESR's

Select Submit/track problems

Opening Electronic Problem Reports …



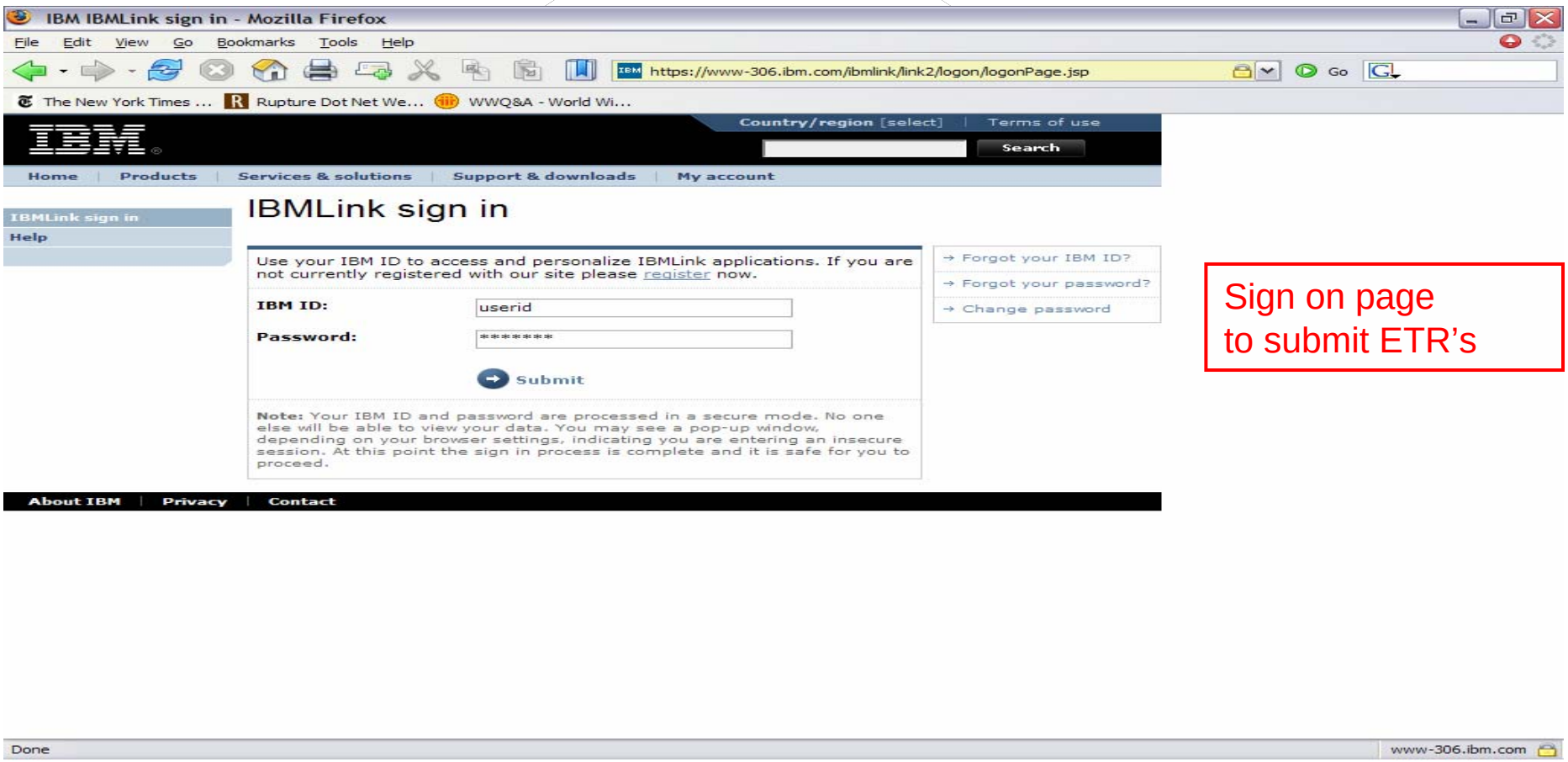
This page is presented after 'Submit / track problems' was selected

Note the cases where it is applicable

When ESR is selected a sign on page appears

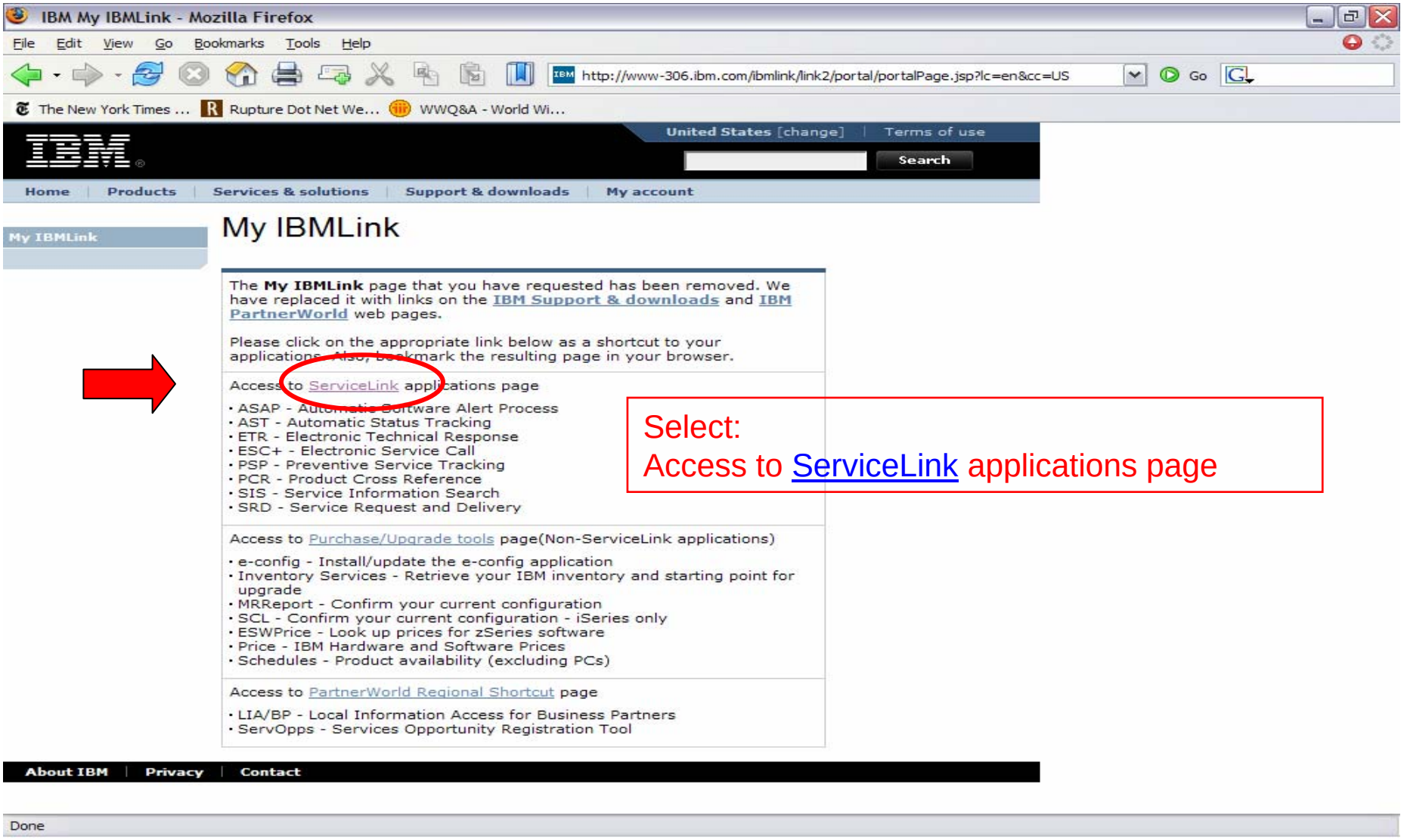
Opening Electronic Problem Reports … ETRs

https://www-304.ibm.com/usrsrvc/account/userservices/jsp/login.jsp?persistPage=true

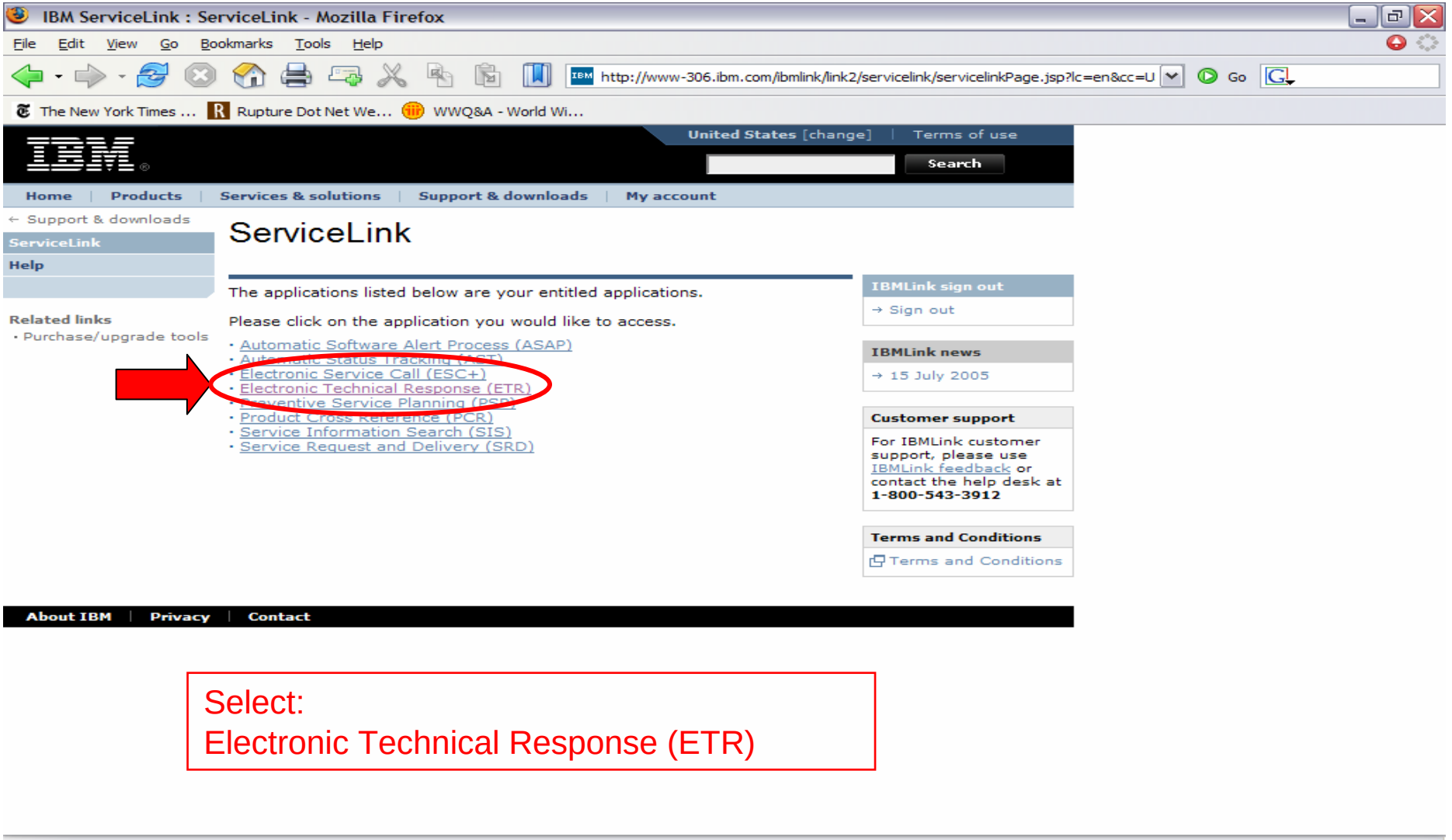


Sign on page
to submit ETR's

Opening Electronic Problem Reports …

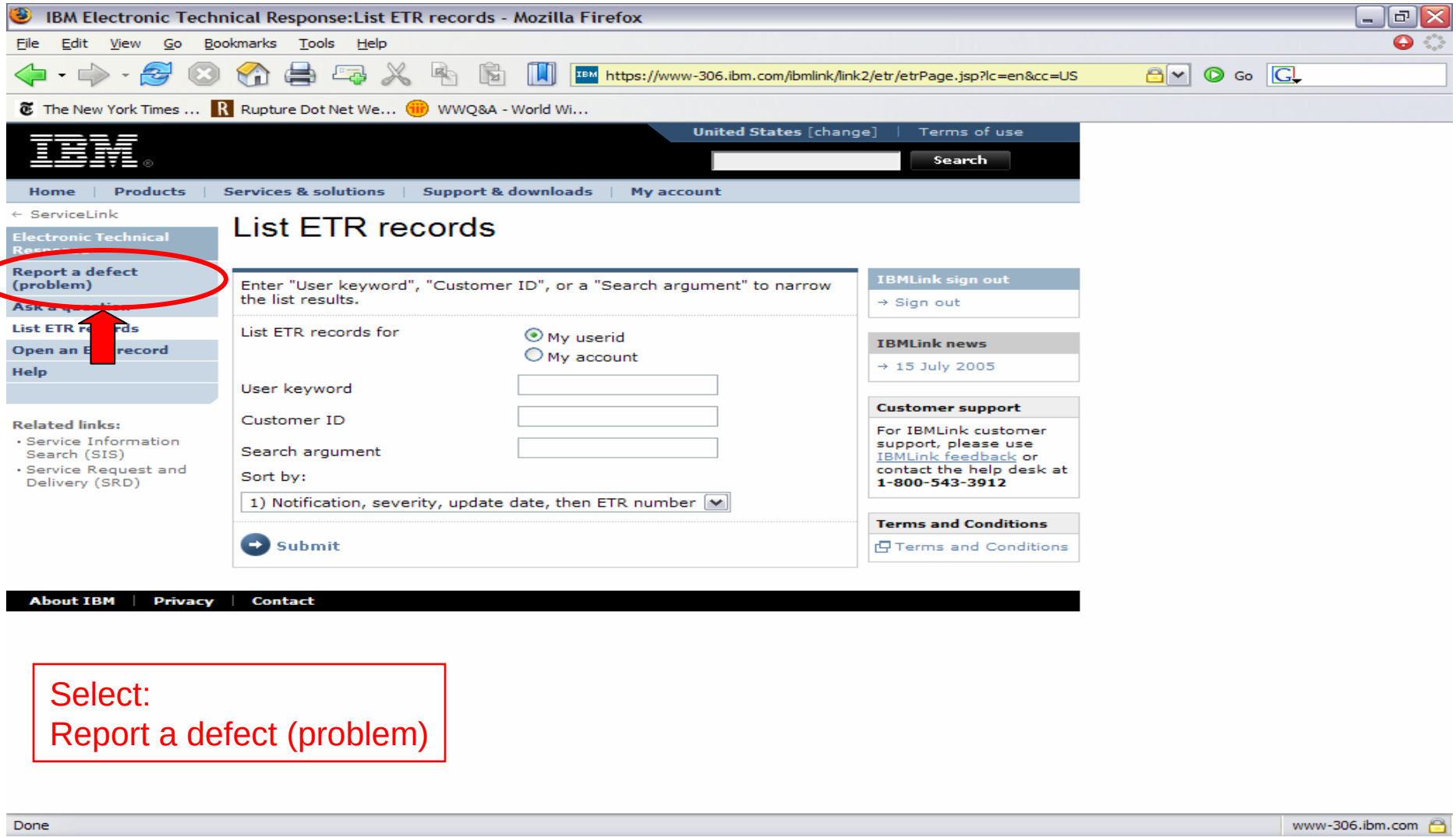


Opening Electronic Problem Reports …



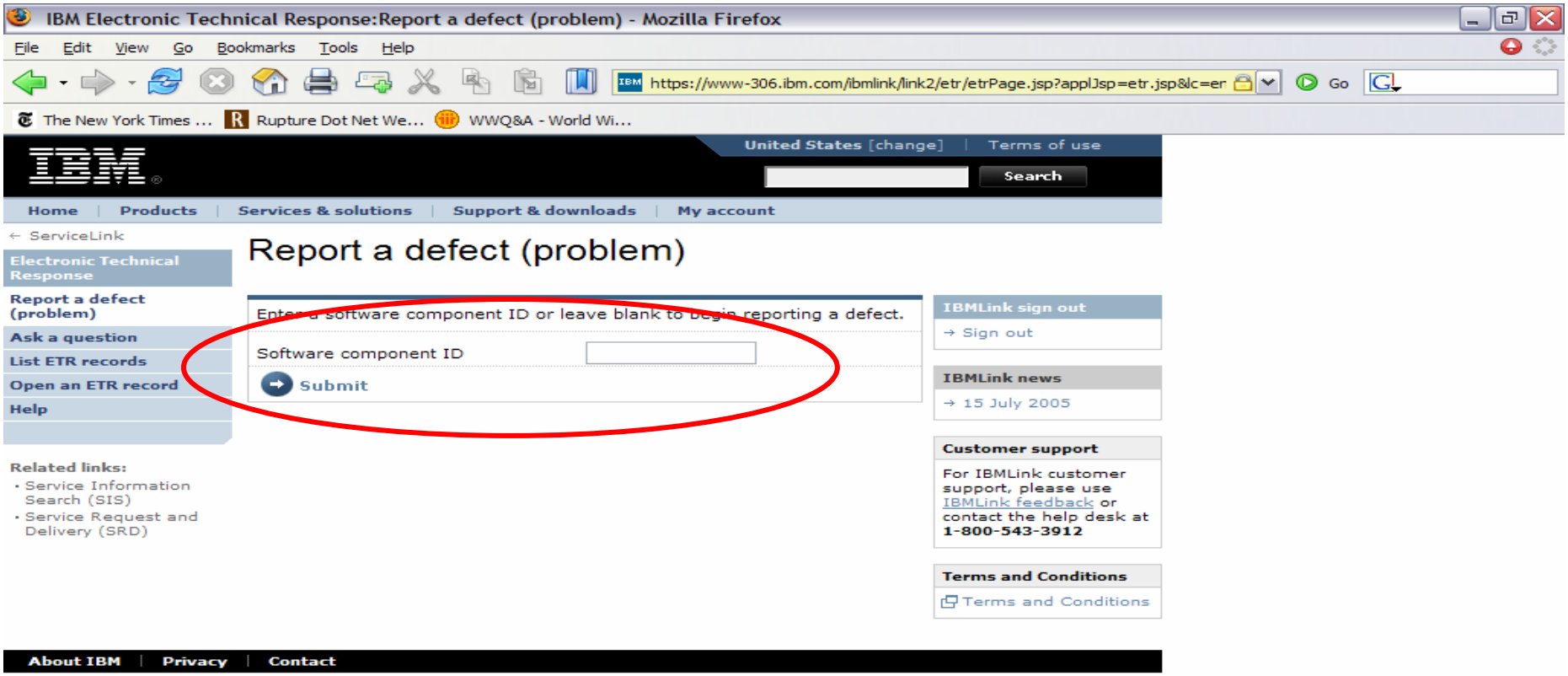
Select:
Electronic Technical Response (ETR)

Opening Electronic Problem Reports …



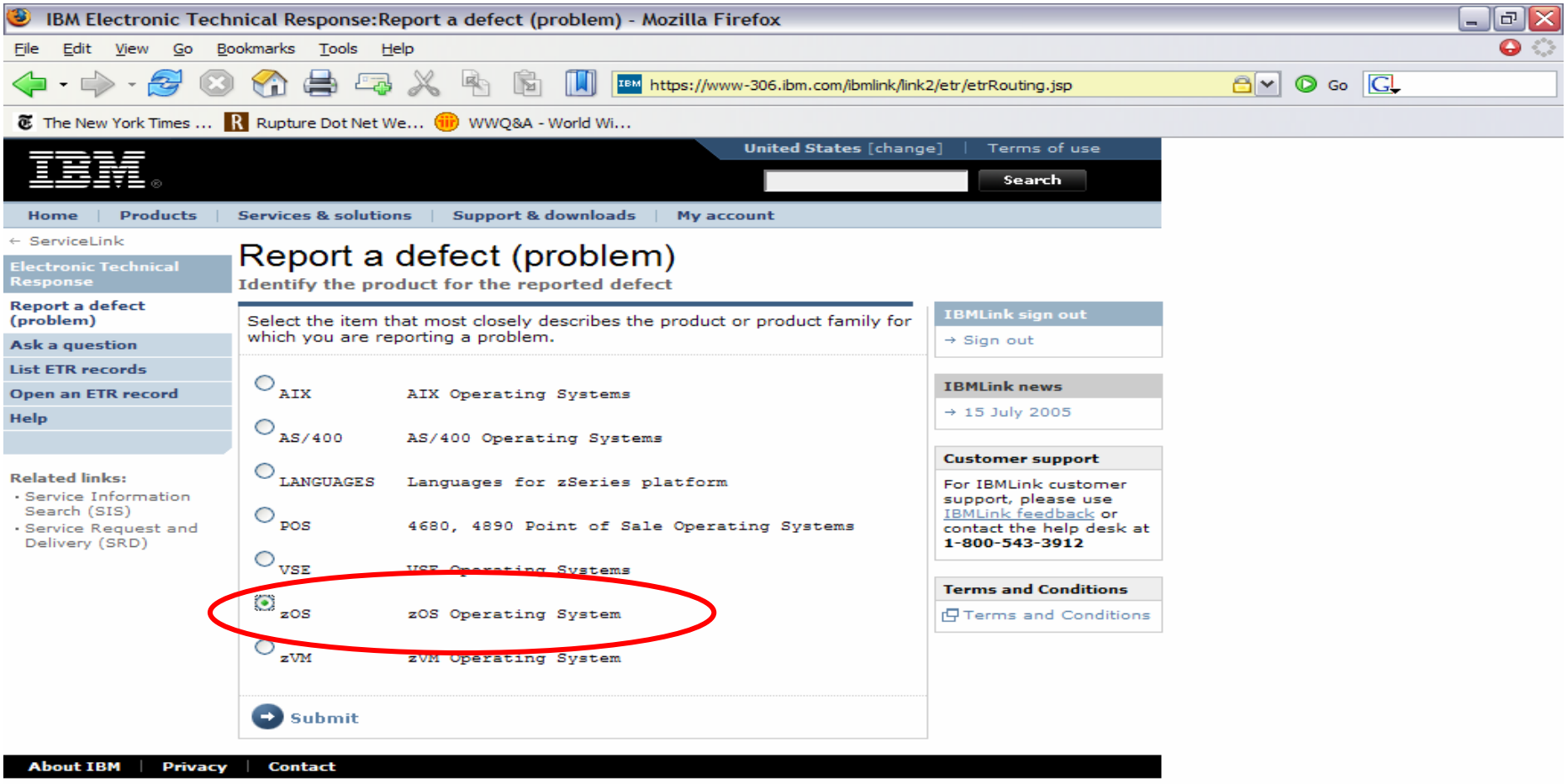
Select:
Report a defect (problem)

Opening Electronic Problem Reports …



You can leave the
Software component ID blank
Just click on Submit

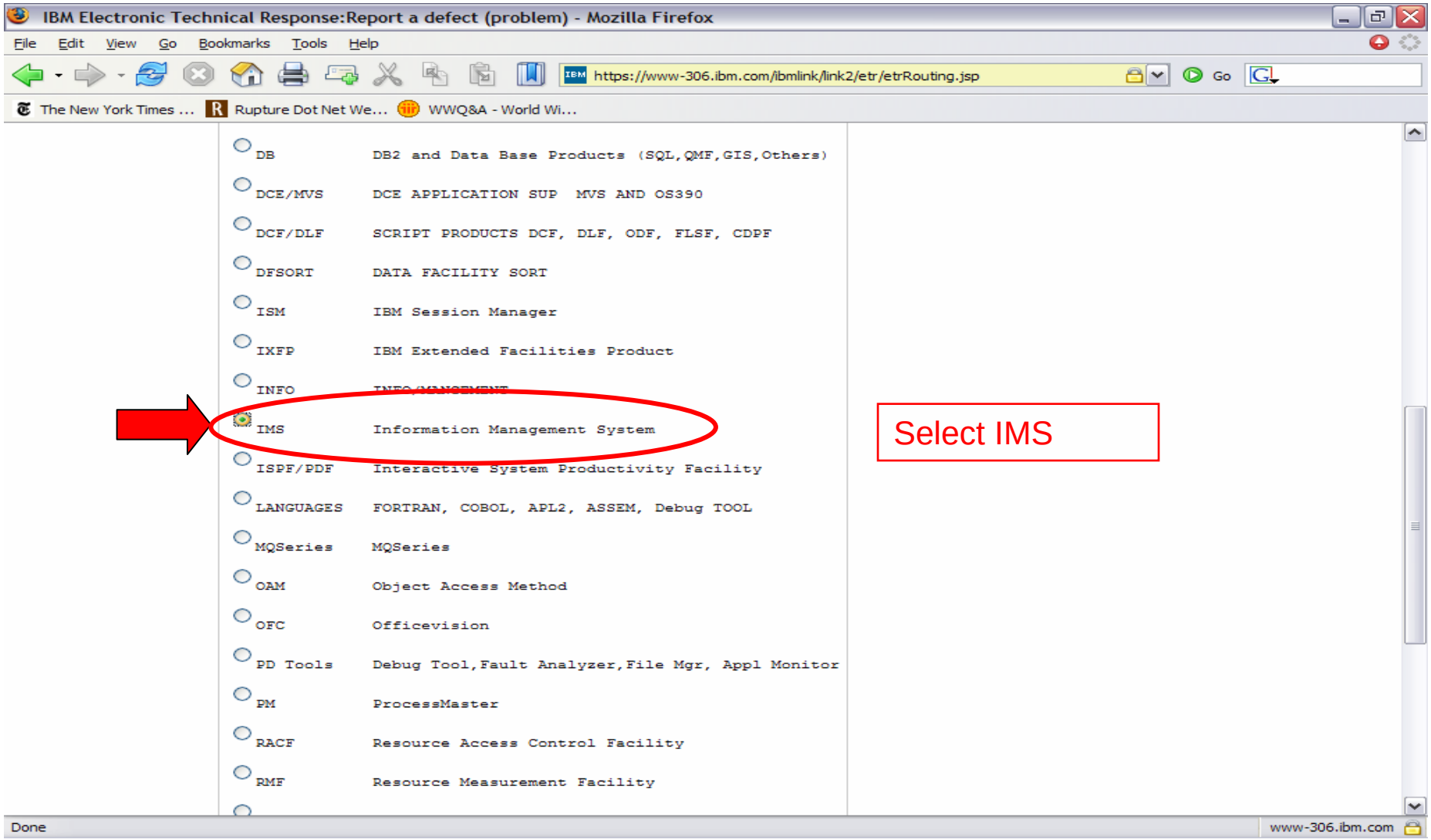
Opening Electronic Problem Reports …



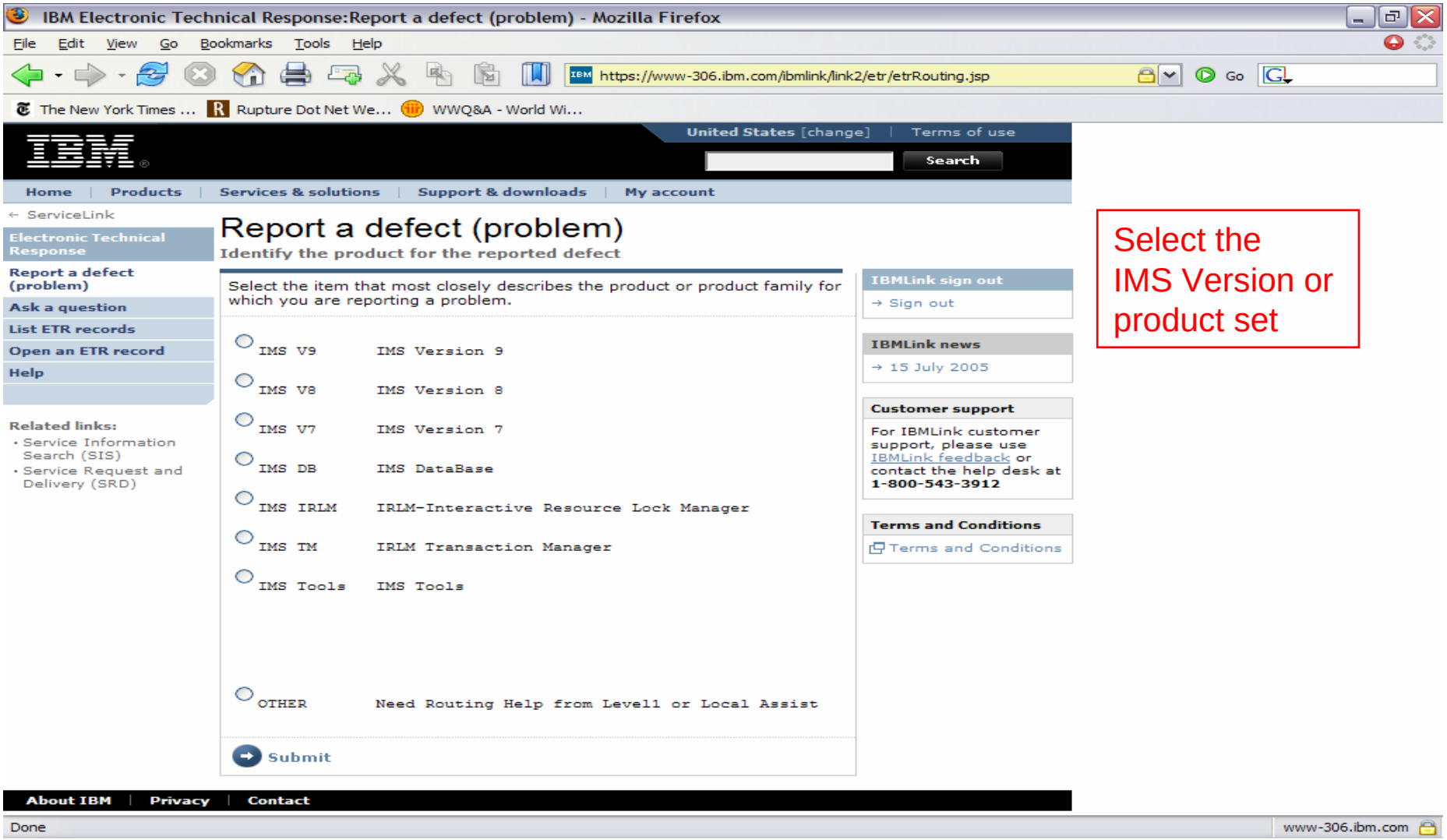
Select zOS

Opening Electronic Problem Reports …

Opening Electronic Problem Reports …

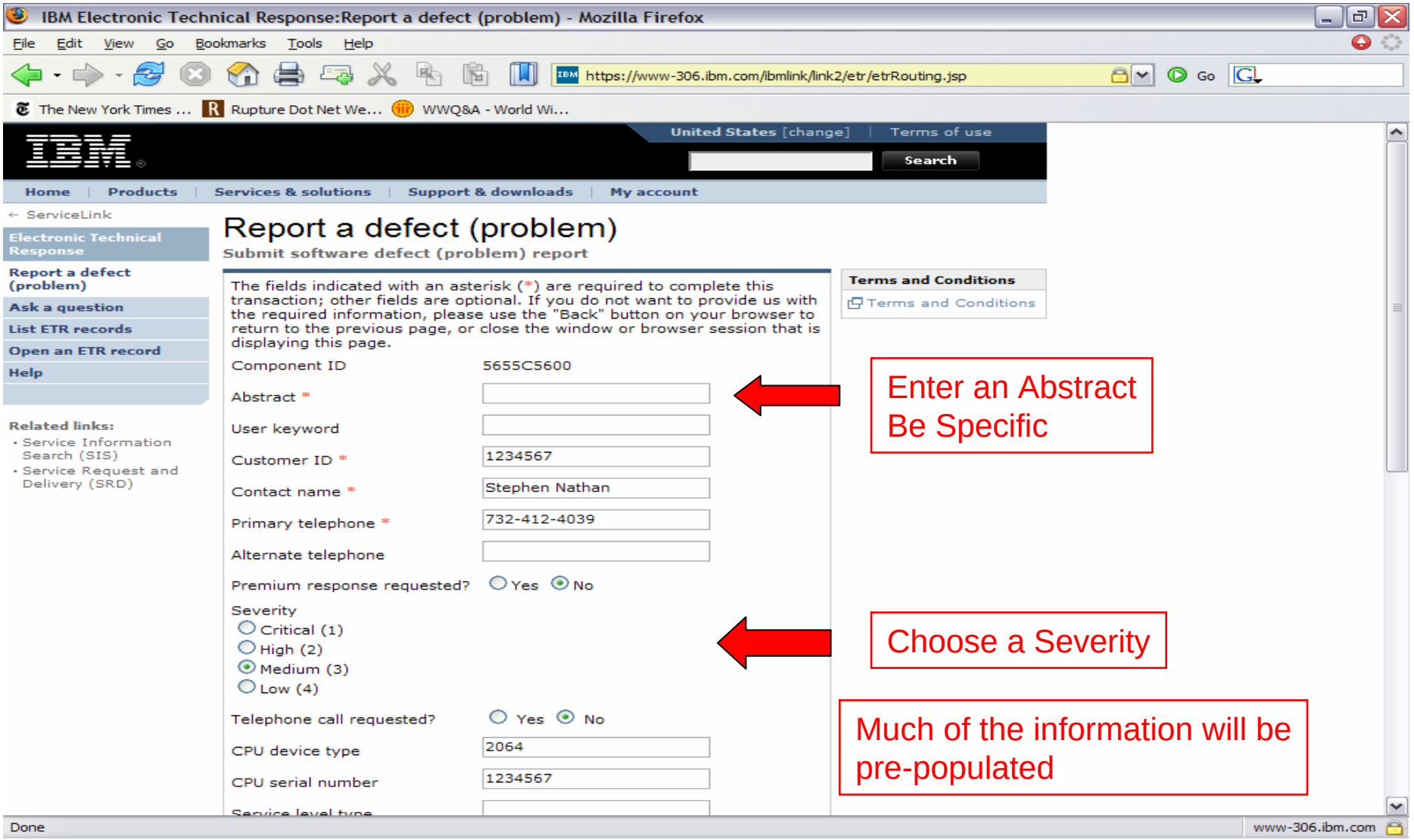


Opening Electronic Problem Reports …

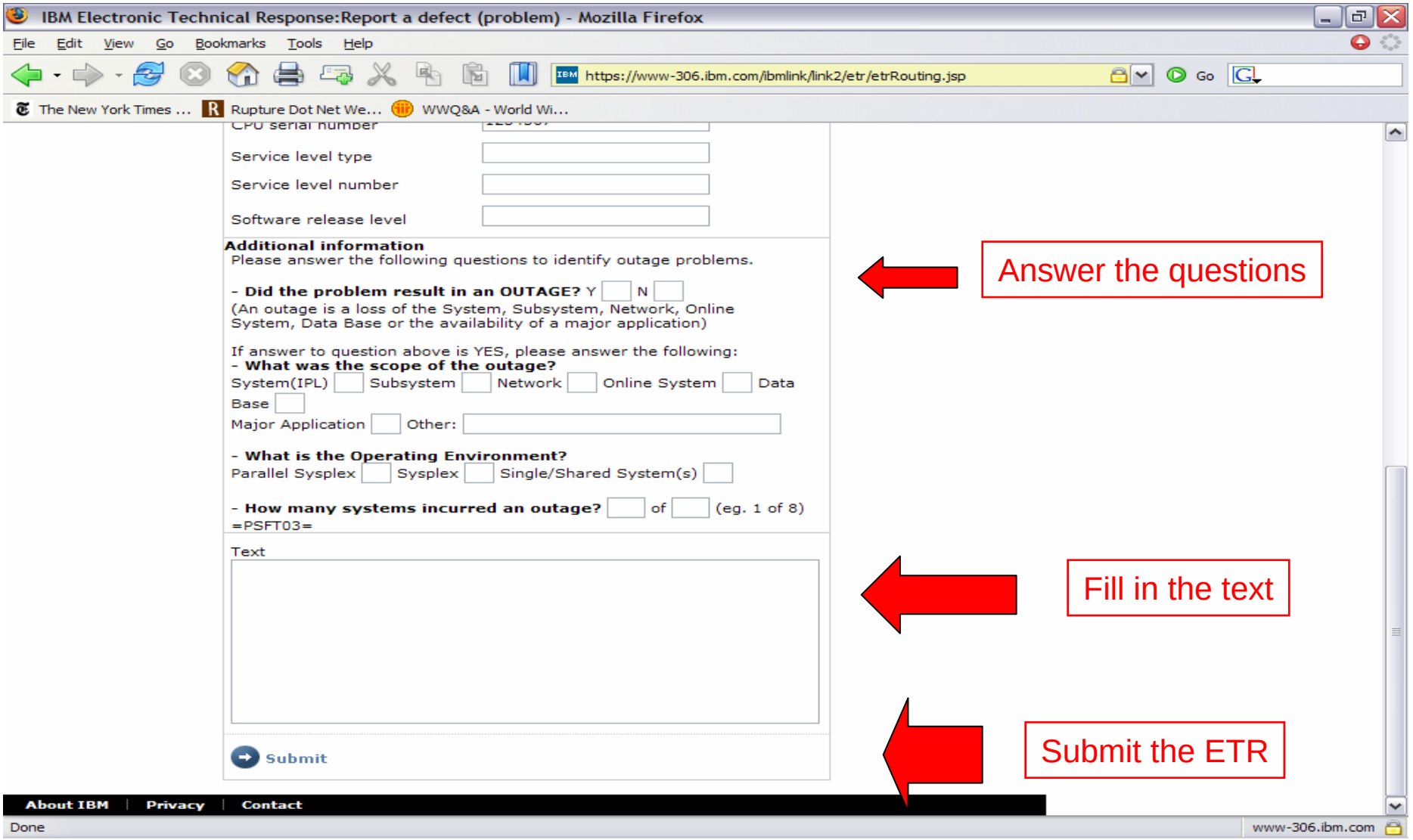


Select the IMS Version or product set

Opening Electronic Problem Reports …



Opening Electronic Problem Reports …



Opening Electronic Problem Reports …

- **Entering useful PMR text at the beginning can greatly speed up the problem resolution process**
  - Clearly state the IMS and z/OS release levels
    - And the current maintenance level
  - Cut and paste any relevant IMS JOBLOG or MVS SYSLOG information including abend PSW and registers
  - If a module name is known look up the module in the IMS RESLIB and include the eye catcher. (More on this coming up)
  - Explain what is new or has changed in your environment
  - Describe what else is going on in the system at the time

Opening Electronic Problem Reports …

- **Determining the 'change–id' of an IMS module**
  - The eye catcher of an IMS module is associated with a 'change-id' which is located near the front of the module
  - If the IMS dump formatter or looping PSW (program status word) range identify a location of interest within an IMS dump, those addresses can be browsed.
  - If the formatted portion of the dump output located just before were we were executing has something that appears like this: DFSASK00+SP53+910+01/05/06+16.24PK14445 1ABCDEFGHIJKLN we can report this in the ETR.
  - Sometimes the IMS dump formatter will provide this information directly to you

Opening Electronic Problem Reports …

- **Here is an excellent example of PMR text:**

```
The production IMS region running IMS v8, RSU lvl 0409 under z/OS
1.6 at 0512 abended with S04C with the following error msgs;

DFS4445I CMD FROM MCS/E-MCS CONSOLE USERID=NMOP: CHE IMF
DFS058I 15:30:01 CHECKPOINT COMMAND IN PROGRESS IMFD
DFS2716I NO MSDBS FOUND - NO MSDB CHECKPOINT TAKEN IMFD
DFS3896I ATTEMPTING TO PURGE OLDS BUFFERS  IMFD
DFS616I OLDS BUFFERS SUCCESSFULLY PURGED  IMFD
DFS629I IMS RST TCB ABEND - SYS 0C4           IMFD

DFS629I PSW AT ERROR = 077C2000 A578F460  IMFD
DFS629I MODID = DFSRCP10-09/12/0  EPA = 2578ED28  IMFD
DFS629I R0-3   B8A26246 21248788 1DD0D040 221B9040  IMFD
DFS629I R4-7   000000A4 221B943F 1DD01430 221B9050  IMFD
DFS629I R8-11  00000000 1CC1F060 221B9FF6 00BA1D80  IMFD
DFS629I R12-15 2578ED28 00B8B6F0 00000000 1DD38778  IMFD

It was restarted with an Emergency restart without problems.

Here are some details of the abend that I was able to gather; it
occurred at address 2578F460 in module DFSRCP10 at offset
X'738'after label RCP1156A. APAR/PTF level for DFSRCP10 is
PQ70240/UQ80136.
```

Opening Electronic Problem Reports …

- **This is the documentation that Level 2 would expect to receive for this problem:**
  - The SVC dump of the Abend0C4
  - The IMS job log
  - At least the last OLDS (SLDS after archive) in use when the abend occurred
  - SYS1.LOGREC (there may have been other abends before this of interest)
  - If there are any usermods associated with IMS systems checkpoint, supply them as well

Opening Electronic Problem Reports …

- **When you send in documentation please terse ALL files and send ALL files binary to IMS Level 2**
  - Dumps
  - Logs
  - JOBLOGs
  - In fact, everything should be tersed unless it is very small…..
- **There is an automatic documentation download process that is sensitive to the names in the data sets**
  - Include the word “dump” only in SVC dump data sets

Opening Electronic Problem Reports …

These are sample instructions which are included in Problem Reports for sending in documentation:

To send your documentation using FTP:
1 Compress ALL datasets using TRSMAIN which can be downloaded
from: ftp://ftp.software.ibm.com/s390/mvs/tools/packlib/
2 Connect to FTP site: ftp.emea.ibm.com
USER: anonymous PASSWORD: your e-mail address
3 Specify BINary transfer mode for the compressed dataset.
4 Place the compressed dataset in the /toibm/mvs directory with put cmd
Ensure the dataset name conforms to the following naming convention:
PPPPP.BBB.CCC.DDD.DDD.TRS where: PPPPP =PMR #; BBB =Branch #;
CCC =Numeric Country Code (USA=000) ; DDD.DDD =Short Descriptive Name;
TRS =Indicator that dataset is tersed using TRSMAIN
5 When transfer is complete, update the PMR with MVS Dataset Attributes
PRIOR to tersing, include RECFM, BLKSIZE, Primary and Sec. space
* For additional details on transferring documentation via FTP, see *
* http://www.ibm.com/de/support/ecurep/mvs.html *

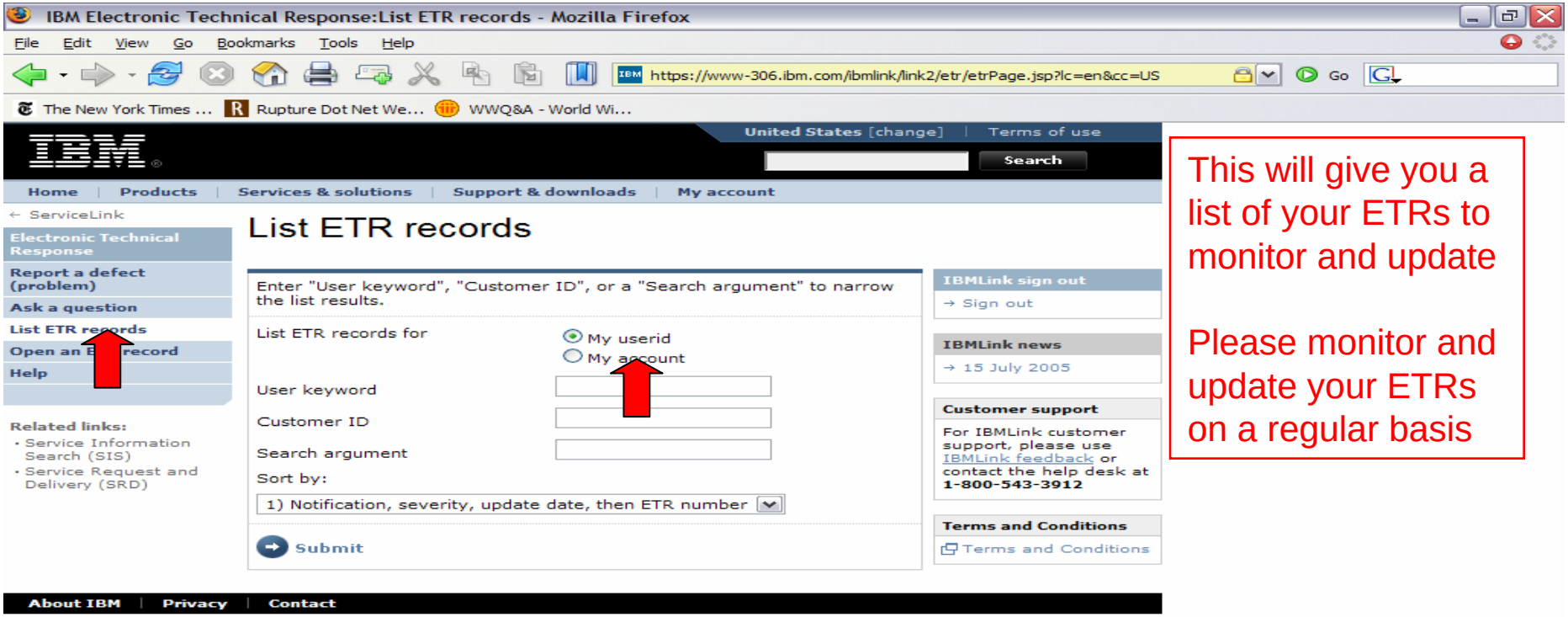
Agenda

- Sources of Detailed Information
- Upgrade and Maintenance Strategy
- Obtaining Dumps
- Traces
- Documenting Problems
- Analyzing Problems
- Searching for Known Problems
- Opening Electronic Trouble Reports
- Communicating via the Trouble Report

Communicate Via the PMR

- **Put all communication in the PMR**
  - The problem may be worked on by several IBM people over several shifts in several countries
  - Use voice or email only when requested by Level 2
  - All closed PMR's are archived in a searchable database and your information may be used to solve other customers problems

Monitor Electronic Problem Reports



This will give you a list of your ETRs to monitor and update

Please monitor and update your ETRs on a regular basis

Select List ETR Records

Select My userid

Resolving IMS Problems Quickly

- **Hopefully this presentation has introduced you to strategies and processes to fix IMS problems quicker!**
- **Questions?**

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