



TPF Toolkit

TPF Users Group - Fall 2009 TPF Toolkit Updates

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Development Tools Subcommittee

AIM Enterprise Platform Software
IBM z/Transaction Processing Facility Enterprise Edition 1.1.0

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Updates

- **Interim Fixes**
 - Interim Fix V3.4.3
 - Interim Fix V3.4.4
 - Interim Fix V3.4.4.01

TPF Toolkit V3.4.3

- **New Single Source Rules**

- PJ29640o
 - Flag all Store instructions that are part of a Store and Load instruction pair and use a direct reference to CSTKLBAS to save the code base when R8 is not the base register
- OTRBITVa
 - Flag all bit variables that are declared as integer types
- OTRBITVb
 - Flag all bit variables that are declared as integer types within structures or unions
- OTRSCANa
 - Flag instances of the scanf, sscanf and fscanf functions where a hyphen character is found that is not adjacent to the left or right square bracket enclosing the scanset parameter

TPF Toolkit V3.4.3

- **Updated rules**
 - PJ29640h
 - PJ29640k
 - PJ29575a
 - OTRLONGb
 - OTRCASTa

TPF Toolkit V3.4.3

- **IDE Updates**
 - Menu Manager allows remote event files to be specified for local actions

The screenshot shows the configuration dialog for an action in the TPF Toolkit. The 'Basic' tab is selected. The 'Command' field contains the text: `tpftool -s RemoteCommand -h linuxtpf.pok.ibm.com -r /root/build.sh`. Below the command field are 'Browse...' and 'Variables...' buttons. The 'Action Properties' section contains several checkboxes: 'Show on generic menu', 'Show output in dialog', 'Use existing action', 'Run action in foreground', and 'Remote Command'. The 'Events File' checkbox is checked and its text field contains '/root/test.evt', which is highlighted with a red box. Other fields include 'ID' with a 'Select...' button, 'Script Configuration...', and 'User Exit' with a 'Browse...' button.

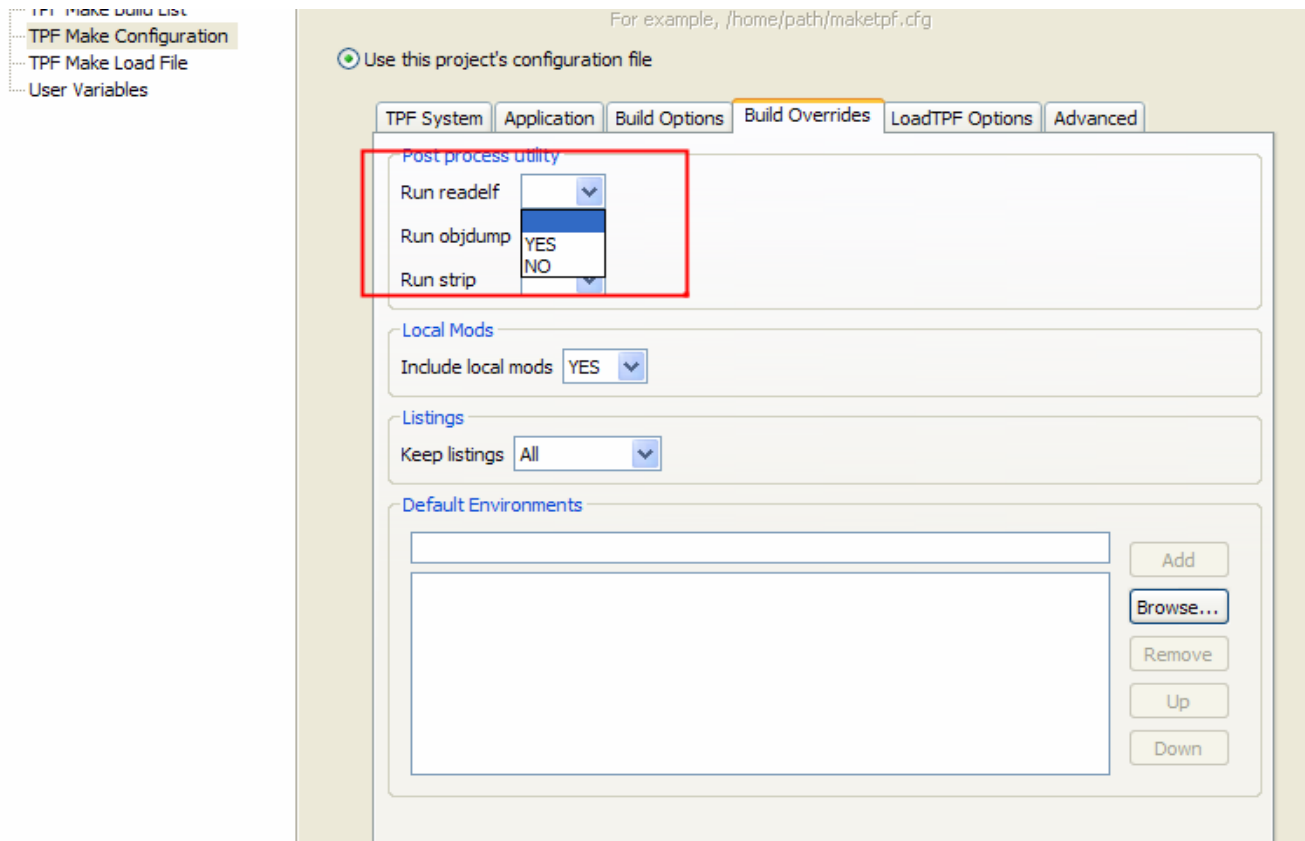
TPF Toolkit V3.4.3

- **IDE Updates**
 - Build script conversion wizard handles *.bsc files with sequence numbers
 - Performance improvements in the 3-way merge tool

TPF Toolkit V3.4.3

- **MakeTPF updates**

- All settings with a YES or NO value on the TPF Make Configuration property page can now also be set to blank.



For example, /home/path/maketpf.cfg

Use this project's configuration file

TPF System Application Build Options **Build Overrides** LoadTPF Options Advanced

Post process utility

Run readelf

Run objdump

Run strip

Local Mods

Include local mods

Listings

Keep listings

Default Environments

Add

Browse...

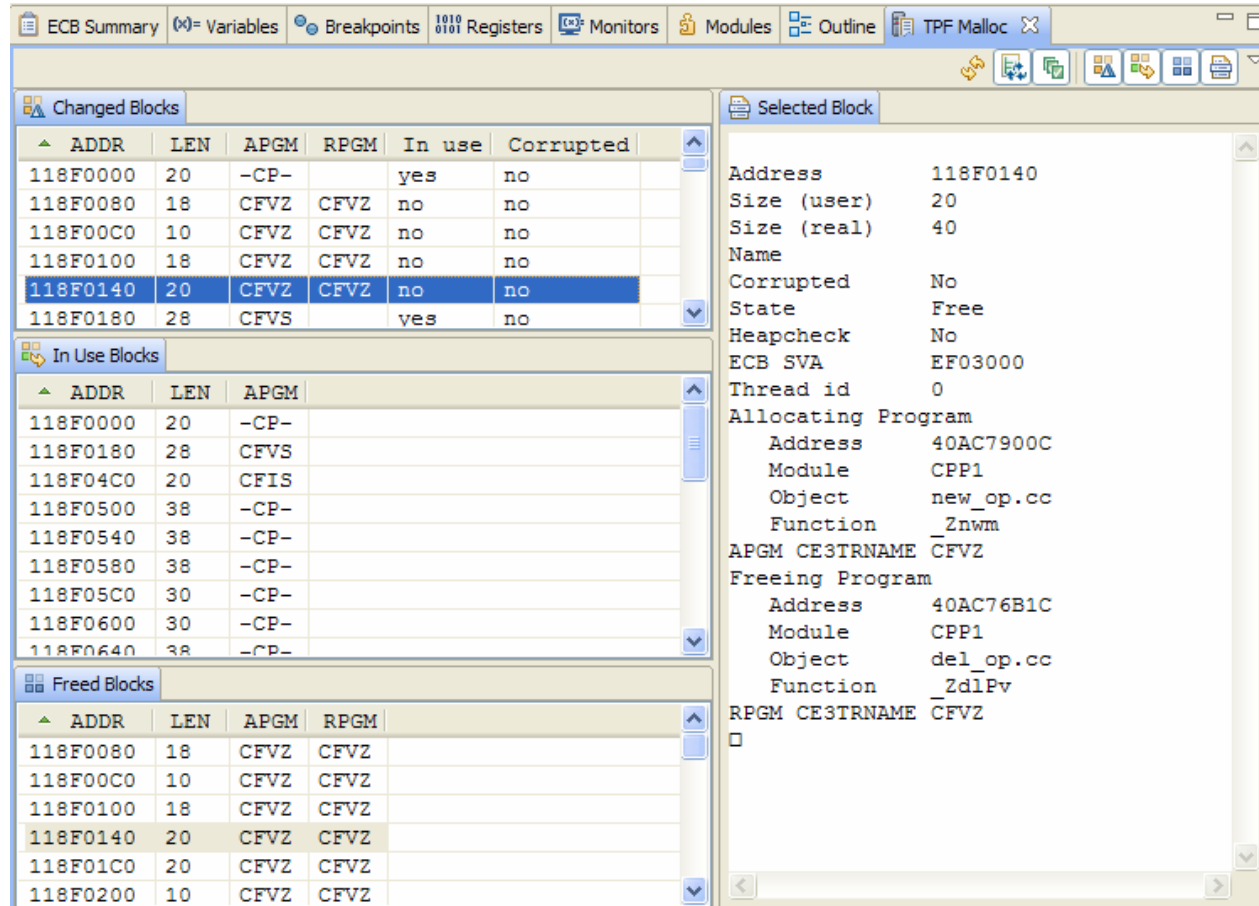
Remove

Up

Down

TPF Toolkit V3.4.3

- **Debugger updates**
 - TPF Malloc view



ECB Summary Variables Breakpoints Registers Monitors Modules Outline TPF Malloc

Changed Blocks

ADDR	LEN	APGM	RPGM	In use	Corrupted
118F0000	20	-CP-		yes	no
118F0080	18	CFVZ	CFVZ	no	no
118F00C0	10	CFVZ	CFVZ	no	no
118F0100	18	CFVZ	CFVZ	no	no
118F0140	20	CFVZ	CFVZ	no	no
118F0180	28	CFVS		yes	no

In Use Blocks

ADDR	LEN	APGM
118F0000	20	-CP-
118F0180	28	CFVS
118F04C0	20	CFIS
118F0500	38	-CP-
118F0540	38	-CP-
118F0580	38	-CP-
118F05C0	30	-CP-
118F0600	30	-CP-
118F0640	38	-CP-

Freed Blocks

ADDR	LEN	APGM	RPGM
118F0080	18	CFVZ	CFVZ
118F00C0	10	CFVZ	CFVZ
118F0100	18	CFVZ	CFVZ
118F0140	20	CFVZ	CFVZ
118F01C0	20	CFVZ	CFVZ
118F0200	10	CFVZ	CFVZ

Selected Block

Address 118F0140
 Size (user) 20
 Size (real) 40
 Name
 Corrupted No
 State Free
 Heapcheck No
 ECB SVA EF03000
 Thread id 0
 Allocating Program
 Address 40AC7900C
 Module CPP1
 Object new_op.cc
 Function _Znmw
 APGM CE3TRNAME CFVZ
 Freeing Program
 Address 40AC76B1C
 Module CPP1
 Object del_op.cc
 Function _ZdlPv
 RPGM CE3TRNAME CFVZ

Interim Fix V3.4.3

- **Debugger updates**
 - Custom Debug Registration

```
<?xml version="1.0" encoding="utf-8"?>
<customRegistrations xmlns="http://www.ibm.com/xmlns/debug"
<!-- Uncomment the following and update to specify appropriate
<customRegistration>
  <id>101</id>
  <name>My Company Registration Type</name>
  <parameter>Transaction ID</parameter>
  <parameter>Transaction Type</parameter>
</customRegistration>
</customRegistrations>
```

Debug Registration Session

Workstation Information

Workstation name: Workstation TCP/IP address:

TPF Terminal

Terminal name:

LNIATA
 IP Address
 LU Name

Registration Information

Select a registration type:

Transaction ID:

Transaction Type:

Trace created entries
 Trace global variable initialization functions

User token:

Condition

ECB field or register to compare	Condition	Value to compare
	Equal to	
<input type="checkbox"/> Limit comparison to: <input style="width: 50px;" type="text"/> bytes (e.g. X'145F' for Hex, or C'test' for Char, etc.)		

TPF Toolkit V3.4.4

- **New Single Source Rules**

- PQ79120a
 - Flag uses of `INLINE` and `FAST` keywords in `DBADD` and `DBRED` macros
- PQ79120b
 - Flag uses of `DFADD_INLINE`, `DFADD_FAST` and `DFRED_FAST` keywords in the `dfadd` and `dfred` functions
- OTRPDSCb
 - Flag header file names that have mixed-case characters in `#include` statements
- OTRPDSCc
 - Flag header file names with missing extensions in `#include` statements within `.c` or `.h` source files
- OTRPDSCd
 - Flag header file names with missing extensions in `#include` statements within `.cpp` or `.hpp` source files
- OTRPDSCe
 - Flag header file name extensions that have any uppercase characters or trailing periods

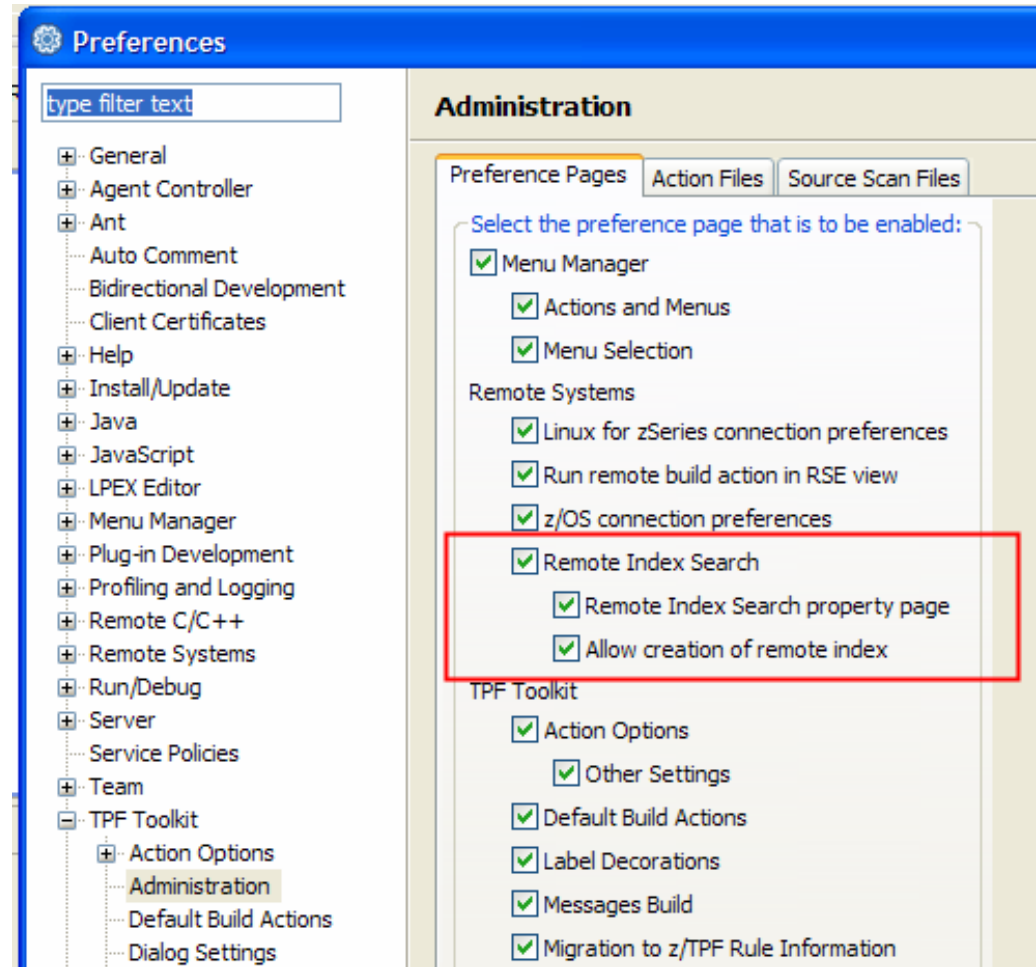
TPF Toolkit V3.4.4

- **Updated rules**

- PJ29593g
- PJ29980a
- PJ32183a
- PJ32183b
- PJ32183d
- OTRASCLa
- OTRLCALa
- OTRLCALc
- OTRLCALb
- OTRPACKa
- OTRPACKb
- OTRPACKc
- OTRPRAGb
- OTRPRAGc
- OTRWDCTa
- OTRWDCTb
- PJ33086a
- OTRREGSa
- OTRREGSb
- OTRSEQNb
- OTRPDSCa

TPF Toolkit V3.4.4

- **IDE updates**
 - Remote Index Search function can be controlled from the Administration preference page



TPF Toolkit V3.4.4

- **IDE updates**

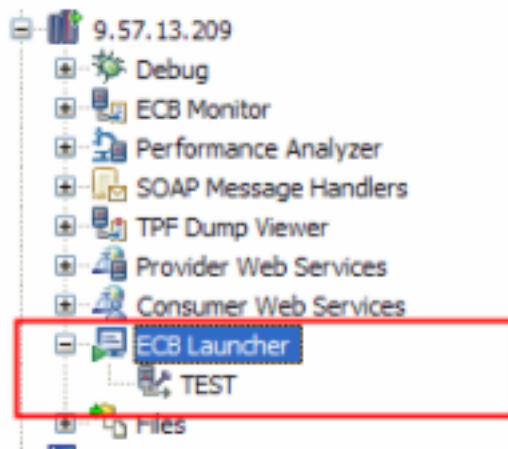
- TPFTool CreateRSE and ModifyRSE services have been enhanced to allow a remote index location

```
tpftool -s CreateRSE -c linuxtpf.pok.ibm.com -h  
linuxtpf.pok.ibm.com -sys zLinux -remoteIndexLocation  
/root/index
```

```
tpftool -s ModifyRSE -oldConnectionName  
linuxtpf.pok.ibm.com - remoteIndexLocation  
/root/new_index
```

TPF Toolkit V3.4.4

- **Debugger updates**
 - ECB Launcher subsystem



New Filter
New ECB Launcher
Specify the ECB launcher information

Program
Name:
Parameter:

Data block to initialize
Data Level: Size:
Content file path:

< Back Next > Finish Cancel

TPF Toolkit V3.4.4

- **Debugger updates**
 - ALASC view

The screenshot displays the ALASC debugger interface with three main panels:

- ALASC Summary:** A table listing memory objects.

Address	Module	Object
1180B8E0	QDBA	qdb4
1180BF48	QDB3	qdb3
1180D190	QDB2	qdb2
- Hex View (Left):** Shows memory addresses from 1180D190 to 1180D290 in hexadecimal. The first row (1180D190) contains the value 00000000. Subsequent rows contain 80808080, with some rows showing different values like 1180F460, 1180F408, 0A88BEAC, 09B3C4D4, 118F00C5, 09B40000, 0013D4A1, 41D2B03D, and 076FF424.
- EBCDIC View (Right):** Shows the same memory addresses converted to EBCDIC. The first row (1180D190) contains four 0000 characters. Other rows contain various EBCDIC characters and symbols, such as 004-, 0h'8, 0·DM, 0±0E, 0·δ, 00M~, K^0, and 0?40.

TPF Toolkit V3.4.4

- **Debugger updates**
 - DETAC view

Data Level DETAC Blocks									
▲ Data Lvl	Blk Addr	Blk Type	Blk Size	RID	RCC	CNC	File Addr	File Ext	
D4	0EF42C00	0021	017D	0000	00	00	00000000	000000000000000000	
D5	0EAA1000	0031	041F	0000	00	00	00000000	000000000000000000	
D6	0EA9C000	0051	0FFF	0000	00	00	00000000	000000000000000000	
DECB DETAC Blocks									
▲ DECB Addr	DECB Name	Blk Addr	Blk Type	Blk Size	RID	RCC	CNC	File Addr	File Ext
0EF440A0	QDBADECBQDBADECB	0EA90000	0021	017D	0000	00	00	000000000000000000	000000000000000000
0EF440A0	QDBADECBQDBADECB	0EF4ABE0	0031	041F	0000	00	00	000000000000000000	000000000000000000

TPF Toolkit V3.4.4

- **Debugger updates**
 - Improved watchpoint support

Add a Watch Breakpoint

Required information
Sets a breakpoint to stop execution when data changes at a specific address

Item to Watch

Address or expression:

Register:

Number of bytes to watch:

Conditions on Watched Item Content

Stop if changed contents are equal to:

Stop if instruction address is in the specified range:

Module

Module:

Object (optional):

Address range

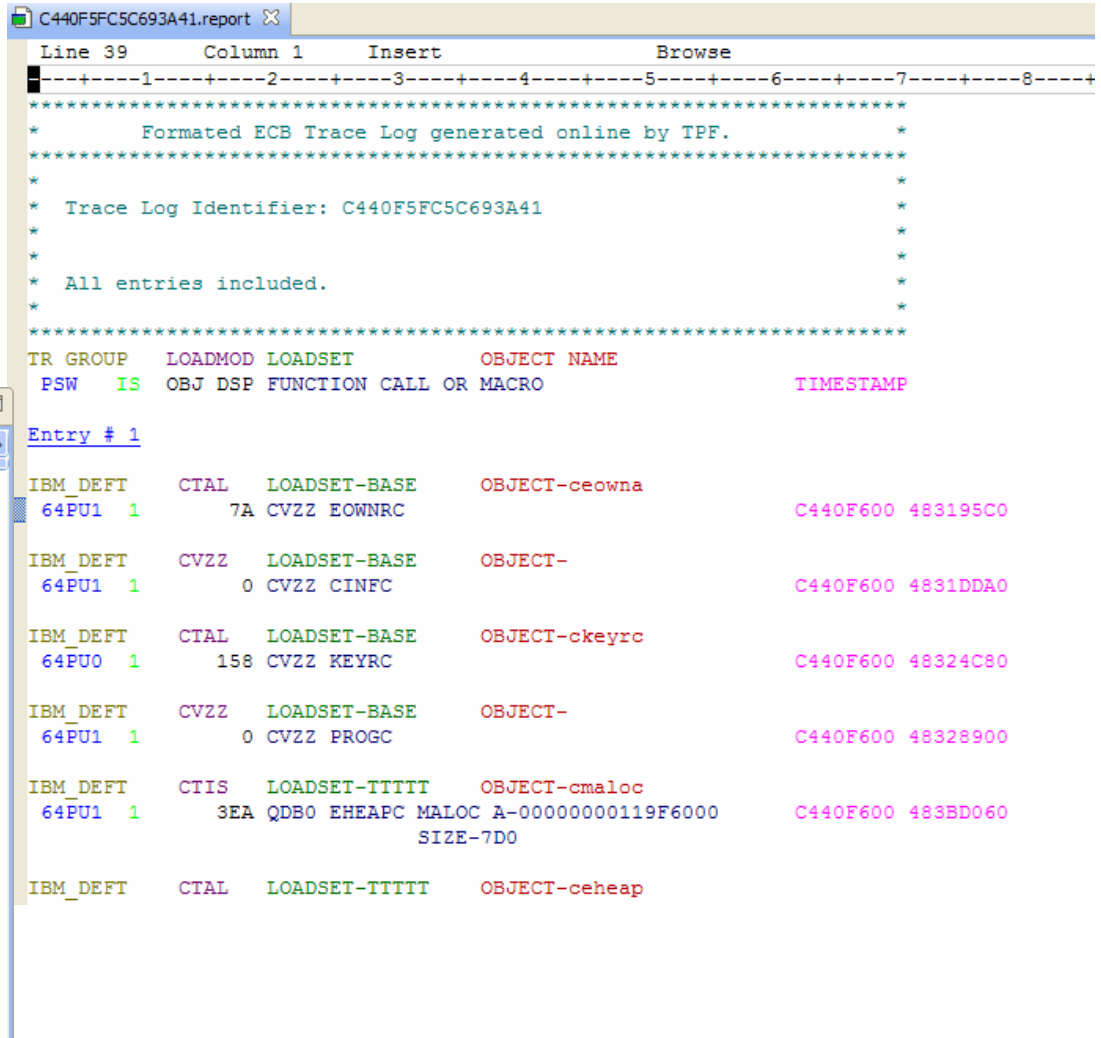
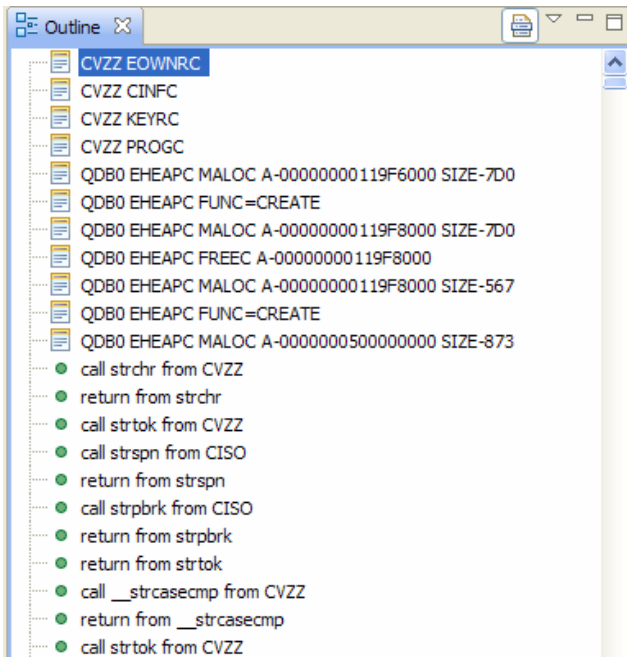
From:

To:

< [back] [next > [finish] Cancel

TPF Toolkit V3.4.4

- **Debugger updates**
 - New Trace Log Editor
 - Syntax highlighting
 - Outline view



TPF Toolkit V3.4.4.01

- **Debugger fixes**

A look into the future...

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Trace Log Editor : Filtering

- **Filter by macro or function**

Add Report Filter Criteria

New Report Filter Criteria

Specify a macro name.

Record type: Macro

Filter Criteria

Specify filter criteria for macro calls. All fields are case insensitive.
Note: Wildcards * and ? are permitted. Regular expressions are not permitted.

Trace group: * Load set: *

Macro name: Caller: *

Parameters:

- BACKC
- CINFC
- CPLKC
- CREATE Macro Family
- DECBC
- DETAC
- ECB_STORAGE Macro Family
- EHEAPC
- ENTER Macro Family
- ENTRC

OK Cancel

Trace Log Editor : Filtering

- **Example: Filter by BACKC macro where the caller is QDB3**

Change Report Filter Criteria

Edit Report Filter Criteria
Specify the record type to search for.

Record type:

Filter Criteria
Specify filter criteria for macro calls. All fields are case insensitive.
Note: Wildcards * and ? are permitted. Regular expressions are not permitted.

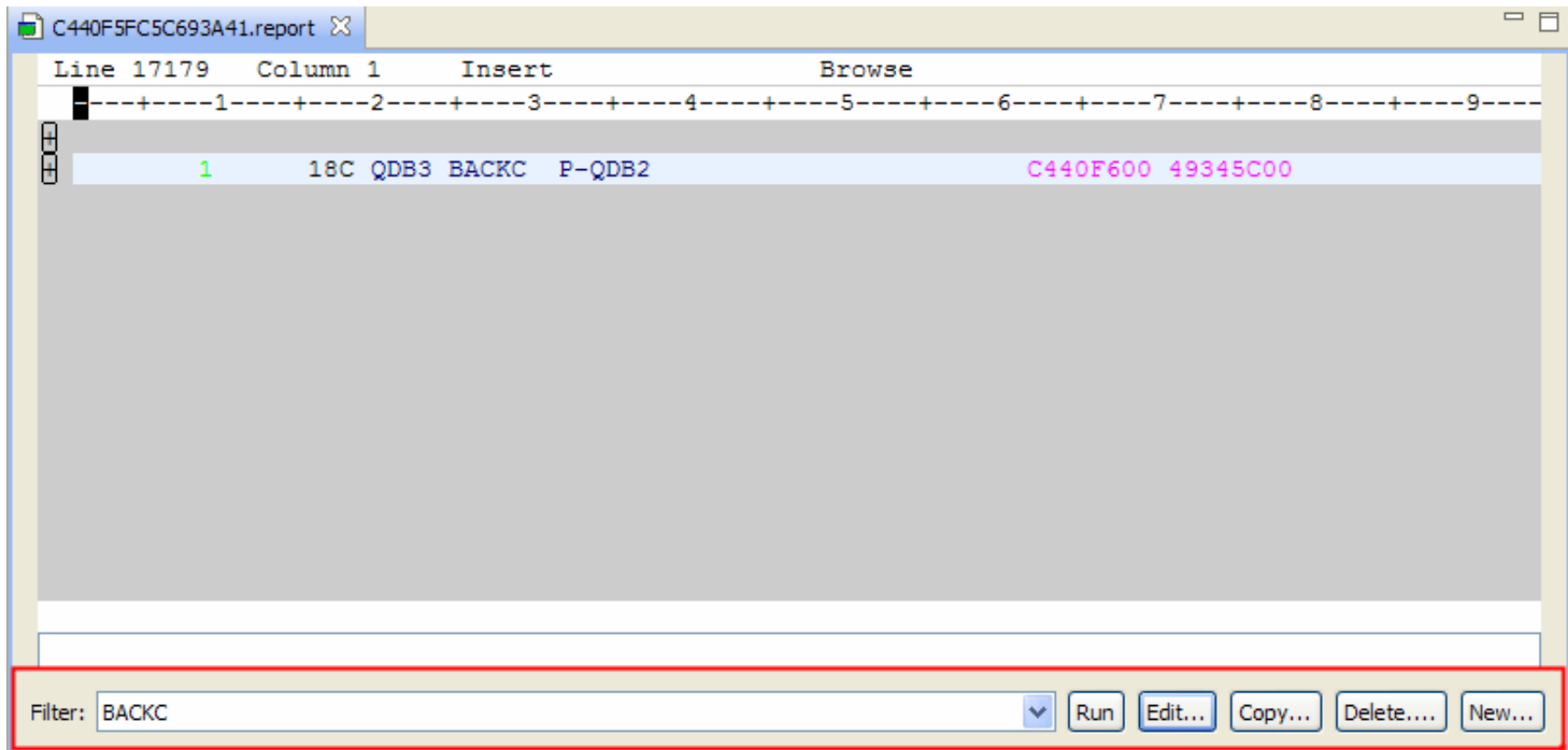
Trace group: Load set:

Macro name: Caller:

Parameters:

Trace Log Editor : Filtering

- **Example: Filter by BACKC macro where the caller is QDB3**



Terminal Emulator

- Supports connection to z/OS, Linux on System z and TPF systems.

Remote Systems Team

9.57.13.209

Current host connection profile is: /HostConnectProjectFiles/9.57.13.209.hce

```
zdebug disp all
CSMP0097I 23.40.08 CPU-B SS-BSS  SSU-HPN  IS-01
CDBS0013I 23.40.08 START OF DEBUGGER REGISTRATION INFORMATION

NO TRACE BY PROGRAM ENTRIES EXIST

TRACE BY TERMINAL TABLE
WORKSTATION IP      TYPE      TERMINAL      STATE  MASK TYPE  MASK _
9.23.36.7:8003     Debug    010000        Nonact PROGRAM  QDB0
WORKSTATION NAME: PASRICHA2  CONNECT TIMEOUT: 3  USER TOKEN: NONE
COND: NONE

NO TRACE BY USER DEFINED ENTRIES EXIST

END OF DISPLAY+
```

—

RUNNING TPFXA1

MA a 23/001

PF1 PF2 PF3 PF4 PF5 PF6 Enter PA1 Attn NewLine
PF7 PF8 PF9 PF10 PF11 PF12 Clear PA2 SysReq NextPad

Properties Remote Scratchpad

Property	Value
Connection status	Some subsystems connected
Default User ID	

Host Properties Host Connection

Terminal Emulator

- Connections to multiple systems can be active at the same time

The screenshot displays the IBM Terminal Emulator interface. On the left, a 'Remote Systems' tree view shows a hierarchy of connections, including 'Local', '9.57.13.209', and 'linuxtpf.pok.ibm.com'. The main window is split into two terminal sessions. The top session, titled '9.57.13.209.hce', shows the output of the 'zdebug disp all' command, displaying debugger registration information and a table of active workstations. The bottom session, titled 'linuxtpf.pok.ibm.com.hce', shows a list of active users and their session details.

Terminal 1 Output (9.57.13.209.hce):

```

zdebug disp all
CSMP0097I 11.24.30 CPU-B SS-BSS SSU-HPN IS-01
CDBS0013I 11.24.30 START OF DEBUGGER REGISTRATION INFORMATION

NO TRACE BY PROGRAM ENTRIES EXIST

          TRACE BY TERMINAL TABLE
WORKSTATION IP      TYPE      TERMINAL      STATE MASK TYPE  MASK _
9.23.36.7:8003     Debug    010000        Nonact PROGRAM  QDB0 -
WORKSTATION NAME: PASRICHA2  CONNECT TIMEOUT: 3  USER TOKEN: NONE
COND: NONE

NO TRACE BY USER DEFINED ENTRIES EXIST

END OF DISPLAY+

RUNNING TPFMA1
    
```

Terminal 2 Output (linuxtpf.pok.ibm.com.hce):

```

-rwxrwxrwx 1 ankitp users      1000 2009-01-12 13:48 daemon_linux
-rw-rwx--- 1 ankitp users        95 2007-03-19 08:28 daemon_win.bat
-rw-rwx--- 1 ankitp users  169998 2009-01-13 19:43 dstore_core.jar
-rw-rwx--- 1 ankitp users    8577 2009-01-12 13:49 dstore_extra_server.jar
-rw-rwx--- 1 ankitp users  40481 2009-01-12 13:49 dstore_miners.jar
-rw-rwx--- 1 ankitp users        0 2008-06-18 17:21 exit
-rw-rwxr-x 1 ankitp users    485 2007-10-24 15:50 Hello.class
-rw-rwx--- 1 ankitp users  416118 2007-03-19 08:29 lucene-core-1.9.1.jar
-rw-rwx--- 1 ankitp users   18069 2007-09-10 13:37 luceneminer.jar
-rw-rwx--- 1 ankitp users    285 2007-03-19 08:29 minerFile.dat
-rw-rwx--- 1 ankitp users   14393 2007-03-19 08:29 patterns.dat
-rwxrwxr-x 1 ankitp users    460 2007-04-16 20:30 remotelIndexScript
-rw-rwx--- 1 ankitp users    333 2007-09-10 20:02 rsecomm.properties
-rw-rwx--- 1 ankitp users    496 2007-03-19 08:28 run_win.bat
-rwxrwxr-x 1 ankitp users   1097 2007-10-24 15:59 server_linux
-rw-rwx--- 1 ankitp users    666 2007-03-19 08:28 server_unix
-rw-rwx--- 1 ankitp users    607 2007-09-10 19:51 server.zseries
-rw-rwx--- 1 ankitp users    364 2007-03-19 08:28 setup_env.zseries
-rw-rwx--- 1 ankitp users    686 2007-03-19 08:28 ssl.properties
-rw-rwxr-x 1 ankitp users   5570 2007-09-13 15:36 trace.trc
-rw-rwx--- 1 ankitp users  55574 2007-10-24 16:21 universallminers.jar
-rw-rwx--- 1 ankitp users     20 2007-03-19 08:28 version.txt
-rw-rwx--- 1 ankitp users    364 2007-03-19 08:29 win_env.bat
ankitp@linuxtpf: ~/dstore>
    
```

Terminal Emulator

- **Record and playback macros**

Macro information (Optional)

Macro location:

Automatically play macro when connected

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