



TPF Debugger / Toolkit update

PUT 12 contributions

Matt Gritter

TPF Toolkit Technical Lead

IBM **z/TPF**

April 12, 2016

©Copyright IBM Corporation 2016.

U.S. Government Users Restricted Rights - Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

Disclaimer

- Any reference to future plans are for planning purposes only. IBM reserves the right to change those plans at its discretion. Any reliance on such a disclosure is solely at your own risk. IBM makes no commitment to provide additional information in the future.

z/TPF Descriptor Definition Projects

- New support for TPF Business Events and DFDL artifacts in TPF Toolkit
 - Wizards for creating common deployment artifacts for implementing data events and signal events for TPF
 - Integrated DFDL editor for working with generated DFDL artifacts
 - Available in V.Next of TPF Toolkit

- For more information on z/TPF descriptor definition projects see the TPF Toolkit Task Force presentation from this morning

Debug session timeout

- **Problem** – user walks away from a debug session for an extended period of time, potentially delaying system operations
- **Solution**
- Debugger preference for TPF system administrators: set a timeout value for inactive debugger, dump viewer, or ECB monitor sessions.
- When the session is closed, notification is sent to both the console and TPF Toolkit
- ZDEBUG ACCESS DBUGTIMEOUT

Reduce debugger memory usage

- **Problem** - The z/TPF debugger has the potential to have a large footprint in system memory
- **Solution**
- Improve memory usage for assembly expressions
- Reduce memory usage for stored debug information, maximum of 10 objects kept

Enhance debugger dumps

- **Problem** – dumps occurring without enough information to determine the source
- **Solution**
- Dumps generated by the debugger, dump viewer, code coverage, and dump server now show information to assist identifying the source of the dump
 - Workstation name, IP and port
 - Session type and name
 - Registration entry information

Owner names

- **Problem** – user walks away from debug session and gets disconnected from the network. Potentially orphaned debugger ECB not easily identifiable for manual clean up.
- **Solution**
- Debugger services assigned owner name for display using the ZDECB command
- Dump viewer and ECB monitor sessions can be killed using ZECBL command
- All owner names start with IDEBUG
- Four sub-categories: DEBUGGER, SERVER, PCRS, CMDVIEW
- 16 additional tags to complete owner names

System Heap View

- New debug view that provides easy access to allocated system heap based on the given token

Monitors

Token	Address	Size
MYTOKENA		
MYTOKENA	1521F000	8192
DBG*		
DBGDR123	15225000	4096
DBGDRTST	15224000	4096
DBGDRTST	15221000	12288
DBGDRAPI	1521E000	4096

MYTOKENA:0x1521F000

Address	Value
0x000000001521F000	00000002 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0x000000001521F018	00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0x000000001521F030	00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0x000000001521F048	00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0x000000001521F060	00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0x000000001521F078	00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0x000000001521F090	00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
0x000000001521F0A8	00000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000

Improve dump viewer performance

- **Problem** – Slow performance retrieving list of captured dumps on system
- **Solution**
- Updates made to communication protocol to improve data transfer rate allowing multiple entries to be sent at once

ZDDMP Enhancements

- **Problem** – ZDDMP command can be difficult to use
- **Solution**
- ZDDMP DISPLAY and ZDDMP DELETE command filters now support wildcard characters
 - Allows displaying or deleting a subset of available dumps
- ZDDMP DISPLAY column headers updated to match command filters to improve usability.

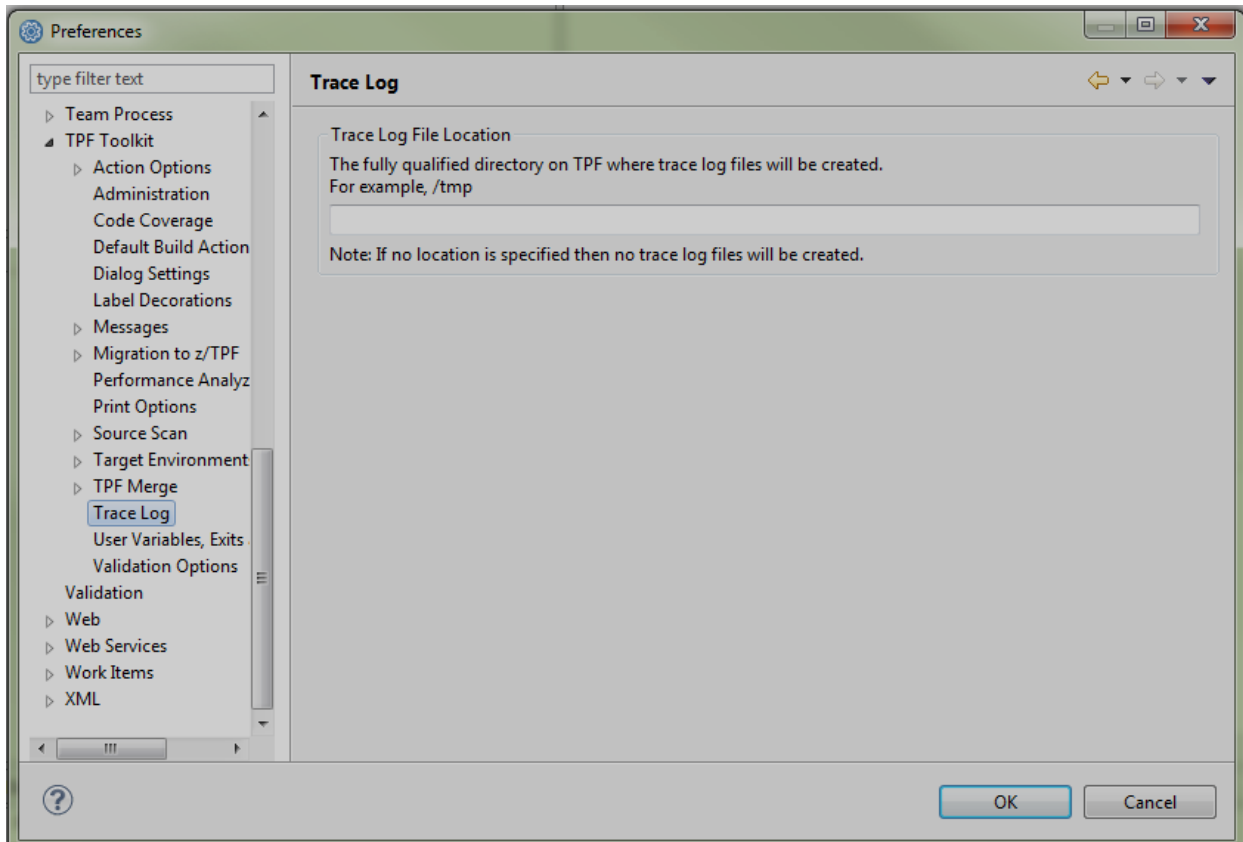
ZDEBUG CLEAR update

- **Problem** – In a development environment where all users share the same IP address, no support available to clear registered debug sessions based on unique port number
- **Solution**
- Debug registration entries can now be deleted from the TPF system by specifying a unique combination of an IP address and port number
- Usability improvement for virtual desktop infrastructures

Custom trace log directory

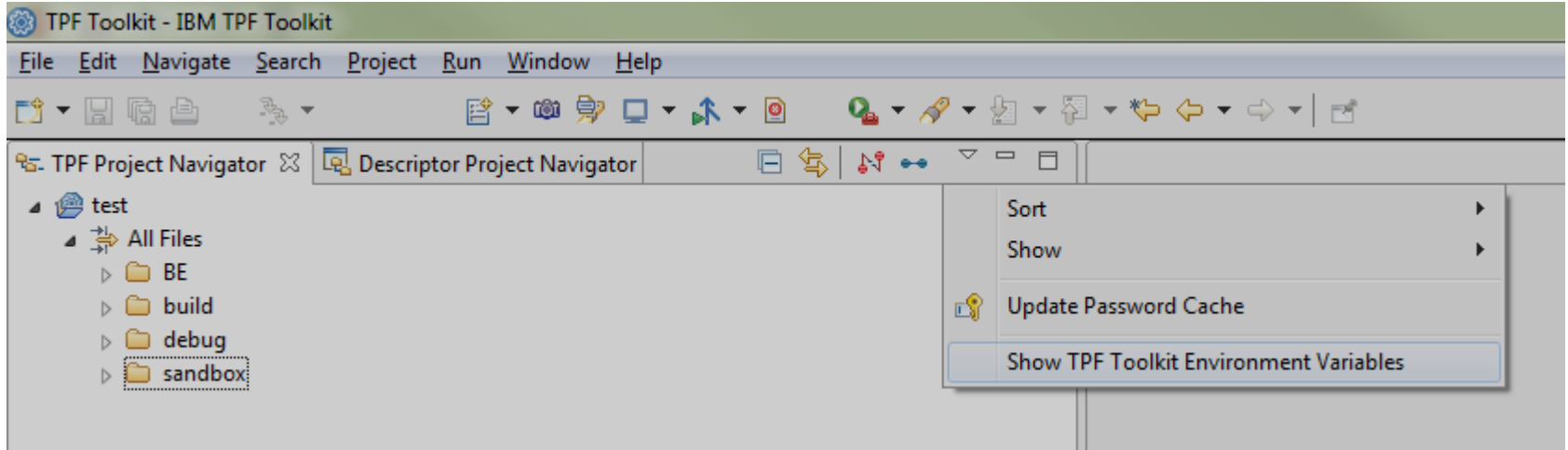
- **Problem** – Toolkit users were allowed to specify the location to store trace log reports and bothersome UI implementation
- **Solution**
- Storage for trace log output can be configured by the Toolkit administrators.
- Administrators can enforce a particular location
- Or make the preference available for users to specify
- Removed pop-up dialog asking for input each time trace log is started

- New preference in the TPF Toolkit category to specify location for trace log output

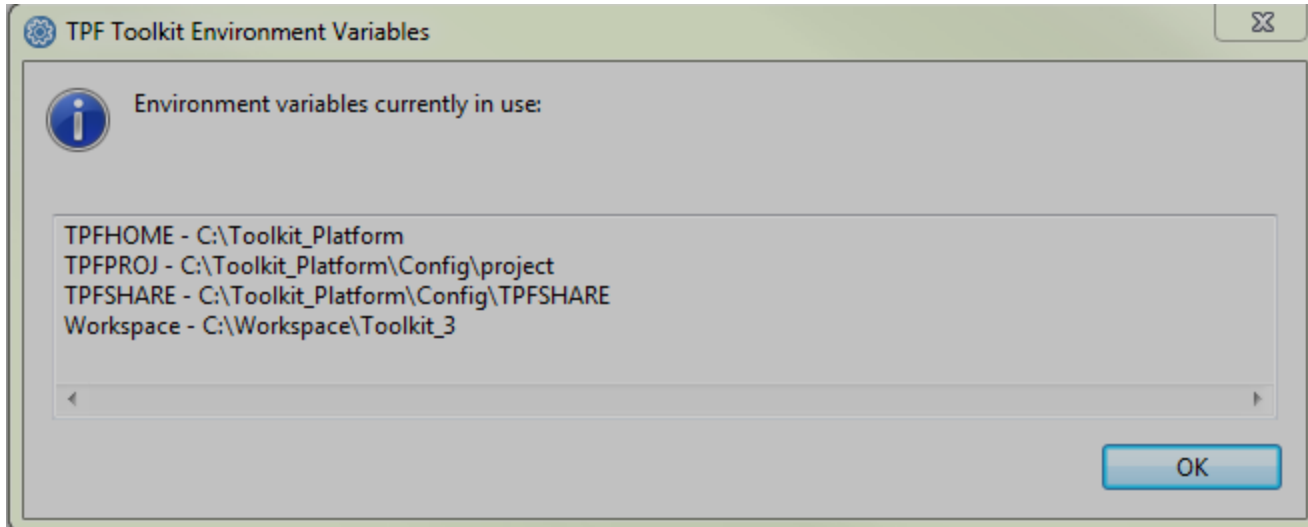


TPF Toolkit Environment Variables

Problem – TPF Toolkit would only display the TPFSHARE and TPFPROJ environment variables with the action below



Solution – TPFHOME and the active workspace path are now also displayed in the dialog



Dump Data Items view

- Snapshot (SNAPC) dumps can be captured for the debugger
- New debug view in TPF Toolkit to display captured data items

Message
snapc issued from C pgm with debug info, case 101

Data Items

Name	Address	Size
CPUID	1040032B	1
INPUTMSG	12EA0000	18

Details

12EA0000 : 0x12EA0000

```
0x0000000012EA0000 A9A385A2 A3408482 A4874085 999960F1 F0F10000 00000000 ztest dbug err-101.....
0x0000000012EA0018 FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF FFFFFFFF
0x0000000012EA0030 00000000 00000000 FFFFFFFF FFFFFFFF C9E2D4D7 40404040 ..... ISMF
0x0000000012EA0048 E9E3C5E2 E3404040 40404040 40404040 40404040 40404040 ZTEST
0x0000000012EA0060 FFFFFFFF FFFFFFFF C4C9D940 FFFFFFFF FFFFFFFF FFFFFFFF DIR
0x0000000012EA0078 FFFFFFFF FFFFFFFF C5D9D960 844E4E00 FFFFFFFF FFFFFFFF ERR-d++.
0x0000000012EA0090 00000000 00000000 00000000 12EA00C0 000002FF FFFFFFFF .....i².{...}
```

Rational Team Concert Integration updates

- Menu Manager actions can be updated to refresh the repository workspace
- Preferences added to allow administrators to define default remote working directory and remote sandbox directory locations
- Rational Team Concert Load wizard updated to clarify load process

Future

- Migrating TPF Toolkit to a newer version of the Eclipse platform
- Adding Linux as a runtime environment for TPF Toolkit
- Migrating code coverage tooling in support of IBM Application Delivery Intelligence
- Additional support for developing Java applications for z/TPF in TPF Toolkit

Deliverable details

Description	z/TPF APAR	TPF Toolkit Level	Requirement
TPFXMLGEN enhancements	PJ43059	N/A	Customer Request
Dump viewer session timeout	PJ43273	N/A	Customer Request
Reduce debugger memory usage	PJ43322	N/A	Customer Request
Enhance debugger dumps	PJ43061	N/A	RFE 58435
Owner names for debugger	PJ43061 PJ43633	N/A	RFE 64975
System Heap View	PJ42752	4.2.5	V08026F
Inefficient Dump Viewer process	PJ43515	N/A	RFE 69938

Description ⁸⁶	z/TPF APAR	TPF Toolkit Level	Requirement
ZDDMP command updates	PJ43689	N/A	RFE 64977, 64978
ZDEBUG clear specifying IP and PORT	PJ43641	N/A	Customer Request
Customize default location for trace log	N/A	4.2.5	RFE 47013
Show TPF Toolkit Environment Variables	N/A	4.2.5	RFE 69942
z/TPF descriptor definition projects	PJ44028	V.Next	Customer Request
Dump Data Items view	PJ43583	V.Next	RFE 64974
Enhance RTC Integration sandbox creation wizard	N/A	V.Next	RFE 69996
RTC refresh option available in Menu Manager	N/A	4.2.5	RFE 69995

Thank you!

Questions or comments?

Trademarks

- IBM, the IBM logo, ibm.com and Rational are trademarks or registered trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the Web at “[Copyright and trademark information](#)” at www.ibm.com/legal/copytrade.shtml.

Notes

- Performance is in Internal Throughput Rate (ITR) ratio based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput that any user will experience will vary depending upon considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve throughput improvements equivalent to the performance ratios stated here.
- All customer examples cited or described in this presentation are presented as illustrations of the manner in which some customers have used IBM products and the results they may have achieved. Actual environmental costs and performance characteristics will vary depending on individual customer configurations and conditions.
- This publication was produced in the United States. IBM may not offer the products, services or features discussed in this document in other countries, and the information may be subject to change without notice. Consult your local IBM business contact for information on the product or services available in your area.
- All statements regarding IBM's future direction and intent are subject to change or withdrawal without notice, and represent goals and objectives only.
- Information about non-IBM products is obtained from the manufacturers of those products or their published announcements. IBM has not tested those products and cannot confirm the performance, compatibility, or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.
- Prices subject to change without notice. Contact your IBM representative or Business Partner for the most current pricing in your geography.
- This presentation and the claims outlined in it were reviewed for compliance with US law. Adaptations of these claims for use in other geographies must be reviewed by the local country counsel for compliance with local laws.