

## IBM z/TPF Limited License for Development and Test readme

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### 1.0 Introduction

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IBM® z/TPF Limited License for Development and Test provides you entitlement to run a copy of your z/TPF system on IBM® z Systems® Development and Test Environment. Use the information in this README together with the Quick Start Guide for z/TPF Limited License for Development and Test that is provided with the product download.

Restriction: This Program is licensed only for development, testing, employee education, or demonstration of your applications that run on z/TPF. The Program may not be used for production workloads of any kind, nor robust development workloads, including without limitation, production module builds, preproduction testing, stress testing, or performance testing.

### 2.0 Change history

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2016Nov17 Initial version

### 3.0 Prerequisites

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- \* z Systems Development and Test Environment (zD&T), Version 10 or later
- \* z/TPF APAR PJ44374, installed on the copy of the z/TPF system that you plan to run on zD&T.

### 4.0 Installing z/TPF Limited License for Development and Test

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Use the following hints and tips with the Quick Start Guide to install the z/TPF Limited License for Development and Test.

#### 4.1 Hints and tips for copying your z/TPF volumes to zD&T

- \* Consider using a file naming convention to help to uniquely relate the Linux file to the DASD that the file was copied from. For example, use the volume serial number of the associated DASD (such as, BJ0001) for the Linux file name.
- \* To ensure that all DASD modules that you need are copied (or refreshed), consider adding all of your hckd2ckd command statements to a migration script.
- \* Copying VPARS volumes might not work. Consider copying a z/TPF test system that is loaded on non-VPARS DASD modules.

## 4.2 Hints and tips for creating a device map

- \* The number after the device manager name in the manager stanza is arbitrary, but required. For more information, see Chapter 3 of the zPDT Guide and Reference.
- \* Set up an OSA connection based on one of the adapters available. Use the zPDT find\_io command to display the adapters. The find\_io command provides the path name and interface name for the adapters that are available. Specify the path name, and if necessary, the interface name on the awssoa device manager statement.
- \* Tapes must be initialized before they can be mounted to the z/TPF system. When you use the emulator, you must create a file and initialize the file in the file system. To create emulated tape files for your device map, use the aws\_tapeInit command.
  - \* To keep files in order, keep the tape file name the same as the volume serial number (VSN) that is assigned to the tape. For example, to create a tape file with a VSN of TAPE01, enter the following command:  
 aws\_tapeInit tape01 /tmp/mywork/TAPE01  
 Note: The aws\_tapeInit command translates the specified VSN to uppercase EBCDIC characters.
  - \* Ensure that you create the file with the correct Linux file permissions to match the intended use on the z/TPF system. For example, if you plan to write to the tape (such as an RTA tape), use the chmod command to define write permissions for the file.
  - \* If you want to examine existing emulated tape files for standard header labels, use the aws\_tapeInsp command. If the tape file appears to be in awstape format, the command checks for VOL1, HDR1, and HDR2 labels.
  - \* Contact your IBM Software Support representative or search IBM Support Fix Central (<https://www.ibm.com/support/fixcentral/options>) for the latest version of the aws\_tapeInit tool.
- \* You can use a 3215 or 3270 operator console in a zD&T environment. Use the zPDT 3270port statement in the system stanza to define the port number for TN3270 connections. For more information about the aws3274 device manager and other 3270 support information, see the zPDT Guide and Reference.  
 Note: x3270 was used during testing to emulate a 3270 console.
- \* Consider defining a system printer to make it easier to get formatted dumps. To set up a printer, see the information about the zPDF awsprt device manager in Chapter 3 of the zPDT Guide and Reference. For more information about accessing dumps, see the considerations in section 6.2 of this readme.
- \* After you build the device map, to check the file for errors, run the zPDT awsckmap command. For information about the command syntax, see Chapter 4 of the zPDT Guide and Reference.

## 5.0 Running z/TPF Limited License for Development and Test

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1. Start the zPDT emulator by using the zPDT awsstart command. For more information about the syntax of the awsstart command, see Chapter 4 of the zPDT Guide and Reference.  
 Notes:
  - \* If you use a 3215 console, consider using two Linux windows: one window to enter commands and another window to see the output. The output window is the window where you enter the awsstart command. Open another Linux window to enter z/TPF commands. To route data to the 3215 emulator, you must prefix the data with awsin. For example, awsin zdsys routes the ZDSYS command to the IPLed z/TPF system through the 3215 emulator.

\* If you use a 3270 console, you do not have to prefix the commands with `awsin`.

2. IPL the z/TPF system by using the `zPDT ipl` command and specifying the prime module symbolic device address (SDA). For example:  
`ipl 1ec0 clear`

## 6.0 Known problems, workarounds, and other considerations

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There are some issues that might occur during z/TPF IPL or normal operations that you might need to address, as well as some other considerations related to z/TPF processing and usage.

### 6.1 Potential issues during z/TPF IPL or normal operations

- \* The XML parser might take longer to process deployment descriptors through common deployment; consider increasing the application timeout for the parser. For example, enter the following z/TPF command:  
`ZAPAT CXML TIMEOUT-65535 C-B`
- \* DASD I/O might not complete as quickly in the emulated environment. If stalled or potentially stalled module queue messages appear frequently on the z/TPF system, consider increasing the DASD lost interrupt timeout value on this system. Enter the z/TPF `ZSONS ALTER LOSTINT` command with the `TIME` parameter specified to increase the lost interrupt timeout value.
- \* The z/TPF system that you copied from has different OSA adapter information than the information that is defined in the device map file. To create the OSA connection information, complete the following steps:
  1. Enter the `ZOSAE` command with the `DELETE` parameter specified to delete the connection that was copied when you copied the z/TPF volumes to zD&T.
  2. Enter the `netstat` command with the `-r` option specified to determine the gateway information for this Linux system.
  3. Enter the `ZOSAE` command with the `DEFINE` parameter specified to define the connection for this Linux system.
- \* If you use a 3215 console, some z/TPF display messages might be truncated because the emulator does not process the hexadecimal `x'00'` value the same way that z/VM or TPF Operations Server does. (On 3270 consoles, the display messages are not truncated.) For more information, contact IBM Software Support.

### 6.2 Additional information about z/TPF processing and usage

- \* You cannot use the `ZRIPL` command in a multiple I-stream emulated environment. To IPL the z/TPF system in this environment, enter the `zPDT ipl` command.  
 Note: The `ipl` command is entered through `zPDT`, not on the z/TPF system. If you issue the `ipl` command on the z/TPF system with the `awsin` command, an error is issued.
- \* The CP trace facility commands are not available. To perform simple tracing and displays use `zPDT` commands such as `adstop`, `cpu`, `d`, and `start`. For more information about these commands, see Chapter 4 of the `zPDT Guide and Reference`.
- \* If your OSA connection is established, you can use the z/TPF debugger session in IBM TPF Toolkit to trace real-time applications.
- \* The ability to FTP loadsets correctly to the z/TPF system can be affected by the large-receive-offset (LRO) and generic-receive-offset (GRO) settings in your Linux on z Systems environment. To ensure that FTP functions correctly, consider disabling these settings. To disable the settings, complete the following steps:
  1. Display the settings for your Linux environment. Enter the following command, where X is the number of the interface that is being used for your OSA adapter emulator:  
`ethtool -k ethX`
  2. If either the LRO or GRO setting is ON, consider disabling them. Enter the following commands, where X is the number of the interface that is being used for your OSA adapter emulator:  
`ethtool -K ethX lro off`

```
ethtool -K ethX gro off
```

Note: This modification is not permanent and you might need to enter these commands each time the Linux system is restarted. For your distribution of Linux, consider updating a script that is run during restart to maintain these settings.

- \* You might not have access or ability to write to tape and easily access dumps. Consider using one of the following methods to debug your application:
  - \* Set the DBUG parameter on the ZASER command to catch dump data, and use the TPF Dump Viewer in TPF Toolkit to debug application dumps.
  - \* If you have a printer defined in your device map file, set the PRT parameter in the ZASER command to have the dump formatted by the z/TPF system and write the dump to the file associated with the real-time printer. When a dump is issued, to close the file, enter the awsmount command with the -u option specified. For example, if your real-time printer is 0x00E, enter the command:
 

```
awsmount 00E -u
```

For new dumps to be written, you must mount a new file as the output location for the real-time printer. To create a new file, enter the awsmount command with the -m option specified. For example,

```
awsmount 00E -m ./printer_00E.lst -rw
```

To set up the real-time printer and default output file name in your device map, see the information about the awspmt device manager in Chapter 3 of the zPDT Guide and Reference.

## 7.0 Other sources of information

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For more information about starting and operating z/TPF Limited License for Development and Test and z Systems Development and Test Environment, see the following resources:

- \* IBM z/TPF product website  
(<http://www.ibm.com/software/products/en/ztransaction-processing-facility>)
- \* IBM z/TPF product documentation on IBM Knowledge Center  
(<http://www.ibm.com/support/knowledgecenter/SSB23S>)
- \* IBM z Systems Development and Test Environment product website  
(<http://www.ibm.com/software/products/en/ibm-z-systems-development-and-test-environment>)
- \* IBM z Systems Development and Test Environment product documentation on IBM Knowledge Center  
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- \* IBM zPDT Guide and Reference (<http://www.redbooks.ibm.com/abstracts/sg248205.html>)
- \* IBM System z Personal Development Tool Messages and Codes  
(<http://www.redbooks.ibm.com/abstracts/sg248103.html>)
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(<https://www.ibm.com/developerworks/community/groups/service/html/communityview?communityUuid=5d4610cf-76f1-46d9-806f-88f157367222>)

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