

## Version GA12 z1090-1-12.59.07 Release Letter

### 1. Product Description

The IBM System z Personal Development Tool (zPDT) provides System z functionality, with selected emulated I/O devices. The z1090 runs in a Linux environment. As the name implies, a zPDT is intended for development and similar purposes such as education and demonstrations. It lacks the Reliability and Service (RAS) and flexibility of a “real” System z machine and is not suitable for production use. This release letter refers to the zPDT that uses a token or USB hardware key defined as a Sentinel Hardware Key (SHK) for licensing management. Please reference the System zPDT Guide and Reference (SG24-8205-06) Redbook, section 1.3 Terminology changes for more information concerning licensing options.

### 2. New Function

- Completely new JIT code
  - o JIT now incorporates the open-source Eclipse OMR technology as the basis for the JIT compiler.
- Added Capstone Disassembler to improve debug capabilities.
  - o manop command - **disasm <addr>**
- zPDT core Dump Enhancement
  - o The key element is the inclusion of many (or all) of the Linux library files that are relevant to the failing program.
- Support for New hardware token
  - o Support was provided in GA11 FixPack 2 . But the new tokens have not shipped yet. Please see the **Addendum** below for more information for when the new tokens are provided.

### 3. Fixed in this release

- The timeouts associated with the awsstop command have been slightly lengthened to avoid unexpected messages while ending zPDT operation.
  - o (was also provided in GA11 FixPack 2)
- Add Leap second switch in devmap
  - o Please read the **Addendum**, section “**LEAP SECONDS**”, in this document.
  - o (was also provided in GA11 FixPack 2)
- Crypto Express 8s level, CCA version 8.1.71i. This provides some minor internal fixes.
  - o (was also provided in GA11 FixPack 2)
- z1090instcheck reports problems on Fedora 38 / 39 and added support new core pattern enhancement.

### 4. System Configuration and Prerequisites

The supported levels of Linux must be at least the 64-bit version of the following: Red Hat Enterprise Linux (RHEL) 8.8 or greater, SLES 15 SP3 or greater, openSUSE Leap 15.3 or greater, and Ubuntu 20.04 or greater. **Earlier versions are not supported.**

### 5. Install z1090-1-12.59.07.x86\_64

If you are installing the 1090 application for the first time, refer to the Redbook titled IBM zPDT Guide and Reference System z Personal Development Tool (SG24-8205-06), chapter five, zPDT Installation. Please be sure that you have installed the appropriate version of Linux and the prerequisites before proceeding to install the 1090 code. If you have already installed the appropriate version of Linux and the required prerequisites, and you are upgrading from a previous zPDT level, please proceed to the next step.

### 5.1. Install the 1090 application.

You will use root to install the z1090 release. As root, install **z1090-1-12.59.07.x86\_64** and accept the End User License agreement. If you've downloaded the release, set the proper write and access permissions (either `chmod 755` or `u+x <zPDT package name>`).

### 5.2. Execute z1090instcheck

The next step is to run the command `z1090instcheck` to check if conditions of your system are favorable for the 1090 application. You should run this command from the user login configured to run the 1090 application. If you choose to run from root, the path is `/usr/z1090/bin/z1090instcheck`.

### 5.3. Plug the Sentinel Hardware Key (SHK)

If not already plugged in, be sure to plug the SHK into the appropriate USB slot. If this is a brand new SHK that has not been activated yet, you'll need the 1090 code to be able to activate the SHK. The SHK may be plugged into any available USB 2.0 port. If you are planning to install the SHK in a USB hub make sure that the hub is externally powered, otherwise, you could damage the SHK.

## 6. 1090 Directory Structure

The following is the directory structure set up by the install process. If the structure is not in place, the **awsstart** command will create it for you.

<code>/&lt;homeDir&gt;/z1090/logs</code>	various traces are placed here
<code>/&lt;homeDir&gt;/z1090/configs</code>	IOCDs, IOCP, activation profiles
<code>/&lt;homeDir&gt;/z1090/disks</code>	emulated disk volumes
<code>/&lt;homeDir&gt;/z1090/tapes</code>	emulated tape volumes
<code>/&lt;homeDir&gt;/z1090/cards</code>	input to emulated card reader
<code>/&lt;homeDir&gt;/z1090/list</code>	emulated printer output

(where `/<homeDir>` is whatever the home directory is for the given user)

## 7. Known Restrictions, Exceptions, and Other Notes

### 7.1. Restrictions

- SNA is not supported.
- Multicast IP is not supported via OSE managed devices. Multicast IP is only supported with OSA defined in OSD mode.

### 7.2 Exceptions

- None

### 7.3 Other Notes

- A deflate (dfltcc) problem has been identified in a specific case when Linux on Z is ipl'd in a 2nd level zVM guest (zVM ipl'd in a zVM guest). A workaround is to turn off deflate with the zPDT **dflt** command before ipl'ing your z operating system. A fix is being worked on. There will be a notification when the fix is available.
- awsrdr device statement without a full path specified will cause a core dump. Work around is to explicitly provide the full path statement. This is expected to allow the default to work in a future fixpack release.

## Addendum

The IBM 1090 license tokens have been an important part of zPDT since it was released. The technology involved with these tokens has aged and zPDT must switch to new tokens. The general plan is to require the use of the new tokens when renewing a zPDT license, starting in the first quarter 2024. Since licenses are generally good for a year, this should result in all users having new tokens by the end of 2024. zPDT will support both the old tokens and the new tokens for at least a year.

The handling of IBM 1091 license tokens used by some ZD&T customers will be addressed in the future. The software-only ZD&T licenses will not be replaced and will continue to be used.

As a general plan, the Information Technology Company (ITC) will handle the actual distribution of the new tokens. ITC will provide suitable documentation and forum notes. Depending on the customer situation, there might be a minor fee to cover the actual cost of the new tokens. The new tokens are USB devices, slightly smaller than the previous tokens, and have IBM model numbers such as 1090-LT1, 1090-LT2, and so forth.

There are only a few technical changes involved in using the new tokens. For example, **request\_license** and **update\_license** commands replace the previous **Z1090\_token\_update** command. The **query\_license** command has been expanded to include details about the new tokens. Some IBM and ITC documentation uses the terms Gen1 (for the older SHK tokens) and Gen2 (for the new LDK tokens); this terminology was created a few years ago and these are simply convenient names with no special meanings.

For the newer (Gen2) 1090 tokens, do the following:

- You do not need to stop zPDT and you can have multiple Gen2 tokens installed.
- Switch to Linux root mode. There is currently no option to bypass this step.
- Using a Linux window, issue the command **request\_license**. This should produce a small binary file, with a system-assigned file name, such as **<linux host name>\_<hash>.zip** which is placed in /root.
  - If multiple Gen2 tokens are present, it will ask you to select the one you want to work with
- Send the binary file to your zPDT support organization (this is probably ITC). (Depending on your interface for obtaining renewed licenses, you might need to include the `11S` and `02` numbers from the tag attached to your license token.)
- They should respond with a binary file having a matching name such as **<linux host name>\_<hash>\_update.zip**. Place this file in a convenient location in your Linux system.
- Switch to Linux root mode. You can have zPDT still active and multiple tokens connected.
- Issue: **update\_license <path of>/<linux host name>\_<hash>\_update.zip**
- You can verify that the new Gen2 hardware token licenses have been installed / updated, by issuing the **query\_license** command and observe the license expiration date.
- As in the past, you can also verify by starting zPDT (with the normal `awsstart` command) and then issuing a **token** command from a Linux window.

LEAP SECONDS:

Previous zPDT releases have automatically added a leap-seconds offset value to the time-of-day value it obtains from the base Linux. This results in the time of day used by z/OS (for example) being different from the Linux time of day by about 30 seconds. Over the years this has created awkward comparisons for zPDT customers interested in automated timing comparisons, and so forth. A new devmap option is provided to bypass this automatic addition of leap seconds and this should result in the z/OS time of day (for example) being within one or two seconds of the Linux time of day. The specific devmap option goes in the "[system]" stanza and is:

**cpuopt ADD\_LEAPSEC=OFF**

to stop the addition of leap seconds to the Linux time-of-day used by zPDT.

The default is to add the leap seconds to the time-of-day value to keep consistent with prior zPDT releases. Future release may change the default to not add the leap seconds in.