



z/TPF V1.1

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TCP/IP APARs of Interest

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

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OSA-Express3 Support

- **IBM System z10 supports:**
 - Some OSA-Express2 adapters (that exist on System z9)
 - New OSA-Express3 adapters
- **Host interface changed for OSA-Express3**
- **APARs required to use OSA-Express3:**
 - **TPF 4.1** - PJ31048, PJ31946, PJ32412
 - **z/TPF** - PJ31039, PJ31947, PJ32414
- **You can apply these APARs today and still use older OSA adapters such as OSA-Express2**

Outages from IP Output Queue Corruption

- **Timing problem where IP output message points to a socket but socket no longer points to the output message**
- **Can result in CTL-2 and CTL-571 dumps**
- **This timing problem and several other potential problems were corrected by the following APARs:**
 - **TPF 4.1** - PJ32187, PJ32564
 - **z/TPF** - PJ32226
- **IBM strongly recommends you apply these APARs if you use TCP/IP native stack support**

Outage from Flood of TCP RSTs

- **When a TCP reset (RST) is received:**
 - Socket is cleaned up immediately to free up its resources
- **If activate_on_receipt (AOR) is pending when a TCP RST is received:**
 - Socket clean up will create a new ECB to post the AOR and inform the application program that the socket failed
- **If a large amount of RSTs are received in a batch from the network and the sockets all have AOR pending:**
 - Hundreds of ECBs can be created at once resulting in CTL-C
- **The following APARs throttle the ECB creation rate during RST processing:**
 - [TPF 4.1 - PJ32081](#)
 - [z/TPF - PJ32083](#)

Outage from ZMATP STOP Processing

- **The ZMATP STOP command will end active MATIP sessions**
 - First sends “shutting down” message, then closes the socket
- **When the *close* API is issued for a socket that has AOR pending, the AOR is posted to notify the application that no further data will arrive because the socket has been closed**
 - Posting an AOR causes a new application ECB to be created
- **MATIP sockets have `activate_on_receipt` (AOR) pending**
- **If there are hundreds of active MATIP sessions, ZMATP STOP may create hundreds of ECBs in a loop resulting in CTL-C**
- **The following APARs throttle the ECB creation rate during socket clean up processing (from *close* API processing):**
 - [TPF 4.1 - PJ32699](#)
 - [z/TPF - PJ32083](#)

Dynamic IP Routing Protocol Overview

- **Routing protocols such as Routing Information Protocol (RIP) and Open Shortest Path First (OSPF) use multicast packets to communicate between hosts and routers within a subnet**
 - Multicast allows one packet to be sent to and processed by multiple nodes on the subnet
- **TPF sends RIP messages every 30 seconds to inform routers of what path to use to reach a given TPF virtual IP address (VIPA)**
 - If routers do not receive a RIP message for a VIPA in a certain amount of time, the routers consider that VIPA no longer reachable
 - Sockets using that VIPA will fail

Packet Drop Problem

- **Problem in OSA-Express adapters causing random multicast packets to be dropped**
 - Some RIP messages sent by TPF to OSA-Express never get sent to the network (Ethernet)
- **If multiple RIP messages for the same VIPA are dropped**
 - Routers will think that VIPA failed
 - Existing sockets using that VIPA will fail
 - New sockets might not be able to use that VIPA either

Workaround Until Problem is Fixed

- **Problem believed to have been introduced with:**
 - OSA microcode level 8.7a on z9
 - OSA microcode level 8.5a on z990 and z900
- **TPF workaround (TPF 4.1 and z/TPF):**
 - Change the code to send RIP messages every 5 seconds instead of every 30 seconds by changing the CRETC in segment CRIC
 - from **CRETC S,CRIC,TIMEINC=30**
 - to **CRETC S,CRIC,TIMEINC=5**
- **z/OS workaround**
 - Reduce TCPIP OSPF HELLO interval setting to 5 seconds

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