

ECS Project

Engineering Technical Directive

No. 00-003

Subject: Clear IP Don't Fragment bit on FDDI Attached SGIs

04/18/00

The following directive is issued to all DAACS, VATC, and PVC.

Issue: As each DAAC, VATC, and PVC networks transition from FDDI to Ethernet, there will be some time when both FDDI and Ethernet hosts will be part of the Production network. Because the PowerHub does not fully support a mixed FDDI and Ethernet environment the production network SGI hosts need to be modified to allow IP packet fragmentation. This is already being done on the SUN hosts.

This is also consistent with the NASA's current security policy. NASA no longer supports ICMP messages. This means that an FDDI attached hosts which does not allow IP fragmentation will never receive an ICMP message that the IP packet is too big. The IPNOC has informed ECS that we should not rely on the use of ICMP messages to determine correct IP packet size.

Duration: At each DAAC, VATC, and PVC before the Catalyst 6000 Ethernet switch is installed and until the PowerHub is removed.

Implementation: On each FDDI attached SGI, perform the following:

A. IRIX 6.2:

1. Copy /unix to /unix.save
2. Edit file /var/sysgen/master.d/bsd as follows:

change "tcp_mtudisc = 1;" to "tcp_mtudisc = 0;"
3. Execute the command to rebuild the kernel as follows:

```
/etc/autoconfig -f
```

4. Reboot the SGI

IP packets will now have the Don't Fragment bit cleared.

B. IRIX 6.5:

1. Copy /unix /unix.sav
2. Copy /var/sysgen/stune /var/sysgen/stune.sav
3. Copy /var/sysgen/mtune/bsd /var/sysgen/mtune/bsd.sav
4. Execute the systune command as follows:
 - a. systune -i
 - b. systune-> tcp_mtudisc
tcp_mtudisc = 1 (0x1)
 - c. systune-> tcp_mtudisc 0
tcp_mtudisc = 1 (0x1)
Do you really want to change tcp_mtudisc to 0 (0x0)? (y/n) y
 - d. systune-> quit

IP packets will now have the Don't Fragment bit cleared.



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Possible consequences: If this change is not implemented FDDI attached M&O network hosts will see a 25 second delay from the time data is requested from a production network FDDI attached SGI host until it is displayed.

Also, a DAAC FDDI attached SGI hosts will see a 25 second delay from the time data is requested from either the VATC or PVC production networks FDDI attached SGI hosts until it is displayed.

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Reference CCR: 00-0387

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