

ERH, Toll-free Query Error

IPWorks

OPERATING INSTRUCTIONS

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1 Introduction

This instruction concerns alarm handling.

1.1 Alarm Description

This alarm is issued when the percentage of failed toll-free queries with respect to the total number of queries exceeds a configurable threshold.

The possible alarm causes and the corresponding fault reasons, fault locations and impacts are described in Table 1.

Table 1 Alarm Causes

Alarm Cause	Description	Fault Reason	Fault Location	Impact	Solution
ERH module load error	Initialization of ERH module failed when ENUM server is started.	ERH module is initialized incorrectly.	ENUM server	Toll-free query error	See Section 2.2 on page 3
SS7 stack or LDAP database error	SS7 stack configuration error or LDAP database connection error.	SS7 stack is in wrong status or LDAP database has problem or stopped.	SS7 stack or LDAP		See Section 2.3 on page 3

Note: An alarm can appear as a result of the maintenance activity.

The following is the consequence for the node if the alarm is not solved:

- If the percentage of failed NP queries continuously increase, ENUM server might not provide ERH service properly.

The alarm attributes are listed and explained in Table 2.

Table 2 Alarm Attributes

Attribute Name	Attribute Value
Major Type	193
Minor Type	856099
Managed Object Class	IpworksErhPm



Attribute Name	Attribute Value
Source	ManagedElement=<Node Name>,SystemFunctions=1,Pm=1,PmJob=<PM job name, the default job is ERHTTPSDefaultJob>,MeasurementReader=<name>:<hostname>
Specific Problem	ERH, Toll-free Query Error
Event Type	qualityOfServiceAlarm(11)
Probable Cause	x733ThresholdCrossed(351)
Additional Text	The percentage of failed toll-free queries with respect to the total number of queries exceeds a configurable threshold.;uuid:<Product_UUID> ⁽¹⁾
Perceived Severity	Warning

(1) <Product_UUID> is the universally unique identifier (UUID) of machine that generates the alarm. The value can be fetched from `/sys/devices/virtual/dmi/id/product_uuid` on the PL node.

1.2 Prerequisites

This section provides information on the documents, tools, and conditions that apply to the procedure.

1.2.1 Documents

This instruction references the following document:

- *Configure SS7 for ENUM Number Portability.*

1.2.2 Tools

Before starting this procedure, ensure that the following tool is available:

- Signaling Manager

SS7 stack can be configured by using the GUI tool.

1.2.3 Conditions

No conditions.



2 Procedure

This section describes the procedure to follow when this alarm is received.

2.1 Analyzing the Alarm

Do the following at the maintenance center:

1. Check ENUM logs
2. Check SS7 Stack and LDAP

2.2 Actions for Checking ENUM Logs

Do the following:

1. Log on to an SC or PL.
2. Open ENUM log to check if the ERH module initialization is successful. A successful log resembles the following:

```
../ProtocolServer.cpp:991 InitialAINHandle. NP(AIN) Info Data is Initializing ...  
../ProtocolServer.cpp:1001 InitialAINHandle. NP(AIN) Info Data Initialization is finish  
../NPHandler.cpp:448 initTimerModule. Init the Timer Module now.  
../NPHandler.cpp:550 CreateMultiWorkingThread. Init the MultiWorking Thread to receive
```

3. If the actual output is not like the above example, consult the next level of maintenance support.

2.3 Actions for Checking ERH and SS7 Stack

Do the following:

1. In IPWorks CLI, check the fields `LocalSSN` and `LocalSPC` of the `AINNode` object.

Note: The value of fields `LocalSSN` and `LocalSPC` must be consistent with the configuration of SS7 stack.

2. If the configuration is inconsistent, correct the configuration of the objects.

Note: The operator can either change the configuration of the objects in IPWorks CLI or change the configuration of SS7 stack in Signaling Manager to keep the configuration consistent.

For information on how to configure SS7 stack, refer to *Configure SS7 for ENUM Number Portability*.



3. Set the `NPSwitch` field of `AINNode` to 0, and wait for ENUM to unload the ERH module.
4. Set the `NPSwitch` field of `AINNode` to 1, then try the query again.
5. Check the status of SS7 stack.

For information on how to check SS7 stack, refer to the section *Verifying Stack Configuration* in *Configure SS7 for ENUM Number Portability*.

6. Check whether the LDAP feature is enabled, if not, enable it in ECLI.

For example:

```
>ManagedElement=<Node Name>,IpworksFunction=1,IpworksDnsRoot=1,IpworksEnumRoot=1,EnumServer=2,Erh=1
```

```
(Erh=1)>show -v
```

```
Erh=1
  discardErhFailure=false <default>
  erhId="1"
  ldap=false <default>
  nxdomainForNonPortedNumber=true <default>
  rcseInterConnect=false <default>
  teTimer=30 <default>
  ErhLdap=1
  ErhSs7=1
```

```
(Erh=1)>configure
```

```
(config-Erh=1)>ldap=true
```

```
(config-Erh=1)>commit
```

7. If the query is not sent to the NPDB by the LDAP protocol, check the configuration of `EnumDnRange` in IPWorks CLI.

For example:

```
IPWorks> list enumdnrange
```

```
[EnumDNRange 50 8652]
  enumZoneId: 50
  viewId: 0
  enumDnRange: 8652
  scope:
    destNode: ldap
    updateLevel: 0
Working on 1 object(s).
```



The expected result is that the value of `destNode` must be `ldap` when the `EnumDnRange` is configured for the NP by the LDAP protocol.

8. Confirm that the alarm has ceased. If the alarm remains, consult the next level of maintenance support. Further actions are outside the scope of this instruction.