

排除消息等待指示灯故障

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简介

本文档介绍消息等待指示器(MWI)ON/OFF的工作测试方案，并说明MWI存储过程函数和两种设置方案中显示的更改。结构化查询语言(SQL)结果将用于验证更改是否在MWI通知后应用于Informix数据库(IDS)消息到达Cisco Unified Communications Manager(CUCM)。

背景信息

触发Cisco Unity Connection以打开和关闭MWI的事件

- 当用户的留言到达Cisco Unity Connection留言库时，Cisco Unity Connection会通知电话系统为该用户打开电话上的MWI。
- 即使用户收听消息，MWI仍保持打开状态。在保存或删除邮件之前，它保持打开状态。保存或删除留言后，Cisco Unity Connection会通知电话系统关闭电话上的MWI。
- 当MWI同步时，Cisco Unity Connection会查询消息存储以确定所有电话上MWI的状态，并重置适用的MWI。

MWI开/关情景的CUCM跟踪代码段，使用SQL查询验证MWI标志值

情形 1：瘦呼叫控制协议(SCCP)电话分机1007呼叫号码1999的MWI

CUCM跟踪中被叫号码1999的数字分析：

```
06150176.006 |11:53:11.122 |AppInfo |Digit analysis: match(pi="2", fqcn="1007",
cn="1007",plv="5", pss="", TodFilteredPss="", dd="1999",dac="0")
06150176.007 |11:53:11.122 |AppInfo |Digit analysis: analysis results
06150176.008 |11:53:11.122 |AppInfo ||PretransformCallingPartyNumber=1007
|CallingPartyNumber=1007
|DialingPartition=
|DialingPattern=1999
|FullyQualifiedCalledPartyNumber=1999
|DialingPatternRegularExpression=(1999)
```

调用SQL过程将列记录标志值更新为2，这表示MWI ON指示器

```
06150194.001 |11:53:11.123 |AppInfo |DB: SQL1[execute procedure dblSetMWIEx('1007', '', 2, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0)]
```

在CUCM节点CLI上执行SQL查询以检查标志值(tkLampBlinkRate_MessageWaiting)

```
admin: run sql select n.dnorpattern, d.tkLampBlinkRate_MessageWaiting from numplan as
n,numplandynamic as d where n.dnorpattern = '1007' and n.pkid = d.fknumplan
dnorpattern tkLampBlinkRate_MessageWaiting
=====
1007          2
```

方案 2 : SCCP电话分机1007，呼叫MWI关号码1998

CUCM跟踪中被叫号码1998的数字分析

```
06150336.006 |11:53:16.427 |AppInfo |Digit analysis: match(pi="2", fqcn="1007",
cn="1007",plv="5", pss="", TodFilteredPss="", dd="1998",dac="0")
06150336.007 |11:53:16.427 |AppInfo |Digit analysis: analysis results
06150336.008 |11:53:16.427 |AppInfo ||PretransformCallingPartyNumber=1007
|CallingPartyNumber=1007
|DialingPartition=
|DialingPattern=1998
|FullyQualifiedCalledPartyNumber=1998
```

调用SQL过程将列记录标志值更新为1，这表示MWI关闭指示器

```
06150355.001 |11:53:16.428 |AppInfo |DB: SQL1[execute procedure dblSetMWIEx('1007', '', 1, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0)]
```

在CUCM节点CLI上执行SQL查询以检查标志值(tkLampBlinkRate_MessageWaiting)

```
admin: run sql select n.dnorpattern, d.tkLampBlinkRate_MessageWaiting from numplan as
n,numplandynamic as d where n.dnorpattern = '1007' and n.pkid = d.fknumplan
dnorpattern tkLampBlinkRate_MessageWaiting
=====
1007          1
```

MWI扩展的存储过程SQL

```
CREATE FUNCTION dblSetMWIEx ( DN LIKE NumPlan.DnOrPattern,
                             partition LIKE RoutePartition.pkid,
                             lamp LIKE NumPlanDynamic.tkLampBlinkRate_MessageWaiting,
```

"1007" will be the input to the DN field ,"2" or "1" will be acting as a lamp input to the function "dblSetMWIEx"

由于传递到函数的分区值为NULL，因此满足此IF条件，并且列出的SQL查询从NumPlanDynamic表中提取pkid值为参数：在与numplan表进行内部连接后执行NPDpkid

```

IF (partition = '') THEN
    SELECT NumPlanDynamic.pkid into NPDpkid from NumPlanDynamic INNER JOIN NumPlan ON
NumPlanDynamic.fknumplan = NumPlan.pkid
    WHERE (NumPlan.dnOrPattern = '1007' AND NumPlan.fkRoutePartition IS NULL);

```

从CUCM节点CLI执行SQL查询的结果

```

admin:run sql select NumPlanDynamic.pkid from NumPlanDynamic INNER JOIN NumPlan ON
NumPlanDynamic.fknumplan = NumPlan.pkid WHERE (NumPlan.dnOrPattern = '1007' AND
NumPlan.fkRoutePartition IS NULL)
pkid
=====
6b221dbe-4c53-4184-9cb9-d8a4e3a7f500

```

此pkid值将传递到函数中定义的NPDpkid值。

更新在函数dbISetMWIEx中执行的查询，以更新SQL过程中定义的灯字段值：

```

Update NumPlanDynamic set NumPlanDynamic.tkLampBlinkRate_MessageWaiting = lamp WHERE pkid =
NPDpkid;

```

更新查询更新tkLampBlinkRate_MessageWaiting列。

通过瘦呼叫控制协议(SCCP)与Unity连接集成的CUCM的MWI开/关场景的跟踪片段

1.场景中的MWI

MWI通知消息，来自Unity且mwiwaiting标志设置为1

```

19684211.001 |19:45:22.377 |AppInfo |StationInit: (0030551) StationMwiNotificationMessage
mwiTarget=1007 mwiCtrl=1999 msgsWaiting=1 totalVm(-1/-1) priVm(-1/-1) totalFax(-1/-1) priFax(-
1/-1)

```

```

19684212.000 |19:45:22.377 |SdlSig |StationMwiNotification
|restart0 |StationD(1,100,58,30551)
|StationInit(1,100,57,1) |1,100,13,30598.8^10.106.90.141^CiscoUM2-VI2 |[R:N-
H:0,N:0,L:0,V:0,Z:0,D:0] mwiTargetDn=1007 mwiControlDn=1999

```

msgsWaiting=1

```

19684213.000 |19:45:22.377 |SdlSig |SsInfoReq
|wait |Cc(1,100,213,1)
|StationD(1,100,58,30551) |1,100,13,30598.8^10.106.90.141^CiscoUM2-VI2 |[R:N-
H:0,N:0,L:0,V:0,Z:0,D:0] Type=0 Key=0 Node=1 Party=0 DevId=(1,58,30551) CSS=
dn=ti=1nd=1007pi=0s1l FeatId=122 FeatVal=2 WhichLamps=0 LampPersis=0 Signal=0 Cause=0
clientCodeReq=F authCodeReq=F mwiOnOffDn=1999 FDataType=0opId=0ssType=0
SsKey=0invokeId=0resultExp=Fbpda=F
19684214.000 |19:45:22.377 |SdlSig |SsInfoReq
|wait |MessageWaitingManager(1,100,126,1)
|Cc(1,100,213,1) |1,100,13,30598.8^10.106.90.141^CiscoUM2-VI2 |[R:N-

```

```

H:0,N:0,L:0,V:0,Z:0,D:0] Type=0 Key=0 Node=1 Party=0 DevId=(1,58,30551) CSS=
dn=ti=1nd=1007pi=0sil FeatId=122 FeatVal=2 WhichLamps=0 LampPersis=0 Signal=0 Cause=0
clientCodeReq=F authCodeReq=F mwiOnOffDn=1999 FDataType=0opId=0ssType=0
SsKey=0invokeId=0resultExp=Fbpda=F
19684214.001 |19:45:22.377 |AppInfo |MessageWaitingManager::ssInfoReq mwiOnOffDn=1999
passedCSS= mwiDnCss=
19684214.002 |19:45:22.377 |Created |
|
|MessageWaiting(1,100,127,106960741)
|MessageWaitingManager(1,100,126,1) |
|NumOfCurrentInstances: 6489
19684214.003 |19:45:22.377 |AppInfo |MessageWaitingManager - hashChildProcess - entries in the
messageWaiting table = 0x1959

19684215.000 |19:45:22.377 |SdlSig |SsInfoReq
|wait
|MessageWaiting(1,100,127,106960741)
|MessageWaitingManager(1,100,126,1) |1,100,13,30598.8^10.106.90.141^CiscoUM2-VI2 |[R:N-
H:0,N:0,L:0,V:0,Z:0,D:0] Type=0 Key=0 Node=1 Party=22308893 DevId=(1,58,30551) CSS=
dn=ti=1nd=1007pi=0sil FeatId=122 FeatVal=2 WhichLamps=0 LampPersis=0 Signal=0 Cause=0
clientCodeReq=F authCodeReq=F mwiOnOffDn=1999 FDataType=0opId=0ssType=0
SsKey=0invokeId=0resultExp=Fbpda=F
19684215.001 |19:45:22.378 |AppInfo |MessageWaiting::sendDaReq dialingPattern=1007
dialingPartition= voiceMailbox=1007 orig digitString=1007, cmDeviceType 0
19684215.002 |19:45:22.378 |Stopping |
|
|MessageWaiting(1,100,127,106960741)
|MessageWaiting(1,100,127,106960741) |
|NumOfCurrentInstances: 6489
19684216.000 |19:45:22.378 |SdlSig |DbVoiceMailUpdtReq
|initialized
|Db(1,100,202,1)
|MessageWaiting(1,100,127,106960741) |1,100,13,30598.8^10.106.90.141^CiscoUM2-VI2 |[T:N-
H:0,N:0,L:0,V:0,Z:0,D:0] 02000000 00000000 00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00000000 00000000 4862b9a5 00000000


```

执行更新SQL过程，将灯字段更新为2

```

19684216.001 |19:45:22.378 |AppInfo |DB: SQL1[execute procedure dblSetMWIEx('1007', '', 2, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0)]
19684216.002 |19:45:22.380 |AppInfo |DB: SQL2[execute procedure dblSetMWIEx('1007', '', 2, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0)]

19684217.000 |19:45:22.384 |SdlSig |SsInfoRes
|restart0
|StationD(1,100,58,30551)
|MessageWaiting(1,100,127,106960741) |1,100,13,30598.8^10.106.90.141^CiscoUM2-VI2 |[R:N-
H:0,N:1,L:0,V:0,Z:0,D:0] SsType=0 SsKey=106960741 SsNode=1 SsParty=0 DevId=(0,0,0) CSS=
dn=ti=1nd=1007pi=0sil FeatId=122 FeatVal=2 WhichLamps=0 LampPersis=0 SsSignal=0 SsCause=16
19684217.001 |19:45:22.384 |AppInfo |StationD: (0030551) TX StationMwiResponse:
mwiTarget=1007 result=0.
19684218.000 |19:45:22.384 |SdlSig |MessageWaitingComplete
|wait
|MessageWaitingManager(1,100,126,1)
|MessageWaiting(1,100,127,106960741) |1,100,13,30598.8^10.106.90.141^CiscoUM2-VI2 |[R:N-
H:0,N:0,L:0,V:0,Z:0,D:0]
19684218.001 |19:45:22.385 |AppInfo |MessageWaitingManager - deleteEntryFromMwiTable - entries
in the messageWaiting table = 0x1958


```

2. MWI关闭场景

MWI通知消息，来自Unity且mwiwaiting标志设置为0

```

19775953.001 |19:45:42.812 |AppInfo |StationInit: (0030549) StationMwiNotificationMessage
mwiTarget=1007 mwiCtrl=1998 msgsWaiting=0 totalVm(-1/-1) priVm(-1/-1) totalFax(-1/-1) priFax(-
1/-1)
19775954.000 |19:45:42.812 |SdlSig |StationMwiNotification
|restart0 |StationD(1,100,58,30549)
|StationInit(1,100,57,1) |1,100,13,30597.10^10.106.90.141^CiscoUM2-VI3 |[R:N-
H:0,N:0,L:0,V:0,Z:0,D:0] mwiTargetDn=1007 mwiControlDn=1998 msgsWaiting=0
19775955.000 |19:45:42.812 |SdlSig |SsInfoReq
|wait |Cc(1,100,213,1)
|StationD(1,100,58,30549) |1,100,13,30597.10^10.106.90.141^CiscoUM2-VI3 |[R:N-
H:0,N:0,L:0,V:0,Z:0,D:0] Type=0 Key=0 Node=1 Party=0 DevId=(1,58,30549) CSS=
dn=ti=Ind=1007pi=0sil FeatId=122 FeatVal=1 WhichLamps=0 LampPersis=0 Signal=0 Cause=0
clientCodeReq=F authCodeReq=F mwiOnOffDn=1998 FDataType=0opId=0ssType=0
SsKey=0invokeId=0resultExp=Fbpda=F
19775956.000 |19:45:42.812 |SdlSig |SsInfoReq
|wait |MessageWaitingManager(1,100,126,1)
|Cc(1,100,213,1) |1,100,13,30597.10^10.106.90.141^CiscoUM2-VI3 |[R:N-
H:0,N:0,L:0,V:0,Z:0,D:0] Type=0 Key=0 Node=1 Party=0 DevId=(1,58,30549) CSS=
dn=ti=Ind=1007pi=0sil FeatId=122 FeatVal=1 WhichLamps=0 LampPersis=0 Signal=0 Cause=0
clientCodeReq=F authCodeReq=F mwiOnOffDn=1998 FDataType=0opId=0ssType=0
SsKey=0invokeId=0resultExp=Fbpda=F
19775956.001 |19:45:42.812 |AppInfo |MessageWaitingManager::ssInfoReq mwiOnOffDn=1998
passedCSS= mwiDnCss=
19775956.002 |19:45:42.812 |Created |
| |MessageWaiting(1,100,127,106964522)
|MessageWaitingManager(1,100,126,1) |
|NumOfCurrentInstances: 6266
19775956.003 |19:45:42.812 |AppInfo |MessageWaitingManager - hashChildProcess - entries in the
messageWaiting table = 0x187A
19775957.000 |19:45:42.812 |SdlSig |SsInfoReq
|wait |MessageWaiting(1,100,127,106964522)
|MessageWaitingManager(1,100,126,1) |1,100,13,30597.10^10.106.90.141^CiscoUM2-VI3 |[R:N-
H:0,N:0,L:0,V:0,Z:0,D:0] Type=0 Key=0 Node=1 Party=22312676 DevId=(1,58,30549) CSS=
dn=ti=Ind=1007pi=0sil FeatId=122 FeatVal=1 WhichLamps=0 LampPersis=0 Signal=0 Cause=0
clientCodeReq=F authCodeReq=F mwiOnOffDn=1998 FDataType=0opId=0ssType=0
SsKey=0invokeId=0resultExp=Fbpda=F
19775957.001 |19:45:42.812 |AppInfo |MessageWaiting::sendDaReq dialingPattern=1007
dialingPartition= voiceMailbox=1007 orig digitString=1007, cmDeviceType 0
19775957.002 |19:45:42.812 |Stopping |
| |MessageWaiting(1,100,127,106964522)
|MessageWaiting(1,100,127,106964522) |
|NumOfCurrentInstances: 6266
19775958.000 |19:45:42.812 |SdlSig |DbVoiceMailUpdtReq
|initialized |Db(1,100,202,1)
|MessageWaiting(1,100,127,106964522) |1,100,13,30597.10^10.106.90.141^CiscoUM2-VI3 |[T:N-
H:0,N:0,L:0,V:0,Z:0,D:0] 01000000 00000000 00000000 00000000 00000000 00000000 00000000
00000000 00000000 00aff8ac 00000000 48c057a9 00000000

```

执行更新SQL过程，将灯字段更新为1

```

19775958.001 |19:45:42.812 |AppInfo |DB: SQL1[execute procedure dblSetMWIEx('1007', '', 1, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0)]
19775958.002 |19:45:42.820 |AppInfo |DB: SQL2[execute procedure dblSetMWIEx('1007', '', 1, 0,
0, 0, 0, 0, 0, 0, 0, 0, 0, 0)]
19775959.000 |19:45:42.823 |SdlSig |SsInfoRes
|restart0 |StationD(1,100,58,30549)

```

```
|MessageWaiting(1,100,127,106964522) |1,100,13,30597.10^10.106.90.141^CiscoUM2-VI3 |[R:N-
H:0,N:1,L:0,V:0,Z:0,D:0] SsType=0 SsKey=106964522 SsNode=1 SsParty=0 DevId=(0,0,0) CSS=
dn=ti=1nd=1007pi=0si1 FeatId=122 FeatVal=1 WhichLamps=0 LampPersis=0 SsSignal=0 SsCause=16
19775959.001 |19:45:42.823 |AppInfo |StationD: (0030549) TX StationMwiResponse:
mwiTarget=1007 result=0.
19775960.000 |19:45:42.823 |SdlSig |MessageWaitingComplete
|wait |MessageWaitingManager(1,100,126,1)
|MessageWaiting(1,100,127,106964522) |1,100,13,30597.10^10.106.90.141^CiscoUM2-VI3 |[R:N-
H:0,N:0,L:0,V:0,Z:0,D:0]
19775960.001 |19:45:42.824 |AppInfo |MessageWaitingManager - deleteEntryFromMwiTable - entries
in the messageWaiting table = 0x1879
```