

## Troubleshooting Example for Atlas PRI-RBS Conversion

Below is an example of debugging Atlas Dial Plan calls when doing a PRI-to-RBS conversion. This particular example covers two calls traversing the Atlas from the PRI in slot 1 port 2 to the E&M wink T1 in slot 1 port 4. The trace in blue is a failed call, while the trace in black is a successful example. Though this example may be specific, the principle points are constant among various applications. This document can serve as a reference for several Atlas troubleshooting scenarios.

For further detail on Atlas Event Logging and capturing to Syslog, please consult ADTRAN Knowledgebase articles titled “[Event Logging Explanation](#)” (article 1933), and “[Using the Adtran Utility Syslog with the Atlas](#)” (article 1882).

Each ISDN Q.931 message (call management on the PRI on slot 1 port 2) will be off set by a series of lines like those you see highlighted in yellow in the very first line of the log below. Each message has a call reference value of which the first nibble (four bits) changes by a binary value equivalent of 8 depending on whether the message was transmitted or received (so just look at the last three hex characters). You can use this CRV value to keep track of which ISDN messages go with each call. The first two CRVs are highlighted below in red. The type of message is indicated by an M – [Some Description and this is highlighted in turquoise](#). All entries are time stamped on the far left. DP Outgoing signaling changes (your sig bit transitions) have an additional time stamp on the right that will allow you to determine the number of milliseconds that have passed between state changes. Both are highlighted in green below where they first appear. The type of message and the slot and port number where they appear are highlighted in pink.

### Example of an Unsuccessful Call:

1. Slot 1 port 2 – We receive a setup message on the PRI side from the carrier.

```
57:27 :L2-Form|Slt1|2|=====
57:27 :L2-Form|Slt1|2| Recd = Sapi:00 C/R:C Tei:00
57:27 :L2-Form|Slt1|2| Ctl:INFO Ns:115 Nr:1
57:27 :L2-Form|Slt1|2| Prot:08 CRL:2 CRV:1C6F
57:27 :L2-Form|Slt1|2| M - 05 SETUP
57:27 :L2-Form|Slt1|2| IE - 04 BEARER CAPABILITY Len=3
57:27 :L2-Form|Slt1|2| 80 Xfer Cap.:SPEECH
57:27 :L2-Form|Slt1|2| 90 Xfer Rate:64k
57:27 :L2-Form|Slt1|2| A2 Layer 1:u-Law
57:27 :L2-Form|Slt1|2| IE - 18 CHANNEL ID Len=3
57:27 :L2-Form|Slt1|2| A9 Primary Rate
57:27 :L2-Form|Slt1|2| Intfc ID:IMPLICIT
57:27 :L2-Form|Slt1|2| Pref/Excl:EXCLUSIVE
57:27 :L2-Form|Slt1|2| D-Chan Indicated:NO
57:27 :L2-Form|Slt1|2| Chan. Sel:FOLLOWS
57:27 :L2-Form|Slt1|2| 83 Numb/Map:NUMBER
57:27 :L2-Form|Slt1|2| 93 Channel:19
57:27 :L2-Form|Slt1|2| IE - 1E PROGRESS INDICATOR Len=2
57:27 :L2-Form|Slt1|2| 82 Location:LN
57:27 :L2-Form|Slt1|2| 83 Description:ORIG. NOT ISDN
57:27 :L2-Form|Slt1|2| IE - 6C CALLING PARTY # Len=12
57:27 :L2-Form|Slt1|2| 21 Numb. Type:NATIONAL
57:27 :L2-Form|Slt1|2| Numb. Plan:ISDN/Telephony
57:27 :L2-Form|Slt1|2| 83 Presentation:ALLOWED
```

```

57:27 :L2-Form|Slt1|2|                               Ph.# 5551231569
57:27 :L2-Form|Slt1|2|                               IE - 70 CALLED PARTY #       Len=5
57:28 :L2-Form|Slt1|2|                               80 Numb. Type:UNKNOWN
57:28 :L2-Form|Slt1|2|                               Numb. Plan:UNKNOWN
57:28 :L2-Form|Slt1|2|                               Ph.# 1566
57:28 :L2-Form|Slt1|2|                               IE - 74 REDIRECTING #       Len=13
57:28 :L2-Form|Slt1|2|                               21 00 8F 33 30 35 36 35 34 35 34 34 30

```

2. We respond to the carrier with a call proceeding message indicating that we're working on it. When they receive this it sets the T310 timer. This is a ten second timer that counts down until they get an Alert, a Connect or a Disconnect back from us. This is the timer that will eventually timing out causing the TIMER\_EXPIRY event.

```

57:28 :L2-Form|Slt1|2|=====
57:28 :L2-Form|Slt1|2|Sent = Sapi:00 C/R:R Tei:00
57:28 :L2-Form|Slt1|2|          Ctl:INFO      Ns:1   Nr:116
57:28 :L2-Form|Slt1|2|          Prot:08 CRL:2  CRV:9C6F
57:28 :L2-Form|Slt1|2|          M - 02 CALL_PROC
57:28 :L2-Form|Slt1|2|          IE - 18 CHANNEL ID       Len=3
57:28 :L2-Form|Slt1|2|          A9 Primary Rate
57:28 :L2-Form|Slt1|2|          Intfc ID:IMPLICIT
57:28 :L2-Form|Slt1|2|          Pref/Excl:EXCLUSIVE
57:28 :L2-Form|Slt1|2|          D-Chan Indicated:NO
57:28 :L2-Form|Slt1|2|          Chan. Sel:FOLLOWS
57:28 :L2-Form|Slt1|2|          83 Numb/Map:NUMBER
57:28 :L2-Form|Slt1|2|          93 Channel:19

```

3. On the RBS T1 side (slot 1 port 4) we accept the call and seize channel 10 of the T1 by transitioning our signaling A/B bits to a value of 1/1. The sig bits are highlighted in gray. That particular line item indicates first whether the change was transmitted or received (TX-Set vs. RX-Change) and then the value of the sig bits. You'll notice again that we are looking at a byte of which the final nibble is of interest. So, you'll always see a zero followed by the character of interest. In this case the only values we should see will be 00 or 0f (indicating an A/B bit value of 0/0 or 1/1).

```

57:28 :DP Out|Slt1|4|Ds0:10 -RBAcceptCall
57:28 :DP Out|Slt1|4|Ds0:10 TX-Set  rxABCD:00 txABCD:0f t:77813843 ms

```

4. The switchboard will indicate what interface received the call, in this case slot 1 port 2; what number it was, 1566, and which dial plan user term entry it was switched to, slot 1 port 4, the channel group that begins with DS0\_01. This last part some times causes confusion, as the DS0 indicated is the first in a group and not the actual.

```

57:28 :Switchboard|Slt1|2|1566 Pri. accepted: slot Slt1, port 4, DS0_01

```

5. At this point the Atlas is waiting for a wink back in response to its' seizure of the channel. The wink back as you'll see in the successful call below will come in the form of an RX change first to rxABCD:0f and then another back to rxABCD:00. This never happens. Instead, ten seconds later the T310 timer expires at almost the same time that our own timer expires on the RBS side and the call is torn down in essence twice. We receive a disconnect on the PRI side due to TIMER\_EXPIRY.

```

57:37 :L2-Form|Slt1|2|=====
57:37 :L2-Form|Slt1|2|Recd = Sapi:00 C/R:C Tei:00
57:37 :L2-Form|Slt1|2|          Ctl:INFO      Ns:0   Nr:16
57:37 :L2-Form|Slt1|2|          Prot:08 CRL:2  CRV:1C6F
57:37 :L2-Form|Slt1|2|          M - 45 DISCONNECT

```

```

57:37 :L2-Form|Slt1|2|          IE - 08 CAUSE          Len=2
57:37 :L2-Form|Slt1|2|          80 Location:U
57:37 :L2-Form|Slt1|2|          E6 Cause:TIMER_EXPIRY
57:37 :ISDN|Slt1|2|Call clearing: TIMER_EXPIRY : Loc=U

```

...at the same time that we clear the call ourselves on the RBS side with a transition back to a 0/0 state (idle) in our sig bits.

```

57:37 :DP Out|Slt1|4|Ds0:10 -RBClearCall
57:37 :DP Out|Slt1|4|Ds0:10 TX-Set      rxABCD:00 txABCD:00 t:77823922 ms

```

6. The Atlas responds to the disconnect that the carrier sends.

```

57:37 :L2-Form|Slt1|2|=====
57:37 :L2-Form|Slt1|2|Sent = Sapi:00 C/R:R Tei:00
57:37 :L2-Form|Slt1|2|      Ctl:INFO      Ns:16  Nr:1
57:37 :L2-Form|Slt1|2|      Prot:08  CRL:2  CRV:9C6F
57:37 :L2-Form|Slt1|2|      M - 4D RELEASE

```

7. And they acknowledge our release with a release complete terminating the call.

```

57:37 :L2-Form|Slt1|2|=====
57:37 :L2-Form|Slt1|2|Recd = Sapi:00 C/R:C Tei:00
57:37 :L2-Form|Slt1|2|      Ctl:INFO      Ns:1   Nr:17
57:37 :L2-Form|Slt1|2|      Prot:08  CRL:2  CRV:1C6F
57:38 :L2-Form|Slt1|2|      M - 5A RELEASE_CMP

```

8. And finally, in response to that tear down on the PRI side the Atlas tears the call down on the RBS T1 side again with a transition to 0/0, even though it's already at 0/0.

```

57:37 :DP Out|Slt1|4|Ds0:10 TX-Set      rxABCD:00 txABCD:00 t:77824924 ms

```

## Example of a Successful Call

1. We receive a setup.

```
57:28 :L2-Form|Slt1|2|=====
57:28 :L2-Form|Slt1|2|Recd = Sapi:00 C/R:C Tei:00
57:28 :L2-Form|Slt1|2|      Ctl:INFO      Ns:116 Nr:2
57:28 :L2-Form|Slt1|2|      Prot:08 CRL:2 CRV:088A
57:28 :L2-Form|Slt1|2|      M - 05 SETUP
57:28 :L2-Form|Slt1|2|      IE - 04 BEARER CAPABILITY Len=3
57:28 :L2-Form|Slt1|2|      80 Xfer Cap.:SPEECH
57:28 :L2-Form|Slt1|2|      90 Xfer Rate:64k
57:28 :L2-Form|Slt1|2|      A2 Layer 1:u-Law
57:28 :L2-Form|Slt1|2|      IE - 18 CHANNEL ID Len=3
57:28 :L2-Form|Slt1|2|      A9 Primary Rate
57:28 :L2-Form|Slt1|2|      Intfc ID:IMPLICIT
57:28 :L2-Form|Slt1|2|      Pref/Excl:EXCLUSIVE
57:28 :L2-Form|Slt1|2|      D-Chan Indicated:NO
57:28 :L2-Form|Slt1|2|      Chan. Sel:FOLLOWS
57:28 :L2-Form|Slt1|2|      83 Numb/Map:NUMBER
57:28 :L2-Form|Slt1|2|      81 Channel:1
57:28 :L2-Form|Slt1|2|      IE - 1E PROGRESS INDICATOR Len=2
57:28 :L2-Form|Slt1|2|      82 Location:LN
57:28 :L2-Form|Slt1|2|      83 Description:ORIG. NOT ISDN
57:28 :L2-Form|Slt1|2|      IE - 6C CALLING PARTY # Len=12
57:28 :L2-Form|Slt1|2|      21 Numb. Type:NATIONAL
57:28 :L2-Form|Slt1|2|      Numb. Plan:ISDN/Telephony
57:28 :L2-Form|Slt1|2|      83 Presentation:ALLOWED
57:28 :L2-Form|Slt1|2|      Ph.# 5553211569
57:28 :L2-Form|Slt1|2|      IE - 70 CALLED PARTY # Len=5
57:28 :L2-Form|Slt1|2|      80 Numb. Type:UNKNOWN
57:28 :L2-Form|Slt1|2|      Numb. Plan:UNKNOWN
57:28 :L2-Form|Slt1|2|      Ph.# 3686
57:28 :L2-Form|Slt1|2|      IE - 74 REDIRECTING # Len=13
57:28 :L2-Form|Slt1|2|      21 00 8F 39 35 34 37 36 33 31 32 33 30
```

2. We respond with a call proceeding.

```
57:28 :L2-Form|Slt1|2|=====
57:28 :L2-Form|Slt1|2|Sent = Sapi:00 C/R:R Tei:00
57:28 :L2-Form|Slt1|2|      Ctl:INFO      Ns:2 Nr:117
57:28 :L2-Form|Slt1|2|      Prot:08 CRL:2 CRV:888A
57:28 :L2-Form|Slt1|2|      M - 02 CALL_PROC
57:28 :L2-Form|Slt1|2|      IE - 18 CHANNEL ID Len=3
57:28 :L2-Form|Slt1|2|      A9 Primary Rate
57:28 :L2-Form|Slt1|2|      Intfc ID:IMPLICIT
57:28 :L2-Form|Slt1|2|      Pref/Excl:EXCLUSIVE
57:28 :L2-Form|Slt1|2|      D-Chan Indicated:NO
57:28 :L2-Form|Slt1|2|      Chan. Sel:FOLLOWS
57:28 :L2-Form|Slt1|2|      83 Numb/Map:NUMBER
57:28 :L2-Form|Slt1|2|      81 Channel:1
```

3. We grab the channel with a 1/1.

```
57:28 :DP Out|Slt1|4|Ds0:11 -RBAcceptCall
57:28 :DP Out|Slt1|4|Ds0:11 TX-Set rxABCD:00 txABCD:0f t:77814393 ms
57:28 :Switchboard|Slt1|2|3686 Pri. accepted: slot Slt1, port 4, DS0_01
```

4. Wink on.

```
57:28 :DP Out|Slt1|4|Ds0:11 RX-Change rxABCD:0f txABCD:0f t:77814535 ms
```

5. Wink off.

```
57:28 :DP Out|Slt1|4|Ds0:11 RX-Change rxABCD:00 txABCD:0f t:77814734 ms
```

6. We send a progress message to the carrier taking care of their T310 timer.

```
57:28 :L2-Form|Slt1|2|=====
57:28 :L2-Form|Slt1|2|Sent = Sapi:00 C/R:R Tei:00
57:28 :L2-Form|Slt1|2|      Ctl:INFO      Ns:3   Nr:117
57:28 :L2-Form|Slt1|2|      Prot:08 CRL:2 CRV:888A
57:28 :L2-Form|Slt1|2|      M - 03 PROGRESS
57:28 :L2-Form|Slt1|2|      IE - 1E PROGRESS INDICATOR Len=2
57:28 :L2-Form|Slt1|2|      80 Location:U
57:28 :L2-Form|Slt1|2|      88 Description:INBAND AUDIO AVAIL
```

7. The channel is allocated and the digits are sent.

```
57:28 :DP Out|Slt1|4|Ds0:11 DSP Event:00000 t:77814784 ms
57:28 :DP Out|Slt1|4|Ds0:11 DSP Dialing 3686
57:29 :DP Out|Slt1|4|Ds0:11 DSP Event:50000 t:77815524 ms
57:29 :DP Out|Slt1|4|Ds0:11 DSP Event:60000 t:77815564 ms
```

8. The call is answered on the T1 side with a change to 1/1 in the RX bits.

```
57:31 :DP Out|Slt1|4|Ds0:11 RX-Change rxABCD:0f txABCD:0f t:77817833 ms
```

9. We send a connect indicator on the PRI side.

```
57:31 :L2-Form|Slt1|2|=====
57:31 :L2-Form|Slt1|2|Sent = Sapi:00 C/R:R Tei:00
57:31 :L2-Form|Slt1|2|      Ctl:INFO      Ns:7   Nr:120
57:31 :L2-Form|Slt1|2|      Prot:08 CRL:2 CRV:888A
57:31 :L2-Form|Slt1|2|      M - 07 CONNECT
```

10. The carrier acknowledges the connect.

```
57:31 :L2-Form|Slt1|2|=====
57:31 :L2-Form|Slt1|2|Recd = Sapi:00 C/R:C Tei:00
57:31 :L2-Form|Slt1|2|      Ctl:INFO      Ns:120 Nr:8
57:31 :L2-Form|Slt1|2|      Prot:08 CRL:2 CRV:088A
57:31 :L2-Form|Slt1|2|      M - 0F CONNECT_ACK
57:37 :DP Out|Slt1|4|Ds0:10 TX-Set rxABCD:00 txABCD:00 t:77823843 ms
```

11. Talk path is open.

