



# ITM 6.x – Scenario-based troubleshooting

## *Scenario #5 : Agent does not connect to TEMS*

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## Scenario #9

- TEMA does not connect to TEMS
- Remote TEMS does not connect to Hub TEMS



## Requirements

- Add environment variable in Hub TEMS configuration file

KDC\_\_DEBUG=Y

KDE\_\_DEBUG=Y

- Add environmnet variable in Agent (or RTEMS) configuration file

KDC\_\_DEBUG=Y

KDE\_\_DEBUG=Y

- Simulate the problem and collect RAS1 log files from all components.
- All log files' timestamp must be synchronized in time.



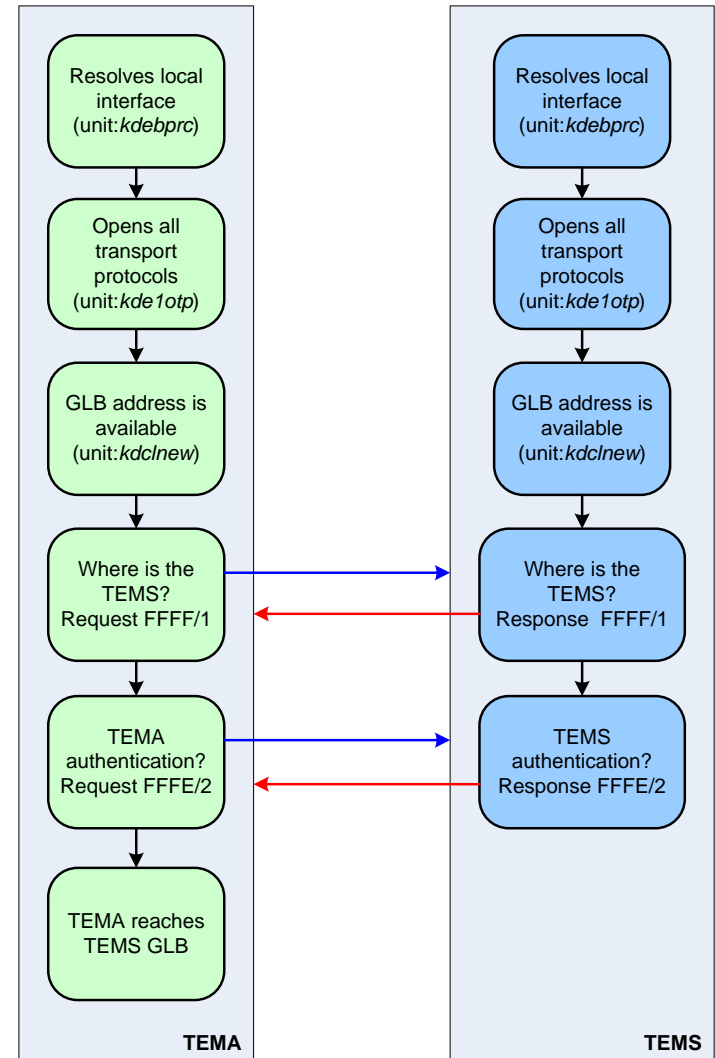
## Some background

- An intrinsic part of RPC architecture is the location broker.
- RPC servers (callers of `rpc__listen`) publish their service and the address of this service in a location broker.
- RPC clients (callers of `rpc__sar`) use the location broker to obtain the address of a server prior to making a call to that server.
- There are two types of location brokers:
  - ▶ Local Location Broker (LLB)
  - ▶ Global Location Broker (GLB).
- GLB is a repository of service addresses for the entire enterprise.
- TEMS agent, WPA, TEPS have its own LLB.
- The RPC server LLB that points to the GLB (of which there is only one for all connected components ) is, by definition, the HUB.



## Diagram and flow description

- Each component prepares its own location broker.
- Hub prepares its global location broker at which other components can connect.
- First request packet is sent to find out where TEMS is.
- The next request packet is about call back authentication.



## Example (TEMA)

- Resolves local interface

```
(4C877929.0007-284:kbbssge.c,52,"BSS1_GetEnv") CT_CMSLIST="IP:localhost"
(4C877929.001C-284:kbbssge.c,52,"BSS1_GetEnv") KDE_TRANSPORT=KDC_FAMILIES="IP
PORT:1918 SNA use:n IP.PIPE use:n IP.SPIPE use:n"
(4C877929.003B-284:kdebprc.c,912,"interface_discovery") IPV4 interface(s):
  'itmdvd26', mask=0x00:0x50
+4C877929.003B                                10.100.100.89: source=hostname:0, seq=0,
  mask=0x03
+4C877929.003B                                : source=winsock:0, seq=1
+4C877929.003B                                169.254.194.55: source=winsock:1, seq=0,
  mask=0x01
+4C877929.003B                                127.0.0.1: source=loopback, seq=0,
  mask=0x10, loopback
```

- Open all transport protocols

```
(4C877929.006E-284:kdelotp.c,143,"KDE1I_OpenTransportProvider") Transport opened:
  socket/ip.udp (0082) 127 2
(4C877929.0072-284:kdelotp.c,143,"KDE1I_OpenTransportProvider") Transport opened:
  socket/ip.tcp (0092) 125 2
(4C877929.0076-284:kdelotp.c,143,"KDE1I_OpenTransportProvider") Transport opened:
  socket/ip.ssl (00B2) 123 2
```

## Example (TEMA)

- LLB and GLB addresses are available

(4C8779DF.0057-1ED4:kdclnew.c,324,"NewSDB") LLB entry 1  
is ip:#10.100.100.89[1918], local

(4C8779DF.0058-1ED4:kdclnew.c,324,"NewSDB") LLB entry 2  
is ip:#169.254.194.55[1918], local

(4C8779DF.0059-1ED4:kdclnew.c,328,"NewSDB") GLB entry 1  
is ip:#10.100.100.89[1918], local

(4C8779DF.005A-1ED4:kdclnew.c,328,"NewSDB") **GLB entry 2**  
is ip:#169.254.194.55[1918], local

- “Where is the TEMS?” request FFFF/1.0

(4C8779DF.0078-1ED4:kdcr0se.c,258,"**KDCR0\_Send**") request  
**FFFF/1.0** (200): ip:#**127.0.0.1**[1918]



## Example (TEMS)

- TEMS receives the request FFFF/1.0

```
(4C877833.01E8-13D4:kdcr0ip.c,249,"KDCR0_InboundPacket") request
  FFFF/1.0 (200): ip:#10.100.100.89[2270]
```

- TEMS assigns FFFE as client id for TEMA.

```
(4C877833.01EC-13D4:kdcsdrq.c,926,"KDCS_DispatchRequest") client-
  FFFE: allocated, KDCS_acb_t=1600C4C
```

```
(4C877833.01ED-13D4:kdcsdrq.c,959,"KDCS_DispatchRequest") client-
  FFFE(1): assigned to dc31f58d625a.02.0a.64.64.59.00.19.70
```

```
(4C877833.01EF-13D4:kdcsdrq.c,540,"do_request") client-FFFE:
  active at ip:#10.100.100.89{2270}, rcb=587CF0
```

- “Where is TEMS” response FFFE/1.0 & FFFE/1.1

```
(4C877833.0200-1850:kdcr0se.c,258,"KDCR0_Send") response FFFE/1.0
  (1024): ip:#10.100.100.89[2270]
```

```
(4C877833.0201-1850:kdcr0se.c,258,"KDCR0_Send") response FFFE/1.1
  (496): ip:#10.100.100.89[2270]
```





## Example (TEMA)

- TEMA receives the response from TEMS, FFFE/1.0 & FFFE/1.1  
(4C8779DF.0083-1ED4:kdcr0ip.c,249,"KDCR0\_InboundPacket")  
    **response FFFE/1.0** (1024): ip:#**127.0.0.1**[1918]  
(4C8779DF.008D-1ED4:kdcr0ip.c,249,"KDCR0\_InboundPacket")  
    **response FFFE/1.1** (496): ip:#**127.0.0.1**[1918]
- TEMA sends authentication call back request to TEMS, FFFF/2.0  
(4C8779DF.0094-1ED4:kdcr0se.c,258,"KDCR0\_Send") **request FFFE/2.0** (200): ip:#**127.0.0.1**[1918]

## Example (TEMS)

- TEMS receives authentication call back request, FFFE/2.0  
(4C877833.0262-13D4:kdcr0ip.c, 249, "KDCR0\_InboundPacket")  
**request FFFE/2.0** (200): ip:#**10.100.100.89**[2270]
- TEMS sends authentication call back response, FFFE/2.0  
(4C877833.0267-1850:kdcr0se.c, 258, "KDCR0\_Send") **response**  
**FFFE/2.0** (96): ip:#**10.100.100.89**[2270]



## Example (TEMA)

- TEMA receives authentication call back response, FFFE/2.0.

```
(4C8779DF.009B-1ED4:kdcr0ip.c, 249, "KDCR0_InboundPacket")  
response FFFE/2.0 (96): ip:#127.0.0.1[1918]
```

- TEMA successfully connects to TEMS

```
(4C8779E0.0020-1ED4:kraarreg.cpp, 324, "ConnectToProxy")  
Successfully connected to CMS HUB_ITMDVD26 using  
ip:#10.100.100.89[1918]
```



## More analysis

- Packet is sent in the following format:

$\langle nnnn \rangle / \langle x \rangle . \langle y \rangle$

▶ where:

- $nnnn$  is RPC client (FFFF being the Hub TEMS)
  - $x$  is the packet identifier
  - $y$  is sequence number of a particular packet identifier
- The size of packet between **Send** and **Inbound** with the same identifier must match.
  - The maximum size of packet is 1024 bytes after which a new packet is sent and the sequence number increases.

