Application Guide for Model 6750 BRTU DS3 TAD Interface with Lucent DMX

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Section 1.0

BRTU-99 and Lucent DMX DCS Introduction and Preparation

1.0 Objective

This document is made to use as an application guide for setting up the Model 6750 BRTU and REACT for accessing DS1 circuit using BRTU DS3 TAD Interface card from Lucent DMX.

This document does not cover the overall acceptance/verification and focused only in configurations of Spirent Model 6750 BRTU-99 and REACT to access DS3 circuits from Lucent DMX. Additional information may be obtained in the following documents for the purpose of troubleshooting, maintenance, operation requirements, etc.

- ATP-6700-085 6750 Acceptance Test Procedure
- HKMN-6750-101 6750 Application Drawings.
- PN-6750-104 Spirent Digital Test System Command Manual
- Lucent DMX User Manual

Spirent documentation maybe obtain via web using the address shown below. Username and password is required.

http://assure.spirentcom.com/extranet/authenticate.asp

Note

The Test Identifier, IP address, and test circuit used in this document are examples only. Please refer to central office engineer for the assigned information's

1.1 Description

This document consist of six sections

Section 1	Introduction and Preparation
Section 2	Model 6750 BRTU
Section 3	Circuit Access Test
Section 4	React Test Resource Example

1.2 Equipment Drawings

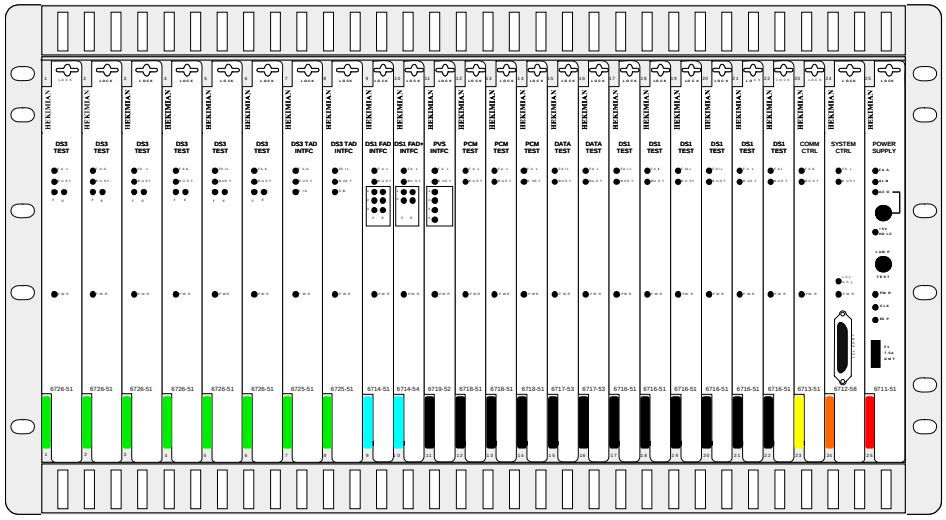


Figure 1-1 Model 6750 BRTU-99 Front View

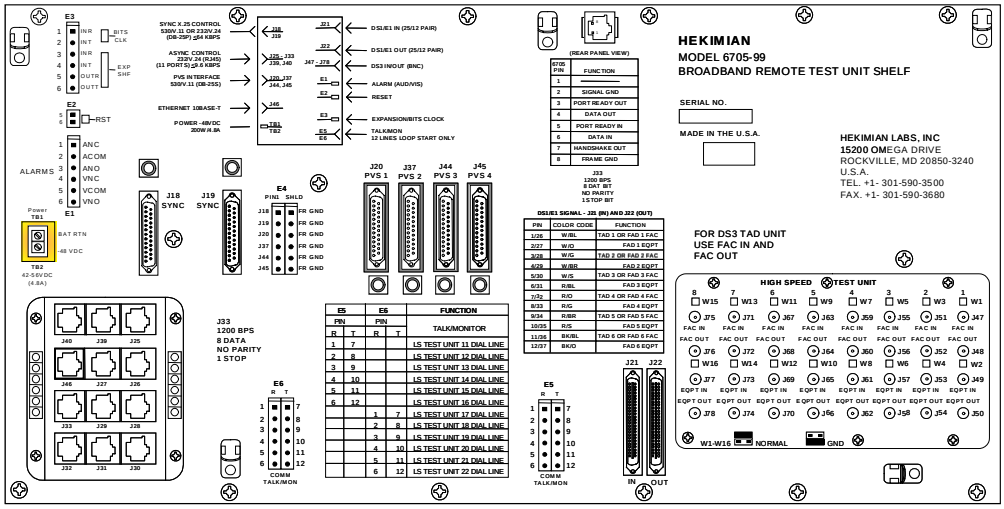


Figure 1-2 Model 6750 BRTU-99 Rear View

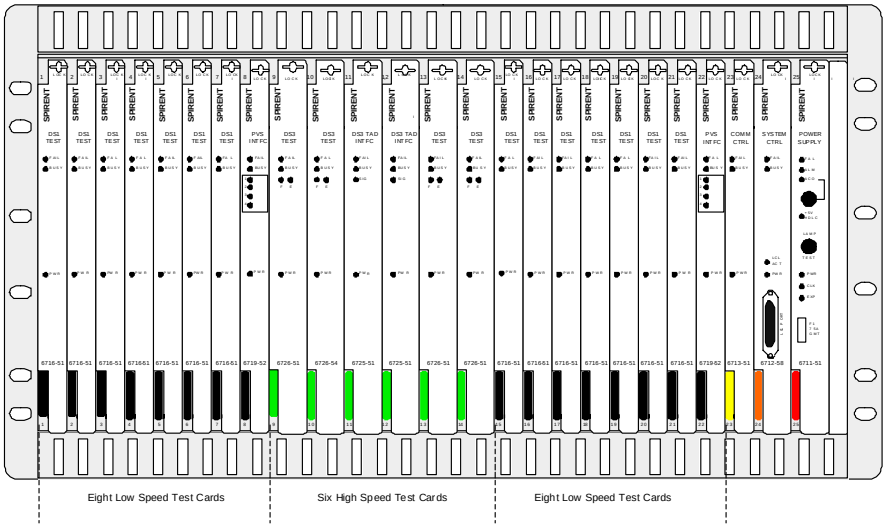


Figure 1-3 Model 6750 BRTU-95 Front View

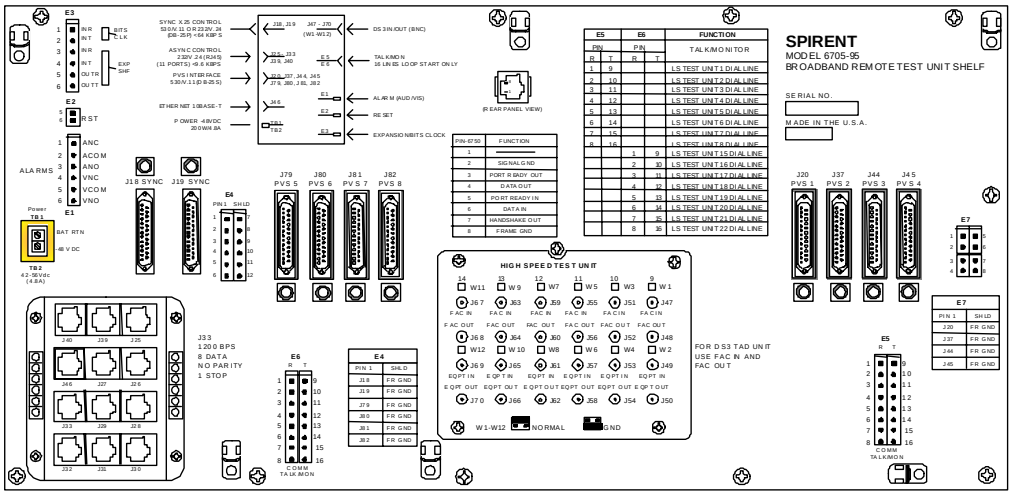
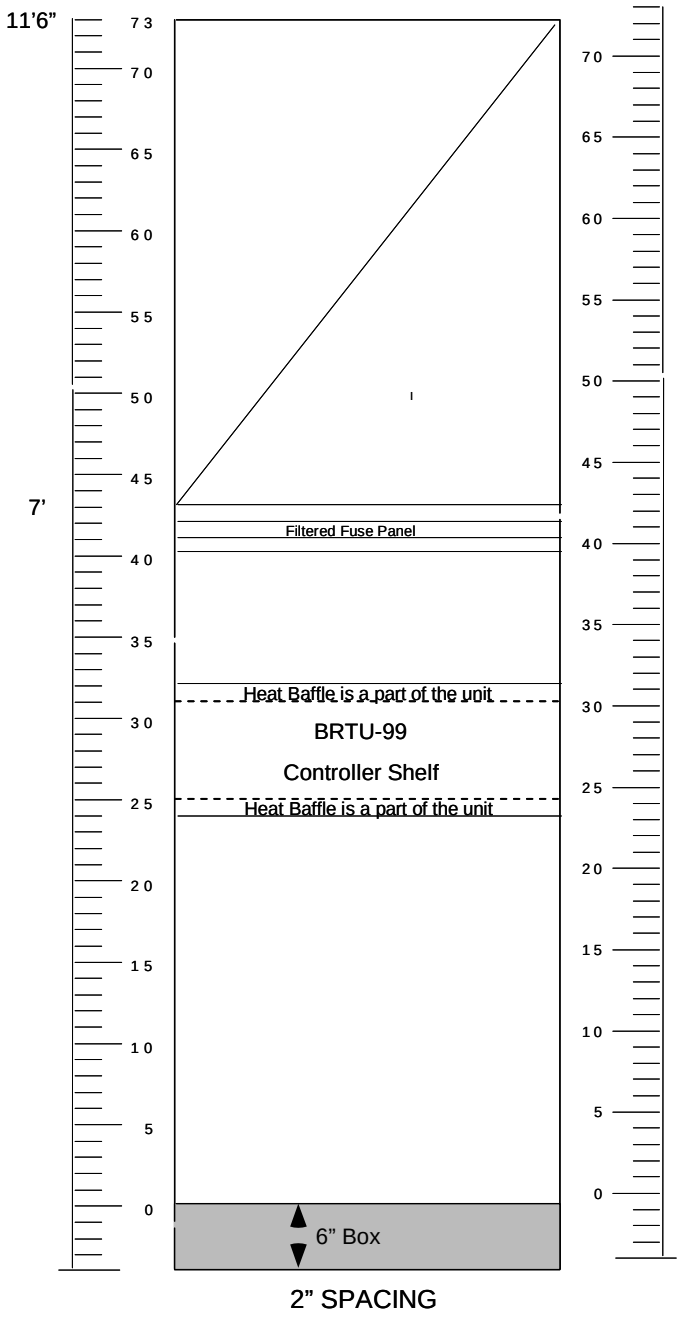


Figure 1-4 Model 6750 BRTU-95 Rear View



Note:

BRTU-99 Relay Rack Configuration.

Figure 1-5 Typical Rack Elevation (7' X 1" X 23") for 6750 BRTU-99 and BRTU-99

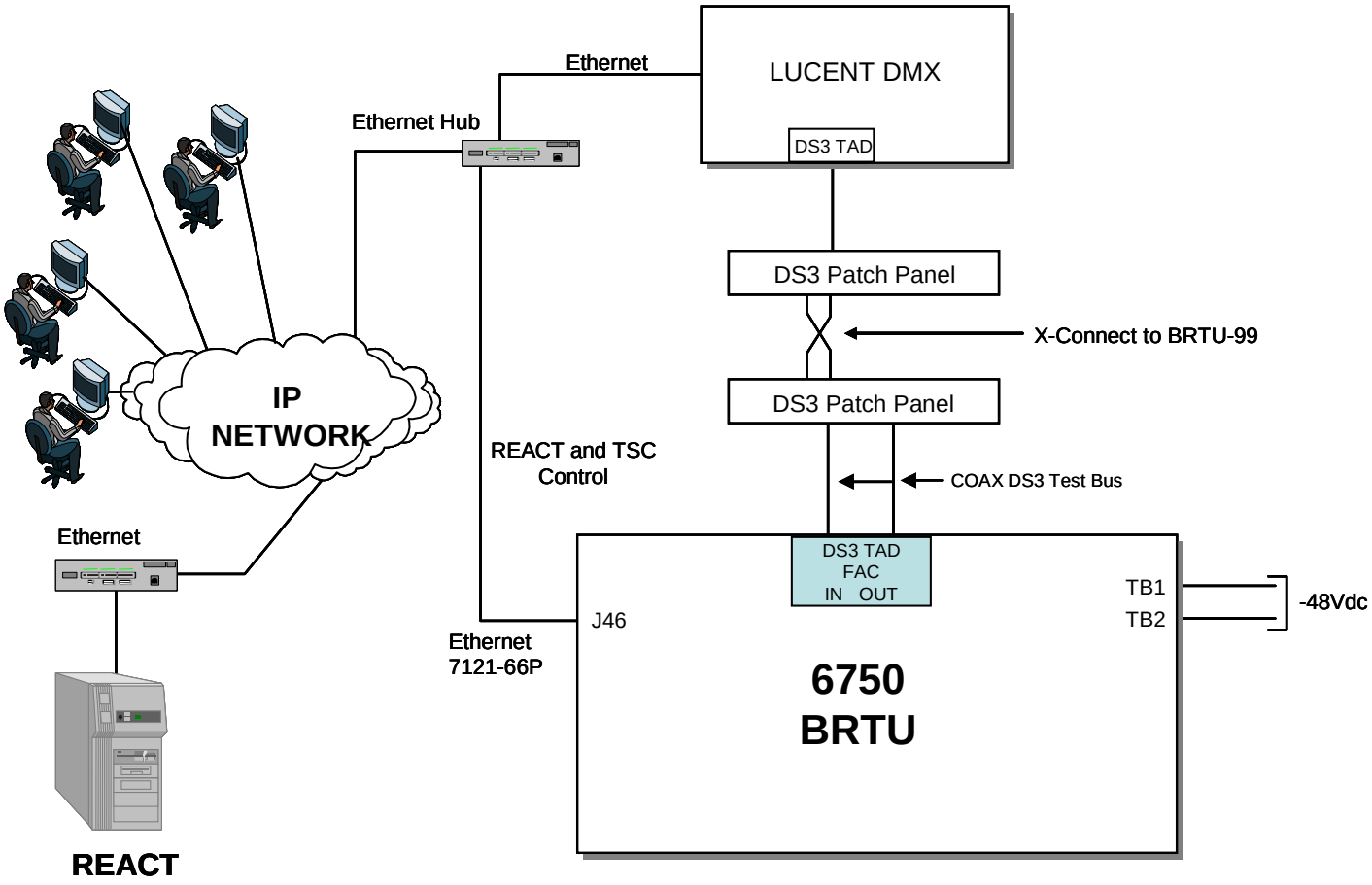


Figure 1-6 Model 6750 BRTU-99

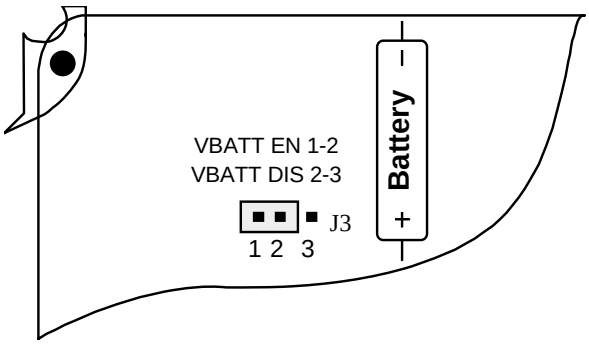
Cable Running List

Run No.	Cable Type	Code	From Equipment	To Equipment	Remarks
	EQPT PWR				
1		20AWG Red/Black	BRTU-99 Connectors TB1 (Black) TB2 (Red)	-48V Fuse Panel	-48VDC Power Supply
	COMM/ TEST BUS				
2		7121-66P	BRTU-99 J46	Ethernet Hub	IP Communication to REACT
3		6750-C5	LDMX DS3 TAP Port (FAC)	BRTU TAD card Module installed in Slot #1 J47 - IN J48 - OUT	DS3 TAD connection – to be X-connect to DMX DS3 TAD Port

Refer to Figure 1-6 for more information

2.0 Model 6750 BRTU Shelf Configuration:

Pull the 6750 SCU card and ENABLE the battery backup by placing the BLUE JUMPER to pin 1 and pin 2 of J1 connector. If the BRTU is equipped with eSCU the battery backup is jumper is J3 enable the battery by placing the BLUE jumper in pin 1 and pin 2.



Set up a VDT (VT100) or a laptop PC for direct connection to the fixed port at 9600 bps, 8 data bits, no parity, and 1 stop bit (9600, 8, N, 1).

Using the 9-pin male/ female Straight Cable, connect the PC to the craft port at the front of the BRTU-99 unit.

2.1 Login to the BRTU-99

Enter Command: ***ACT-USER::SUPER:CTAG::SUPER;***

2.2 Edit Date and Time

Enter Command: ***ED-DAT:::CTAG::050906,101500;***

YRMMDD,HHMMSS

2.3 Edit Site Identifier (SID)

Enter command: ***ED-SID:HEKIMIAN-6700::CTAG::HKMN-6750;***

OLD/CURRENT SID ***NEW SID***

2.4. Edit BRTU-99 Equipment Table

Enter Command: ***ED-ATTR-EQPT:::CTAG::TSC=ON;***

Enter Command: ***ED-ATTR-EQPT:::CTAG::TMO=5000;***

2.5. Retrieve the Equipment table and response should be as shown below:

Enter command: ***RTRV-ATTR-EQPT:::CTAG;***

Response:

```
   HEKIMIAN-6750 00-02-25 05:57:57
M  D COMPLD
   "SHELF=99 TSC=ON REPORT=FULL EQLR=0 TMO=500SECS LEV=ABS"
   "IDLE=TC CYCLETEST=ON DS1DS3=OFF IPCHECK=0MINS"
```

2.6 Retrieve the BRTU firmware version

Enter Command: ***RTRV-VRSN-EQPT:::CTAG;***

```
   HEKIMIAN-6750 00-02-25 05:57:57
M  D COMPLD
   /*CARD      APPL/PGM1  BOOT/PGM2  DSP       HW ASSY                */
   " TD3-01-01: RA02.20    RA02.20            6700-1472-02  REV B3  OPT   "
   " DS1-01-11: RG08.10    RF03.30            6700-1280-03  REV F   OPT   "
   " DS1-01-12: RG08.10    RF03.30            6700-1280-03  REV F   OPT   "
   " DS1-01-13: RG08.10    RF03.30            6700-1280-03  REV F   OPT   "
   " SCU-01-24: RH14.20    RH14.18             6700-1652-01  REV B7  OPT   "
   " PSU-01-25:                        3500-1624-09  REV F2  OPT   "
```

Results shown above are the latest firmware version of the BRTU-99. Ensure that TD3 card and DS1 cards shows up in the response.

```
HEKIMIAN-6750 00-01-01 00:00:00
M  FDSA COMPLD
   /*CARD      APPL/PGM1  BOOT/PGM2  DSP       HW ASSY                */
   " DS1-01-01: RA07.70    RE03.10            6700-1280-01  REV C9  OPT   "
   " DS1-01-02: RA07.70    RE03.10            6700-1280-01  REV C9  OPT   "
   " TD3-01-09: RA02.20    RA02.20            6700-1472-02  REV C3  OPT   "
   " SCU-01-24: RH14.20    RH14.18             6700-1652-01  REV B8  OPT   "
   " PSU-01-25:                        3500-1624-09  REV F8  OPT   "
```

Results shown above are the latest firmware version of the BRTU-95. Ensure that TD3 card and DS1 cards shows up in the response.

The eSCU firmware should be at least version 14.20 or higher.

2.7 Edit the BRTU-99 IP address as required.

Enter Command: ***ED-ATTR-IP::J46:CTAG::ADDR=172.25.44.181;*** --- IP Address

Enter Command: ***ED-ATTR-IP::J46:CTAG::MASK=255.255.255.128;*** --- Subnet Mask

Enter Command: ***ED-ATTR-IP::J46:CTAG::GATEWAY=172.25.44.180;*** --- Gateway

NOTE: ***Changes to the TCP/IP parameters will take effect only after the BRTU-99 has been rebooted. You need to issue the INIT-SYS:::CTAG::4; command for the TCP/IP changes to take effect.***

Enter Command:	***INIT-SYS:::CTAG::4;***	To Reboot the BRTU
Enter Command:	***ACT-USER::SUPER:CTAG::SUPER;***	To login after reboot

2.10 Edit the BRTU-99 TAU

2.10.2 TAU table set up for the Lucent DMX:

Note: The Test Identifier (TID) that is used in this document are examples only refer to REACT administrator for the assigned TID.

The TAU is identified by its unique TID. You have to create the TAU follow by the TAP table. Once the TAU is created, then TAP can be created for that TAU. The following commands are to set the TAU table.

Enter Command:***ED-DB-TAU::TESTDMX:CTAG::TYPE=LDMX,JID=J46,ADDRESS=10.1.197.181-3082 ,CTYPE=SOCKET,PERSIST=YES;***

Enter Command: ***ED-DB-TAU::TESTDMX:CTAG::UID=ossdev,PID=password,***
Enter Command: ***ED-DB-TAU::TESTDMX:CTAG::REVISION=06.00***

TESTDMX =	is the given Test Identifier for the ADM (TESTDMX is use as en example only contact your REACT admin for the assigned TID to use). **This should match with the TID in REACT test resource set for that ADM and BRTU-99.**
TYPE =	Access Type enter **LDMX** for Lucent DMX
JID =	**J46** as the TSC port
ADDRESS=	Address of the Lucent DMX and default port. The default port for DMX is 3082
CTYPE=	**Connection Type (TELNET)**
UID =	**ossdev** (just an example can be case sensitive)
PID =	**password** (just an example can be case sensitve)

2.10.3 Retrieve the TAU Table:

Enter Command: RTRV-DB-TAU::ALL:CTAG;

```
  HEKIMIAN-6750 00-02-25 05:57:41
M  D COMPLD
  /* TID              TYPE        REVISION AIDFMT ROUTE            */
  /*    JID ADDRESS                    CTYPE  PERSIST MAXCONN       */
  /*     UID              PID              LOGIN                    */

  "  TESTDMX         LDMX       00.00    000    0
       J46 10.1.197.181-3082            SOCKET YES     1
        ossdev            password           Y     "
```

2.11 TAP Table Set Up

Edit the BRTU TAP table for Lucent DMX by entering the following commands:

In our example, the BRTU DS3 TAD card is inserted in slot 1 of the BRTU-99 shelf. Therefore, when setting the TAP for the aforementioned DS3 card TPID #1 should be use. Shown below is the TPID assignment per slot use for BRTU-99 and BRTU-95 also see figure 2-1 (next page) for more information

BRTU-99

Slot 1 = TPID=1
Slot 2 = TPID=3
Slot 3 = TPID=5
Slot 4 = TPID=7
Slot 5 = TPID=9
Slot 6 = TPID=11
Slot 7 = TPID=13
Slot 8 = TPID=15

BRTU-95

Slot 9 = TPID=1
Slot 10 = TPID=3
Slot 11 = TPID=5
Slot 12 = TPID=7
Slot 13 = TPID=9
Slot 14 = TPID=11

Enter Command: ***ED-DB-TAP::1:CTAG::TID=TESTDMX,TAPID=A1-1-1-1,***
TPA=FFFFFFFFFFFFFF,TCA=TTTTTTTTTTTTTT;

TAPID=A1-1-1-1 – This is the DMX TAP port number

Enter Command: ***ED-DB-TAP::1:CTAG::FR=M23,LC=B3ZS;***

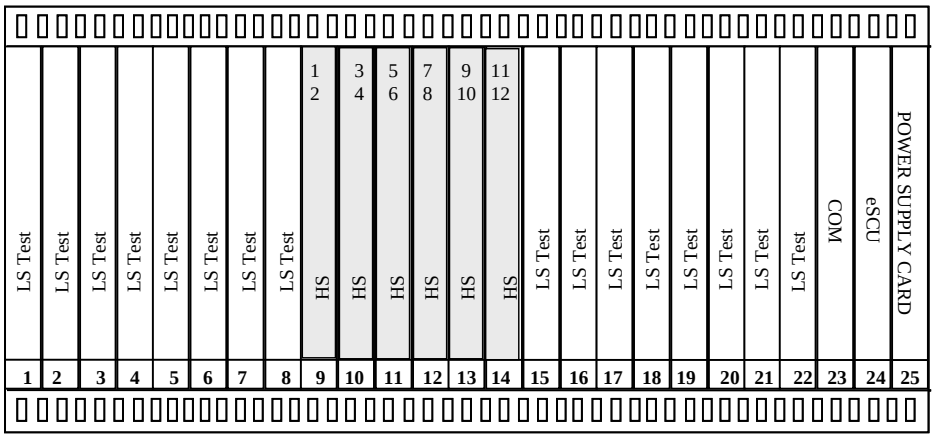
2.12 Retrieve the TAP table:

Enter Command: ***RTRV-DB-TAP::ALL:CTAG;***

```
HEKIMIAN-6750 00-02-25 05:57:46
M  CTAG COMPLD
  /* TPID TID              STATUS TAPID         TAPID2            */
  /*      TYPE       FR  LC   EQ         TPA           TCA          */
  /*      CONCAID        ACCESSRATE TAPTYPE TIMING  S-TRACE          */
  /*       OPTIONS

"   1  TESTDMX           F      A1-1-1-1          0
         LDMX      M23 B3ZS    1         FFFFFFFFFFFFFF    TTTTTTTTTTTTTT
          1            0        0      0    01
```

BRTU-95 TPID Assignment:



BRTU-99 TPID Assignment:

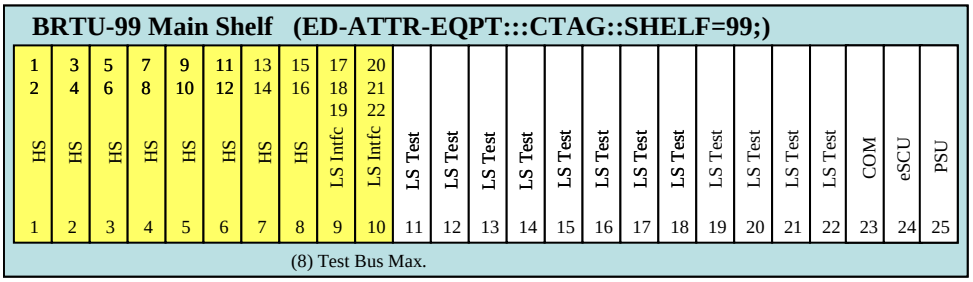


Figure 2-1 BRTU-95 and BRTU-99 TPID Assignment

3.00 DS1 Circuit Access Test

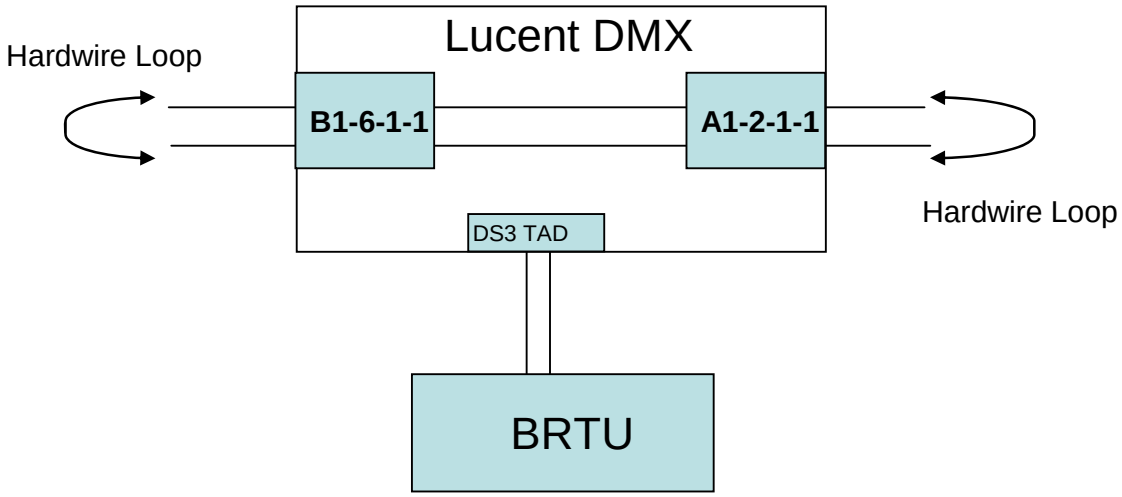
1. Assure that the signal in BRTU TAD are present by checking if the TAD LED are lit. If the signal is not present fix it before moving on.

2. Ask the office engineer for a test circuit that you can access and split. Be sure that the digroup that you are about to split is not in service. If they can't find a circuit for you just make a monitor access but DO NOT split that circuit.

3. The circuits use in this example will come in the form of B1-6-1-1 and A1-2-1-1. See Lucent DMX manual for more information on pre and post 06.000 release Access Identifier information channel and path protection groups

4. You need to have two digroups that are cross-connected together in order to test both directions of the of the circuit. See Drawing below for more detail.

Note: The Test Circuit that are shown below and are examples only. Please refer to Office Engineer for the assigned test circuit to use



DS1 Circuit Access Test

3.0.3.1 Enter the following command to access DS1 circuit

Enter command: ***CONN-TACC-T1:TESTDMX:A1-2-1-1:ATP:999:MONE;***

Response:

TESTDMX 07-08-27 15:11:05
M ATP COMPLD

Note: Verify the response from the access command is similar to the response as shown above. This is an indication of a successful access.

3.0.3.2 Split the access with direction towards looking at the F direction

Enter Command: ***CHG-ACCMD-T1::999:D:SPLTF;***

Response:

TESTDMX 07-08-27 15:11:56
M D COMPLD

3.0.3.3 Insert test signal

Enter Command: ***CHG-TSTSIG-T1::999:AAA:10101010,S,A;***

TESTDMX 07-08-27 14:59:09
M D COMPLD

3.0.3.4 Start the test by entering the following command:

Enter Command: ***MEAS-SIG-T1::999:AAA:9999-59,S,O-10101010,S,A;***

3.0.3.5 Display the test results by entering the following command:

Enter Command: ***REPT-RSLT::999:CTAG;***

TESTDMX 07-08-27 14:59:34
M CTAG COMPLD
0-06, 0
BPV ES=NA, TE=NA
PAT ES=0, TE=0
PAT SES=0
CBIT ES=NA, TE=NA
FMBIT ES=0, TE=0
FEBE ES=NA, TE=NA
PBIT ES=0, TE=0
PSL=0, PSLS=0
FSL=0, FSLS=0
UAS=0, %AS=100
DGRM=0, %DGRM=0
%EFS=100, BITS=1.853e+07

Verify the test results returns with no error

3.0.3.6 Insert Bit error by entering the following command:

Enter Command: ***TST-INSERRBITS::999:D:45,,BIT;***

Note – This command injects 45 bit error in the test. Verify the error by displaying the results by entering the command in the next step.

3.0.3.7 Display the test results by entering the following command:

Enter Command: ***REPT-RSLT::999:CTAG;***

TESTDMX 07-08-27 14:59:53
M CTAG COMPLD
0-26, 0
BPV ES=NA, TE=NA
PAT ES=1, **TE=45**
PAT SES=0
CBIT ES=NA, TE=NA
FMBIT ES=0, TE=0
FEBE ES=NA, TE=NA
PBIT ES=0, TE=0
PSL=0, PSLS=0
FSL=0, FSLS=0
UAS=0, %AS=100
DGRM=0, %DGRM=0
%EFS=96, BITS=1.2536E9

Verify results return with 45 Bit Error

3.0.3.8 Stop the test by entering the following command:

Enter Command: ***DISC-MEAS::999:CTAG;***

3.0.3.9 Change the direction of the test to EQUIPMENT direction by entering the following command:

Enter Command: ***CHG-ACCMD-T1::999:D:SPLTE;***

TESTDMX 07-08-27 15:13:09
M D COMPLD

3.0.3.10 Initiate the measurement by entering the following command:

Enter Command: ***MEAS-SIG-T1::999:AAA:9999-59,S,O-10101010,S,A;***

3.0.3.11 Display the test results by entering the following command:

Enter Command: ***REPT-RSLT::999:CTAG;***

TESTDMX 07-08-27 14:59:34
M CTAG COMPLD
0-34, 0
BPV ES=NA, TE=NA
PAT ES=0, TE=0
PAT SES=0
CBIT ES=NA, TE=NA
FMBIT ES=0, TE=0
FEBE ES=NA, TE=NA
PBIT ES=0, TE=0
PSL=0, PSLS=0
FSL=0, FSLS=0
UAS=0, %AS=100
DGRM=0, %DGRM=0
%EFS=100, BITS=1.6397E9

Verify the test results returns with no error

3.0.3.12 Insert Bit error by entering the following command:

Enter Command: ***TST-INSERRBITS::999:D:70,,BIT;***

Note – This command injects 70 bit error in the test. Verify the error by displaying the results by entering the command in the next step.

3.0.3.13 Display the test results by entering the following command:

Enter Command: ***REPT-RSLT::999:CTAG;***

1-45, 0
BPV ES=NA, TE=NA
PAT ES=1, **TE=70**
PAT SES=0
CBIT ES=NA, TE=NA
FMBIT ES=0, TE=0
FEBE ES=NA, TE=NA
PBIT ES=0, TE=0
PSL=0, PSLS=0
FSL=0, FSLS=0
UAS=0, %AS=100
DGRM=0, %DGRM=0
%EFS=99, BITS=1.6397E9

Verify the error injected of 70 bit error appears in the test result

3.0.3.14 Stop the test by entering the following command:

Enter Command: ***DISC-MEAS::999:CTAG;***

3.0.3.15 Release the access by entering the following command:

Enter Command: ***DISC-TACC::999:CTAG;***

4.0 REACT TEST RESOURCE CONFIGURATION USING OLD RESOURCE SERVER FOR BRTU DS3 TAD INTERFACE WITH THE LUCENT DMX DCS.

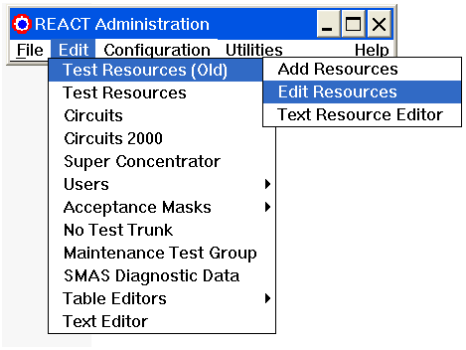
4.0.1 Set the Telnet Database to include the address of the BRTU

%*BRTU 878 TCPIP_172.25.44.181_7010 ⟶ IP address for BRTU

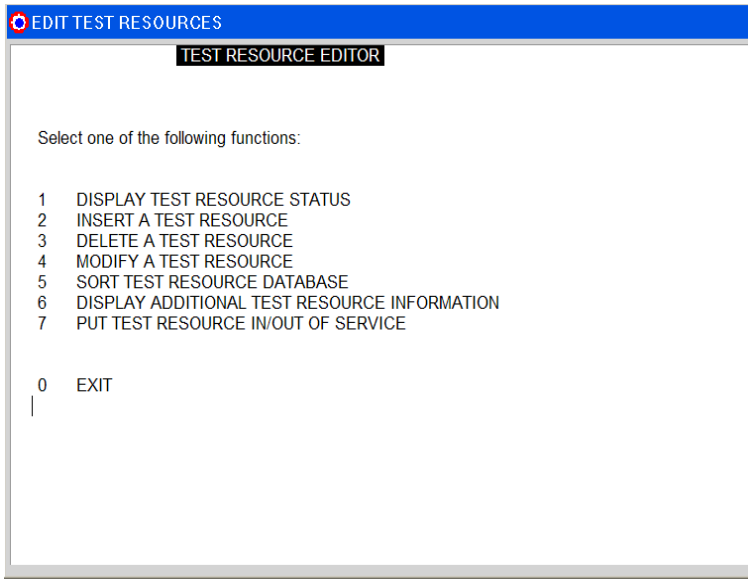
Note: Address and ports used are examples only; refer to REACT Admin for the

REACT Test resource for DS1 Test:

4.0.2 From REACT Administration click on EDIT then click on Test Resources (Old) and Edit Resources as shown in the example below.



4.0.3 Edit Resources should appear as shown below. Enter “2” to insert new test resource.



Enter the following information to create one DS1 Test Resource

Enter COM-LINK Direct/Modem/Remote/PAD X28 (D/M/R/P): **R**

6439 module, DATS, DC/B, ADM, none (6439/DATS/D/A/N): **N**

Enter ABILITY: ANALOG,CHANNELIZE,PERFORMANCE,ANALOG/CHANNELIZE,DDS, DS3/E3,CELLSITE,ISDN,ADM LOOP,DSLAM,ICON,ATM SW,ADSL RTR,IP TPUT,FR SW,STM,PON,STS1,STS3C,STS12C,VC3,STM1,STM4,IP_NA/C/P/(A/C)/DDS/3/S/I/ADML/D/ICON/SW/R/IP/F/M /PON/S1/S3/S12/VC3/STM1/STM4/IP_TLS/IP_VPN): **P**

Is this a TR834 , natively supported , or foreign site (T/N/F): **T**

Enter Modem number: **%*BRTU**

Enter name (15 chars. max**): TESTDMX**

Is this a CEPT device(Y/N)?: **N**

Is this a Hekimian BRTU (Y/N)?: **Y**

Is this resource a 6750 RTU or 6750 TSC? (R/T): **T**

Enter FAD/TAD hardware number, 0 disables FAD locking (00-99)?: **0**

Is this a STSx TAD or other access(T/O)?: **O**

Is this a DS3 FAD, DS3 TAD, or other access(F/T/O)?: **T**

Enter DS1 test port in the DS3 TAD (1-14)?: **1**

Individual DCS port, 6439 port (I/C): **I**

Enter type of DCS/EDSX: WECO,WESCOM,DXCS,TELLABS,ATT3,TA203,D3-1,RDX, TAIU,TITAN-S,TITAN-D,NTEL,DCSF,RTU,TDAX,NORTEL,DSXpert,TDAX NB,OTHER (W,S,D,T,A,2,3,R,+,I,5,N,F,U,X,E,P,B,O): **5**

Enter DCS port:

Enter DCS link number, 0 to ignore: **0**

Enter digroup/fad for test set: **1**

Do you have a Remote controlled Reset Box for this resource (Y/N): **N**

Enter REACT 2001 primary test server host: **HOST**
Enter REACT 2001 secondary test server host: **HOST**
Enter REACT 2001 RTU Label: **RTU**
Display only this position? (y/n): **Y**

4.0.4 Example of REACT Test Resource

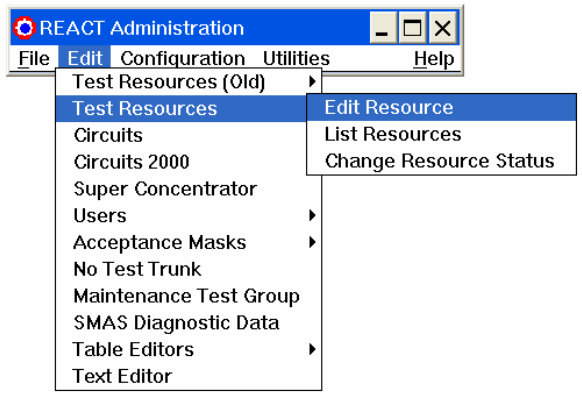
TEST RESOURCE STATUS

POS.	TP/SIDE	ABILITY	LINK	DEV.	3965	3705	TYPE MODEM/PORT1	PORT2	LONG TERM PASSWORD	DCS/LNK	D-PORT	STATUS	TEST	NAME
192	001/-	DS1	REMOTE	----	TSC	%*BRTU	TA/DPU	TA/DPU				FREE	FREE	TESTDMX

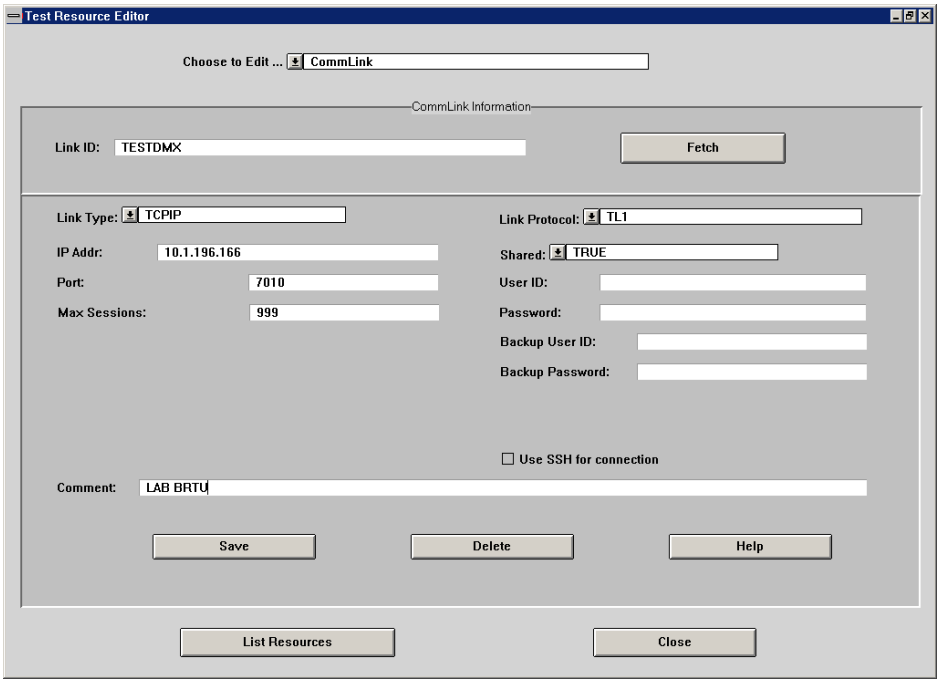
4.0.5 Establish the access using the REACT and verify a successful access from the REACT.

4.1 REACT TEST RESOURCE CONFIGURATION USING NEW RESOURCE SERVER FOR BRTU DS3 TAD INTERFACE WITH THE LUCENT DMX DCS.

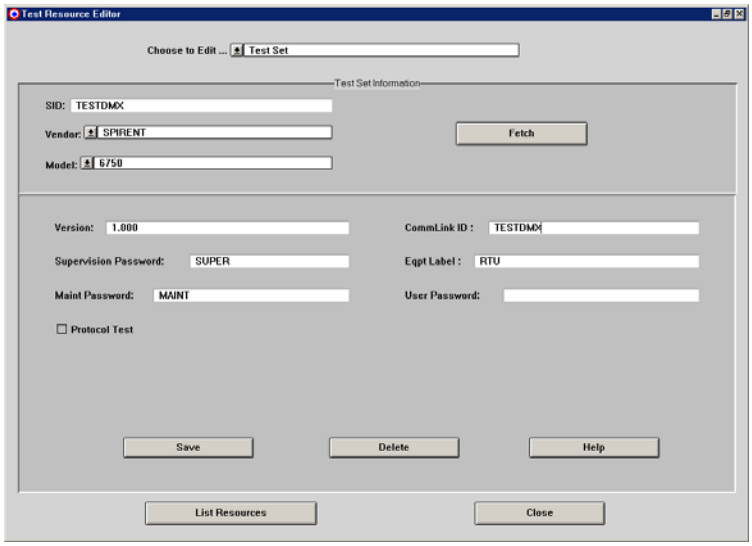
4.1.1 Login to REACT Administration. Click on Edit, Test Resources, and Edit Resource as shown below.



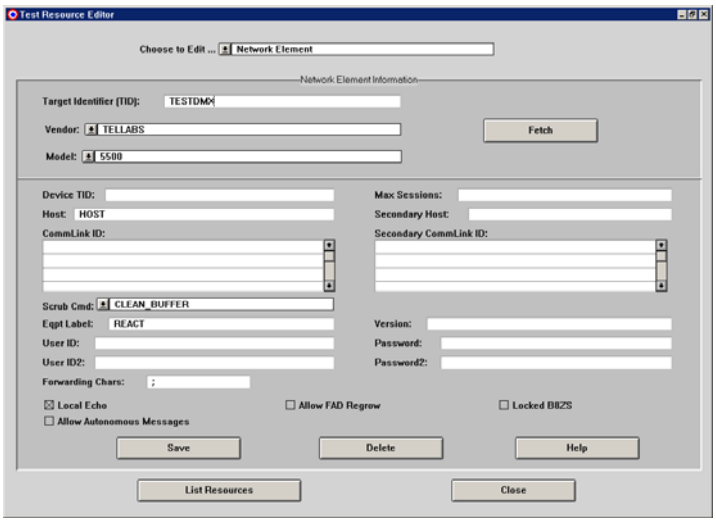
4.1.2 Start on setting the Communication link information by choosing “Commlink”. Enter the Link ID “BRTU” (as our sample). Enter the IP address of the BRTU and port number of 7010. Enter comment in the comment box; the comment box is used for reference only. When the information’s are entered as shown below click on the Save button.



4.1.3 Enter the test set information by choosing the test set. Enter the SID for the BRTU. Enter “SPIRENT” for vendor and “6750” for model. Enter the CommLink ID “TESTDMX” is the example entry. This is the commlink ID you have entered in previous step (4.1.2). Click on the save button to save the new entry.

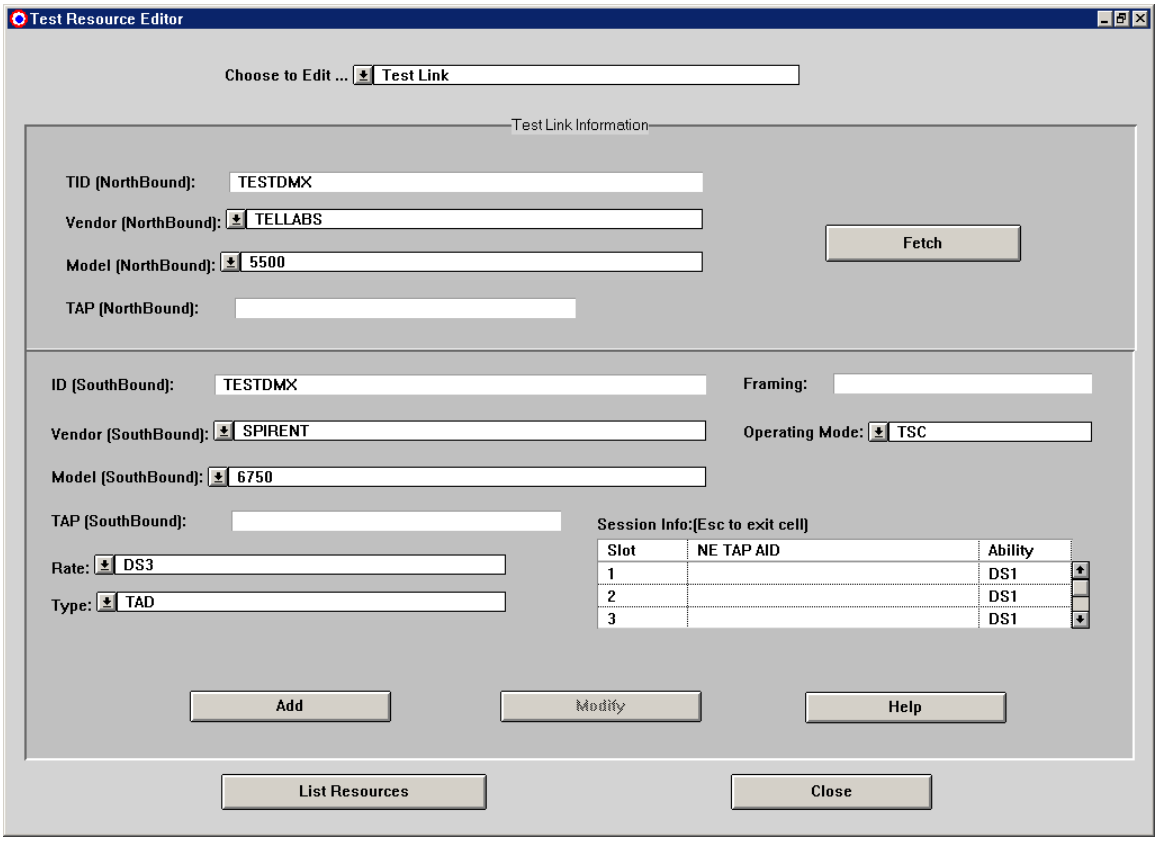


4.1.4 Create the Network Element – Enter the Target Identifier of the ADM. The TID should be identical with the SID of the ADM and the TID in the BRTU TAP and TAU table. Enter the information as shown below followed by the Save button.



Note: For REACT prior release 4.000 select Tellabs as Vendor and T5500 as model

4.1.5 Set the Network Element for BRTU and Lucent DMX as shown below. You need to create one Network Element table per DS1 test.



4.2 Contact REACT administrator and establish the access using the REACT and verify a successful access from the REACT.

END