

1-System Services Menu

1- System Services Menu

[Main Menu](#) [System Services](#)

The System Services menu is used to restart the system, change the system clock, view the status or enable/disable certain RediGate processes.

Enter **1** at the Main Menu for the System Services menu.

```
===== System Services =====
ElecSys(V:5.7.2017-07-24-1300) Wed Jul 26 22:47:52 2017
UnitName : 1 @ 192.3.1.10 REDIGATE <40170-0118>-SerialNumb
-----
 1) Boot/Reconfigure      2) Set Clock
 3) Channel Status       4) Channel Enable/Disable
 5) Channel Scan         6) Single Poll
 7) RTU Enable/Disable   8) RTU Scan
 9) RPN Calculator       10) New Master Key
11) Read Handshake Pins 12) Write Handshake Pins
13) Run Custom Utility   14) MQTTClient to Next Broker
15) Cell Modem Diags

Make selection:
```

1- Boot/Reconfigure

[Main Menu](#) [System Services](#) [Boot/Reconfigure](#)

Use this option to restart the RediGate or to reconfigure it after loading a new configuration or firmware update (the ACE program's upload menu will automatically reconfigure if the "Deploy immediately" box is checked).

Enter **1** for Boot/Reconfigure, and then either: **Y** to confirm the reboot, **N** to cancel, or **R** to reconfigure. The Reconfigure option stops and restarts the RediGate software, whereas the Reboot option restarts the entire Linux operating system.

If a new configuration and/or firmware file has been loaded to the RediGate, it will be installed when the system restarts.

```
===== Boot/Reconfigure Director =====
ElecSys(V:5.7.2017-07-24-1300) Wed Jul 26 23:04:38 2017
UnitName : 1 @ 192.3.1.10 REDIGATE <40170-0118>-SerialNumb
-----

WARNING! Restarting unit will terminate all polling!
Non Auto-Start Channels must be individually restarted!
Enter 'Y' or 'N' to reboot, or 'R' to reconfigure.

Restart Unit (Y/N/R) ? r
```

2- Set Clock

[Main Menu](#) [System Services](#) [Set Clock](#)

Manually set the RediGate date and time. In systems where the RediGate has NTP (Network Time Protocol) configured, or is connected to an HCP, or is configured to get time through GPS, the clock should be automatically updated, so there is no need to set it through the MMI.

Enter **2** for Set Clock, then enter the new date and time of the system using the following format: **MMDDhhmmYYYY.ss** where MM=month, DD=day, hh=hour (00 to 23), mm=minute, YYYY=year, and (optional) ss=seconds.

```
Set Date & Time? (Y/N) y
Mon Jul 31 11:02:26 UTC 2017

Note: MMDDhhmmYYYY ...includes leading zeros
(Examp. New Years Eve of 2015 : 123123592015) :
(Examp. Two seconds til 2016 : 123123592015.58) : 073112002017
Mon Jul 31 17:00:00 UTC 2017

Write to Hardware clock (Y/N) ? y
```

Wrote system time to hardware clock

Press ENTER to continue

3- Channel Status (System)

[Main Menu](#) [System Services](#) [Channel Status](#)

List status of each Master Channel.

Enter **3** for Channel Status. Enter **Y** to redisplay or **L** to view a log of Enable and Disable commands that have been received. Press the Space bar to page through the log.

```
Channel Status

Chan Name          Status   Rtus Time
=====
  0 Channel0       w/Errors 1 Mon Jul 31 19:38:20 2017
  2 Master Channel Normal    1 Mon Jul 31 10:56:57 2017
 15 Channel115     Normal    1 Mon Jul 31 10:56:57 2017

Redisplay (Y/N/L where L is Log of Enables/Disables) ? L

Press SPACE to advance through log. Q to Quit
Mon Jul 31 19:37:52 UTC 2017 Channel-0: Enable
Mon Jul 31 19:33:32 UTC 2017 Channel-0: Disable
```

See [Channel Status](#) for details on the Master Channel status information.

4- Channel Enable/Disable

[Main Menu](#) [System Services](#) [Channel Enable/Disable](#)

Enable or disable all polling on a Master Channel.

Enter **4** for Channel Enable/Disable. Enter the channel number, then either **0** to Disable or **1** to Enable the channel polling.

```
Channel Enable/Disable

Chan Name          Status   Rtus Time
=====
  0 Channel0       w/Errors 1 Sun Aug 13 08:06:11 2017
  2 Master Channel Normal    1 Sun Aug 13 08:03:41 2017
 15 Channel115     Normal    1 Sun Aug 13 08:03:41 2017

Channel 0-15 0

  0=Disable 1=Enable ? 0

Channel(0) Disable sent
```

See [Channel Status](#) for details on the Master Channel status information.

When a channel is disabled, it will have a status "Suspended" and its Field Units will typically have the status "Stopped."

```
===== Rtu Status =====
ElecSys(V:5.7.2017-08-07-1200) Sun Aug 13 08:16:05 2017
UnitName : 1 @ 192.3.1.10 REDIGATE <46247-0004>-SerialNumb
-----
Chan Name          Status   Rtus Time
=====
  0 Channel0       Suspended 1 Sun Aug 13 08:15:58 2017
  2 Master Channel Normal    1 Sun Aug 13 08:03:41 2017
 15 Channel115     Normal    1 Sun Aug 13 08:03:41 2017

Enter Channel (0 to 15, -1 for all) ? 0

-----RTU----- -----POLL----- -----ERRORS-----
Addr Name          Protocol Status      Time      Count  TimOut BadData Frame
-----
  1 Modbus01        MBMAST00 Stopped    08:15:58      0    656      0      0
```

5- Channel Scan

[Main Menu](#) [System Services](#) [Channel Scan](#)

Trigger one complete scan of a Master Channel, regardless of its enable/disable status or the length of the configured Scan Periods. Scanning the channel will put it back into Enabled mode.

Enter **5** for Channel Scan. Enter the Master Channel number, and **Y** to trigger the scan.

```
Channel Scan

Chan Name          Status    Rtus Time
==== =====
  0 Channel0       Suspended  1 Sun Aug 13 08:15:58 2017
  2 Master Channel Normal     1 Sun Aug 13 08:03:41 2017
 15 Channel15      Normal     1 Sun Aug 13 08:03:41 2017

Channel 0-15 0
Scan Channel-0 (Y/N) ? y

Channel(0) sent scan all
```

6- Single Poll

[Main Menu](#) [System Services](#) [Single Poll](#)

If you have a long poll interval for one or more scans in a Master Channel, use the Single Poll option to execute the scan on demand.

Enter **6** for Single Poll. Enter the Master Channel number, **Y** if you want to view the Scan Table configuration, and the Index number of the scan to run immediately. The poll will be sent even if the Channel or RTU are disabled.

```
Single Rtu Poll

Chan Name          Status    Rtus Time
==== =====
  0 Channel0       Suspended  1 Sun Aug 13 10:00:02 2017
  2 Master Channel Normal     1 Sun Aug 13 09:59:02 2017
 15 Channel15      Normal     1 Sun Aug 13 09:59:03 2017

Channel 0-15 0

-----RTU-----
Addr Name          Protocol Status    Time    Count  TimOut  BadData  Frame
-----
  1 Modbus01        MBMAST00 No Polls 10:00:03    0      3       0       0

Do you want to see the Scan Table? (y/n) y

Index RtuAdr  Poll  Rate(Sec)
  0     1     1    3600
  1     1     2     60

Enter Scan Index (0 to 1) 0

Channel(0) sent scan all
```

7- RTU Enable/Disable

[Main Menu](#) [System Services](#) [RTU Enable/Disable](#)

Disable polling of a single Field Unit on a Master Channel.

Enter **7** for RTU Enable/Disable. Enter the Master Channel number and the Field Unit address to disable.

Enabling an RTU does not currently work (as of 8/17/2017). Instead, use RTU Scan or Channel Scan to re-enable the device polling.

Rtu Enable/Disable

```
Chan Name          Status   Rtus Time
==== =====
  0 Channel0       Suspended 1 Sun Aug 13 10:12:25 2017
  2 Master Channel Normal    1 Sun Aug 13 09:59:02 2017
 15 Channel15      Normal    1 Sun Aug 13 09:59:03 2017
```

Channel 0-15 0

```
Addr Name          Dbg? Protocol Status
-----
  1 Modbus01        ON   MBMAST00 Stopped
```

Enter Rtu to Modify 1

0=Disable, 1=Enable ? 0

Channel(0) sent Rtu00001...Disabled

8- RTU Scan

[Main Menu](#) [System Services](#) [RTU Scan](#)

If you have a long poll interval for one or more scans in a Master Channel, you can force all polls to be scanned by selecting the RTU Scan option. This option can also be used to restart polling of an RTU after disabling the Channel or RTU.

Enter **8** for RTU Scan. Enter the Master Channel number and the device address to scan.

Rtu Scan

```
Chan Name          Status   Rtus Time
==== =====
  0 Channel0       Suspended 1 Sun Aug 13 10:06:54 2017
  2 Master Channel Normal    1 Sun Aug 13 09:59:02 2017
 15 Channel15      Normal    1 Sun Aug 13 09:59:03 2017
```

Channel 0-15 0

```
Addr Name          Dbg? Protocol Status
-----
  1 Modbus01        ON   MBMAST00 Stopped
```

Enter Rtu to Scan 1

Sent Scan RTU 1

9- RPN Calculator

[Main Menu](#) [System Services](#) [RPN Calculator](#)

Reverse Polish notation calculator utility allows several simple calculations to be performed within the RediGate menu.

Enter **9** for RPN Calculator. Enter **?** at any prompt to redisplay the menu, or **Q** to quit/exit the calculator.

The Reverse Polish notation calculator operates on numbers entered into a "stack", with the numbers entered first followed by the operator.

Use **D** to display all current values in the stack, **C** to clear all values in the stack, **E** to erase only the last (current) value in the stack.

Addition (+), subtraction (-), multiplication (*), division (/), and power X^Y (**P**) operate on the two highest numbers in the stack, displaying the result and leaving the result in the next lower stack position.

Modulo (**M**) divides the previous stack value X by current stack value Y and gives the remainder as an integer in the next lower stack location.

Square root (**R**), invert 1/X (**I**), natural log ln (**L**), inverse log e^X (**X**), and trig functions (**T**) operate on the highest number in the stack, displaying the result and leaving the result in the current stack position.

Sum (**S**) all values in the stack (up to 80) and leave the sum in the lowest stack position.

Analysis (**A**) shows the average value and standard deviation of all values in the stack (leaving current stack values unchanged).

Floating point math (**F**) converts either from floating point to hexadecimal, or from hexadecimal to floating point. (Note: this operation does not use the RPN stack.)

For example:

- To calculate the value of $(3 + 5) / 2$, enter: **3 5 + 2 /**
The result is a value of 4 in stack location [0].

```
Value\Operator (+,-,*,/,?,I,L,M,C,Q,D,R,P,S,T,E,A,F,X) Stack>0 3
Stack[0] = 3
Value\Operator (+,-,*,/,?,I,L,M,C,Q,D,R,P,S,T,E,A,F,X) Stack>1 5
Stack[1] = 5
Value\Operator (+,-,*,/,?,I,L,M,C,Q,D,R,P,S,T,E,A,F,X) Stack>2 +
Stack[0] = 8
Value\Operator (+,-,*,/,?,I,L,M,C,Q,D,R,P,S,T,E,A,F,X) Stack>1 2
Stack[1] = 2
Value\Operator (+,-,*,/,?,I,L,M,C,Q,D,R,P,S,T,E,A,F,X) Stack>2 /
Stack[0] = 4
Value\Operator (+,-,*,/,?,I,L,M,C,Q,D,R,P,S,T,E,A,F,X) Stack>1
```

- To convert a floating point number to hexadecimal, enter **F** and the number to convert. Enter **0** or **0.0** to exit the floating point calculator.
- To convert a hexadecimal number to floating point, enter **F** and some non-zero number. Then enter four hexadecimal bytes, most-significant to least-significant.

```
Value\Operator (+,-,*,/,?,I,L,M,C,Q,D,R,P,S,T,E,A,F,X) Stack>0 f
FLOATING POINT VALUES IN HEX AND VICE VERSA
Enter a Floating point value (0.0 to exit) 2.0
Hex MSB to LSB = 40 0 0 0
Now enter four Hex bytes to display in Floating point
Enter MSB first then LSB last Enter Hex Byte 3 40
Enter Hex Byte 2 80
Enter Hex Byte 1 00
Enter Hex Byte 0 00
Floating value = 4
Enter a Floating point value (0.0 to exit)
```

10- New Master Key

This is a legacy menu which is no longer used in the RediGate.

11- Read Handshake Pins

[Main Menu](#) [System Services](#) [Read Handshake Pins](#)

Diagnostic menu to read the current status of RS-232 serial port handshaking inputs (requires configuration and hardware with an RS-232 serial port).

Enter **11** for Read Handshake Pins. Enter the instance number of the serial port, and **E** if using the Elecsys serial port driver (typical) or **L** if using the Linux serial driver (normally on COM0).

```
===== Monitor /dev/acscmm?? handshaking pins =====
```

```

ElecSys(V:5.7.2017-07-24-1300) Sun Aug 13 13:00:08 2017
UnitName : 1 @ 192.3.1.10 REDIGATE <40170-0118>-SerialNumb
-----
NOTE:This might require rebooting afterwards
Enter Serial Port Index 1 to 20 (console=0) 2

E=ElecSys driver L=Linux driver e
Params=[9600 stop=1 word=8 parenb=0 pareven=0 parstick=0 mode=0 w_up=0 w_down=0]
CPU0
36:      203      SC 20  UART9
38:      19      SC 22  zeus16550
39:     1025     SC 23  pxa2xx-mci
41:      0      SC 25  DMA
42:     5833     SC 26  ost0
44:      0      SC 28  Comms Timer Tick
85:      16     GPIO 35  bt:dtr
103:     0      GPIO 53  mmc card detect
131:    1511     GPIO 81  eth0
Err:      0

Enter '1' to abort

Com-2 DCD=LOW CTS=LOW
Com-2 DCD=LOW CTS=LOW
Com-2 DCD=LOW CTS=LOW

```

The current state of Carrier Detect (DCD) and Clear to Send (CTS) inputs are shown once/second (LOW or HI). Enter 1 to stop the display.

12- Write Handshake Pins

[Main Menu](#) [System Services](#) [Write Handshake Pins](#)

Diagnostic menu to enable or disable the handshaking outputs of an RS-232 port (requires configuration and hardware with an RS-232 serial port).

Enter **12** for Write Handshake Pins. Enter the instance number of the serial port, and **E** if using the Elecsys serial port driver (typical) or **L** if using the Linux serial driver (normally on COM0).

```

===== Force /dev/acscmm?? handshaking pins =====
ElecSys(V:5.7.2017-07-24-1300) Sun Aug 13 13:09:33 2017
UnitName : 1 @ 192.3.1.10 REDIGATE <40170-0118>-SerialNumb
-----
NOTE:This might require rebooting afterwards
Enter Serial Port Index 1 to 20 (console=0) 2

E=ElecSys driver L=Linux driver e
Params=[9600 stop=1 word=8 parenb=0 pareven=0 parstick=0 mode=0 w_up=0 w_down=0]
CPU0
36:      203      SC 20  UART9
38:      95      SC 22  zeus16550
39:     1025     SC 23  pxa2xx-mci
41:      0      SC 25  DMA
42:     43630    SC 26  ost0
44:      0      SC 28  Comms Timer Tick
85:      16     GPIO 35  bt:dtr
103:     0      GPIO 53  mmc card detect
131:    13335    GPIO 81  eth0
Err:      0
RTS: 0=Low 1=High ? 0
Set COM(2) to 0
DTR: 0=Low 1=High ? 1
Set COM(2) to 1

```

Enter **1** or **0** to turn ON or OFF the Request to Send (RTS) and Data Terminal Ready (DTR) handshaking outputs.

13- Run Custom Utility

[Main Menu](#) [System Services](#) [Run Custom Utility](#)

Custom Utility menu option allows a custom shell script or utility to be run from the user menu. This option requires one or more executable scripts to have previously been loaded onto the RediGate in the /usr/director/bin/ directory, with names beginning "CustUtil" and ending with "_#" (where # is a unique integer up to 32,767).

Enter **13** to select the Run Custom Utility menu. A list of available scripts is displayed. Enter the number of the script following the last _ character.

```
Make selection: 13

CustUtil_NAT_Menu_5  CustUtil_atest_0
CustUtil_Stuff_UFF_4  CustUtil_iptables_1

Enter Index of Custom Utility 0 to N 0

Running CustUtil*_0

*****
Here is a script!
*****
```

14- MQTTClient to Next Broker

[Main Menu](#) [System Services](#) [MQTTClient to Next Broker](#)

Force an MQTT Client to walk to the next broker IP address.

If only one IP address is configured in the MQ Client (or MQ Client Extra), this will force a disconnect and reconnection to the same broker, along with all initial subscriptions and data publication. Before walking to the next broker IP, you can turn on MQClient diagnostics (Main Menu Diagnostic Services Task Diags). Then afterward, check the Monitor Diag's menu to view the MQTT diagnostics during the reconnection.

Enter **14** for MQTTClient to Next Broker. If more than one MQ Client is configured, enter **0**, **1**, or **2** to select which one. Enter **Y** to force it to the next broker IP address.

```
===== MQTTClient to Next Broker =====
ElecSys(V:5.7.2017-08-07-1200) Thu Aug 17 06:18:54 2017
UnitName : 1 @ 192.3.1.10 REDIGATE <46247-0004>-SerialNumb
-----
0 ==> MQisdP
1 ==> MQisdPX0
Could not find MQisdPX1
Which MQ Client to force? (0 to 1) 0
Are you certain you want to force it to the next broker? (y/n) y
Checking connection in 5 seconds. Enter any character to return to MENU
```

If the connection cannot be made, the last line may be repeated every 5 seconds. To exit, enter any character on the keyboard followed by Enter to return to the previous menu.

15- Cell Modem Diags

[Main Menu](#) [System Services](#) [Cell Modem Diags](#)

On a RediGate with built-in cellular modem, perform several diagnostic commands for the cellular modem. This requires not only hardware, but also an active RediGate configuration with the cellular modem configured.

Enter **15** for Cell Modem Diags.

```
Make selection: 15

===== Cell Modem Diags =====
ElecSys(V:5.7.2017-02-23-1000) Thu Mar 2 18:09:19 2017
RediGate400C_CPLX : 1 @ 10.63.192.192 REDIGATE-400 <Use System Serv Option-123>
-----
Virtual Port Numer
73=Diag AT Cmds
75=Auto-ATs or NMEA/GPS if HE-910
77=NMEA/GPS if DE-910
79=CellLEDs
or 0 to Exit? 73
```

Enter 73 or 75 for the virtual port number on which to view diagnostics (one or more of these should be configured in ACE).

After this, the RediGate will automatically request several AT commands from the modem to retrieve status and activation information.

The command outputs are described with comments below.

```
Sending AT+GMM
Received[15]-> HE910 OK
```

This is the modem model (HE910 for GSM/HSPA, or DE910-DUAL for CDMA).

```
Sending AT+CNUM
Received[37]-> +CNUM: "", "19132109122", 129 OK
```

This is the phone number associated with the account activation.

```
Sending AT#CCID
Received[37]-> #CCID: 89014104277578463113 OK
```

For the HE910 modem, this is the SIM card number. For the DE910-DUAL, this command will return an error.

```
Sending AT+CGDCONT?
Received[42]-> +CGDCONT: 1, "IP", "i2gold", "", 0, 0 OK
```

For the HE910 modem, the second item in double quotes is the APN of the cellular access point. If the SIM is not properly installed or the RediGate is improperly configured, having an incorrect APN will block cellular connections.

```
Sending AT#MEIDESN?
Received[9]-> #MEIDESN: A1000032B304F6,000000000000,00000000
```

For the DE-910-DUAL modem, this is the MEID number. For the HE910, this command will return an error.

```
Sending AT#CIMI
Received[32]-> #CIMI: 310410757846311 OK
```

This is the IMSI number.

```
Sending AT#CGSN
Received[32]-> #CGSN: 357164042289457 OK
```

For the HE910 modem, this is the IMEI number. For the DE910-DUAL modem, this is the MEID number, split with a comma.

```
Sending AT+CREG?
Received[20]-> +CREG: 0,1 OK
```

This is the mode and connection status. The first number should normally be 0 (disable unsolicited). The second number indicates registration status: 0=not registered, 1=registered/home network, 2=searching, 3=denied, 5=registered/roaming

```
Sending AT$GPSACP
Received[30]-> $GPSACP: 214127.000,3853.5898N,09447.4488W,0.9,315.4,3,12.1,7.3,3.9,310715,07
```

This is the GPS data, if a GPS antenna is connected to the modem. Otherwise, it will mostly be just commas with no data. GPS data represents:

UTC time (hhmmss.sss)
Latitude (ddmm.mmmm N/S)
Longitude (dddmm.mmmm E/W)
HDOP, Altitude (meters), Fix (0=invalid, 2=2D fix, 3=3D fix)
Course over ground (degrees), Speed over ground (Km/hr), Speed over ground (knots)
Date of fix (ddmmyy), Number of satellites in use

```
Sending AT+CSQ
```


Received[40]-> +CSQ: 28,3 OK

**The first number after +CSQ is the signal strength. 99=no signal, 0-31 indicates increasing strength (0 = -113 dBm, 31 = -51 dBm, in steps of 2 dBm per CSQ number).
The second number is the bit error rate (BER). 0=best, 7=worst.**

Repeat? (y/n) **n**

**Then press Enter to exit the modem diagnostics, or A/ to repeat the last command (AT+CSQ, signal strength).
Or enter an 'AT' modem string to manually send a command to the modem.**

Enter AT Command (Enter to Exit, 'A/' repeats last, 'A//' repeat every 2 secs) **a//**

Press Q<enter> to quit repeating

Sending[8]-> AT+CSQ

Received[20]-> +CSQ: 28,2 OK

Press Q<enter> to quit repeating

Sending[8]-> AT+CSQ

Received[20]-> +CSQ: 29,2 OK

Enter 'q' to stop the repeating AT+CSQ commands. And 'Enter' again to exit the menu.

Enter AT Command (Enter to Exit, 'A/' repeats last, 'A//' repeat every 2 secs)

q