Defining Functions in Allstar

Allstar functions are defined in the [functions] stanza in /etc/asterisk/rpt.conf. The function definitions map DTMF key sequences to an action. In all BBB and RPi2 images a core set of definitions are configured.

DTMF sequences are often mapped to the internal Allstar COP, STATUS, or ILINK commands but they can also directly execute a script. Below is a list of the basic commands in every BBB and RPi2 image. The number following functions is the node it is associated with. This is mapped by the functions statement within the node definition stanza. If your node was 1998 it would be:

functions=functions1998

Meaning the functions for this node are controlled by the [functions1998] stanza. Each node can have its own [functions] stanza defined by the above statement but often one stanza serves all nodes on one server in which case they would all be mapped to that one function stanza.

Reference the COP, STATUS, and ILINK tables below to understand the mapping of the commands in the default rpt.conf file. A user can change commands but it is highly recommended to keep the core functions (1-78 below) the same for uniformity.

Default BBB/RPi2 Functions stanza

[functions1998]
1=ilink,1 ; disconnect link = *1<node>
2=ilink,2 ; monitor link = *2<node>
3=ilink,3 ; connect link transceive = *3<node>
4=ilink,4 ; remote command = *4<node>
5=macro,1 ; execute macro = *5<macro#>
70=ilink,5 ; system status
71=ilink,11 ; disconnect permanently connected link = *71<node>
72=ilink,12 ; connect link permanent monitor = *72<node>
73=ilink,13 ; connect link permanent transceive = *73<node>
75=ilink,15 ; play full system status
76=ilink,6 ; disconnect all links
77=ilink,16 ; reconnect previously disconnected links
78=ilink,18 ; permanently monitor link – local only =

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80=status,11  ;  ID (local play only)
81=status,12  ;  Time of Day (local play only)

; Say 24 hour time - change to your node
82=cmd,/usr/local/sbin/say24time.pl 1998

61=autopatchup,context=pbx_server,noct=1,farenddisconnect=1,dialtime=
    20000,quiet=1       ;  Autopatch up
0=autopatchdn        ;  Autopatch down

; Play a Node announcement example
;920=localplay,/etc/asterisk/local/some-file

980=status,3
99=cop,6 ; PPT on, # = release

; Example functions to call scripts
; These are commented out. Remove ';' and change function
; command and node number to one your choice
; Note that halting the system remotely would require
; a power cycle to recover.
;
;A1=cmd,/usr/local/sbin/sayip.sh 1998           ; Say local IP to
radio
;A3=cmd,/usr/local/sbin/saypublicip.sh 1998     ; Say Public IP to
radio
;B1=cmd,/usr/local/sbin/halt.sh 1998            ; Halt the system
    (linux total shutdown)
;B3=cmd,/usr/local/sbin/reboot.sh 1998          ; Reboot the system
;B6=cmd,/usr/local/sbin/astres.sh               ; Restart Asterisk

**Allstar Internal Commands**

The following commands are defined internally in Allstar and can be
executed in the Asterisk client or mapped to DTMF functions as
needed.

**Status Commands:**

1 - Force ID (global)
2 - Give Time of Day (global)
3 - Give software Version (global)
4 - Give GPS location info
5 - Last (dtmf) user
11 - Force ID (local only)
12 - Give Time of Day (local only)

**COP (control operator) Commands:**

1 - System warm boot
2 - System enable
3 - System disable
4 - Test Tone On/Off
5 - Dump System Variables on Console (debug)
6 - PTT (phone mode only)
7 - Time out timer enable
8 - Time out timer disable
9 - Autopatch enable
10 - Autopatch disable
11 - Link enable
12 - Link disable
13 - Query System State
14 - Change System State
15 - Scheduler Enable
16 - Scheduler Disable
17 - User functions (time, id, etc) enable
18 - User functions (time, id, etc) disable
19 - Select alternate hang timer
20 - Select standard hang timer
21 - Enable Parrot Mode
22 - Disable Parrot Mode
23 - Birdbath (Current Parrot Cleanup/Flush)
24 - Flush all telemetry
25 - Query last node un-keyed
26 - Query all nodes keyed/unkeyed
27 - Reset DAQ minimum on a pin
28 - Reset DAQ maximum on a pin
30 - Recall Memory Setting in Attached Xcvr
31 - Channel Selector for Parallel Programmed Xcvr
32 - Touchtone pad test: command + Digit string + # to playback all
digits pressed
33 - Local Telemetry Output Enable
34 - Local Telemetry Output Disable
35 - Local Telemetry Output on Demand
36 - Foreign Link Local Output Path Enable
37 - Foreign Link Local Output Path Disable
38 - Foreign Link Local Output Path Follows Local Telemetry
39 - Foreign Link Local Output Path on Demand
42 - Echolink announce node # only
43 - Echolink announce node Callsign only
44 - Echolink announce node # & Callsign
45 - Link Activity timer enable
46 - Link Activity timer disable
47 - Reset "Link Config Changed" Flag
48 - Send Page Tone (Tone specs separated by parenthesis)
49 - Disable incoming connections (control state noice)
50 - Enable incoming connections (control state noicd)
51 - Enable sleep mode
52 - Disable sleep mode
53 - Wake up from sleep
54 - Go to sleep
55 - Parrot Once if parrot mode is disabled
56 - Rx CTCSS Enable
57 - Rx CTCSS Disable
58 - Tx CTCSS On Input only Enable
59 - Tx CTCSS On Input only Disable
60 - Send MDC-1200 Burst (cop,60,type,UnitID[,DestID,SubCode])
   Type is 'I' for PttID, 'E' for Emergency, and 'C' for Call
   (SelCall or Alert), or 'SX' for STS (ststus), where X is 0-F.
   DestID and subcode are only specified for the 'C' type
   message.
   UnitID is the local systems UnitID. DestID is the MDC1200 ID
   of the radio being called, and the subcodes are as follows:
   Subcode '8205' is Voice Selective Call for Spectra ('Call')
   Subcode '8015' is Voice Selective Call for Maxtrac ('SC') or
   Astro-Saber('Call')
   Subcode '810D' is Call Alert (like Maxtrac 'CA')
61 - Send Message to USB to control GPIO pins
    (cop,61,GPIO1=0[,GPIO4=1].....)
62 - Send Message to USB to control GPIO pins, quietly
    (cop,62,GPIO1=0[,GPIO4=1].....)
63 - Send pre-configred APRSTT notification
    (cop,63,CALL[,OVERLAYCHR])
64 - Send pre-configred APRSTT notification, quietly
    (cop,64,CALL[,OVERLAYCHR])
65 - Send POCSAG page (equipped channel types only)

ILINK Commands:

1 - Disconnect specified link
2 - Connect specified link -- monitor only
3 - Connect specified link -- tranceive
4 - Enter command mode on specified link
5 - System status
6 - Disconnect all links
7 - Last Node to Key Up
8 - Connect specified link -- local monitor only
9 - Send Text Message (9,<destnodeno or 0 (for all)>,Message Text,
etc.
10 - Disconnect all RANGER links (except permalinks)
11 - Disconnect a previously permanently connected link
12 - Permanently connect specified link -- monitor only
13 - Permanently connect specified link -- transceive
15 - Full system status (all nodes)
16 - Reconnect links disconnected with "disconnect all links"
17 - MDC test (for diag purposes)
18 - Permanently Connect specified link -- local monitor only

200 thru 215 - (Send DTMF 0-9,*,#,A-D) (200=0, 201=1, 210=*, etc)

**Remote Commands:**

1 - Recall Memory MM (*000-*099) (Gets memory from rpt.conf)
2 - Set VFO MMMMM*KKK*O (Mhz digits, Khz digits, Offset)
3 - Set Rx PL Tone HHH*D*
4 - Set Tx PL Tone HHH*D* (Not currently implemented with DHE RBI-1)
5 - Link Status (long)
6 - Set operating mode M (FM, USB, LSB, AM, etc)
100 - RX PL off (Default)
101 - RX PL On
102 - TX PL Off (Default)
103 - TX PL On
104 - Low Power
105 - Med Power
106 - Hi Power
107 - Bump Down 20 Hz
108 - Bump Down 100 Hz
109 - Bump Down 500 Hz
110 - Bump Up 20 Hz
111 - Bump Up 100 Hz
112 - Bump Up 500 Hz
113 - Scan Down Slow
114 - Scan Down Medium
115 - Scan Down Fast
116 - Scan Up Slow
117 - Scan Up Medium
118 - Scan Up Fast
119 - Transmit allowing auto-tune
140 - Link Status (brief)
200 thru 215 - (Send DTMF 0-9,*,#,A-D) (200=0, 201=1, 210=*, etc)