

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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*77<node>
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-configured APRSTT notification
 (cop,63,CALL[,OVERLAYCHR])
- 64 - Send pre-configured 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)