## Session and Macro File Commands

Session and macro commands take the form of a Section Header, like [RouterCommand_1], along with one or more entry lines to define the command within the section. Most commands apply universally to any session or macro file loaded on any VistaMax frame, BMX*d* console or RMX*d* console. But there are some Sections that are only applicable to a particular VistaMax device type. These are identified in the command descriptions.

Most command entries are entered into VMCC as channel or card settings. These are then written into the init.mac file during Provisioning and Distribution. Commands that are entered into session files and other macro files must be manually typed into the file following the formats listed in this document. The order of sections within session or macro files is not important, but when multiple entries are allowed within a section, each entry must be on a separate line and must be listed sequentially in the file by an index number.

Source and Destination signal numbers can be any combination of: global numbers (e.g., 65761); local numbers, which refer to a signal on the local device (e.g., 225); or universal numbers, which refer to a signal on another VistaMax device (e.g., d1.225).

Cards are numbered by their physical positions in the console or rack. In a VistaMax rack, the only valid card numbers are 1:16, excluding Hub Card slots 5 and 14. In the BMX*d*, valid card numbers are limited to the active input slots for each frame size (1:8, 1:16, 1:24, 1:32 or 1:40) plus card 63 (which has all internal bus and Net card signals). In the RMX*d*, the KSU is card 4. The optional 8-Input Expansion cards are numbered from left to right as card 1 (available on the RMX*d*-12, RMX*d*-20 or RMX*d*-28), card 2 (available on the RMX*d*-20 and RMX*d*-28 only), and card 3 (which is only available on the RMX*d*-28).

Ports refer to the physical input and output connections on each card. On the VistaMax, each card has 64 ports, numbered 1:32 for the inputs and 33:64 for the outputs. The Digital I/O card only uses the odd numbered ports. On analog signals that are stereo linked, the left channel is typically an odd number and the right channel is the next even numbered port. On RMX*d* Expansion cards valid audio inputs are 1:16 but valid logic inputs are 1:32.

Channel numbers refer to the console modules or channel strips. In the RMX*d*, channels 1:32 are possible on an RMX*d*-28 (28 channel strips plus four phantom channels). Up to six Telco channels can be set on the RMX*d* as 81:86, which take the place of up to six of the channel numbers. In the BMX*d*, channels are numbered from left to right by their types: universal input modules (1:63), Telco direct channels (65:70), Telco router channels (81:86), RLS direct channels (113:127) or RLS router channels (129:143)

**Chain File Command:** This command loads one or more session or macro files on one or more devices in the VistaMax community. It is the last action performed by the session or macro file as it loads.

*Command Format:*

```
[chain]                 ; enter filenames in VMCC for the init.mac file. Manual entry is required for other files.
call_n=filename,d       ; n = sequential index number, e.g., call_1=, call_2=, … call_64=
                        ; filename = full session or macro filename (including .ses or .mac suffix).
                        ; ,d = system device number where the session or macro is stored.  No entry indicates
                        ; the file is on the local device.
```

**Signal Take Commands:** There are two signal take commands that route a source to a destination in the VistaMax community. The first command, [RouterCommand_1], allows multiple takes to be defined. The second command, [Router_*x*] routes one signal to an RMX*d* channel or to a router module (Telco or RLS) in the BMX*d*. The channel-specific include list (include_*i*=*y*) entry is optional. If it is not present, then the include list for that router channel maintains the include list from the previous session file. When a channel-specific include list is used, each entry line can have sources from only one device, however, any device can have multiple entry lines. Sequential sources can also be grouped (e.g., include_1=d5.65-129, 135-147) to simplify the lists.

*Command Format:*

```
[RouterCommand_1]       ; used by VistaMax racks, BMXd consoles and RMXd consoles
take_i=s,d              ; i = the take index number [1:64]. Entries must be listed in numeric order.
                        ; s = source signal number, entering -1 here routes silence to the destination
                        ; ,d = destination signal number
```

*Command Format:*

```
[Router_x]              ; x = RMXd channel number [1:32 or 81:86], BMXd router number [81:86 or 129:143]
include_i=y             ; i = index number [1:64]. Entries must be listed in numeric order.
Take=s                  ; y = channel-specific source include list or ALL to use the console include list
                        ; s = source signal number, entering -1 here routes silence to the channel.
```

## Audio Signal Entries

**Sample Rate Bypass:** Applies only to VistaMax Digital I/O card signals. All digital inputs may be set to bypass their sample rate converters, but only the first four outputs can be bypassed. If applied to Analog or Logic cards or to the remaining digital outputs, the entry has no effect. Typically, only the odd-numbered entries are assigned as this control applies exclusively to stereo pairs. The Default value is 0 or false (sample rate conversion is active).

**Note:** This is a dangerous and rarely used parameter. It is not supported by VMCC. If required, it must be manually entered into the VistaMax init.mac file or into a chained file from the init.mac.

**Sample Rate Bypass (cont.):**

*Command Format:* [src_bypass_card_*n*] ; *n* = the card number [1:16], excluding slots 5 & 14 in a VistaMax rack
src_bypass_*x*=0|1 ; *x* = odd number of the signal pair. 1, 3, 5…29, 31 are valid inputs.
; Only outputs 33, 35, 37 and 39 are valid output entries.

**44.1 Output Sample Rate:** Set in VMCC in the Digital destinations signal detail pane, it can be applied to only the first four Digital outputs. If manually assigned to analog cards or to inappropriate digital outputs, this entry has no effect. The Default value is 0 or false (output is 48 kHz). If an output is set to follow an external sample rate (see the next entry), this entry then only sets the output sample rate if the external reference signal becomes invalid.

*Command Format:* [441_out_card_*n*] ; *n* = the card number [1:16], excluding slots 5 & 14 in a VistaMax rack
441_out_*x*=0|1 ; *x* = the signal number. Only 33, 35, 37 and 39 are valid entries.

**External Sample Rate:** Set in VMCC in the Digital destinations signal detail pane, it can be applied to only the first four Digital outputs. Any, or all, of these can be set to use an external reference sample rate. If manually assigned to analog cards or to inappropriate digital outputs, this entry has no effect. The Default value is 0 or false (internal sample rate is used).

*Command Format:* [ext_out_card_*n*] ; *n* = the card number [1:16], excluding slots 5 & 14 in a VistaMax rack
ext_out_*x*=0|1 ; *x* = the signal number. Only 33, 35, 37 and 39 are valid entries.

**Audio Phase Reversal:** Set in VMCC in the source signal detail pane for Analog and Digital cards. The Default value is 0 or false (no phase reversal). **Note:** there is a phase reversal selection on the destination detail panes, but it does nothing.

*Command Format:* [rev_phase_card_*n*] ; *n* = the card number [1:16], excluding slots 5 & 14 in a VistaMax rack
rev_phase_*x*=0|1 ; *x* = the signal number [1:32]. Either or both channels can be reversed.

**Audio Gain:** Set in VMCC in the source and destination signal detail panes for the Analog and Digital cards. A graphic gain slider is used to adjust the gain by up to +15.5 dBm, or lower it by -16 dBm, in 0.5 dB increments. The Default value is 20(hex) which is 0 dBm (unity gain).

*Command Format:* [gain_card_*n*] ; *n* = the card number [1:16], excluding slots 5 & 14 in a VistaMax rack
gain_*x*=[00h:3Fh] ; *x* = the signal number [1:64], with 1:32 being inputs and 33:64 being outputs.

**Ready Lamp Control:** Set in VMCC in the source signal detail pane, it is applicable only to RMX*d* and VistaMax sources. On the BMX*d* input modules the Off Lamp Control DIP switch sets this parameter. The default value is 0 or local Off lamp control.

*Command Format:*

```
[ready_lamp_card_n]      ; n = the card number [1:16], excluding slots 5 & 14 in a VistaMax rack
ready_lamp_x=0|1         ; x = the signal number [1:32], only input numbers are valid.
                         ; 0 = local off lamp control, 1 = off lamp is controlled by external ready logic input
```

**Start/Stop Logic Pulses:** Set in VMCC in the source signal detail pane, it is applicable only to RMX*d* and VistaMax sources. On the BMX*d* input modules the Start/Stop Pulses DIP switch sets this parameter. The default value, =0, outputs one pulse with each channel state change (Off to On, or On to Off). The value =1 outputs a pulse each time an On or Off button is pressed (actuated)--regardless of whether a state change occurs.

*Command Format:*

```
[ss_pulse_mult_card_n]   ; n = the card number [1:16], excluding slots 5 & 14 in a VistaMax rack
ss_pulse_mult_x=0|1      ; x = the signal number [1:32], only input numbers are valid.
                         ; 0 = single pulse, 1 = additional pulse with each button press
```

**Start/Stop Logic Control:** Set in VMCC in the source signal detail pane, it is applicable only to RMX*d* and VistaMax sources. On the BMX*d* input modules the Start/Stop Control DIP switch sets this parameter. The default value, =0, outputs a start/stop pulse only when a channel button is pressed. The value =1 outputs a start/stop pulse with both local button presses and with remote on/off commands.

*Command Format:*

```
[ss_pulse_all_card_n]    ; n = the card number [1:16], excluding slots 5 & 14 in a VistaMax rack
ss_pulse_all_x=0|1       ; x = the signal number [1:32], only input numbers are valid.
                         ; 0 = only local on/off button presses produce pulse(s)
                         ; 1 = either local button presses or external channel on/off logic produces pulse(s)
```

**Room Codes:** Set in VMCC in the source signal detail pane, it is applicable only to RMX*d* and VistaMax. On BMX*d* input modules, the four Room Mute DIP switches set the parameter. The default, = 0 (no mute), is used on line input signals. Valid room codes are 1:127. They associate mics to specific rooms so that room muting and warning commands are properly activated when the mic is routed to an RMX*d* console and the channel is turned on.

*Command Format:*

```
[roomcode_card_n]        ; n = the card number [1:16], excluding slots 5 & 14 on VistaMax
roomcode_x=[0:127]       ; x = the signal number [1:32], only input numbers are valid.
```

## Logic Signal Entries

**Output Port Binding:** Set in VMCC (which writes it into the init.mac file), this command binds an output logic command to a specific logic output port by specifying the logic command (by binding bit) and which input audio timeslot is carrying the command. The Binding Bit Table, shown below, lists the available logic commands.

*Command Format:*

```
[on_out_port_card_n]        ; n = the logic card number [1:16], excluding slots 5 & 14 in a VistaMax rack
on_out_port_a=b,c           ; a = the logic output port [1:32 on VistaMax, 1:16 on RMXd Expansion cards]
on_out_port_a=b,c           ; b = the binding bit [1:255], see table below for the valid bit numbers
on_out_port_a=b,c           ; ,c = the input audio timeslot [1:32] that is carrying the output logic signals.
. . .
```

| BINDING BIT TABLE | |
|---|---|
| Binding Bit = Logic Command | Binding Bit = Logic Command |
| 121 = On Tally output | 133 = Cough switch input & Cough Tally |
| 122 = Off Tally output | 134 = talk to C/R or Remote Cue switch input |
| 123 = start pulse output | 135 = Talk to External switch input |
| 124 = stop pulse output | 138 = Ready switch input |
| 129 = Talk to ST2 Host switch input | 140 = Talk to ST1 switch input |
| 130 = Talk to ST2 Co-Host switch input | 141 = Talk to ST1 Host switch input |
| 131 = On switch input | 142 = Talk to ST1 Co-Host switch input |
| 132 = Off switch input | 143 = Talk to ST2 switch input |

**Input Port Binding:** Set in VMCC for RMX*d* and VistaMax logic (which writes it into the init.mac file), this command defines an input logic command (by binding bit) from a specific logic input port. It then binds this logic with an input audio signal (audio input timeslot) and routes this new "audio with logic" signal to a logic card output timeslot.

*Command Format*:

```
[on_out_ts_card_n]          ; n = the card number [1:16], excluding slots 5 & 14 in a VistaMax rack
on_out_ts_d_i=e,f,g         ; d = logic card output timeslot [1:32] that has the combined audio and logic
on_out_ts_d_i=e,f,g         ; i = sequential index number for each output timeslot's binding bit(s)
on_out_ts_d_i=e,f,g         ; e = the input logic port [0:32], 0 is a placeholder used with stereo-linking.
on_out_ts_d_i=e,f,g         ; ,f = the logic binding, bit per the Binding Bit table, above
. . .                       ; ,g = the audio input timeslot [1:32] that is bound to the logic commands.
                            ; Stereo linked signals use odd numbered timeslots for binding logic, with
                            ; a dummy route on the next even timeslot to maintain stereo linking through
                            ; the logic card. See the routing example on the following page.
```

## Logic I/O Entries (cont.)

Example of Input Port Logic Routing (ts = timeslot):

```
[on_out_ts_card_7]      ; Defines signals on the Logic card in slot 7 of a VistaMax rack
on_out_ts_9_1=3,138,7   ; Ready (port 3) is bound to audio from input ts 7 to output ts 9
on_out_ts_9_2=1,131,7   ; On (port 1) is bound to audio from input ts 7 to output ts 9
on_out_ts_9_3=2,132,7   ; Off (port 2) is bound to audio from input ts 7 to output ts 9
on_out_ts_10_1=0,0,8    ; A dummy route to carry audio ts 8 to logic output ts 10
```

**Output Port Control:** Set in VMCC for RMX*d* and VistaMax logic (via the init.mac file), this command sets up a logic card output port to command one of four output states when a port event command is issued (see the next command). The four states are: a single contact closure lasting 200 ms; a maintained contact closure; a maintained contact open; or a single contact open lasting 200 ms.

*Command Format*:

```
[port_config_card_n]      ; n = the card number [1:16], excluding slots 5 & 14 in a VistaMax rack
port_config_h=i           ; h = the logic card output port [1:32]
                          ; i = type of logic [0:3], 0 = pulsed close; 1 = close; 2 = open; 3 = pulsed open
```

**Logic Port Event:** Triggers a logic output port. What happens when it is triggered is defined in the Output Port Control command.

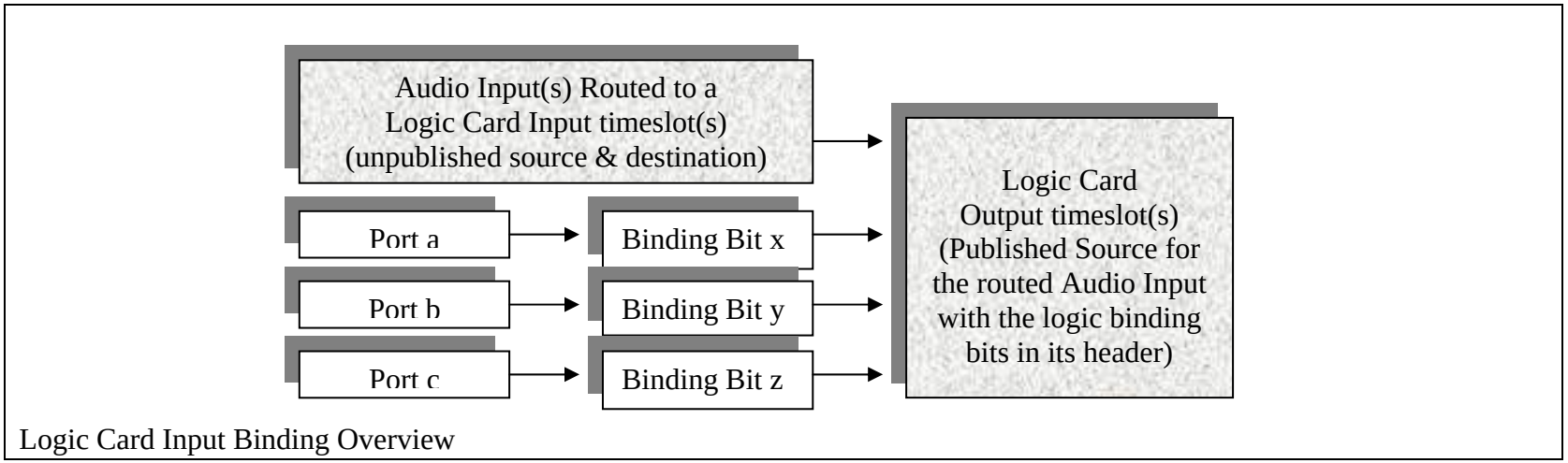
*Command Format:*

```
[port_event_card_n]       ; n = the card number [1:16], excluding slots 5 & 14 in a VistaMax rack
port_event_j=0|1          ; j = the logic card output port [1:32] to be activated
                          ; 1= activate the output port, 0 = no activity, typically used as a placeholder
```

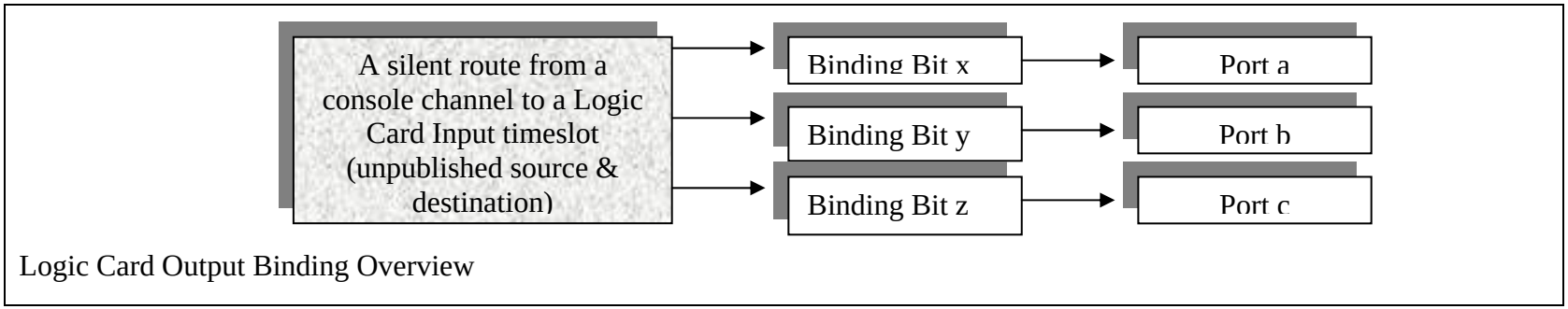
## Logic Binding – Overview

Each logic connection on a VistaMax Logic card or an RMX*d* Assignable Logic connector is a discrete logic input or output called a Port. There are 32 input and 32 output ports on each VistaMax Logic card. There are four input and two output ports on each RMX*d* Assignable Logic connector.

Ports connect external logic devices—anything from a mic control panel to peripherals like CD players and Digital Delivery Systems, with the VistaMax system. The logic command from or to each port is defined by assigning a binding bit to each port. The binding bit (a Binding Bit Table is on page 5) sets what action occurs when a logic-true input command is received (e.g., a channel is turned on or off, a specific talkback is initiated, etc.) or when a logic-true output command is received (e.g., a start or stop pulse is generated or a tally is output).




Logic Card Input Binding Overview




Logic Card Output Binding Overview

Binding bits are sent around the VistaMax community using specific Logic card timeslots. Each timeslot can carry up to 32 binding bits although, in typically applications, only from one to four binding bits would be assigned to any one timeslot.

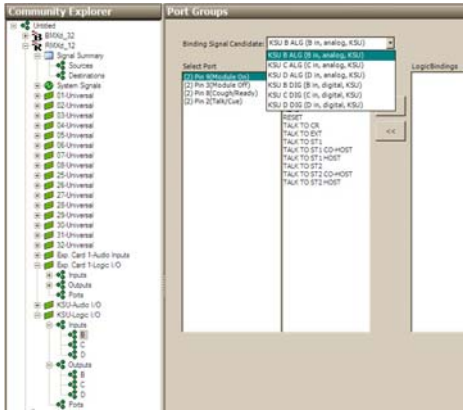
The binding bits are carried in the header of a digital audio signal. In the case of an audio input signal, the binding bits are actually associated with the audio (e.g., a mic input carries the mic panel remote on, off, cough and talkback commands; a CD player audio carries its remote on and ready commands; etc.). Conversely, output logic binding bits, which are typically start and stop commands or tally commands, get routed on a silent audio route from the console channel, that the audio was routed to, back to the logic card. To carry the binding bits back to the logic card a mono, silent audio (source is -1) route is typically used.

To manually enter the binding bit and timeslot information on input and output logic commands is a time consuming and confusing business that, thanks to VMCC, is made much easier since VMCC does the hard work of creating the commands in the init.mac file from straight-forward “human entries” in VMCC.

The remaining two sections cover setting up logic in the RMX*d* console and the VistaMax rack. The BMX*d* console typically does not use logic routing, except when remotely controlling a peripheral connected to a VistaMax and routed to the console. In most cases this type of routing can be set up during the VistaMax rack logic setup in VMCC.

## Setting RMX*d* Logic

There are three assignable logic connectors on the KSU and eight on each 8-Input Expansion Card. The KSU logic connectors are labeled as B, C and D. They can be associated with three of the six KSU audio input connectors labeled as B, C or D. The Expansion card connectors are labeled as 1 thru 8. Each of these logic connectors can be associated with any one of the sixteen mono audio inputs on that Expansion card.

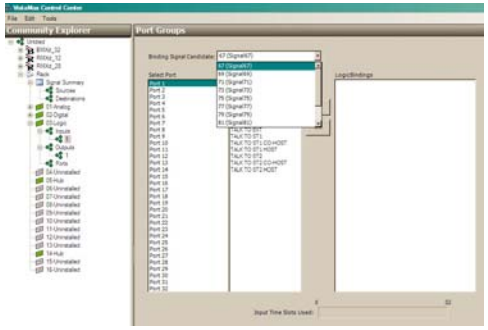



**Step-By-Step Logic Setup in RMX*digital* using VMCC:**

1. Expand the RMXd Logic I/O tree selection, then expand the Inputs tree selection to view the Logic Inputs.
2. Select a Logic Input. At the top of the pane select which audio input to associate with the logic connector in the Binding Signal Candidate box which displays the In Room Name and signal Description.
3. Click to highlight a logic port, then set its “behavior” by either double-clicking the behavior name, or by highlighting the behavior and clicking the >> button to assign that behavior to that logic port. To help out, each logic port lists the pin that it controls on the assignable logic connector and the signal that is normally assigned to that port, although any logic behavior can be assigned to any port. **Note:** Do not assign the Talk to Studio 1 Co-Host or the three Talk to Studio 2 selections since those behaviors are not supported on RMX*d*.
4. Expand the Outputs tree selection and select a Logic Output. In the Logic Output pane for that assignable connector set the output “drive code” for the two output ports. As for the logic inputs, each logic port lists the connector pin it controls and the normal signal that is assigned to that port. A peripheral device typically gets a start and a stop pulse assigned. A mic panel typically gets an on and off tally assigned.
5. Repeat steps 2, 3 and 4 for each assignable logic connection.
6. If a Port Event command will be used in a session file to trigger an output port when the session loads, select the Ports pane and set the desired Direct Output Use (Close contact, open contact, Pulse contact Close, Pulse contact Open) required for each port. **Note:** only un-assigned output ports will be shown in the Port pane.
7. Switch to the Provision pane and provision the device. Look through the Initial Session file to verify the logic sections ([on_out_port_card_x], [on_out_ts_card_x], [port_config_card_x) correspond to the desired settings following the information shown in this document.

## Setting VistaMax Logic

There are 32 input and 32 output logic connections on each VistaMax logic card. Each is an independent connection. The only limitation to which audio signal can be associated with a particular logic card is that the audio and the logic cards must be served by the same Hub card. Thus, audio I/O cards in slots 1 thru 4 and 6 thru 9 can only be associated with Logic I/O cards in that slot range. Audio I/O cards in slots 10 thru 13, 15 and 16 can only be associated with Logic I/O cards in that slot range. Logic signals can be associated with any mono or stereo pair of audio inputs. When associated with a stereo signal, the left audio channel timeslot (typically the odd numbered channel) is used for the logic binding and a dummy route is made to maintain the stereo routing.



**Step-By-Step Logic Setup in a VistaMax rack using VMCC:**

1. Select which audio inputs are going to be associated with logic signals by checking those audio inputs as “Logic Candidates” in the Sources Signal Summary pane or in the individual Sources detail panes.
2. Expand the Logic Card tree and the Inputs tree. Click on the 1 to open the Logic Input pane for that card.
3. Select a Binding Signal Candidate (an audio input signal previously marked as a Logic Candidate) at the top of the pane. Click on a port to set, then assign a “behavior” to that port by double-clicking the behavior name or by highlighting the behavior name and clicking the >> button. The ports are removed from the list as they are used. If the selected audio signal is a microphone, the logic will typically come from a mic panel, thus the typical behaviors are On, Off, Cough and a Talkback. If the audio signal is from a peripheral device then the behaviors are typically On, Off, Ready and Reset.
4. Expand the Outputs tree selection for the same Logic card and click on the 1 to open the Logic Output pane for that card. Select one of the Logic Controlled Devices to set output logic for at the top of the pane. Click on an Output port, then set the output “drive code” for that port (double-click the drive code name or highlight a name and click the >> button). Peripheral devices typically get a start and a stop pulse assigned. A mic panel typically gets an on and off tally assigned. The cough tally is typically not used since the cough and talkback buttons on a mic panel are lit from 5 volts.
5. Repeat steps 3 and 4 to set the logic for the other Binding Signal Candidates. If there are multiple Logic cards in the rack, repeat steps 2 thru 4 for each Logic card.
6. If a Port Event command will be used in a session file to directly control an output port, click on the Ports icon to open the Ports pane. Click on a port and then set the desired Direct Output Use (Close, open, Pulse Close, Pulse Open) by double-clicking the name or highlight and click the >> button. **Note:** only un-assigned output ports will be shown in the Port pane.
7. Switch to the Provision pane and provision the device. Examine the Initial Session file to verify the logic sections ([on_out_port_card_x], [on_out_ts_card_x], [port_config_card_x) settings correspond to the desired settings following the information shown in this document.