



CHAPTER 12

Multiline Hunt Group Features

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The Cisco BTS 10200 Softswitch supports multiline hunt group (MLHG) features. An MLHG is a collection of lines organized into a group with a single pilot DN (also referred to as the group DN or the main-subscriber DN). Optionally, individual DNs can be assigned to some or all of the lines in the group. Each line in an MLHG has a terminal number that identifies its position in the group. When there is an incoming call, if the first line in the MLHG is busy, the next line is hunted and so on until an idle line is found.

For a detailed feature description, use cases, examples of specific hunting scenarios, and detailed guidance on certain provisionable parameters, see the [“Multiline Hunt Group \(MLHG\)”](#) section in the *Cisco BTS 10200 Softswitch Network and Subscriber Feature Descriptions* document.

For the basic sequence of steps required to provision a MLHG, see the [MLHG provisioning procedure](#) in the *Cisco BTS 10200 Softswitch Provisioning Guide*.



Note

In this chapter, an asterisk preceding a token name means the token is mandatory. A token without an asterisk is optional.

Multiline Hunt Group

The Multiline Hunt Group (mlhg) table defines the size, type and relationships of a multiline hunt group.

Table Name: MLHG

Table Containment Area: Call Agent, FSPTC

Command Types

Show, add, change, and delete

Examples

```
show mlg id=engineering;  
add mlg id=engineering; hunt-type=ucd; main-sub-id=xyzcorp; call-agent-id=CA146;  
change mlg id=engineering; hunt-type=circular;  
delete mlg id=engineering;
```

Usage Guidelines

Primary Key Token(s): id

Foreign Key Token(s): main-sub-id, call-agent-id

Add Rules: None.

Change Rules: None.

Delete Rules: ID does not exist in any subscriber::mlhg-id.

Syntax Description

* ID	Primary key. Unique identifier of a particular MLHG. Assigned by service provider. VARCHAR(16): 1–16 ASCII characters.
* MAIN-SUB-ID	Foreign key: Subscriber table. Main subscriber ID assigned to the group. Same as ID in Subscriber table. VARCHAR(30): 1–30 ASCII characters.
* CALL-AGENT-ID	Foreign key: Call Agent table. ID of the Call Agent servicing this MLHG. Same as ID in the Call Agent table. VARCHAR(8): 1–8 ASCII characters.
MAX-LINES (Obsolete as of Release 4.5)	Maximum number of lines in the MLHG. Up to 512 lines are supported on an MLHG. Assigned by service provider. SMALLINT: 2–512 (Default = 2).
AUTO-REFRESH	Specifies whether to display cached data on the screen. Valid only for the show command. CHAR(1): Y/N (Default = Y). Y—Queries the database for the most current data. N—Queries the database for the most current data only if the cached data is unavailable.
DISPLAY	Specifies what token information to display on the screen. Valid only for the show command. VARCHAR(1024): 1–1024 (Default = all tokens are displayed). Permitted values are any valid token that can be shown for this command. Multiple tokens can be entered by separating with a comma.

HUNT-TYPE	Specifies the hunting process. The system searches for an idle line within the MLHG according to this provisioned value. For detailed examples of hunting scenarios, see the “Multiline Hunt Group (MLHG)” section in the <i>Cisco BTS 10200 Softswitch Network and Subscriber Feature Descriptions</i> document. VARCHAR(8): 1–8 ASCII characters. Permitted values are: REGULAR (Default)—If the pilot number is dialed, the hunt starts from the top of the list (lowest numbered terminal in the MLHG), then searches sequentially for an idle line, or until it reaches the last line on the list (highest numbered terminal in the MLHG). If the DN of a specific terminal is dialed, the call is completed to the dialed DN, if idle, otherwise the search begins at the terminal after the dialed DN, and continues down the list. CIRCULAR—If the pilot number is dialed, the system searches in the same way as for HUNT-TYPE=REGULAR. If the DN of a specific terminal is dialed, the call is completed to the dialed DN, if idle, otherwise the search begins at the terminal after the dialed DN, and continues down the list. CIRCULAR adds the capability to search additional terminals at the top of the list after trying the last terminal in the list. The circular hunt stops at the terminal just before the terminal of the dialed DN. UCD (Uniform call distribution)—Uses a pointer to assign an incoming call call to an idle line in the group. • If the pilot number is dialed, the call is completed to the line indicated by the pointer, if idle. However, if the terminal corresponding to the pointer is busy, for example, if the user goes off-hook to make a call, the hunt starts at the next terminal in the list (after the line with the pointer) and continues with a circular hunt to find an idle line. The call is given to the idle line, then the pointer is immediately reset to the next available (idle) line. When the next call comes in, it is completed to the line indicated by the pointer, and so forth. • If the DN of a specific terminal is dialed, the call is completed to the dialed DN, if idle. If the specific terminal is not idle, the call is completed to the line indicated by the pointer, and the pointer is immediately reset to the next available (idle) line. When the next call comes in, it is completed to the line indicated by the pointer, and so forth.
LIMIT	Specifies the number of rows to display on the screen. Valid only for the show command. INTEGER: 1–100000000 (Default = 100000000). Note The actual maximum number of rows displayed is currently lower than 100000000 due to software limitations.
ORDER	Specifies whether to display data on the screen in a sorted order. Valid only for the show command. VARCHAR(1024): 1–1024 (Default = all rows are displayed). Permitted values are any valid token that can be shown for this command. Multiple tokens can be entered by separating with a comma.
START-ROW	Specifies to begin displaying data on the screen at a specific row. Valid only for the show command. INTEGER: 1–100000000 (Default = 1).

Multiline Hunt Group Terminal

The Multiline Hunt Group Terminal (mlhg-terminal) table identifies the terminals in a multiline hunt group and the termination IDs associated with each terminal. A terminal number must be provisioned for every physical line in the MLHG.

Table Name: MLHG-TERMINAL

Table Containment Area: Call Agent

Command Types

Show, add, change, and delete

Examples

```
show mlg-terminal mlg-id=Cisco Eng; terminal=12;  
add mlg-terminal mlg-id=Cisco Eng; terminal=12; term-id=aaln/1; mgw-id=rgw242;  
change mlg-terminal mlg-id=Cisco Eng; terminal=12; term-id=aaln/1; mgw-id=rgw;  
delete mlg-terminal mlg-id=Cisco Eng; terminal=12;
```

Usage Guidelines

Primary Key Token(s): mlg-id, terminal

Foreign Key Token(s): mlg-id, mgw-id

Add Rules: term-id, mgw-id combination exists in termination::(term-id, mgw-id).

Change Rules: term-id, mgw-id combination exists in termination::(term-id, mgw-id).

Delete Rules: terminal does not exist in any mlg-pref-list(mlg-id)::rel-terminal.

Syntax Description

* MLHG-ID	Primary key. Foreign key: Multiline Hunt Group table. Identifier for this MLHG. Same as ID in the Multiline Hunt Group table. VARCHAR(16): 1–16 ASCII characters.
* TERMINAL	Primary key. The number assigned to this terminal (that is, the terminal number within the MLHG). Numbers can be assigned in numeric order starting from 1, but this is not required. During a multiline hunt, the terminals are attempted in numerical order, from lowest to highest. SMALLINT: 1–512.
* MGW-ID	Foreign key: Media Gateway table. Media Gateway table ID. It must match an ID in the Media Gateway table. VARCHAR(32): 1–32 ASCII characters.
* TERM-ID	The ID from the Termination table. Use a geographical map to assign terminations to terminals. The ID must be obtained from the previous provider if the customer had one. VARCHAR(32): 1–32 ASCII characters.
AUTO-REFRESH	Specifies whether to display cached data on the screen. Valid only for the show command. CHAR(1): Y/N (Default = Y). Y—Queries the database for the most current data. N—Queries the database for the most current data only if the cached data is unavailable.
DISPLAY	Specifies what token information to display on the screen. Valid only for the show command. VARCHAR(1024): 1–1024 (Default = all tokens are displayed). Permitted values are any valid token that can be shown for this command. Multiple tokens can be entered by separating with a comma.
LIMIT	Specifies the number of rows to display on the screen. Valid only for the show command. INTEGER: 1–100000000 (Default = 100000000). Note The actual maximum number of rows displayed is currently lower than 100000000 due to software limitations.
ORDER	Specifies whether to display data on the screen in a sorted order. Valid only for the show command. VARCHAR(1024): 1–1024 (Default = all rows are displayed). Permitted values are any valid token that can be shown for this command. Multiple tokens can be entered by separating with a comma.
START-ROW	Specifies to begin displaying data on the screen at a specific row. Valid only for the show command. INTEGER: 1–100000000 (Default = 1).

Multiline Hunt Group Preference List

The Multiline Hunt Group Preference List (mlhg-pref-list) table indicates the terminals to be sequentially attempted in a preferential hunt list within an MLHG. Lists are pools of terminals within the MLHG. If the called DN is busy, and if the called DN is provisioned in the Subscriber table with a mlg-pref-list-id, the call is first given to an idle member of the specified preferential hunt list (if available) before overflowing to the terminals within the whole MLHG.



Note

The system does *not* invoke the preference list (preferential hunt) if hunt-type=UCD in the MLHG table.

Table Name: MLHG-PREF-LIST

Table Containment Area: Call Agent

Command Types

Show, add, change, and delete

Examples

```
show mlg-pref-list id=admin-pool; mlg-id=Cisco Eng;
add mlg-pref-list id=admin-pool; mlg-id=Cisco Eng;
change mlg-pref-list id=admin-pool; mlg-id=Cisco Eng;
rel-terminal1=20; rel-terminal2=21;
delete mlg-pref-list id=admin-pool; mlg-id=Cisco Eng;
```

The following example illustrates how to provision an MLHG *preferential* hunt list.

The MLHG has 512 terminals (numbered 1 to 512). A preferential hunt list can be created using any of the 512 terminals. The rel-terminal token specifies the position of a terminal in the preferential hunt list and the terminal number to use to complete the call. Up to 18 terminals can be specified. Any terminal can use any value, but a value can be used only once in the same group. So, if rel-terminal1 uses value 3, rel-terminal2 can use any value but 3. If rel-terminal2 uses value 66, rel-terminal3 can use any value but 3 and 66, and so forth.



Note

For additional examples of preferential hunting scenarios, see the [“Multiline Hunt Group \(MLHG\)” section](#) in the *Cisco BTS 10200 Softswitch Network and Subscriber Feature Descriptions* document.

Usage Guidelines

Primary Key Token(s): mlg-id, id

Foreign Key Token(s): mlg-id

Add Rules:

- No more than 64 lists exist for this mlg-id.
- rel-terminal does not already exist for the mlg-id and id combination.
- rel-terminal exists in any mlg-terminal::rel-terminal based on mlg-id.

Change Rules:

- rel-terminal does not already exist for the mlg-id and id combination.
- rel-terminal exists in any mlg-terminal::rel-terminal based on mlg-id.

Delete Rules: None.

Syntax Description	* MLHG-ID	Primary key. Foreign key: Multiline Hunt Group table. Identifier for this MLHG. Same as ID in Multiline Hunt Group table. VARCHAR(16): 1–16 ASCII characters.
	* ID	Primary key. Preferential hunt list ID. Assigned by service provider. VARCHAR(16): 1–16 ASCII characters.
	AUTO-REFRESH	Specifies whether to display cached data on the screen. Valid only for the show command. CHAR(1): Y/N (Default = Y). Y—Queries the database for the most current data. N—Queries the database for the most current data only if the cached data is unavailable.
	DISPLAY	Specifies what token information to display on the screen. Valid only for the show command. VARCHAR(1024): 1–1024 (Default = all tokens are displayed). Permitted values are any valid token that can be shown for this command. Multiple tokens can be entered by separating with a comma.
	LIMIT	Specifies the number of rows to display on the screen. Valid only for the show command. INTEGER: 1–100000000 (Default = 100000000). Note The actual maximum number of rows displayed is currently lower than 100000000 due to software limitations.
	ORDER	Specifies whether to display data on the screen in a sorted order. Valid only for the show command. VARCHAR(1024): 1–1024 (Default = all rows are displayed). Permitted values are any valid token that can be shown for this command. Enter multiple tokens by separating with a comma.
	REL-TERMINAL1	Identifies the terminal (same as the terminal provisioned in the MLHG Terminal table) assigned to position 1 in this preferential hunt list. SMALLINT: 1–512.
	REL-TERMINAL2	Identifies the terminal (same as the terminal provisioned in the MLHG Terminal table) assigned to position 2 in this preferential hunt list. SMALLINT: 1–512.
	REL-TERMINAL3	Identifies the terminal (same as the terminal provisioned in the MLHG Terminal table) assigned to position 3 in this preferential hunt list. SMALLINT: 1–512.
	REL-TERMINAL4	Identifies the terminal (same as the terminal provisioned in the MLHG Terminal table) assigned to position 4 in this preferential hunt list. SMALLINT: 1–512.
	REL-TERMINAL5	Identifies the terminal (same as the terminal provisioned in the MLHG Terminal table) assigned to position 5 in this preferential hunt list. SMALLINT: 1–512.

REL-TERMINAL6	Identifies the terminal (same as the terminal provisioned in the MLHG Terminal table) assigned to position 6 in this preferential hunt list. SMALLINT: 1–512.
REL-TERMINAL7	Identifies the terminal (same as the terminal provisioned in the MLHG Terminal table) assigned to position 7 in this preferential hunt list. SMALLINT: 1–512.
REL-TERMINAL8	Identifies the terminal (same as the terminal provisioned in the MLHG Terminal table) assigned to position 8 in this preferential hunt list. SMALLINT: 1–512.
REL-TERMINAL9	Identifies the terminal (same as the terminal provisioned in the MLHG Terminal table) assigned to position 9 in this preferential hunt list. SMALLINT: 1–512.
REL-TERMINAL10	Identifies the terminal (same as the terminal provisioned in the MLHG Terminal table) assigned to position 10 in this preferential hunt list. SMALLINT: 1–512.
REL-TERMINAL11	Identifies the terminal (same as the terminal provisioned in the MLHG Terminal table) assigned to position 11 in this preferential hunt list. SMALLINT: 1–512.
REL-TERMINAL12	Identifies the terminal (same as the terminal provisioned in the MLHG Terminal table) assigned to position 12 in this preferential hunt list. SMALLINT: 1–512.
REL-TERMINAL13	Identifies the terminal (same as the terminal provisioned in the MLHG Terminal table) assigned to position 13 in this preferential hunt list. SMALLINT: 1–512.
REL-TERMINAL14	Identifies the terminal (same as the terminal provisioned in the MLHG Terminal table) assigned to position 14 in this preferential hunt list. SMALLINT: 1–512.
REL-TERMINAL15	Identifies the terminal (same as the terminal provisioned in the MLHG Terminal table) assigned to position 15 in this preferential hunt list. SMALLINT: 1–512.
REL-TERMINAL16	Identifies the terminal (same as the terminal provisioned in the MLHG Terminal table) assigned to position 16 in this preferential hunt list. SMALLINT: 1–512.
REL-TERMINAL17	Identifies the terminal (same as the terminal provisioned in the MLHG Terminal table) assigned to position 17 in this preferential hunt list. SMALLINT: 1–512.
REL-TERMINAL18	Identifies the terminal (same as the terminal provisioned in the MLHG Terminal table) assigned to position 18 in this preferential hunt list. SMALLINT: 1–512.
START-ROW	Specifies to begin displaying data on the screen at a specific row. Valid only for the show command. INTEGER: 1–100000000 (Default = 1).