

3. Input Methods

Samsung Smart TV supports several different input methods, such as Samsung Smart Control, standard remote, mouse, keyboard, and voice control.

If an application supports input methods other than a remote control, small icons will be displayed on Samsung Apps to show the supported features. When executing applications, they must notify users that the features are supported.



Figure 3-1. An example of an application that supports Voice Control and Motion Control.

3.1. Samsung Smart Controls

All applications must be designed so that using only the Samsung Smart Control will give access to all of their features

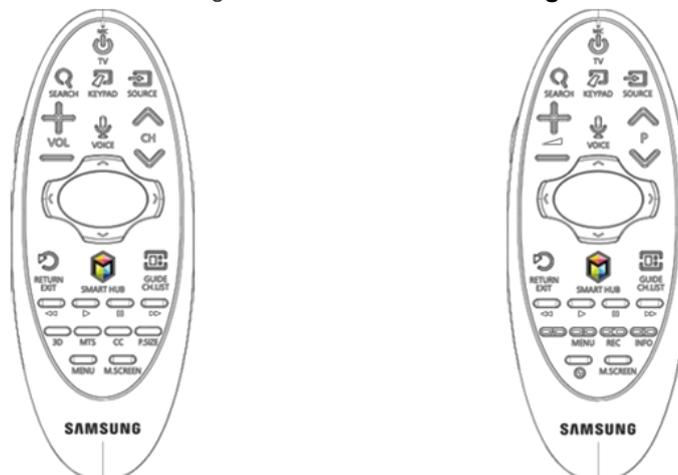


Because Samsung Smart Control is constantly evolving, buttons and features other than the basic buttons are subject to change. Hence, in order to make applications that are not restricted by a locale or the TV model, only use the basic buttons described in 3.1.1.

3.1.1. Basic Controls

Samsung Smart Control includes a touchpad. This means that there are fewer physical buttons than you would expect to find on a standard remote. Actions such as select and confirm can be carried out by pressing the middle of the touchpad, rather than pressing ENTER. Scrolling is also available by dragging the touchpad up, down, left, or right.

The standard appearance of the Samsung Smart Control is shown in **Figure 3-2**.



Regions where four shortcut buttons are provided (North & Latin America, etc.)

Regions where colored buttons (A/B/C/D) are provided (Europe, China, Taiwan, etc.)

Figure 3-2. Samsung Smart Controls

Table 3-1 is the table of the basic buttons.

Input	Basic TV Controls
Four-directional control	Movement Control
Select(ENTER)	[When no function is assigned] NR (No response. No notification given) □[When a function is assigned] Execute the assigned function.
Return	Return to the previous stage.
Channel Control	[When watching broadcast on full screen or on PIP] Change the channel [In other situations] NA (System message that the button is currently ▲! Apps may assign different functions when necessary.
Volume Control	Display TV Volume OSD and volume control ▲! Apps may assign different functions when necessary.
Power	Turn the TV power off

Table 3-1. Basic TV Controls

3.1.2. On-screen Remote

Pressing the Samsung Smart Control KEYPAD button displays an on-screen remote that looks like **Figure 3-3**. The on-screen remote provides TV controls that are not physically provided on Samsung Smart Control. However, having to constantly toggle the on-screen remote and using the Focus to select the desired function is inconvenient. It is not user-friendly, and quick manipulation is difficult. For this reason, designing the application to use only the basic TV buttons detailed in **Table 3-1** will improve the Usability of the application.

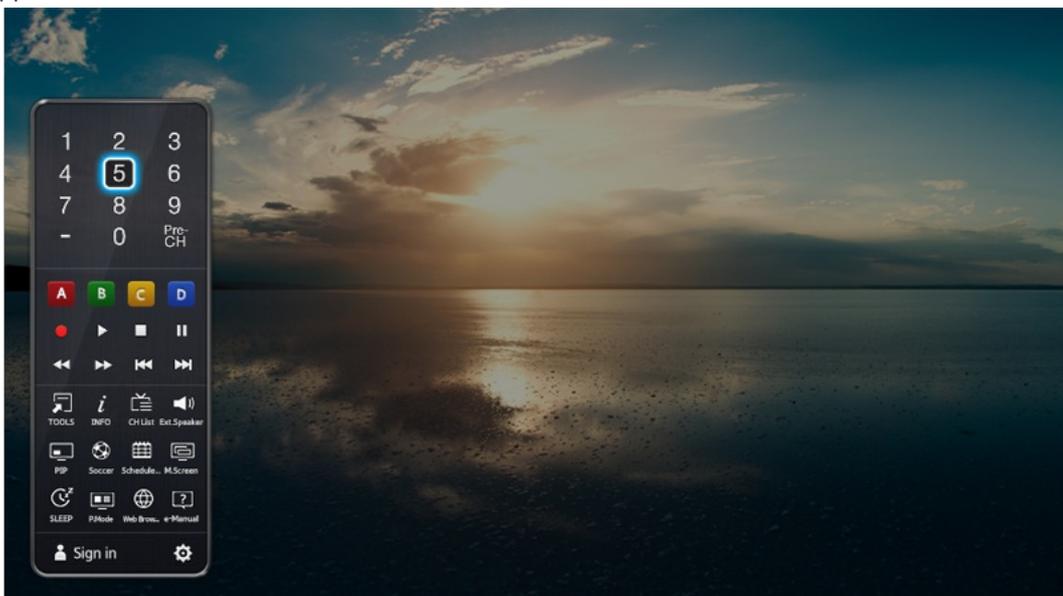


Figure 3-3. On-screen Remote

3.1.2.1. Numerical Input

When numerical input is required while using Samsung Smart Control, there are several options. You may choose to toggle an on-screen remote such as in **Figure 3-3**, or enable the user to open a number pad OSD by pressing down on the touchpad (ENTER) while the Focus is on the box where the input is required.

However, the best method is to provide an in-app numerical input window, which enables the user to select numerical input by using the four-directional control.

For the OK button within the number pad OSD provided by Samsung Smart TV, use the following options:
When there is only one input box, close both the input window and number pad OSD after the input

When there is more than one box for numerical inputs, move on to the next box

When at the final input box, close both the input window and number pad OSD after the input

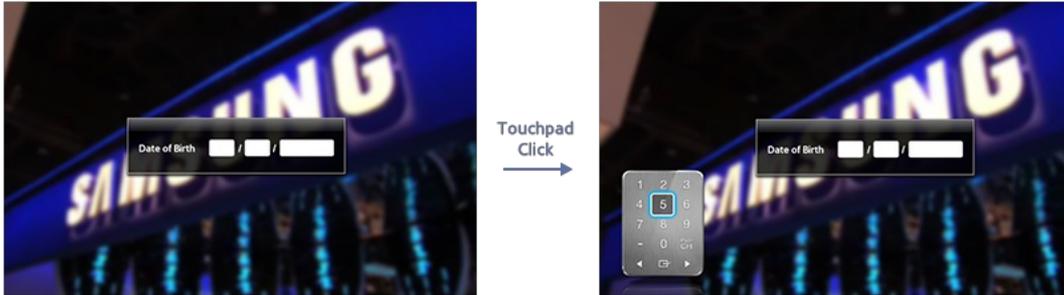


Figure 3-4. Number Pad OSD

However, if numerical input boxes and text input boxes are laid out in continuous order, provide an IME for numerical input. Refer to [5.3 IME by Purposes](#).

3.1.3. Add-on Samsung Smart Control (1) - Touchpad Operation

Samsung Smart Control provides the touchpad cocntrols shown in **Table 3-2**.

Guesture		Explanation	Basic TV Controls
	Flick	Applying finger against the touchpad and flicking	Scroll by pages
	Drag	Applying finger against the touchpad and dragging.	Scroll by pages

Table 3-2. Touchpad Basic Controls

Screen Scroll

Flick or Drag up, down, left, or right on the touchpad to scroll in the desired direction.

Figure 3-5 is an example of lightly flicking the touchpad to scroll by one page in the same direction as the picture.

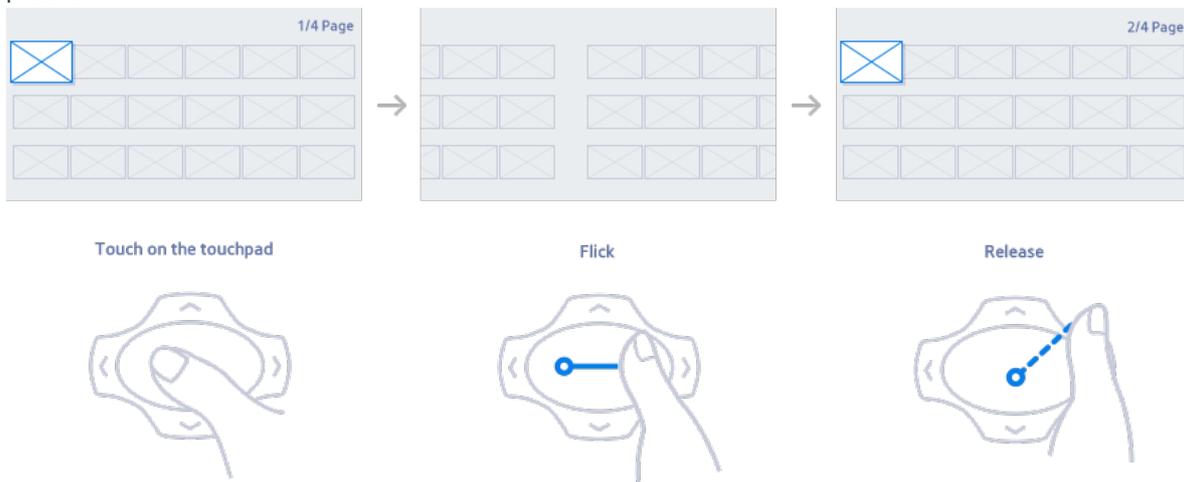


Figure 3-5. Left-right page scroll using touchpad flicks.

Figure 3-6 is an example of dragging the touchpad to scroll by one page in the same direction as the

picture. Dragging from left to right makes the page on the right come into the middle. Dragging in the opposite direction makes the page on the left come into the middle.

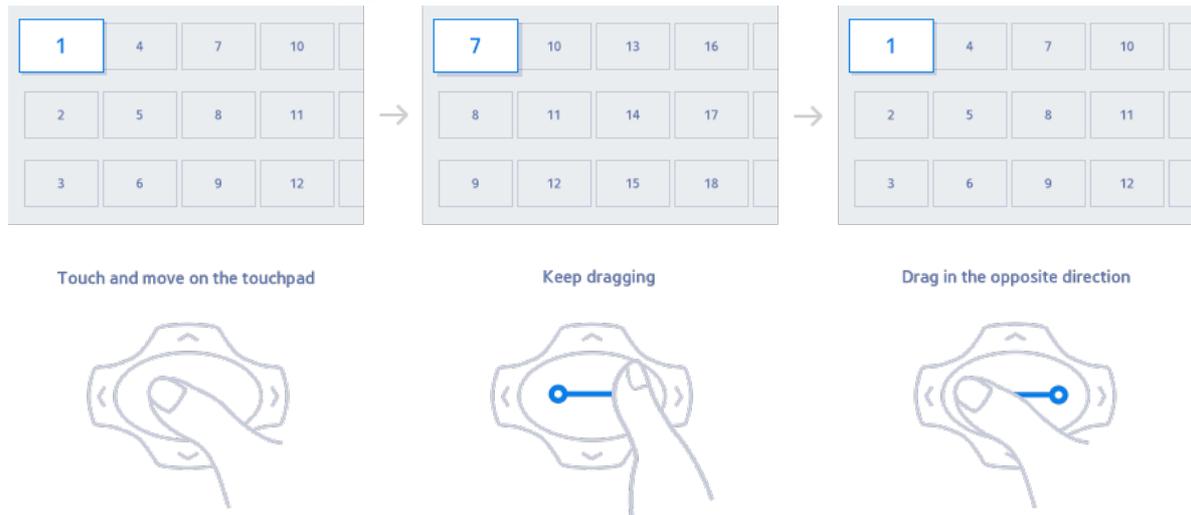


Figure 3-6. Left-right scrolls by dragging on the touchpad.

3.1.4. Add-on Samsung Smart Control (2) - Pointing using Motion Sensors

Samsung Smart Control enables the user to move a pointer by using motion controls.



Figure 3-7. Pointing using Samsung Smart Control

When the user puts a finger on the Samsung Smart Control touchpad, as shown in the picture above, the pointer will be displayed on the TV screen as shown in **Figure 3-8**. Moving the remote while continuing to touch the remote control will then move the Pointer. Pressing against the touchpad will select the object that the pointer is hovering over.

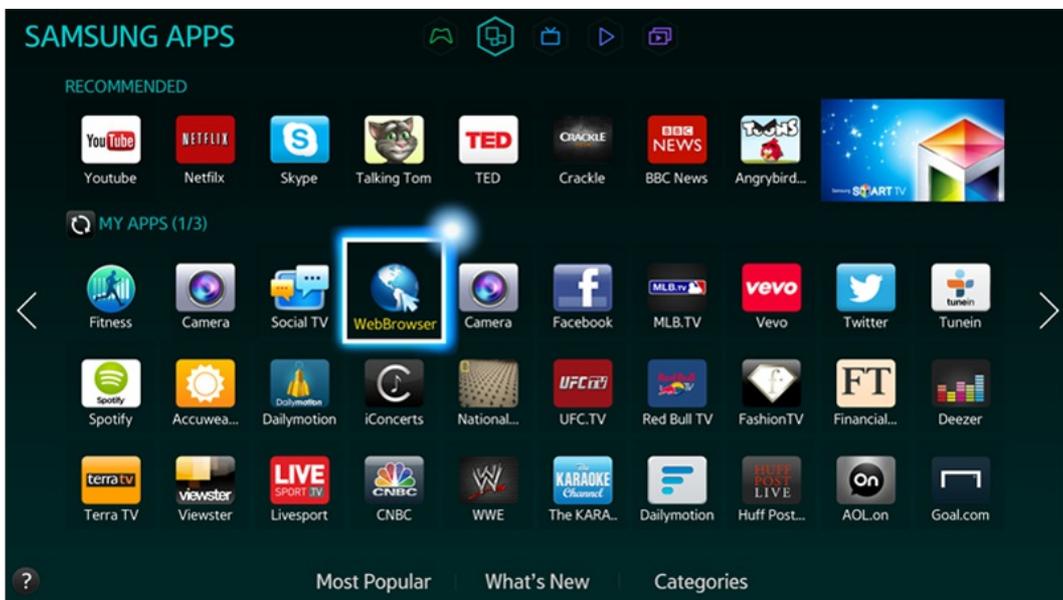


Figure 3-8. Screen when using Motion Control on Samsung Smart Control

For other general information about pointing controls, refer to [3.5. Controlling the TV using Pointing](#).

3.2. Voice Control

The Voice Control feature provided by Samsung Smart TV can also be used in applications.

The Voice Interaction feature which enables the user to instruct the TV by talking in a natural style is only supported in a few locations. Voice controls that use pre-set voice commands are available in all locations. For details about each mode refer to [3.2.2. Voice Interaction](#) and [3.2.3. Voice Control](#). Voice Control supports 26 languages including Korean and English (U.S.), and is subject to change. The list of the supported countries is provided in the distributed app development tool (SDK).

Table 3-3 is the list of basic voice commands supported by Samsung Smart TV.

Command	Basic TV Controls
Focus Up	Move the Focus to the object above
Focus Down	Move the Focus to the object below
Focus Left	Move the Focus to the object to the left
Focus Right	Move the Focus to the object to the right
Select	Select the focused object
Exit	Exit application

Table 3-3. Voice control basic commands

You may freely assign actions and features to each command. However, referring to the Basic TV Controls on the table will help you to provide a more consistent experience for users.



Commands other than those provided by Samsung Smart TV may be registered for use. However, the voice recognition rate is not guaranteed.



Voice commands prioritize the functions assigned within the applications. For this reason, assigning basic commands for other functions within the applications may interfere with the basic use of the TV.

3.2.1. Enabling the Voice Mode

Pressing the Voice Mode button on the Samsung Smart Control activates the Voice Mode feature. Depending on the location and the current settings of the TV, either Voice Interaction or Voice Control will activate. The following will be displayed as shown in **Figure 3-9** or **3-10**.



Figure 3-9. Screen when using Voice Interaction



Figure 3-10. Screen when using Voice Control

Say "Help" after activating Voice Mode to toggle the screen shown in **Figure 3-11**.

On this screen, you can check all the basic voice mode commands. Categories are shown on the left, and the list of commands within each category is shown on the right. Help for the current application will be shown in the Relevant Commands category. Only the commands for the application currently open on screen will be displayed.

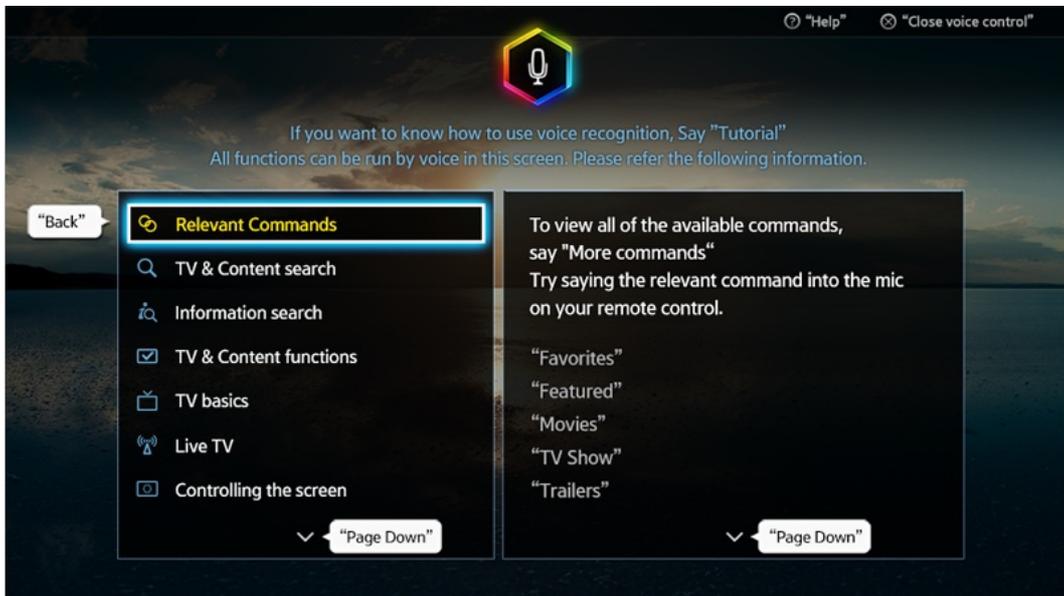


Figure 3-11. Voice Mode Help

Occasionally, pre-set errors or Global Voice Mode errors occur and give voice control system error messages, such as the one shown in **Figure 3-12**. Apps cannot override these system messages.

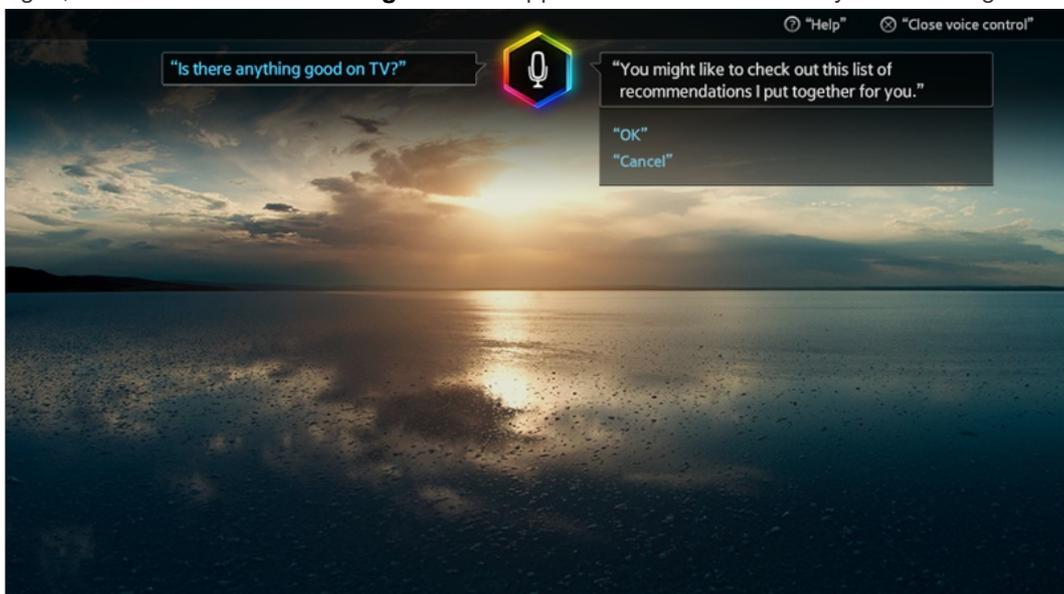


Figure 3-12. System response to the user's speech (For Voice Interaction mode)

3.2.2. Voice Interaction

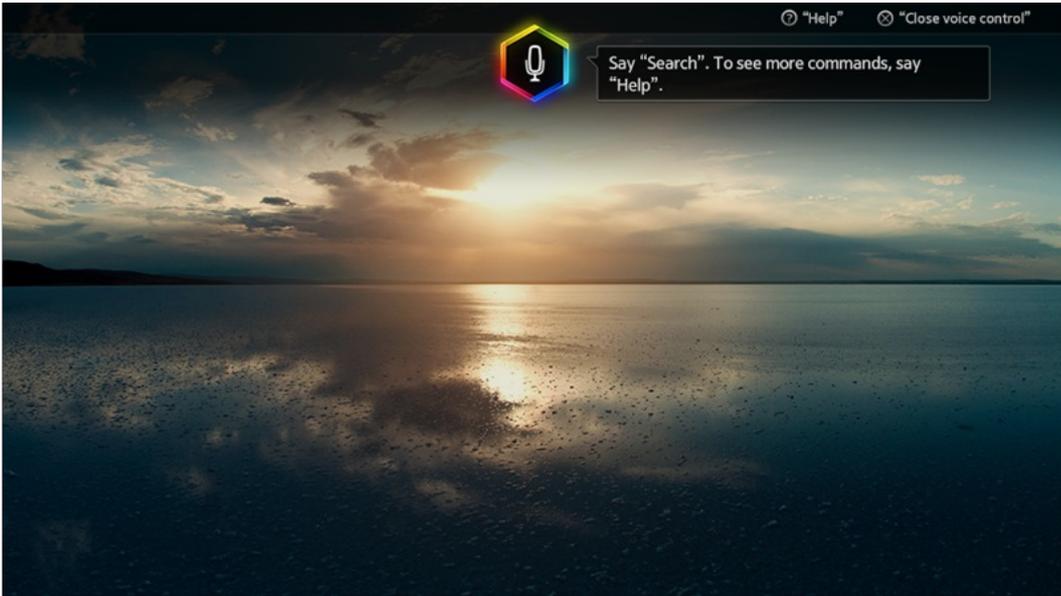


Figure 3-9. Screen when using Voice Interaction

When Voice Interaction is activated, an indicator and a bubble will be displayed to show that the feature is ready and in use, as shown in **Figure 3-9**. The help bubble will show a random command that can be used in the current application. It will also say "To see more commands, say 'Help'."

Voice Interaction is provided globally, but it cannot be used within applications. Only known commands can be used in applications.

When Voice Interaction mode is on and a command other than those registered by the application or in the list of Basic TV Control Commands is given, Smart TV Search will run with the command as the search term. The search results will be shown in the Search Results Screen provided by Samsung Smart TV Search.

3.2.3. Voice Control

Voice Control mode is only supported in some locations. In certain situations, even in locations that support Voice Interaction, Voice Control is used.

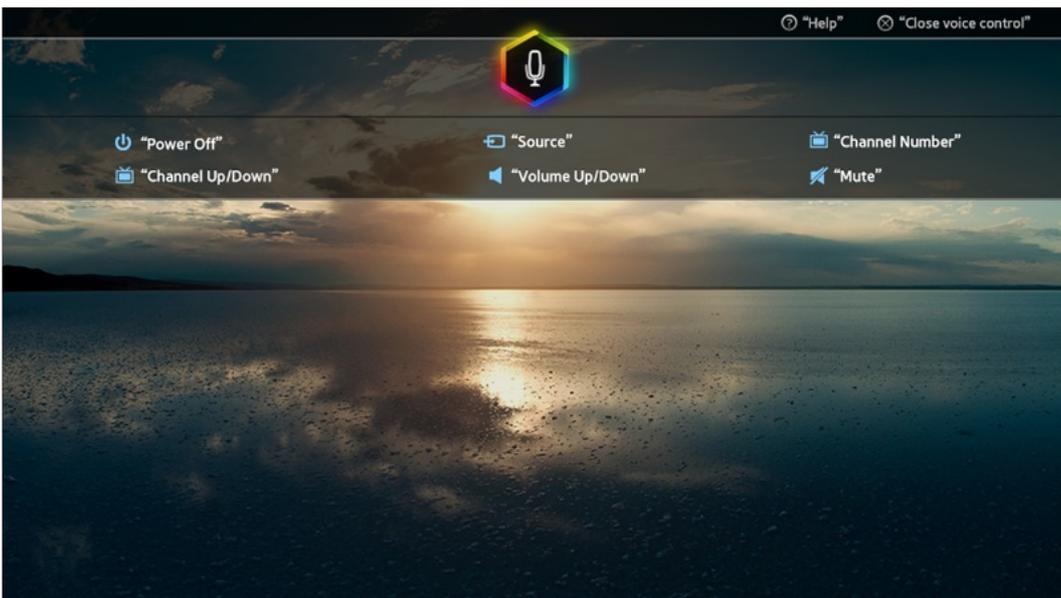


Figure 3-10. Screen when using Voice Control

When Voice Control is activated, an indicator and a bubble will appear, as shown in **Figure 3-10**. On the Command Display Panel, the available commands for the current application will be displayed. Up to six commands will be shown. When there are more than six commands, the command list will change every 7.5 seconds.

Voice Control mode only recognizes commands registered by apps, or those on the list of Basic TV Control Commands.

3.2.4. Text Input using Voice Control

1. When users want to enter text using Voice Control, they first need to open IME and then run Voice Control. Command recognition will not be active at this time. Everything said by the user will be entered as text.
2. Text input via Voice Control uses the language that Voice Control is set to. It may be different from the language currently displayed on the on-screen keyboard.
3. Samsung IME automatically supports text input via Voice Control.
4. Text input via Voice Control is supported in some, but not all locations that support Voice Control. The list of the supported countries is also provided in the application development tool (SDK).



Figure 3-13. Text Input using Voice Control

3.2.5. Rules for Writing Commands

You must follow the principles below when adding new commands.

1. Add "Home" after the application name to navigate to the first page of the running application.

e.g., Skype (X) -> Skype Home

2. Only the commands available in the application will be displayed.
3. Foreign words, abbreviations, and symbols will have only one valid way of being read. Only this pronunciation will be recognized.

3-1.Foreign words

e.g., in Korea, TV (X) -> □□ (TV in Korean), MLB (X) -> □□□ (MLB in Korean)

□3-2.Abbreviations

e.g., STB (X) -> Set-top Box

3-3.Symbols

e.g., TV & Movie (X) -> TV and Movie, # -> Pound

3.3. Motion Control

When using Motion Control, the TV and application controls can be used without the need for remote controls or other input devices. With Motion Control, objects can be selected by using a pointer. The movement of the pointer will match the movement of the user's hand. The sensitivity ratio of the pointer movement to the hand movement will follow the pre-set value.

For other general information about pointing controls, refer to [3.5. Controlling the TV using Pointing](#).

3.3.1. Turning Motion Control Mode On and Off

Motion Control is turned on when a user performs a certain action in front of the camera. There are two types of Motion Control, one for using one hand and the other for using two hands. To use each type refer to the gesture guide in **Table 3-4**.

Gesture		TV Controls
	Raising one hand	Turn on Motion Control using one hand
	Raising two hand	Turn on Motion Control using two hand

Table 3-4. Gestures for turning on Motion Control

When Motion Control is turned on, a screen (as shown in **Figure 3-14** or **3-15**) will be displayed with the OSD Menu and a pointer.



Figure 3-14. Screen when using Motion Control with one hand

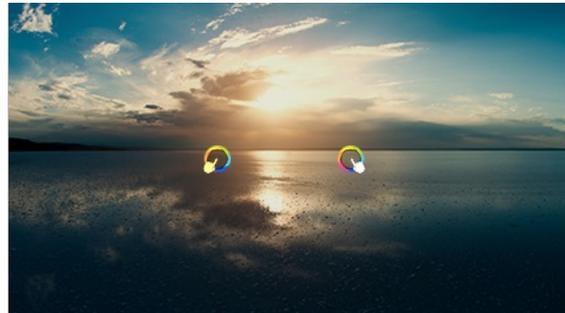


Figure 3-15. Screen when using Motion Control with two hands

When the user lowers their hands, moving the pointer off the bottom of the screen, Motion Control is turned off. The menu and the pointer disappear from the screen.

3.3.2. Controlling the TV using Gestures

You can control the TV using a variety of gestures without using the pointer. For the gestures defined by Samsung Smart TV, refer to **Table 3-5** and **3-6**.



Only the gestures listed for Samsung Smart TV can be used. New gestures cannot be added.



Gestures using both hands are only supported in models with built-in cameras.

Gesture		Basic TV Controls
	Pointing	Move the pointer
	Pinch	Run

Gesture		Basic TV Controls
	Pinch & Hold	Continuous Execution / Option mode
	Slap	Move to the next page
	CCW Rotation	[Live TV View Status] Go to previous channel [All Other Statuses] Return to the previous stage
	Pinch & Move	Scroll

Table 3-5. One-handed gestures

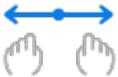
Gesture		Basic TV Controls
	Pinch & Widening/Narrowing with two hands	Zoom In/Out
	Pinch & Rotating with two hands	Rotate

Table 3-6. Two-handed gestures

3.4. Controlling the TV Using a Mouse

When connecting a mouse to the TV, the mouse pointer will appear on the screen as shown in **Figure 3-16**. Move the mouse to move the pointer to the desired object. Left-click the mouse to select the object. When the mouse is left idle for a certain length of time, the pointer disappears. When movement is detected, it reappears.

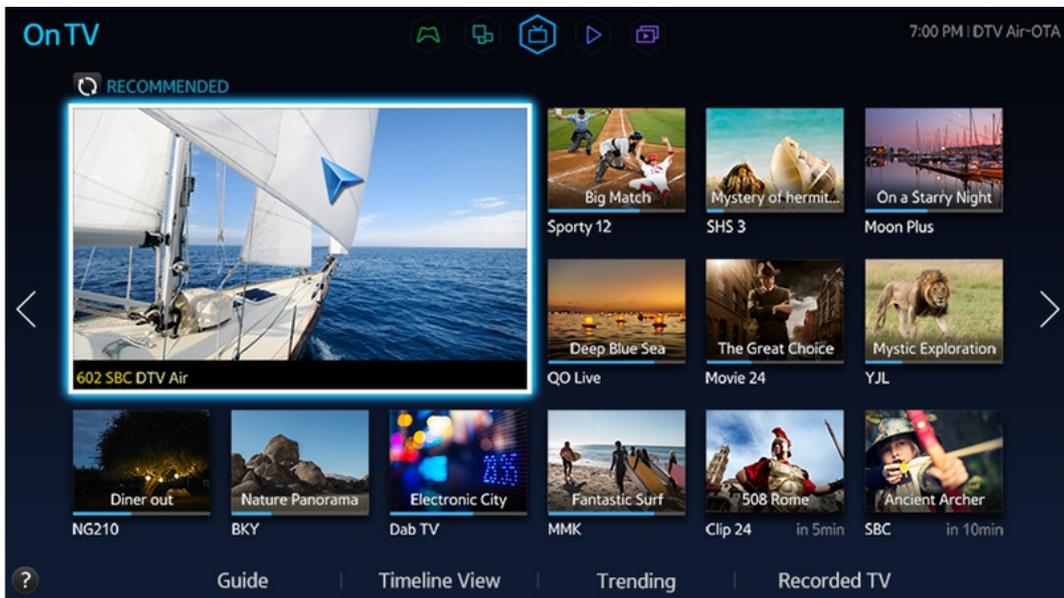


Figure 3-16. Screen when using mouse

Table 3-7 lists the Basic TV Controls for different mouse controls. Actions and functions may be assigned by applications. You may freely assign actions and features to each button. However, referring to the Basic TV Controls on the table will help you to provide a more consistent experience for the users.

Mouse Control	Basic TV Controls
Left-click	Run
Hold left button	Continuous Execution / Option mode
Right-click	Toggle Simple Menu
Scroll-wheel	Scroll list

Table 3-7. Basic Controls Using Mouse

For other general information about pointing controls, refer to [3.5. Controlling the TV using Pointing](#).

3.5. Controlling the TV Using a Pointing

Pointing is the method of moving the pointer on the screen freely using a Samsung Smart Control, Motion Control, or a mouse.

All of the objects that can be run must be selectable using the pointer. When the pointer hovers over the selectable object, it must give back visual feedback that the object can be selected, as shown in **Figure 3-17**.

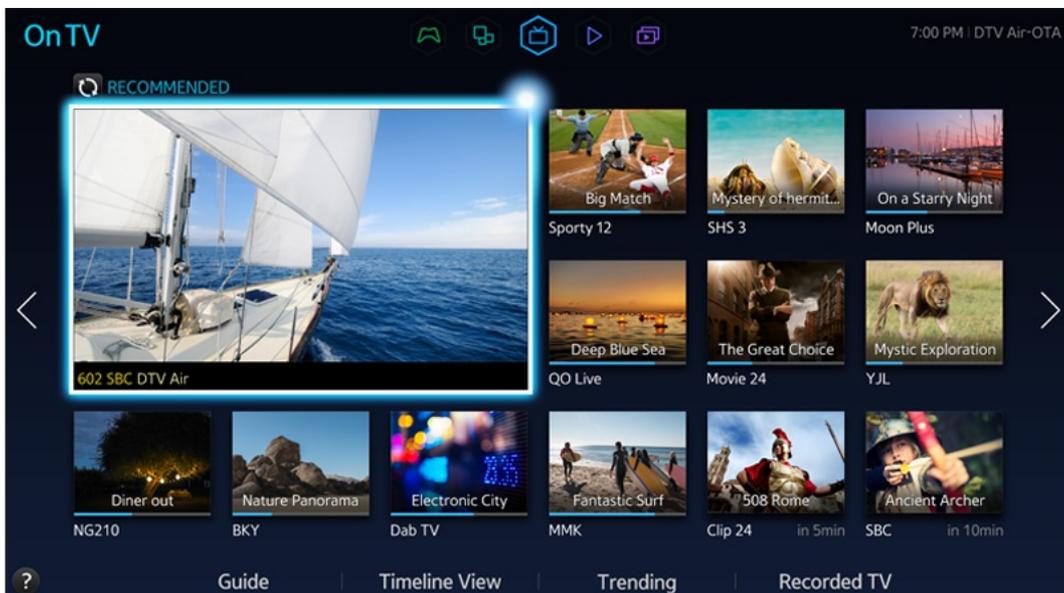


Figure 3-17. Screen when using pointing (Samsung Smart Control)

In a TV environment where the screen and the user (and their input device) are far apart, it may not be easy to select objects by using pointing. For this reason, if you wish to apply Motion Control to your application, you must design the selectable objects to be large enough and with reasonably large gaps between them so that they will be easy to navigate via Motion Control.

Pointer

The shape of the pointer can vary depending on the application.

The pointer size should consider the viewing distance and the target age group of the application users. It must not exceed the maximum size. For the recommended/maximum pointer size for each application resolution, refer to **Table 3-8**.

App Resolution	Recommended Size (Unit : Pixels)	Maximum Size (Unit : Pixels) 
HD (1280 X 720)	74 X 74	132 X 132
SD (960 X 540)	55 X 55	100 X 100

Table 3-8. Pointer size for specific application resolutions

Scroll Indicator

When using pointing on lists that scroll, indicators that show scrolling is possible must be included, as shown in **Figures 3-18** and **3-19**. When you select an indicator using the pointer, the list will scroll by one page in the indicated direction. Holding a long-pinch gesture or long-click on a mouse will scroll the list continuously.

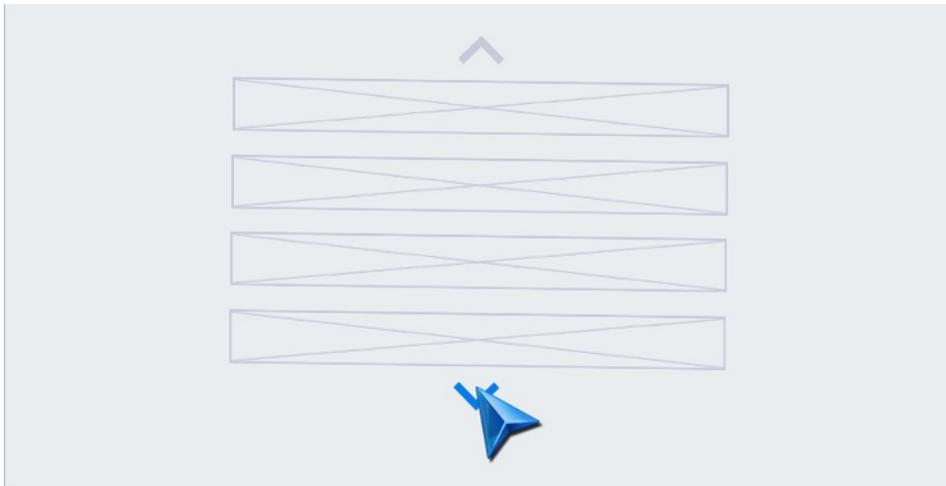


Figure 3-18. Examples of indicators provided for a vertical list



Figure 3-19. Examples of indicators provided for a horizontal list

Scroll Bar/Slider/Play Bar

You can also take advantage of the free movement provided by the pointing method and provide a scroll bar/slider/play bar to help users navigate to their desired location.



Figure 3-20. Example of a slider