

**NAME**

XkbVirtualModsToReal - Determines the mapping of virtual modifiers to core X protocol modifiers

**SYNOPSIS**

**Bool XkbVirtualModsToReal (XkbDescPtr *xkb*, unsigned int *virtual\_mask*, unsigned int *\*mask\_rtrn*);**

**ARGUMENTS**

*xkb* keyboard description for input device

*virtual\_mask*

virtual modifier mask to translate

*mask\_rtrn*

backfilled with real modifiers

**DESCRIPTION**

Xkb maintains a *virtual modifier mapping*, which lists the virtual modifiers associated with, or bound to, each key. The real modifiers bound to a virtual modifier always include all of the modifiers bound to any of the keys that specify that virtual modifier in their virtual modifier mapping. The *server.vmodmap* array indicates which virtual modifiers are bound to each key; each entry is a bitmask for the virtual modifier bits. The *server.vmodmap* array is indexed by keycode.

The *vmodmap* and *vmods* members of the server map are the "master" virtual modifier definitions. Xkb automatically propagates any changes to these fields to all other fields that use virtual modifier mappings.

For example, if Mod3 is bound to the Num\_Lock key by the core protocol modifier mapping, and the NumLock virtual modifier is bound to the Num\_Lock key by the virtual modifier mapping, Mod3 is added to the set of modifiers associated with NumLock.

The virtual modifier mapping is normally updated whenever actions are automatically applied to symbols and few applications should need to change the virtual modifier mapping explicitly.

Use *XkbGetMap* to get the virtual modifiers from the server or use *XkbGetVirtualMods* to update a local copy of the virtual modifiers bindings from the server. To set the binding of a virtual modifier to a real modifier, use *XkbGetVirtualMods*

If the keyboard description defined by *xkb* includes bindings for virtual modifiers, *XkbVirtualModsToReal* uses those bindings to determine the set of real modifiers that correspond to the set of virtual modifiers specified in *virtual\_mask*. The *virtual\_mask* parameter is a mask specifying

the virtual modifiers to translate; the *i*-th bit (0 relative) of the mask represents the *i*-th virtual modifier. If *mask\_rtrn* is non-NULL, *XkbVirtualModsToReal* backfills it with the resulting real modifier mask. If the keyboard description in *xkb* does not include virtual modifier bindings, *XkbVirtualModsToReal* returns False; otherwise, it returns True.

## RETURN VALUES

- |       |  |
|-------|--|
| True  | The <i>XkbVirtualModsToReal</i> function returns True if the keyboard description in <i>xkb</i> does include virtual modifier bindings.      |
| False | The <i>XkbVirtualModsToReal</i> function returns False if the keyboard description in <i>xkb</i> does not include virtual modifier bindings. |

## SEE ALSO

**XkbGetMap(3)**, **XkbGetVirtualMods(3)**

## NOTES

It is possible for a local (client-side) keyboard description (the *xkb* parameter) to not contain any virtual modifier information (simply because the client has not requested it) while the server's corresponding definition may contain virtual modifier information.