User's Guide

For Big Bob's Ultra TKT Script

This script uses an idea developed by Theodor Krueger and introduced by Kevin Tweedy to the K2 community. This technique, which has become known as the Theodor Krueger Technique, or the TKT for short, aims to provide a more musically realistic result when using sampled sounds to play passages that contain repeated notes in close proximity to each other - giving rise to what is often called the 'Machine-Gun Effect'. The TKT attempts to minimize this problem by creating and sequencing through a series of alternate samples instead of playing a single sample over and over. The alternate samples are created by pitch-shifting up or down (as necessary) some of the nearby samples. This can be done statically by creating a number of group copies and then shifting them in K2's mapping editor. The TKT was first introduced in this form and the technique is still quite viable. However, this approach limits us to sequencing methods that are currently provided with K2 (namely round robin or simple random). In order to provide more powerful control capability, several scipts have been introduced that implement the TKT dynamically in a more automatic and flexible way.

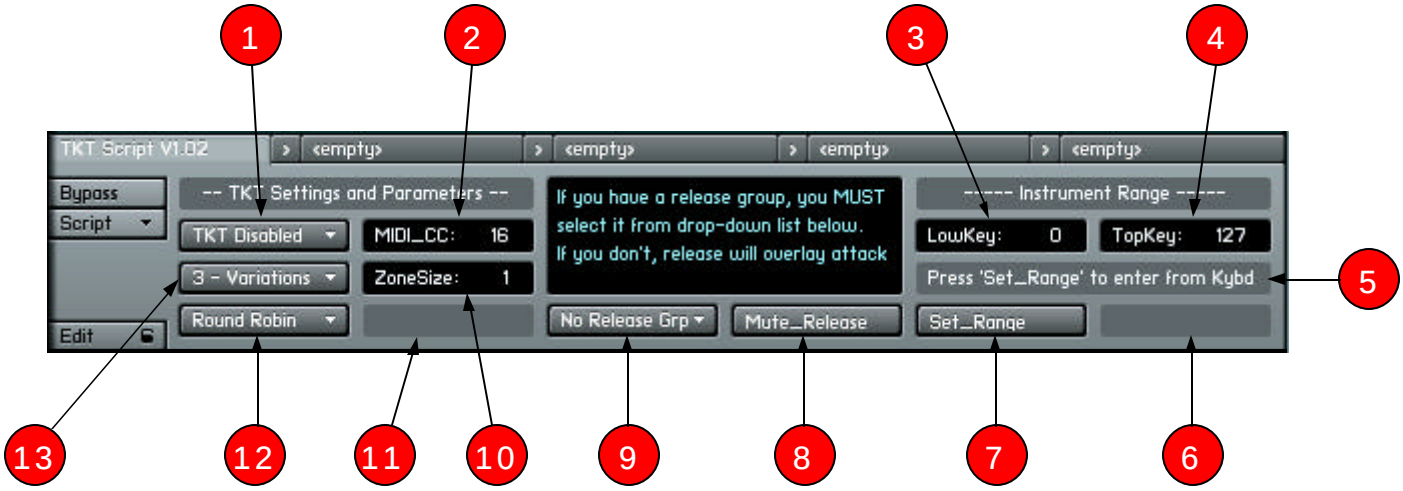
This implementation of the TKT borrows heavily from prior scripts written by Paul Waring and Jay Coover (aka fizbin) and attempts to combine some of their best features while also introducing a few new ideas. The new features include a 'full-cycle-random' sequencing mode that combines the best of random (no pairs) and round-robin. TKT triggering options include the usual 'Never' and 'Always' and what has previously been called 'Smart-Cycle' — which plays only the normal samples until 2 or more of the same note occur. This 2+ mode is also available now combined with a 'Trill' mode which activates the TKT when two or more of the same notes occur alternately (such as during a trill). There is also a new mode that allows the musician to control when the TKT is used — by assigning a MIDI controller as an on/off switch to enable or disable the TKT effect in real time.

Except for the 'Always Active' mode, this script never applies the TKT until a trigger condition occurs; choosing instead to play the 'best' samples as much as possible. Moreover, when the TKT is activated, it always begins with a variation (chosen at random) ***other*** *than the normal sample*. Also, after any series of notes to which the TKT has been applied, as soon as a note is played that de-activates the TKT effect, the sequencer resets and waits for another trigger condition.

Finally, because there is a known bug in the KSP (associated with the **play_note** function) that sometimes results in hung notes, this version of the script makes less use of the **play_note** function than the prior scripts. In this implementation, the **play_note** function is only used to play release samples (if they are used) and/or to clear the K2 keyboard display. Thus, it is hoped that this script will be less prone to exhibit the hung-note problem with the current K2 version (2.02) of the KSP.

This script is provided in both text file format and as a preset (.nkp) file. You can use either to install the script and start using or testing it with your favorite instruments and sequences. If you are unfamiliar with how to install a 3rd-party script, see page (5) of this User's Guide for instructions on how to do it under Windows. I'll leave it for someone else to write an addendum with instructions for other platforms. For those interested in the gears and pulleys of this script, the text file is fully commented and the documentation package includes a complete set of design flow charts.

Big Bob's Ultra TKT



Control Panel Functions

(1) This drop-down list selects the TKT activation method. The script plays normal samples until activation occurs. Regardless of the activation method, when activation occurs, the script cycles through the selected number of variations **(13)** using the selected sequencing mode **(12)**. When the activation condition ceases, the script reverts to playing all normal samples until re-activated. The activation methods available are:

- **TKT Disabled** The TKT is never activated, only normal samples are played.
- **Always Active** The TKT is always active and continuously cycles through the selected number of variations **(13)** using the sequencing mode of **(12)**.
- **Active after 2+** Normal samples are played until two or more consecutive notes of the same pitch occur. The TKT is triggered on the second note of the pair and continues until a different note is played.
- **Actve 2+/Trill** Normal samples are played until the current note matches either the last note or the 2nd last note (as in a trill).
- **Active with CC** In this mode, the musician makes the choice of when to activate or de-activate the TKT effect in real time. A MIDI CC is assigned by selecting a CC number **(2)** to control the effect. When the assigned controller's value is 64 or more, the TKT will be activated. When the controller's value is 63 or less, the TKT will be deactivated.

(2) This edit box selects the MIDI Controller that will be used to activate or de-activate the TKT effect in real time when **'Active with CC'** is selected **(1)**.

(3) These edit boxes display the setting for the Instrument Range from lowest to highest
(4) keys (MIDI note numbers). These should be set to the instrument's playable range. This can be done most conveniently with your keyboard (or K2's keyboard) by pressing the **'Set Range'** button **(7)** and following the prompting displays **(5) (6)**.

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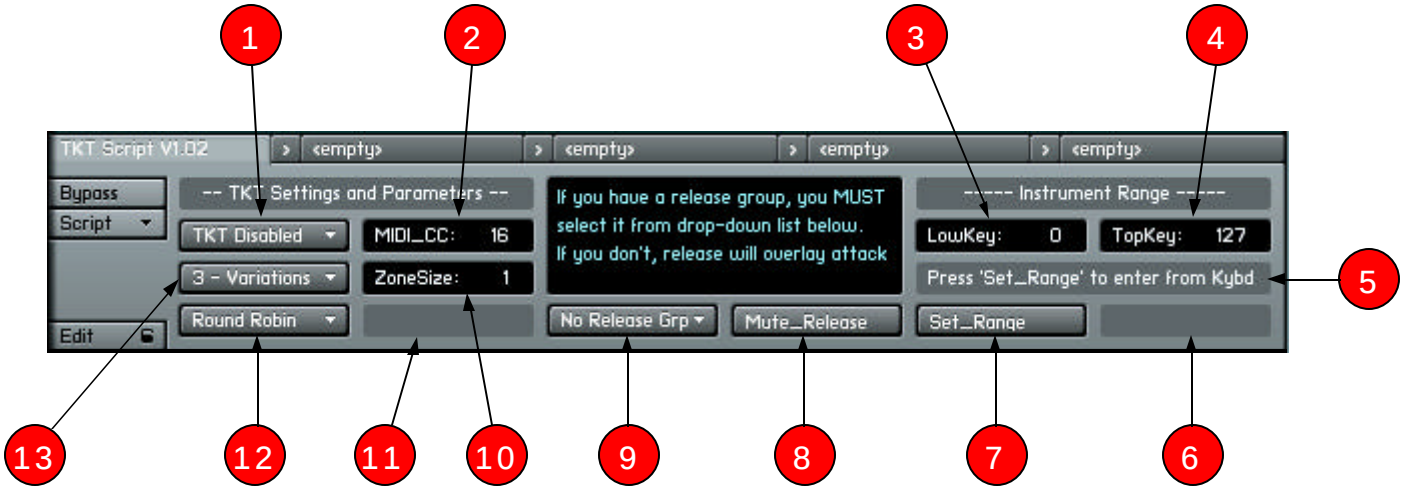

(5) This area contains prompting messages to aid the process of setting the Instrument's Range from your keyboard when the **'Set_Range'** button **(7)** is used.

(6) During a Range set, this area shows the low/high keys in familiar C3 type format.

(7) Press this button to set the **Instrument Range** from your keyboard (or K2's Keyboard display). All you have to do after pressing **'Set_Range'** is to hit the lowest key followed by the highest key and the new range will be entered.

(8) If your instrument has a release group and you've selected it with **(9)**, you can use this button to optionally mute the release sample. If you haven't selected a release group with **(9)**, the **'Mute_Release'** button will have no effect.

(9) This drop-down contains a list of all the instrument groups. If the instrument doesn't have a release group, leave this set to its default of **'No_Release_Grp'**. However, if the instrument uses a release group, **you must select it here for proper operation.** If you don't want to hear the release sample, use **(8)** to mute it but you must still select the group here. If the instrument has a release group and you don't select it, the release sample will be layered and sounded with the attack of the normal sample.

(10) This edit box is used to set the *nominal* sampling interval or **'ZoneSize'** for the instrument. The units are semitones so, if the instrument has samples for every note, you would set this value to 1. If the instrument has samples for every other key, you would set this value to 2, etc. This value tells the script how far it has to reach to find a different multi-sample to use as an alternate when the TKT is triggered.

(11) When the TKT is active, this area displays the original and sustituted TKT notes. For example: **TKT On: 60/62** means that C3 was played using the sample from D3. When the displays shows: **TKT On: 60/60** it means the TKT is active but the sequencer has chosen the normal sample. Whereas, when the TKT is inactive, the display is blank.

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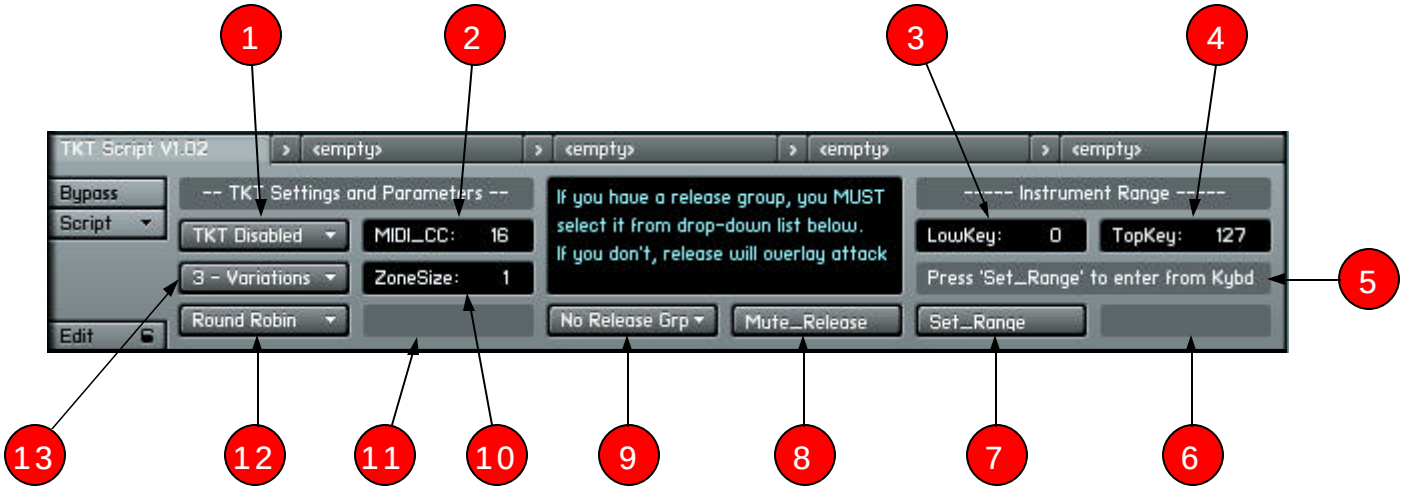

(12) This drop-down selects the method used to sequence through the available variations when the TKT is activated. The available sequencing methods are:

• **Round Robin** This mode simply sequences repeatedly through all the variations selected by **(13)**. For example, if you have **'5 - Variations'** selected (the normal sample plus 4 alternates), the sequence will typically look like 2-3-4-0-1-2-3-4-0-1, etc. In this example, 0 represents the normal sample and 1, 2, 3, 4 represent the TKT variations. This mode makes good use of all variations but, for a long series, it may begin to sound monotonous; especially if the number of variations are rather small.

• **Simple Random** This mode generates a purely random sequence and therefore can (at least in theory) provide lots of variety. However, being random, occasional ostinato patterns will emerge that may not be musically pleasing. Moreover, a long run of the same variation can occasionally occur and thus defeat the whole idea of the TKT.

• **RD (No Pairs)** This random mode improves on **'Simple Random'** by never allowing the same variation to play twice in a row. This sequencing mode provides good variety and is much less prone to 'machine-gun' bursts, however, it may still generate occasional ostinato patterns such as 1-2-1-2, etc

• **RD (Full-Cycle)** This sequencing mode is the most complex but may provide the best blend of **'RD (No Pairs)** and **'Round Robin'**. When activated, the sequencer will repeatedly cycle through all variations (just as for round robin), but each such sequence will have its order randomized. For example, if **'5 - Variations'** are selected with **(13)**, a typical sequence would be: 3-1-0-4-2-1-3-0-4-2-0, etc. This mode should provide both a long cycle and a lot of variety.

(13) This drop down list allows you to select 3, 5, or 7 variations for the TKT. If the instrument has been sparsely sampled, ie if **'ZoneSize'** is set high, you may have to use fewer variations to avoid pitch-shifting artifacts. On the other hand, if the instrument has a sample for every note (ie if **'ZoneSize'** is set to one), you may be able to utilize the maximum of **'7 - Variations'** (normal sample plus 6 TKT alternates).

Loading A Third-Party Script
(Windows)

Text Files

When scripts are provided as plain text files (often with the .txt extension), you need to get the text into K2's Script editor. From there it can be saved as a preset (.nkp) file for convenient recall from K2 at any time later. If the text file has a .txt extension, you can open it in Note Pad. If it has some other extension, you will have to open it in some other text editor. Once you have the file displayed in a text editor you will be able to read it, print it, etc.

Now, to install it into K2, select all the text and copy it to the Windows clipboard (Ctrl-C). You can now close Note Pad if you wish. Then, launch K2 and load an instrument (preferably one that doesn't yet have a script attached to it). Open the Script Editor and click the Edit button. An empty text editing area should open but, if you see text already there, it means that the instrument was last saved with some existing script. If that's the case, hit Ctrl-Home and then Ctrl-Shift-End to select all the text and then hit delete to clear the text area. Now paste the Windows clipboard into the empty text area (Ctrl-V) and you should see the new script in the text editing window of K2. Now click the 'Apply' button and the orange square to its left should go out -- indicating a successful compilation. Next, name the script by double-clicking the title box and then entering the name "Ultra TKT" followed by the enter key.. Finally, you can now save the script as an nkp file To do this, click the Script button and select 'Save Preset' at the bottom of the drop-down list. An Explorer-type window should open with K2's 'script' folder at the top and several sub-folders under it. You can now select a sub-folder (or create a new one) and then give the preset a suitable name and save it. In order for K2 to find it later, you must save it in the 'script' folder or any subfolder under it. You may now close the instrument that you loaded but don't Save it (unless you want the new script to be saved with it).

NKP Files

If you have a script already in the .nkp file format, you can make it available to K2 as follows. Launch Windows Explorer and navigate to the main K2 program directory. For a typical default installation of K2 the path would be: "C:\Program Files\Native Instruments\Kontakt 2" but you may have put it elsewhere. Once you have located the Kontakt 2 directory, navigate to:

C:\Program Files\Native Instruments\Kontakt 2\presets\scripts.

You can now put a copy of the .nkp file anywhere in the scripts folder or any of its sub-folders (or you can create a sub-folder of your own and put the .nkp file in it) Just so the file is accessible **via** the 'scripts' folder.

Running A Script

Once a 3rd-party script is installed as an .nkp file in K2's 'script' folder, you can run it just like any other script. For example, to add 'Ultra TKT' to one of your instruments, do the following. Launch K2 and then load the desired instrument. Open the Script Editor and click the Script button. Select the Ultra TKT script from the drop-down menu. After making the appropriate setups, you can run the script by simply playing the instrument. Once you have chosen the best script settings for the instrument, you can save the instrument (under another name if you wish) and the next time you load that instrument, the script will load with it. And, as long as you don't click the 'Apply' button in the Script Editor, all your script settings that you had when you last saved the instrument will be recalled.