# Sending Timecode from Reaper to Titan on another PC

This is an example of how to use Reaper - a much more powerful DAW (digital audio workstation) than Winamp - to send timecode to Titan, assuming both are installed on two separate PCs. MIDI is being sent over network using rtpMIDI.



# Prerequisites

- 1. of course both computers need to be networked and configured properly (same network mask, correct IP addresses etc.)
- Titan PC-Suite, from v12 on (External AvoKey or T2 required T1 or Editor Avokey does not work)
- 3. rtpMIDI (see Software List, to route the MIDI signal from one computer to the other
- 4. Reaper (see Software List)
- 5. you may consider using the vVIMTC plugin for Reaper in order to have timecode also when stopped or paused

# Make it run

# 1. rtpMIDI

This needs to installed on both machines. rtpMIDI provides a virtual MIDI port which is then bein forwarded over the network to other participants of this session. There is a compact tutorial provided at the rtpMIDI website. Usually setting this up is as easy as checking the session is enabled in both machines, and both see each other.

The two pictures show the setup which was used in the a.m. youtube video - SB-HP is the laptop running Titan while rtp1 is the session on the laptop running Reaper.

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rtpMIDI on the comp	uter runni	ing Titan		rtpMIDI on the comp	uter rur	nning Re	eaper

I found that Titan is allergic to MIDI ports being added or removed while Titan is running. The safest route is, after installing and configuring rtpMIDI, to <u>completely restart the</u> <u>computer which runs Titan</u>.

## 2. Titan PC Suite

In order to initially watch the timecode open a timecode workspace window (e.g. Timecode 1) and select MIDI as timecode source.



# 3. Reaper

Launch Reaper. Load a track if you want (not required for this to function). However here are the steps to configure Reaper correctly:

## 3.1 Enable MIDI Output

In the Options menu select Preferences - this opens the preferences window. Find MIDI devices in the Audio section. This should list the virtual MIDI port you created in rtpMIDI as MIDI output:

REAPER Preferences		Ψ×
REAPER Preferences  REAPER Preferences  Buffering Mute/Solo Playback Seeking Recording Loop Recording Rendering Appearance Media Peaks/Waveforms Fades/Crossfades Track Control Panels Editing Behavior Envelope Display Automation Mouse Mouse Modifiers	MIDI hardware settings         MIDI inputs to make available (selectable as track inputs and/or learn         Device       Mode         tp1       Enabled+Control         MIDI outputs to make available (selectable as track outputs):       Mode         MIDI outputs to make available (selectable as track outputs):       Mode         MIDI outputs to make available (selectable as track outputs):       Mode         Image: Device       Mode         Microsoft GS Wavetable Synth [use cautiously] <disabled>         tp1       Enabled</disabled>	Add joystick MIDI
Mouse Mouse Modifiers MIDI Editor Media MIDI Video/Import/Misc	Restrict MIDI hardware output to one thread	Reset all MIDI devices
Plug-ins Compatibility	Reset by: ☑ All-notes-off ☑ Pitch/sustain Reset on: ☑ Pla	ay Stop/stopped seek
Find	O	K Cancel Apply

Right-click on the port in the output section and either tick Enable output from the menu...

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Find Enab	le the	м		Do not send SPP to output		ОК	Cancel Apply
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... or select Configure output... and make the settings there:

REAPER Preference	5	Ŧ×
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Mouse Mouse Modifiers MIDI Editor Media MIDI Video/Import/Misc	Restrict MIDI hardware output to one thread	Reset all MIDI devices
Plug-ins Compatibility Find Enation	Reset by: All-notes-off Pitch/sustain Reset on: Play whe the MIDI Output devices you wish to use by right-clicking on the Device and selecting Enable Output.	Stop/stopped seek

Confirm the settings with 0K to close the preferences window.

### 3.2 Insert Timecode Generator

Rewind the timeline to 0:00:00 (simply press <Pos 1>). From the Insert menu select SMPTE LTC/MTC Timecode Generator. This inserts this generator as new track.

ect] - REAPER v6.08/x64 - Registered to Temporary License (Commercial license, e

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If you had already inserted an audio track then probably the timecode track was inserted on the same track. Simply click, drag and drop it onto a new track:



Also, it's a good idea to bring the timecode track (at least) to the same length like the music:



#### 3.3 Adjust Timecode Generator

Right-click on the new timecode track, and from the context menu select Item properties:

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(or, with the timecode track selected hit F2).

This opens the Media Item Properties window:

Media Item Properties: Timecode Generator							
Position:         0:00.500         Ime         Fade in:         0:00.000           Length:         2:08.075         HMSF         Fade out:         0:00.000							
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Stretch markers: fade size: 2.5 ms Mode: Project default ~							
Take media source: RESAMPLED							
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Section: 0:00.000 Length: 2:08.075 Fade: 0.0 ms							
Reverse         Properties         Choose new file         Rename file							
Nudge/Set Take FX OK Cancel Apply							

If you want then you can change length, position and other details. In any case you need to make sure it is MTC (MIDI timecode): click on the Properties button (at the bottom). In the new little window set the properties to Send MIDI (MTC):

Position:         0:00.500         Ime         Fade in:         0:00.000           Length:         2:08.075         O beats         Curve:         0.00           Fade out:         0:00.000         Fade out:         0:00.000
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Take OK Cancel Apply Projec
Stretch markers: rade size: 2.3       ms Mode: Project default         Take media source: RESAMPLED         1ch 24:00:00.000         Section:       0:00.000         Length:       2:08.075         Fade:       0.0         Reverse       Properties         Choose new file       Rename file

Confirm/close both windows by clicking 0K.

#### 3.4 Route the MTC signal

This button slightly depends from your reaper version:

In Reaper v5, click on the routing button in the track controls (left to the timecode track):

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🥝 🔼 trim 🛛 🕥 🗋	Sends, Receives, and Hard

In Reaper v6, right-click on the volume knob ov the timecode track.

This opens the routing window for this track. Under MIDI Hardware Output (top-right) select your virtual MIDI port:

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] 1.2.00 [end] 6	- Audio	o Hardware Outp	uts -			
	Add new hardware output	ut		~		

Close the routing window.

# 4. Try it out

Essentially this should work straight away: as soon as you hit Play in Reaper, the timecode value in Titan starts to run. It is advisable to change the time units in Reaper: right-click on the timeline or the displayed time, and from the context menu select Hours:Minutes:Seconds:Frames.

This also works together with Reaper being controlled by Titan via MMC, like described in Controlling Reaper from Titan on the same PC

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Timecode 1					
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You can now use this as timecode source to sync cuelists to music coming from Reaper.

I noticed a gap between the timestamps in Reaper and in Titan. This seems to be due to both, Reaper, as well as Titan/USB Expert, and needs to be investigated further.

Also, Reaper doesn't generate timecode when being stopped or paused. There is a little plugin available called vVIMTC which circumvents this:

- download the plugin from https://forum.cockos.com/showthread.php?t=43606 or from here vvimtc generator.txt
- on your Reaper computer, copy this file to %appdata%\REAPER\Effects
- in Reaper, disable (Mute) the previously added timecode track
- add a new empty track
- on tjhis track, add the effect JS vVIMTC Generator, add its properties (framerate etc.)
- route this track's MIDI output to your virtual port as decribed above
- record/arm this track

Now, the timecode sent is accurate also when reaper is stopped or paused.

#### 5. How to debug

If things do not work as expected then there are some tools which help finding the fault:

#### 5.1 loopMIDI

You may route the signal via loopMIDI as explained in Sending Timecode from Reaper to Titan on the

same PC. Please install loopMIDI and apply the correct settings in Reaper.

Also, in this case rtpMIDI needs to be told to take its input from loopMIDI:

🛞 rtpMIDI: über Apple Bonjour			×
Konfiguration Erweitert Über			
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	Bonjour-Name:	rtp1	
+ -	Teilnehmer:	Name	Latenz
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Diese Benutzer dürfen sich mit mir verbinden	Live loopMi routings	IDI Port	v → v ←

loopMIDI shows the number of transmitted data. This number increases with every command, note or message. With timecode, this number increases continuously and rather fast.

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Konfiguration Erweitert Über		
Meine Loopback MIDI-Ports		
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		•
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#### 5.2 USB Expert Console

Open the USB Expert Console. This must show your virtual MIDI port as connected panel (top-left). Select the MIDI tab top-right, click Watch MIDI, in the MIDI watcher window select MIDI Input and Raw MIDI. Now, as you send a command, it is shown in the MIDI watcher, with continuously incoming data like this:

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Additionally, on the Timecode tab (top-right), you should see the real timecode values running:

USB Expert Console 6.7.71.5							- 0	×				
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#### 5.3 MIDI-OX

Another great tool for fault finding (but also for fault generating) is MIDI-OX. One of the things you should be aware of is that it may take the MIDI signal and doesn't forward it unless told to do so - you may see proper MIDI messages and wonder why nothing is passed on, and as soon as you close MIDI-OX, suddenly everything works flawlessly. You have been warned... (Thus, usually use this together with loopMIDI in order to tap into the signal)

Install and launch MIDI-OX (see Software List. From the Options menu select MIDI Devices. Make sure loopMIDI Port is listed as MIDI Input but isn't mapped to any output (yes, you can create a feedback loop, and yes, you do not want to do this...)

MIDI-OX - [Monitor - Input]	
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TIMESTAMP IN PORT STATUS DATA1 DATA2	CHAN NOTE EVENT
MIDI Devices	8
Presets:	Cancel
MIDI Inputs:	Port Mapping:
1) IoopMIDI Port	
MIDI Outputs:	Port Map Objects:
1) Microsoft GS Wavetable Synth 2) IoopMIDI Port 3) MIDI Mapper	<ul> <li>Channels</li> <li>System</li> <li>IoopMIDI Port</li> <li>MIDI-OX Events</li> <li>_MOXSYSMAP1.oxm</li> </ul>
Automatically attach Inputs to Outputs during	g selection.
No	

From the View menu select Input Monitor.... In this window, all incoming MIDI data are shown. You will see the cpntinuous stream of MTC Quarter Freame messages:

15/15

🖗 MIDI-O	X - [M	onitor	- Input]					
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000076E	A 1		F8					Timing Clock
000076E	A 1		F1	50				MTC Quarter Frame
000076F	31		F1	60				MTC Quarter Frame
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000076F	C 1		F8					Timing Clock
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00007709	91		F1	10				MTC Quarter Frame
0000771	11		F8					Timing Clock
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00007710	C 1		F1	30				MTC Quarter Frame
0000772	4 1		F1	40				MTC Quarter Frame
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00007720	C 1		F1	50				MTC Quarter Frame
00007734	4 1		F1	60				MTC Quarter Frame
00007731	D 1		F8					Timing Clock
00007731	D 1		F1	76				MTC Quarter Frame
0000774	4 1		F1	04				MTC Quarter Frame
00007740	C 1		F1	10				MTC Quarter Frame
00007750	0 1		F8					Timing Clock
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No Output	Device					1	Input	Device REC SYX MAP KYB LOG

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