

# Time Synchronisation Between Servers



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## **1. Introduction**

There are many ways to synchronise between multiple windows and (or) Linux systems. The reader is referred to a number of references included in **Appendix A.** This document covers one such approach as an example.

To accomplish time synchronisation between units, NetTime, which is a Simple Network Time Protocol (SNTP) will be used. This ensures camera review times over multiple NVR units are synchronised.

The download link is available here:

#### http://www.timesynctool.com/

Refer to the above website for NetTime's requirements, configuration notes, update history, notes for administrators and frequently asked questions.

#### **USEFUL LINKS**

To view tutorial videos on CathexisVision setup, visit <u>https://cathexisvideo.com/resources/videos</u>

Find answers to Cathexis Frequently Asked Questions: <u>https://cathexis.crisp.help/en/?1557129162258</u>



## 2. Setup

## 2.1 Setup Wizard







1. Enter the NetTime Setup Wizard

2. Select Destination Location

3. Select Start Menu Folder.







Cancel

5. Click Install.



6. Finally, click Finish.

4. Select Additional Tasks.

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## 2.2 Sync Units to Local NTP Server with Access to a Reference/Public NTP Server

#### Step 1:

Install the software onto all units.

#### Step 2:



On the unit that is acting as the NTP server for the other units, click the settings button.

Here is where the setup of the NTP server is done to which a connection is require. This could be an Active directory domain controller, or the default public accessible NPT servers. Up to five connections can be set up, the top being the highest priority. If it fails, it will select a connection lower down the list until one is found to be stable with a valid connection. Set this up to the site preference.

🎱 NetTime Op	otions	—		Make sure the
	Hostname or IP Address	Protocol	Port Number	computer to s
Time Servers:	0.nettime.pool.ntp.org	SNTP 🗸	123	computer" is
	1.nettime.pool.ntp.org	SNTP $\checkmark$	123	red).
	2.nettime.pool.ntp.org	SNTP ~	123	
	3.nettime.pool.ntp.org	SNTP ~	123	
		~		
Update Interval: Retry Interval: Demote Serv Allow other Always p Show NetTin Start NetTime Max Free Run: If Time adjustme Automatically Logging Level:	12       hours       ~         1       minutes       ~         ers after       4       failures.         computers to sync to this computer       orovide time (NOT recommended!)         ne icon in the system tray at login         eservice at bootup         24       hours         nt greater than       2       minutes         v Check For Updates every       7       d         Normal       View       View	<ul> <li>✓ Adjust Syst ay(s) Check Now</li> </ul>	em Time 🗸	
	OK Can	cel		

Make sure that "Allow other computer to sync to this computer" is checked (outlined in red).

Change settings to site requirements.

**Note**: "Always provide time" will happen if all NTP servers are not working or internet connection is lost.



#### Step 3:

On the client unit(s), select settings.

🎱 NetTime Options 🦳 🗆 🗙						
-	Hostname or IP Address	Protocol	Port Number			
Time Servers:	192.168.15.203	RFC868 (TCP)	× 3/			
	1.nettime.pool.ntp.org	SNTP N	/ 123			
	2.nettime.pool.ntp.org	SNTP	/ 123			
	3.nettime.pool.ntp.org	SNTP	/ 123			
		,	×			
Update Interval:	12 hours V					
Retry Interval:						
Demote Serv	ers after 4 failures.					
Allow other computers to sync to this computer						
Always provide time (NOT recommended!)						
Show NetTime icon in the system tray at login						
Start NetTime service at bootup						
Max Free Run: 24 hours ~						
If Time adjustment greater than 2 minutes $\checkmark$ Adjust System Time $\checkmark$						
Automatically Check For Updates every 7 day(s) Check Now						
Logging Level: Normal View						
	OK Can	cel				

Fill out the IP address of the local time server unit.

Change the protocol to RFC868 (TCP).

Once this is complete select "Ok". The synchronisation of the time should be visible on the required linked server:

Network Time							$\times$
Time: 2	2020/04	/08 10:25:51					
Last Attempt: 2	020/04	100 00-59-42					
Last Autempt. 2	020/04	100 09.50.42					
Last Sync: 2	2020/04	/08 09:58:43 +225ms					
Next Attempt: 1	11h 32m	153s					
Time is synchro	nized.						
Mode: Windows	s Servic	e Stop					
Individual Time Ser	vers:						
Server Name		Status	Offset	Lag	Last Error		
192.168.15.203		Good	+225ms	2ms			
1.nettime.pool.nt	p.org	Not Used					
2.nettime.pool.nt	p.org	Not Used					
3.nettime.pool.nt	p.org	Not Used					
Last Error: 2020/04/08 08:35:22 (All Servers Failed)							
Update No	w	Settings		About	C	llose	

## 2.3 Sync Units to the Local NTP server Without Access to Public NTP Server

This method is not as reliable as the previous method (2.2) as it cannot reference a reference server or reliable public time server. This should only be used if no internet access is available. This method also requires scheduled checks to manually update the server's time.



#### Step 1:

Install the software onto all units.

#### Step 2:

After the installation from the icon tray click on the NetTime icon.



Settings...

On the unit that is acting as the server, click on the settings button.

In Settings, ignore changing any of the time servers as this requires an internet connection. What this will achieve is syncing the time this unit is set to and linking that to all other units.

🎱 NetTime Op	tions	_	□ ×				
	Hostname or IP Address	Protocol	Port Number				
Time Servers:	0.nettime.pool.ntp.org	SNTP ~	123				
	1.nettime.pool.ntp.org	SNTP ~	123				
	2.nettime.pool.ntp.org	SNTP ~	123				
	3.nettime.pool.ntp.org	SNTP v	123				
		~	,				
Update Interval: Retry Interval:	12 hours ~ 1 minutes ~						
Demote Serve	Demote Servers after 4 failures.						
Always p	Always provide time (NOT recommended!)						
Show NetTim	Show NetTime icon in the system tray at login						
Start NetTime service at bootup							
Max Free Run: 24 hours 🗸							
If Time adjustment greater than 2 minutes $\checkmark$ Adjust System Time $\checkmark$							
Automatically Check For Updates every 7 day(s) Check Now							
Logging Level: Normal View							
	OK Can	cel					

Settings here can be altered to the site preference.

It is important that the settings outlined in red are checked.

**Note:** There will be a warning that appears due to it using the computer time given by Windows and not from an NTP server. Selecting "No" will allow continuation of the Setting.



#### Step 3:

On the client unit(s), select settings.

🎱 NetTime Options 🦳 🗆 🗙							
	Hostname or IP Address	Protocol	Port Number				
Time Servers:	192.168.15.203	RFC868 (TCP)	~ 37				
	1.nettime.pool.ntp.org	SNTP	~ 123				
	2.nettime.pool.ntp.org	SNTP	~ 123				
	3.nettime.pool.ntp.org	SNTP	v 123				
			~				
Update Interval: 12 hours V Retry Interval: 1 minutes V V Demote Servers after 4 failures.							
Allow other computers to sync to this computer Allways provide time (NOT recommended!)							
Show NetTime icon in the system tray at login							
Start NetTime service at bootup							
Max Free Run: 24 hours ~							
If Time adjustment greater than 2 minutes v Adjust System Time v							
Automatically Check For Updates every 7 day(s) Check Now							
Logging Level: Normal View							
	OK Can	cel					

Set the Time Server Hostname as the IP address of the server unit.

Change the protocol to RFC868 (TCP).

Once this is complete select "OK" and the unit syncing up to the server should be visible:

Network Time					$\times$	
Time: 2020/04/08 10:25:51						
Last Attempt: 2020/04	4/08 09:58:42					
Last Sync: 2020/04	4/08 09:58:43 +225ms					
Next Attempt: 11h 32n	n 53s					
Time is synchronized.						
Mode: Windows Servio	ce Stop					
Individual Time Servers:						
Server Name	Status	Offset	Lag	Last Error		
192.168.15.203	Good	+225ms	2ms			
1.nettime.pool.ntp.org	Not Used					
2.nettime.pool.ntp.org	Not Used					
3.nettime.pool.ntp.org	Not Used					
Last Error: 2020/04/08 08:35:22 (All Servers Failed)						
Update Now	Settings		About	Close		



## 3. Conclusion

This appnote was designed to deal specifically with NetTime software. For further information about the CathexisVision software, consult the main manual (<u>http://cathexisvideo.com/</u>). For support, email <u>support@cat.co.za</u>.



## Appendix A

https://www.csoonline.com/article/3379042/how-to-time-sync-windows-systems.html

https://docs.microsoft.com/en-us/windows-server/networking/windows-time-service/windows-time-service-tools-and-settings

https://www.groovypost.com/howto/synchronize-clock-windows-10-with-internet-atomic-time/

https://www.timesynctool.com/

https://www.tecmint.com/synchronize-time-with-ntp-in-linux/

https://www.howtogeek.com/tips/how-to-sync-your-linux-server-time-with-network-time-servers-ntp/

https://vitux.com/debian-ntp-time-sync/