Using Nexus with Stellarium under Windows

This document describes how to setup your Nexus with a Windows based computer running Stellarium planetarium software using default factory settings.

It is necessary to perform a two star alignment in order to be able to use Nexus with Stellarium.

Two star Alignment

The two star alignment must be performed every time Nexus is turned ON. - Install (one time only) and run Nexus configuration utility.

- Click 'Load Configuration':

N	exus's IP address:	10	. 0 .	0.	1	Load Configuration
						Save Configuration
Info /	DSC Parameters	WiFi Setting	s Port S	Settings	Port Rou	uting Align
Seri	al Number: 1	16	F	Firmware	Version:	2.1.16
	ISC Parameters					
F	RA/AZ Encoder Res	olution:	10000]	
(Dec/Alt Encoder Re	solution:	10000			
F	RA/AZ Drive Sign:		1		-	
ſ	Dec/Alt Drive Sign:		1		•	

Nexus's IP address:	10 . 0 . 0 . 1 Load Configuration
	Save Configuration
nfo / DSC Parameters WiFi Set	ttings Port Settings Port Routing Align
DSC Parameters	Firmware Version:
RA/AZ Encoder Resolution:	0
Dec/Alt Encoder Resolution:	0
RA/AZ Drive Sign:	-1 -
Dec/Alt Drive Sign:	-1 🔍

- It is also necessary to make sure that the settings for 'Port Routing' matches the following:

- If any changes were required press 'Save Configuration' button and restart Nexus (turn OFF and ON).

関 Nexus Configuration	n - Astro Devices - version: 1.	0.0.12	×		
Nexus's IP address: 10 . 0 . 0 . 1 Load Configuration Save Configuration					
Info / DSC Parameters	WiFi Settings Port Settings	Port Routing	lign		
Port 0 connect to:	Astro Devicess 👻	TCP/IP Port:	4060		
Port 1 connect to:	SkyCommander 👻	TCP/IP Port:	4061		
Port 2 connect to:	ServoCAT 👻	TCP/IP Port:	4062		
Port 3 connect to:	USB 👻	TCP/IP Port:	4063		
Port 4 connect to:	Port II 👻	TCP/IP Port:	4064		
Port 5 connect to:	Stellarium 👻	TCP/IP Port:	4065		
	Exit				



- Press the 'Align' tab. Set encoders steps to the ones used by the telescope. Select the 'Alt Reference' value from the dropdown list. Now it is time to press 'Connect'.

Nexi N	us Configuration - Astro Devices - version: 1.0.0.12	
Info	/ DSC Parameters W/Fi Settings Port Settings Port Routing Align)
(Current Encoders' Position Az / RA: 0 0 Alt / Dec: 0 0	
E E	SC Parameters RA/AZ Encoder Steps: 10000 Dec/Alt Encoder Steps: 10000	
Al	lign It Reference: 90° Initial Align Alignment Error: Align Alignment Error: Align	
S	tar II Arcturus,800 : 14h:15'39.67", 19°:10'56.71" Align II	
	Exit	

	ess: 10 .	0.0.	1 Lo	ad Configuration
			Sa	ve Configuration
fo / DSC Paramet	ers WiFi Settings	Port Settings	Port Routing	Align
	Current Enco	ders' Position		
Disconnect	Az / RA: 0	0		
	Alt / Dec: 0	0		
DSC Parameter	5			
RA/AZ Encoder	Steps: 10000			
Dec/Alt Encode	r Steps: 10000	_		
Deephicencou	10000			
Align		(Ali	
	90° •	Initial Align	Alignment	Error:
AIL REFERENCE:		and and along the	7 -	Alian T
Star I Acru	x,Cru: 12h:26'35.	89", -63°: 5'56.	, ·	- Anger L

- The 'Initial Align' button will become active as soon as the connection is established. Make sure that the encoders' position values change when moving the telescope. This can also be used to test the encoders.

Note: It is importand to make sure that the sign for the encoder steps are set correctly. Once connected, please move the telescope clockwise in azimuth. If the angle in the right field of 'Current Encoders' Position', Az/RA is decreasing then change the sign in the 'RA/AZ Encoder Steps' field to opposite (-10000 instead of 10000). Please follow the same steps for the Alt/Dec encoder.

- Set the telescope at the 'Alt Reference' angle (90 degrees in this example – vertical) and press 'Initial Align' button and wait until the encoders' position values go to 0, 90 (for 90 degrees) or 0, 0 (0 degrees, horizontal). 'Align I' and 'Align II' buttons will now become active.

S Nexus Configuration - Ast	ro Devices - version: 1.0.0.12
Nexus's IP address:	10 . 0 . 0 . 1 Load Configuration
Info / DSC Parameters WiFi	Save Configuration
Disconnect Az / R Az / R Alt / D DSC Parameters	ent Encoders' Position A: 0 0 Dec: 0 90
Dec/Alt Encoder Steps:	10000
Align Alt Reference: 90°	Initial Align Alignment Error:
Star I Acrux,Cru : 12 Star II Arcturus,Boo :	h:26'35.89", -63°: 5'56.57" ▼ Align I □ 14h:15'39.67", 19°:10'56.71" ▼ Align II □
	Exit



- Select two alignment stars from 'Star I' and 'Star II' dropdown lists. The selected stars will be saved and used next time the configuration utility is run. Point the telescope at the first selected alignment star and press 'Align I' button. A check mark will appear next to the button as soon as Nexus acknowledges it received the command.

Nexus Configuration - Astro Devices - version: 1.0.0.12	X							
Nexus's IP address: 10 . 0 . 0 . 1 Load Configuration								
Save Configuration								
Disconnect Az / RA: 4106 212.184	Info / DSC Parameters WiFi Settings Port Settings Port Routing Align Current Encoders' Position Az / RA: 4106 212.184							
Alt / Dec: 1273 44, 172 DSC Parameters RA/AZ Encoder Steps: 10000 Dsc//bl Encoder Steps:								
Align Alt Reference: 90° Initial Align Alignment Error:								
Star I Acrux,Cru : 12h:2635.89*, -63°: 5'56.57* Align I I Star II Arcturus,Boo : 14h:15'39.67*, 19°:10'56.71* Align II I								
Exit								

4. Point the telescope at the second selected alignment star and press 'Align II' button. A check mark will appear next to the button as soon as Nexus acknowledges it received the command. The 'Alignment Error' field will show how precise the alignment was achieved.

Nexus's IP address:	10 . 0 . 0 . 1 Load Configuration
	Save Cooffeerstee
	Save Comgulation
Info / DSC Parameters WiFi	i Settings Port Settings Port Routing Align
Curre	rent Encoders' Position
Disconnect Az / R	RA: 363 13.068
Alt / D	Dec: -212 82.368
DSC Parameters	1
PA/A7 Encoder Steps	10000
RA/AZ Encoder Steps.	1000
Dec/Alt Encoder Steps:	10000
Align	
Alt Reference: 90°	Initial Align Alignment Error: -0.02
Star I Acrux, Cru : 12	2h:26'35.89", -63°: 5'56.57"
Star II Antares.Sco :	16h:29'24.46", -26°:25'55.21"
(************	
	Exit

- <u>Done!!!</u>

Now it is time to setup Stellarium.

- Start Stellarium and go to the 'Configuration', select 'Plug Ins' tab and then 'Telescope Control' on the left.

	Co	nfiguratio	n			×
*		*		₽ ₩		
Main Information	Navigation	Tools	Scripts	Plug-ins		
Exoplanets	Telescope	Contro	bl			- 1
Field of View	This plug-in allo	ws Stellariu	im to send "	slew" comman	ds to a	
Historical Supernovae	Authors: Pood	on Marinov	lobannos G	i Golo telesco	pe).	
Meteor Showers	Contact: http:/	//stellarium	.org	ajuusik		
Navigational Stars	version, 0.2.5					
Observability Analysis						
Oculars						
Pointer Coordinates						
Pulsars						
Quasars						
Satellites						
Solar System Éditor						😚 Rå
Telescope Control						
Text User Interface	Options					
Time Zone	🗹 Load at s	tartup		config	ure	



- Click 'Configure' and active the 'Telescope' tab:



- Click 'Add', select 'External software on a remote computer', give it a name (NexusDSC in this case):





- Scroll down and set 'Host' to 10.0.0.1 and 'TCP port' to 4065, enable 'Use field of view indicators':

	Configuration	
	Add New Telescope	×
Main Inform	Telescope controlled by: this Scripts Plug	
Exoplanets	 Stellarium, directly through a serial port 	Q
Field of View	• External software or a remote computer	ands to a cope").
Historical Superno	O Nothing, just simulate one (a moving reticle)	
Meteor Shower		
Obcon phility Ar		
	Connection settings	
Pointer Coordinate	Host: TCP port:	
Pulsars		
Quasars	User interface settings	n de la segle
Satellites Solar System Edito	✓ Use field of view indicators Circle size(s):	
Telescope Contro	0.5,1.	∂ Ret
Text User Interfact	Continues -	E Contraction
Time Zone	Cancel	configure

- Press 'OK' and then 'Connect', it will show that Stellarium is connected to NexusDSC:

1" +204°58'	'20.8"/+30°55'34	1.7"	Configuration		
+204°58'2	24.6"/+30°55'31.	8"	20 Boo		
			Telescopes		×
Mai	elescopes	Options	Help	Scripts Plug-ins About	
Exoplane	ets				
Field of V	i Telescopes C	ontrolled			
Historica	# Status	Туре	Name		
Meteors	2 Stopped	local, Ste	llarium EX200 Ilarium SynScal	n .	
Navigatie	3 Connecte	ed remote, u	inknown NexusD	ISC	
Observa					
Oculars					
Pointer					
Pulsars					
Ouperio					
Catallia					
Satellites	Disconnect	Configu		a Remove	
Solar Sve	To slew a conne that object, the	ected telescope t in hold down the	to an object (for Ctrl kev and pre	example, a star), select ess the kev with that	
Telescop	telescope's nur	nber. To slew it t	o the center of t	he current view, hold do	wn
Text Use	rinteiface	Options	in that telescop	e s humber.	
Time Zo	ne • ·	🛛 🗹 Load a		config	ure



- Close the configuration windows and go back to the main screen, The main screen will show where the telescope is pointing (it should be pointing at the last alignment star if the telescope has not moved much since the alignment – here it is next to Arcturus as a few minutes have passed since the alignment).



DONE!!!

