Unity Network, how-to setup the platform guide

This guide will cover the platform setup and may help an admin setup unity network either on the **Internet (WAN)** or on **a local network (LAN)** under two modes: one is **full network** and the other is with a **standalone blue node**.

A. Using a Standalone Blue Node

A standalone Blue Node is the easiest mode to setup. However, this network form may only be used a limited number of hosts as there is only one bluenode to carry out the traffic.

Your network should distribute addresses under the range of 192.168.x.x this is due to the virtual network which makes use of 10.x.x.x network addresses for the virtual hosts.

Let's say our LAN network distributes IP addresses of 192.168.1.x

In one host ex. 192.168.1.6 **Download** a Blue Node by following the instructions on Blue Node's git page:

https://github.com/kostiskag/unitynetwork-bluenode

When you have your setup complete, open **bluenode.conf** file with a text editor and select:

Network = false

You may either use a host list or not with the option:

UseHostList = true

If you decide to use a list of allowed hosts you may define them in **host.list** file otherwise the bluenode may allow all connecting rednodes to join.

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minal	Info	Traffic		
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AUTH SERVER started at thread Thread-3 on port 7000	Hostname			
WARNING: BLUENODE DOES NOT USE EITHER NETWORK NOR A USERLIST WHICH MEANS THAT ANYONE WHO KNOWS THE BN'S ADDRESS AND IS PHYSICALY ABLE TO CO	BlueNode			
	Echo IP address			
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	7000			
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۲	20			
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fo Variables	Collect Tracker's Public Key			
Is Auth Service Online At least one user was connected	Manage BlueNode's Publ			
Has uploaded data to a local Red Node Has downloaded data from a local Red Node		View Both LRNs a	nd BNs 💿 Only view Local Red Nodes 💿 Onl	y View Blue Nodes
Has uploaded data to another Blue Node Has downloaded data from another Blue Node				
	About	View keep alives View pings	view acks 🚺 view routing	

Then, each other user with a LAN host may **download** and **run** the rednode app to connect to the network from its git repository.

https://github.com/kostiskag/unitynetwork-rednode

Users may start the application and click the **Standalone Blue Node** tab. When a user list is selected, users should give their credentials, otherwise they may leave the fields empty or provide a specific hostname.



Port Forwarding for WAN use

To let hosts from the Internet running rednodes join in the network you should configure your router/gateway's NAT to forward the below bluenode's ports.

The TCP auth port which Is by default 7000.

The UDP port range from 20000 – 22000.

You may change the default ports from the **bluenode.conf** file.

You do not need port forwarding for the individual rednodes.

The rednode users should know the bluenode's public IP address or domain in order to login to the virtual network.

B. Use Unity in full network mode

Unity network is managed by a **tracker** app which is responsible to authenticate bluenodes and rednodes, keep track of logged in members and distribute public keys through the platform. However, the tracker is not responsible to forward any kind of network traffic. Unity as a platform offers resilience in the form of: bluenodes are responsible to forward traffic and may be connected, disconnected in any given moment. The network needs at least one bluenode to be operational and the more bluenodes join in the bigger the network's capacity for virtual hosts becomes.

Therefore, the first task at hand is to **download**, and **run** the tracker application in a host. For this task, you may consult the readme guide in the tracker's repository.

https://github.com/kostiskag/unitynetwork-tracker

The tracker is operational by default and does not require extensive configurations. You may select to define another port or to use an external database as well as other options from the **tracker.conf** file.



There are two tabs, in the first, an admin may view the active network and the connected bluenodes and rednodes in real time. In the second, an admin may define user accounts, bluenode and renode entries. For each new entry, a dialog box may be popped to let the admin configure the entry.

Tracker collecting Public Keys

In order for a rednode or a bluenode to be operational: admins should send the generated ticker in a bluenode's or a rednode's user in order to upload the node's public key as the keypair is being generated into the client's side. This task would have easily been done through a web interface should the admin choose to build one. However, in our case the admin may send the tickets via email. A ticket will be burned after a blue or red node has uploaded its public key to the tracker and a new one will be generated if the user decides to revoke the public key. A Blue or red node is operational only when a public key has been uploaded.

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Port Forwarding for WAN use

In order to let the tracker be visible on WAN you need to forward its TCP auth port default: 8000 through your router's NAT towards the tracker's host IP address.

Each bluenode should forward its ports as described under section A.

Rednodes do not need to forward any ports.

Blue Node setup for full network

On the tracker's side:

- Create or use an existing user account for the bluenode's holder.
- Create a bluenode entry.
- From the new entry, copy and transfer the bluenode ticket to the bluenode's user.

On the bluenode's side:

Edit **bluenode.conf** and set:

Network = true

UnityTrackerAddress = [the tracker's address]

UnityTrackerAuthPort = [the tracker's port]

Name = [the registered bluenode name]

Start the bluenode in order to generate a keypair, you may delete the keypair file in order to generate another.

Click the button **Collect Tracker's public key** to collect the tracker's public key.

Local Red Nodes Remote Red Nodes		raffir
<pre>remna Your public key is: MIIBJANB9kpkhkG9v0BADEFAACCAQEANIIBCgKCAQEAg230525emC32TRb5oFQbdFJJRaB7Nkdbitr+ CACLA IN TABLE INITICALE NO NOCE TABLE PEBOTCE BUENCODE TABLE INITIALIZED *ATHT SERVER Statted at thread Thread-3 on port 7000 *BlueNodeSonarService started in thread Thread-4, 5, main] with time pulse You do not have an availlable public key for the given tracker. In order to download the key press the Collect Tracker Key button and follow th After spue de is not connected in the network. Tracker GETFUB at 192.168.1.12 *BlueNodeSonarService Updating BN Tables via ping */// Keep Scrolled Down ClearTerminal hover a the supleaded data to a local Red Node Has uploaded data to a nonther Blue Node Has uploaded data to another Blue Ploaded data from another Blue Node Has uploaded data to another Blue Ploaded data from another Blue Node Has uploaded data to another Blue Node Has uploaded data to another Blue Ploaded data from another Blue Node Has uploaded data to another Blue Ploaded data from another</pre>	Deprestion Mode Network Hostname BlueNode Echo IP address Auth Port (TCP) 7000 UDP Port Range 20000-22000 Max Number of RN Hosts 20 Collect Tracker's Public Key Manage BlueNode's Publi	Vew Traffic Clear Reep Sorolled Down Image: Clear ima
		Concer diadous a public key If you wish to delete the tracker's public key, you may delete its file from the bluenode's directory and reset the bluenode.

After that, click manage **bluenode's public key** button.

		Traffic	
Termial Your public key is: MIBJANBykghif69voBAQEFAAOCAOEMNIIECgKCAOEAq25G25emC3ZTRb5oFObdFIJRaB7Ndbitz+ ~LOCAL RN TABLE INITIALIZED ~AUTH SERVER started at thread Intead-3 on port 7000 ~BlueNdodsanService started in thread Intead(Intead-4,5,main) with time pulse ~TrackerClient Connection dropped for tracker at 192.168.1.12 ~Talken D REGISTER WITH IHE METMORK This bluenode is not connected in the network. ~offerbukky OFFEREUS at 192.166.1.12 Your public key has been uploaded to the tracker. Please restart this BlueNode in order to connect.	Info Operation Mode Network Hostname bluenode-1 Echo IP address Auth Port (TCP) 7000 UDP Port Range 20000-22000 May N make of EN locate	Vew Traffic	Clear \[Keep Scrolled Down Offer/Revoke Public Key to Tracker morder to upload this bluenode's public key In order to upload this bluenode's public key morder to upload this bluenode's public key Paste your session toket upperstably the tracker. A tracker's admin should be ble to sense session toket when requested. did-gigsr4shkc2r52t12s372g7sr7ups1obv19cp4d3cbp4ovdpt6th 11/udsr4ybovd15keh6t1uni5k2pff5utme1k16ckkubnag8kh4c 1260gw764brov7coubvh305amig0rt56emErckak1oucjotfne6pp 1e19c130rd[cigud=4missr33gP707
Info Variables Info Var	20 Collect Tracker's Public Key Manage BlueNode's Publi About	View Both LRN View keep alives	Upload Public Ke If you believe that your private key might be compromised you may revoke this buende's public key from the trader in order to generate a new keypair and upload a new public key progen the same process. When the public key is revoke present buende is going to disconnect from the network and may not be operational unit anew public key generated and uploaded to the tooker. In to remove the public key you may click the button below. On a successful key re this buenode to going to disconnect.
and the second sec			Revole this Blue Node's Public Key Tradker response KEY_SET

Restart the bluenode to join it in the network.

Red Node setup for full network mode

One rednode may connect to multiple networks and multiple standalone bluenodes. For this reason and for the user's convenience a keyring was created to hold and manage the networks.

Users should:

- A. Select the Full Network tab and click the Keyring button.
- B. Create a new keyring instance for each network by specifying a tacker's address and port.
- C. Collect a tracker's public key for a given network instance.
- D. Upload the rednode's public key to the selected tracker by making use of a provided ticket.

After the above setup is done, users may connect to the same network by filling in only their credentials each time.



