HOW TO CREATE A PERSONAL AI SERVER AT HOME – Installation & setup instructions

Nvidia Orin Nano Super setup - Ubuntu Jetson OS Install, Ollama AI Server install, Open Web UI Install, n8n install – Complete E2E solution

Context & Related documentation:

These instruction will provide steps, examples, screens and details specificwher the process where the Ubuntu Jetson OS image is flushed to the miniSD card is actually is executed from a Windows OS laptop; similar or echivalanet instruction will apply to a Ubuntu OS used to Flush the image on miniSD card, or Mac OS used to Flush the image on miniSD card. After Ubuntu Jetson OS is burned on the boortable miniSD – next steps performed on the Nano server will be generic

On some particualr sections this document will utilize installation steps & documentaiton from Nvidia AI LAB and can be considered an ***extention & complement assist*** *for:*

Nvidia official documentation:

- https://www.jetson-ai-lab.com/initial_setup_jon.html
- https://www.jetson-ai-lab.com/tutorial_ollama.html
- https://www.jetson-ai-lab.com/tutorial_openwebui.html

YouTube videos:

- **NVIDIA Jetson Orin Nano Super COMPLETE Setup Guide & Tutorial**: https://www.youtube.com/watch?v=-PjMC0gyH9s
- **3 Minute Fix for Chromium and other Snaps not launching**: https://www.youtube.com/watch?v=x6bccF3xtRE&t=79s
- **Use These! Jetson Docker Containers Tutorial**: https://www.youtube.com/watch?v=HlH3QkS1F5Y

What do are trying to achieve? ***Objective***:

This document is a detailed step by step documentation and installation instruction on how to setup a ***Home Personal AI Server*** using very affordable ***Nvidia Jetson Orin Nano server*** and create a ***Personal AI Server*** using ***Ollama AI server***, ***Web UI server***, ***Jetson Containers*** *deployed on* ***Nvidia Jetson Orin Nano server***

What is Nvidia Jetson Orin Nano?

https://www.nvidia.com/en-us/autonomous-machines/embedded-systems/jetson-nano/product-development/

What do we need? ***Required components:***

1. Nvidia Jetson Orin Nano - Super 8 Gb type
2. Nvidia Ubuntu bootable OS Jetson Image install - miniSSD card or USB
3. Ollama AI Server
4. Open Web UI AI framework
5. SD Card, SD formatting app, Balena etcher App to flash install on miniSD (USB)
6. Keyboard, mouse, Monitor, Ethernet Internet connection, Ethernet cable, DP Video connection cable or Adapter & HMDI cable, Orin Nano power adapter
7. Laptop, Internet connection, access to download software, access to releated Web documentation

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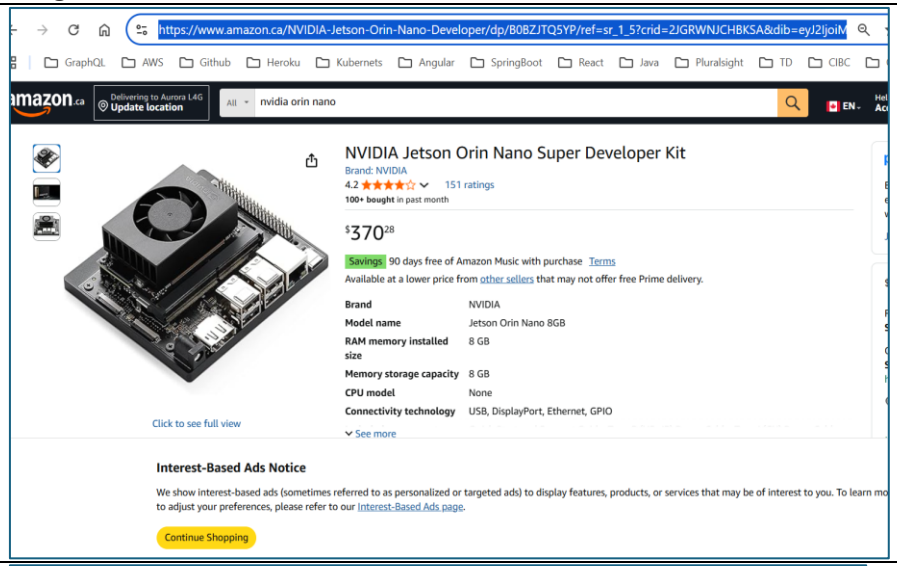
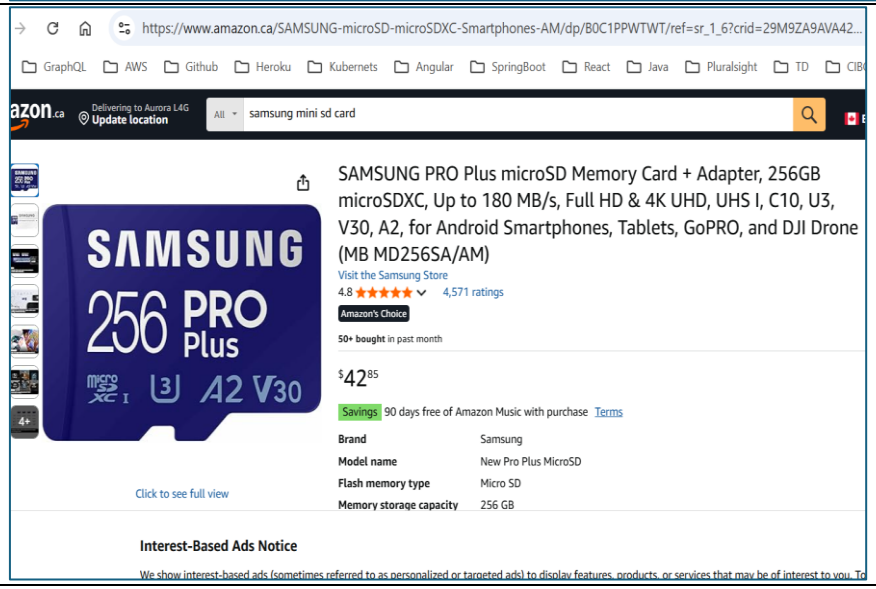
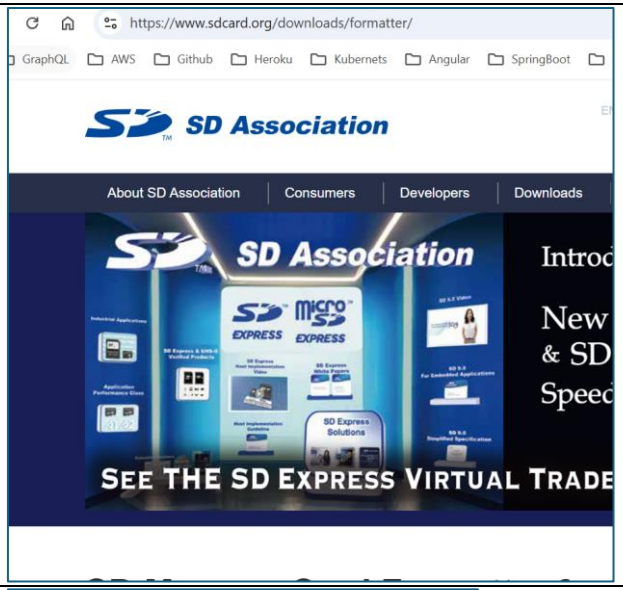
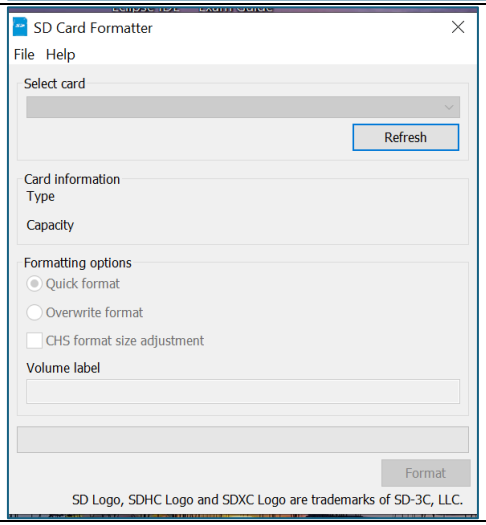
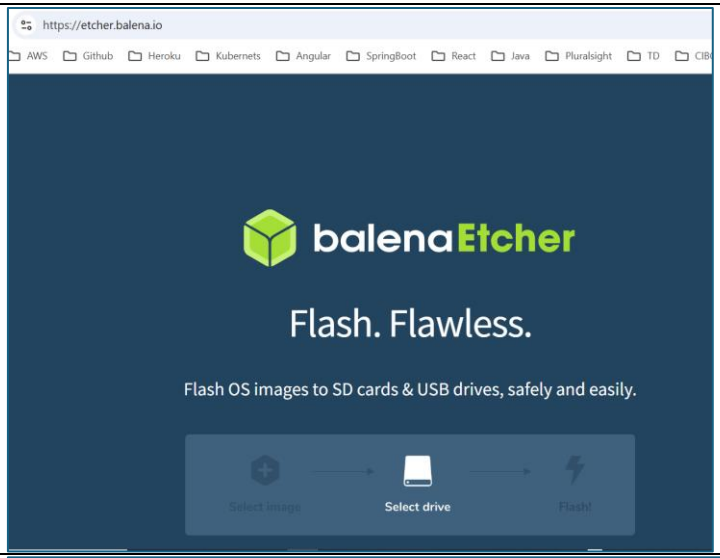
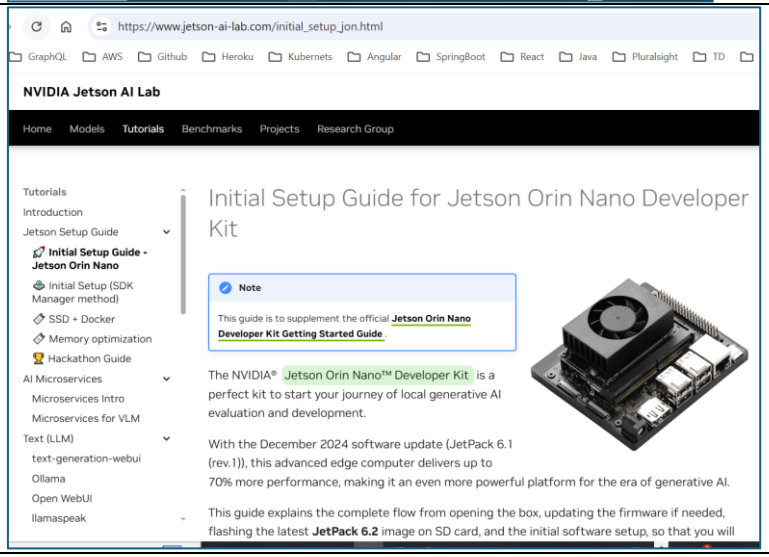
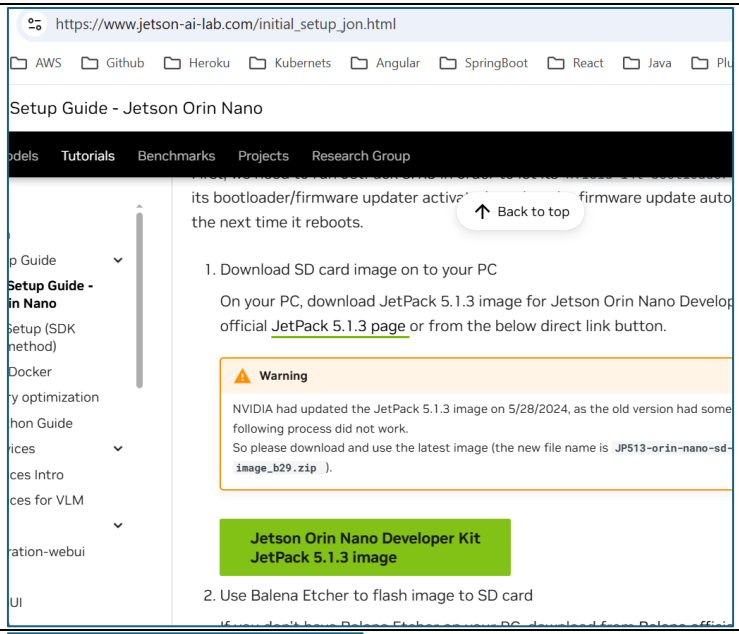
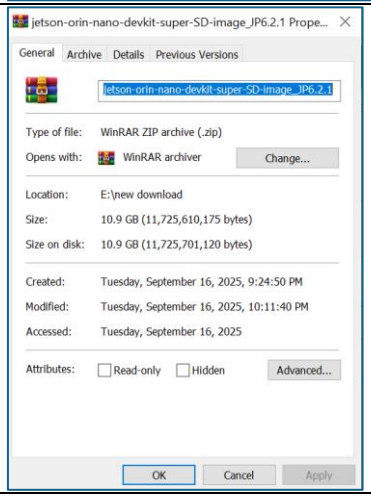
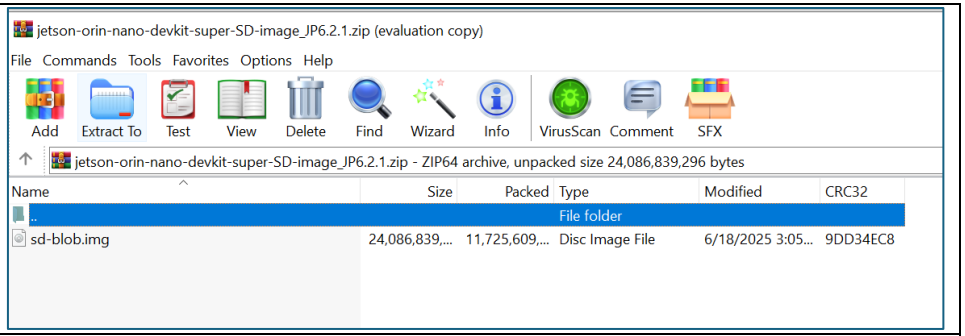
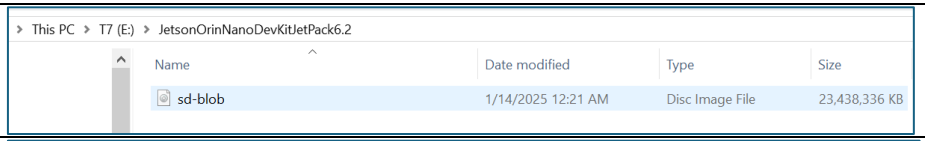
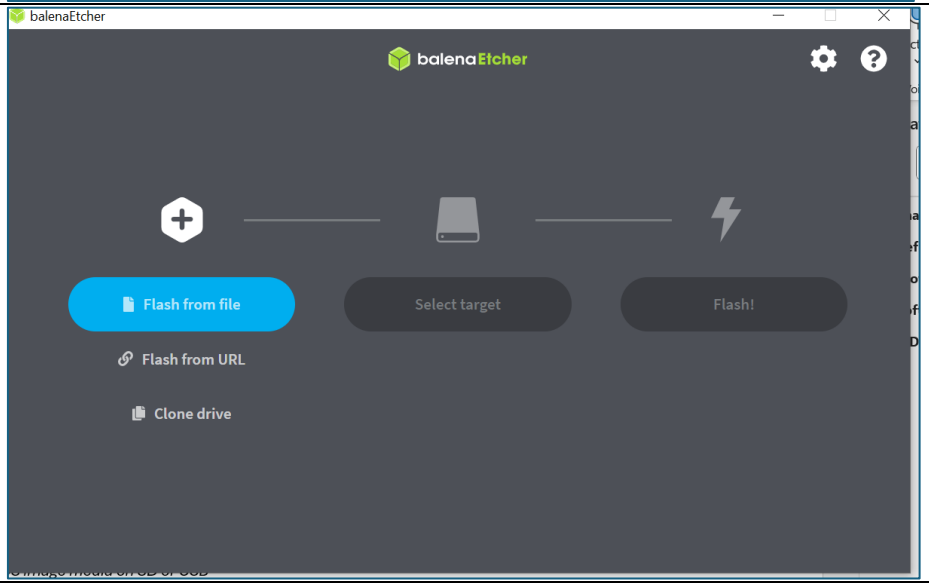
How to achive what we are intended to do? *Instructions – steps & details*

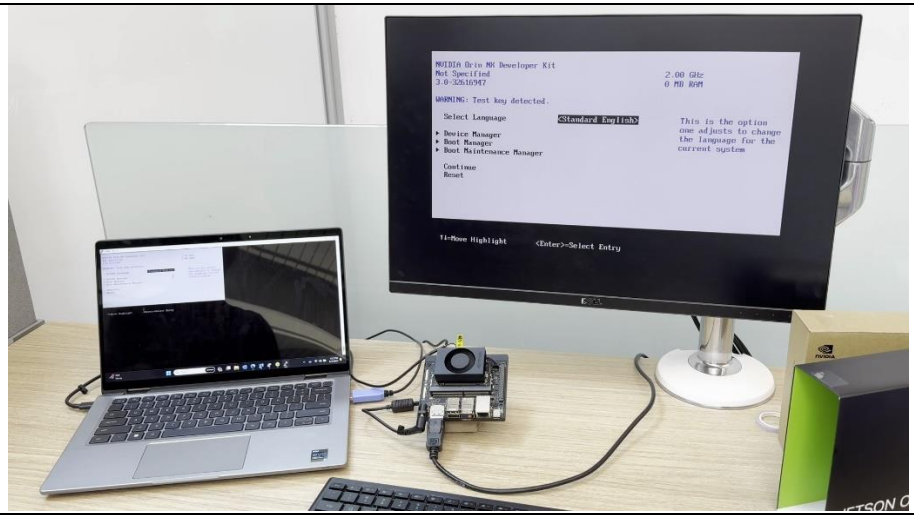
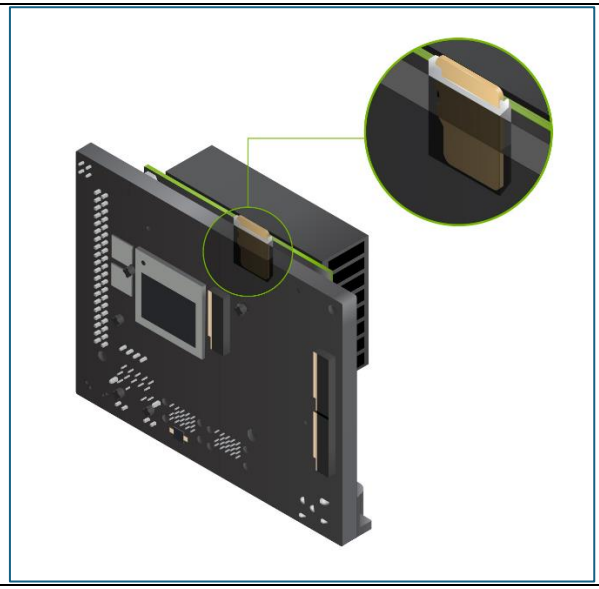
	Details	Image
1	*Buy & get the **Nvidia Jetson Orin Nano server** – **Super 8 Gb RAM** – recommend using http://amazon.ca* *Observation: get Super versiuon with 8 Gb RAM*	
2	*Buy & get the **mini XD SD card** – recommend using from http://amazon.ca* • *Samsung mini SD Card – min 64 Gb or 256 GB (highly recommended),* • *Bigger the XD card size the better - even 512 GB, 1 TB* *Observation: You might need an adapter for miniSD card; tha can be inserted, in your laptop USB or into a laptop card port (or laptop mini car dport if available)*	

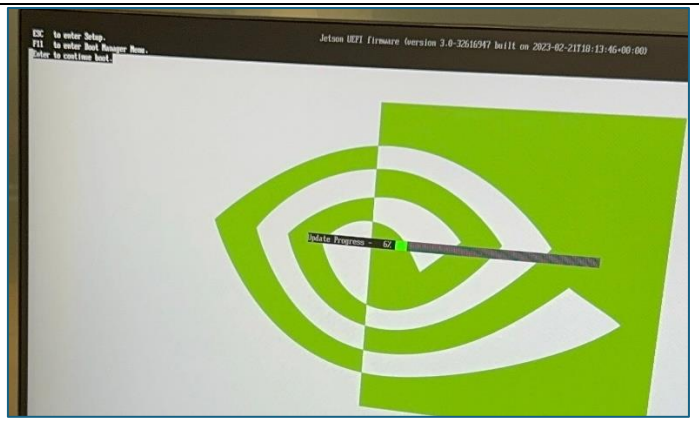
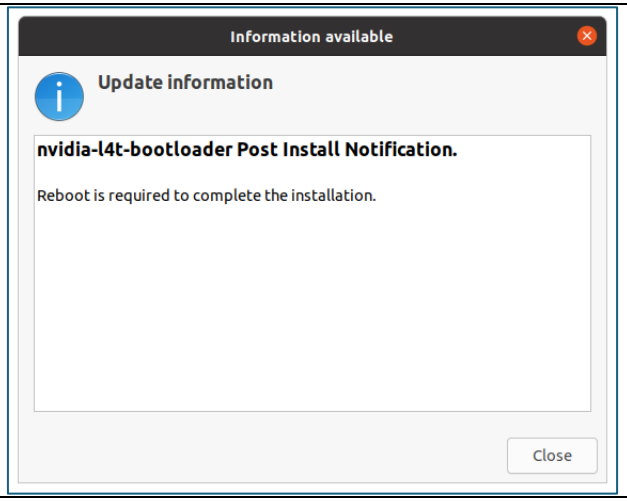
3	*Download & Install the **SD Card Formatter Application** from https://www.sdcard.org/downloads/formatter/*	
4	*Insert the mini SD card into the laptop and start the **SD Card Formatter Application,** then format the mini XD SD Card using **SD Card Formatter Application***	

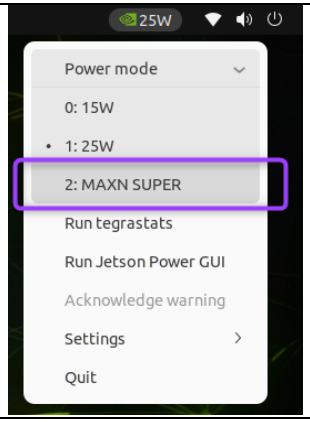
5	*Download & Install the **Balena Etcher Application** from:* *https://etcher.balena.io/* *to Flash Ubuntu Jetson OS Image into the mini XD SD Card – this will be bootable OS installer for Unbuntu Jetson OS* *Observation: the mini SD will contain the Ubuntu Jetson OS bootable image software*	
6	*Download Ubuntu Jetson OS Image Archive installer from* *NVIDIA AI LAB Tutorial: https://www.jetson-ai-lab.com/initial_setup_jon.html* *Observation: for this step you have to login to Nvidia DEV zone with user ID and passoword from the laptop https://www.jetson-ai-lab.com/* ***Observation**: current Nvidia Orin Nano install guide will contain different installation notes with various options and download locations.* *AI LAB tutorial link Jetson download is the only Orin Nano Jetson bootable installer image, that actually will allow you to setup Ubunto OS on the Nvidia Orin Nano. The other download locations * images are not bootable, cannot really be used successfully. Unfortunately.*	

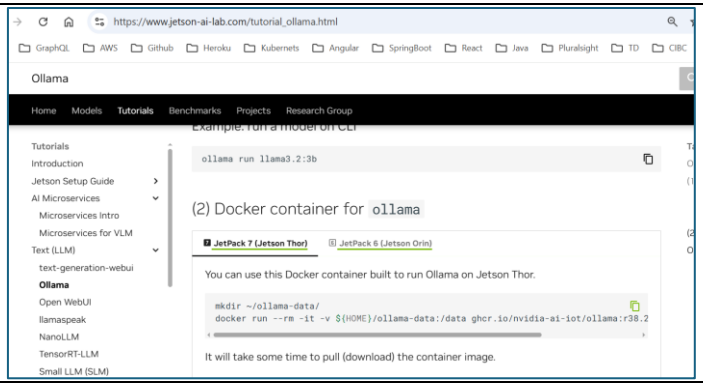
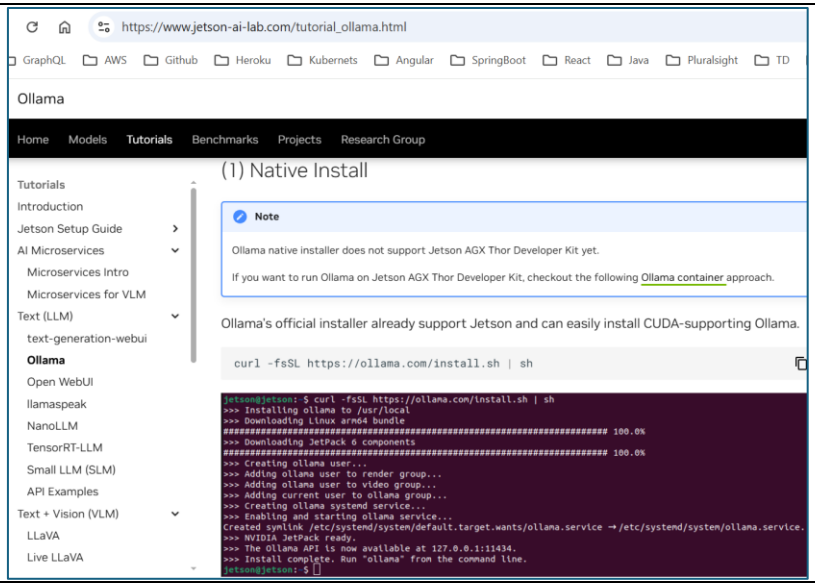
7	*Press **Download** button in the **Jetson Orin Dev Kit Jetpack 5.1 image*** *NVIDIA AI LAB Tutorial: https://www.jetson-ai-lab.com/initial_setup_jon.html* *Save the JAR to local laptop drive*	
8	*Make sure you download this JAR:* ***jetson-orin-nano-devkit-super-SD-image_JP6.2.1.jar*** ***Observation**: current Nvidia Orin Nano install guide will contain different installation notes with various options and download Ubunto Jetson software locations.* *The installation is not clear and other download links will provided non-bootable OS installer downloads; NVIDIA AI LAB tutorial link Jetson download is the only Orin Nano Jetson bootable installer image, that actually will allow you to setup Ubunto OS on the Nvidia Orin Nano. The other download images are not bootable, cannot really be used successfully. Unfortunately.*	

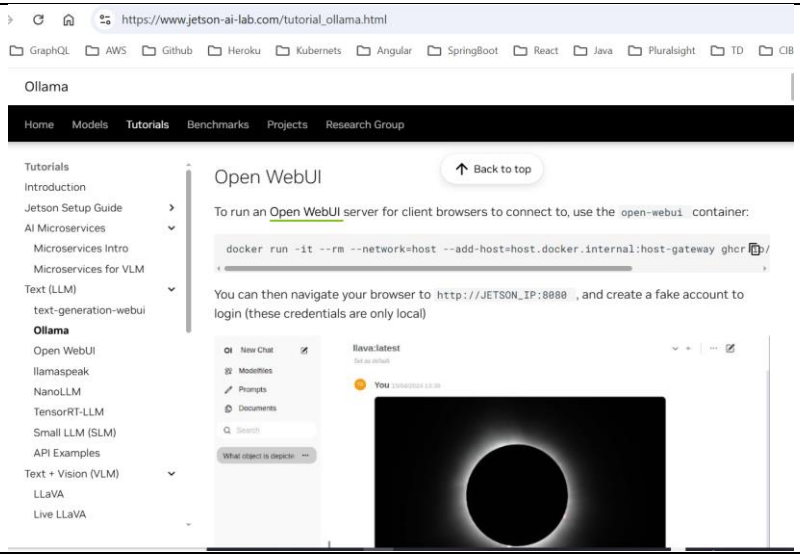
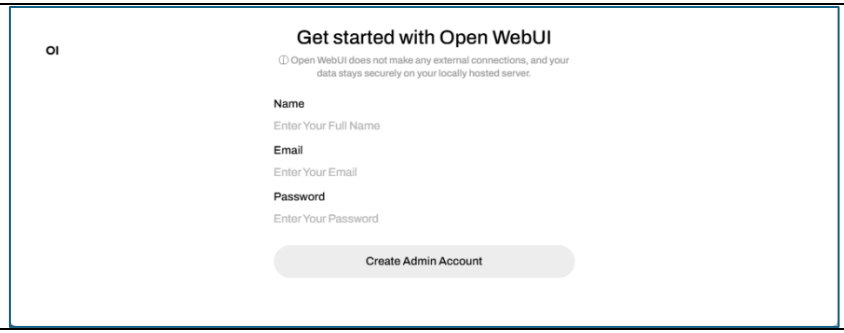
9	*Download Archive Application to unzip the JAR if necessary: WinRar, WinZIP, 7zip* *Unzip the Archive Image:* ***jetson-orin-nano-devkit-super-SD-image_JP6.2.1.jar*** *with WinRAR or other archive Application*	
10	*Ubuntu Jetson OS image should look like this* ***sd-blob.img*** *Ubunto image size aprox.* ***24 GB***	
	FLASH the Ubuntu Jetson OS bootable image to the miniSD card *Start the* ***Balena Etcher Application*** *and lookup the Ubuntu Jetson image* ***sd-blob.img*** *from your file system location – select "Flash from File"," Select Target "* ***sd-blob.img*** *image file, and select "Flush* *Observations:* • *This process will flash the Ubuntu OS Jetson into the miniSD card* • *you can use and flash the Ubuntu Jetson OS image into a bootable USB drive*	

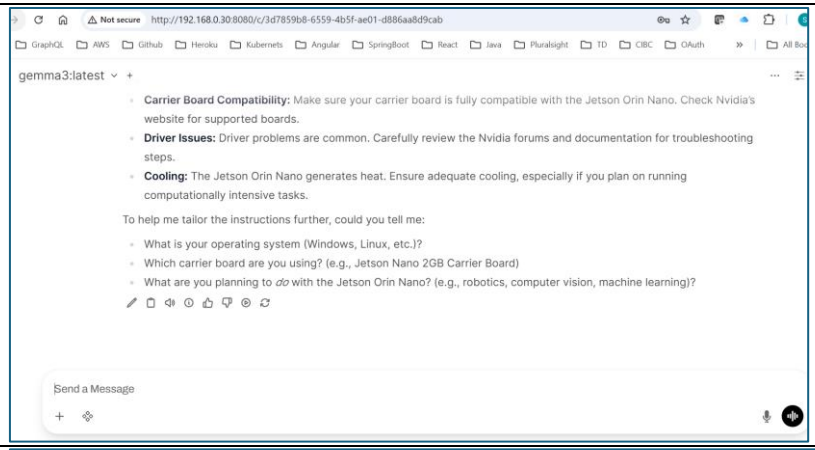
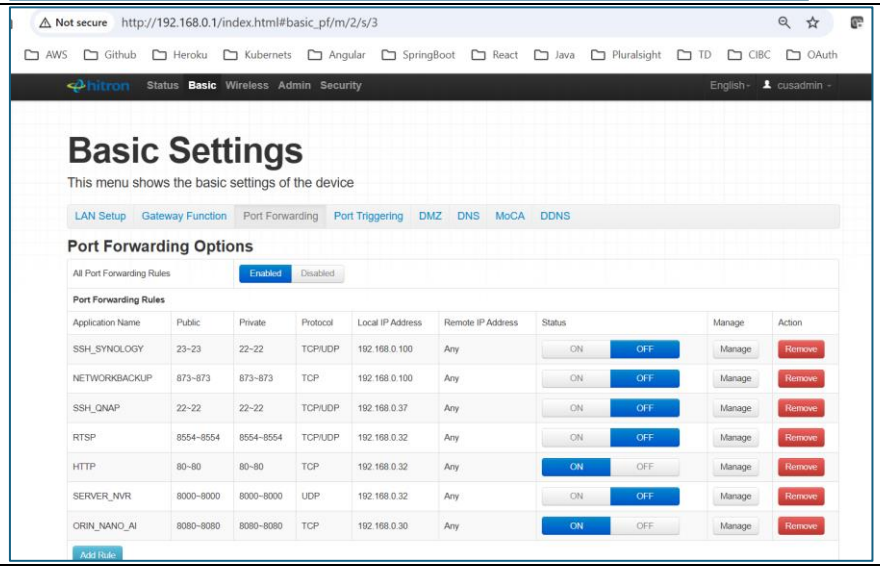
11	**Check Jetson Orin Nano boot capabilities** • Connect keyboard, mouse, Ethernet cable – to Nano server • Connect Ethernet cable from Nano to the Router or switch ***Power ON*** *Jetson Orin nano – plug the power cable, check* ***the boot Jetson UEFI Firmware version is higher that 36.0*** ***Observation****: if Nano doesn't have the UEFI Formware version higher than 36.0, then your OS imahe on the mini SD card image will* ***not boot*** *from the miniSD card****; you are stuck and have to update the Firmware instead, to be able to proceed*** ***Observation****: UEFI boot application upgrade Instructions will be provided in future version of this document*	
12	**Power OFF** *Jetson Orin Nano*	
13	**Add miniSD Card to Orin Nano** • *Take out the miniSD Card with bootable Ubuntu Jetson OS image, from Laptop port* • ***Plug in the miniSD Card into Nvidia Orin Nano server*** ***Observation****: you can use and flash the OS image into a bootable USB drive, and can boot the Jetson OS from bootable USB drive*	

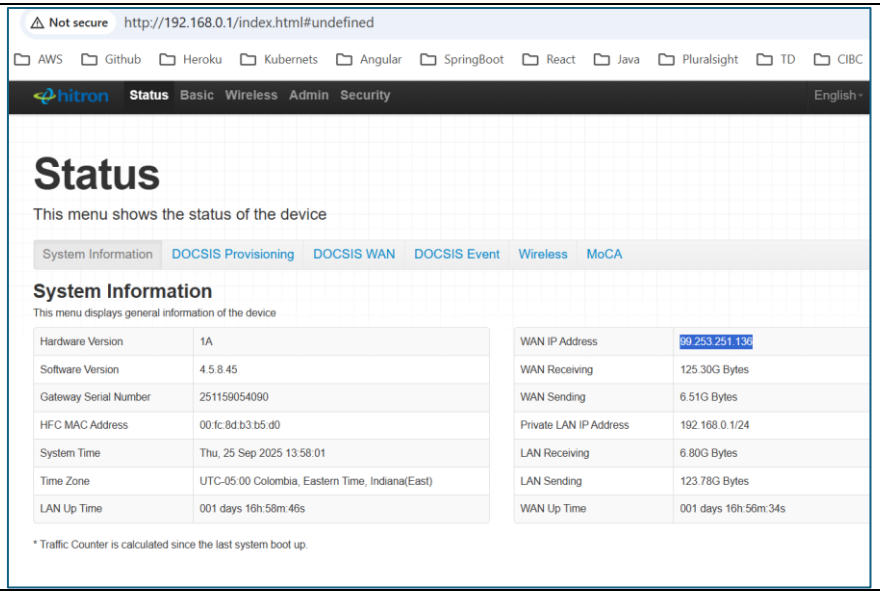
14	**Power ON the Jetson Orin Nano** *Plug in the power adapter at the back on the Nvidia Orin Nano server* ***Observation**: You should see a Nvidia UEFI application Boot screen similar image on the right*	
15	**START Jetson OS first time on Nano** • *Ubuntu Jetson Software OS should boot automatically from miniSD card (or USB)* • *Ubuntu Nvidia Jetson OS Desktop will appear on the Nano Monitor* *You will be prompted to setup on OS first install configuration screens; time zone, language, user root admin ID, setup Nano admin password etc* ***Observation**: software update followed by a reboot might be necessary and required* *For software update you can* *open **Terminal** application and update Ubunto OS and other applications like – python, docker, java etc*	

	SETUP Jetson Orin Power Mode ***Observation**: this will setup the power mode – 15 W, 25 W, or MAXN SUPER*	
16	**Rollback the snap Application version** *Open command prompt **Terminal** application on Nano: enter the following command to rollback and lock the **snap** program version* ***Observation**; web browsers available on Orin Nano (Chromium , Firefix) cannot be launched from Jetson Nano desktop due to a security related defect for **snap** version; you have to downgrade the snap app version with specific command*	Details steps and commands are provided in this YouTube video **3 Minute Fix for Chromium and other Snaps not launching**: https://www.youtube.com/watch?v=x6bccF3xtRE&t=79s
17	**Install Jetson Docker Containers** jetson-containers run $(autotag text-generation-webui)	Details steps and commands are provided in this YouTube video **Use These! Jetson Docker Containers Tutorial:** https://www.youtube.com/watch?v=HlH3QkS1F5Y
18	**Start Chromium Web browser on Nano** *Login to AI LAB DE Zone with user ID & password* *Follow the Tutorial https://www.jetson-ai-lab.com/* *Observation: for this step you have to login to Nvidia DEV zone with user ID and password directly from your Orin Nano Desktop using Chromium*	

19	**INSTALL OLLAMA AI SERVER** *Open **Terminal** application on Nano* *Install Ollama AI server from Docker Image using following command* *Copy command from tutorial https://www.jetson-ai-lab.com/tutorial_ollama.html* mkdir ~/ollama-data/ docker run --rm -it -v ${HOME}/ollama-data:/data ghcr.io/nvidia-ai-iot/ollama:r38.2.arm64-sbsa-cu130-24.04	
20	*After Ollama server installation was completed. please use the command **Terminal** Application and crom command window to load load a specific LLM model like Google **gemma3 LLM*** Starting ollama server	
	For Native Install Ollama AI server on Nano - you should follow the AI LAB Tutorial details *https://www.jetson-ai-lab.com/tutorial_ollama.html* ***Observation**; this is complex setup and for first Ollama installation we recommend Docker container Ollama installation above*	
21	***START OLLAMA SERVER with gemma3 LLM MODEL*** *Load LLM model in Ollama*	
22	**USE OLLAMA CLIENT AS AI PROMPT**	

	• *In the same **Terminal** window you can use Ollama client AI Prompt on the Nano*	
23	**INSTALL WEB UI SERVER** *Open another command **Terminal** application on Nano* *Install WebUI AI server from Docker Image using following command* *Copy command from AI LAB tutorial:* *https://www.jetson-ai-lab.com/tutorial_ollama.html* docker run -it --rm --network=host --add-host=host.docker.internal:host-gateway ghcr.io/open-webui/open-webui:main	
24	*From second **Terminal** command window for Web UI install*	
25	*Check the Web UI install using Chromium Web Browser* *http://192.168.0.30:8080/* *Register with username and password*	

26	*Start using Web UI AI features in the local web browser by accessing the Web UI App* *From Orin Nano on local host: http://localhost:8080* *From Local home intranet: http://JETSON_NANO-LOCAL-IP:808*	
	Start using Web UI AI features in your local network at home *From Mobile Phone browser on the internet – http://HOME-ROUTER-IP:8080* *From Web browser on the internet – http://HOME-ROUTER-IP:8080* ***Observation**; to access the Ollama WEB UI from the internet, outside your local network – home or business – you have to configure and create a PORT FOWARDING rule on the Internet MODEM & router. Configuration might be different for specific Internet Provider and specific routers, or specifc home setup:* *As an example we present Canadian Rogers high Speed internet provider*	

	RULE FORWARD CONFIG IN HOME ROUTER *Configure Home or business network router with Forwarding rule* *Get your statis router IP to access from home local network* *Use browser or mobile phone – from anywhere on Internet:* *Connect to your home router: for Rogers Hi Speed Internet Hytron router connect from inside out home network this was:* *http://192.168.0.1/login.html* *Login to your router using admin; for example* • *cusadmin* • *password* *For example: http://99.253.251.136:8080*	
	Start using Web UI AI features & Ollama Server AI running on your personal network on Nano, from anywhere on the internet	
	Secure the internet access using VPN tunneling *For personal use and for much more secure access, a VPN secure solution and connection is recommended* • *Download VNC Server* • *Download VNC Client* • *Generate secure encryption keys* • *Setup VNC connection* • *Access Nano server Desktop remotely*	