

Running AI Applications Snap on RZ/V2N with Ubuntu 26.04

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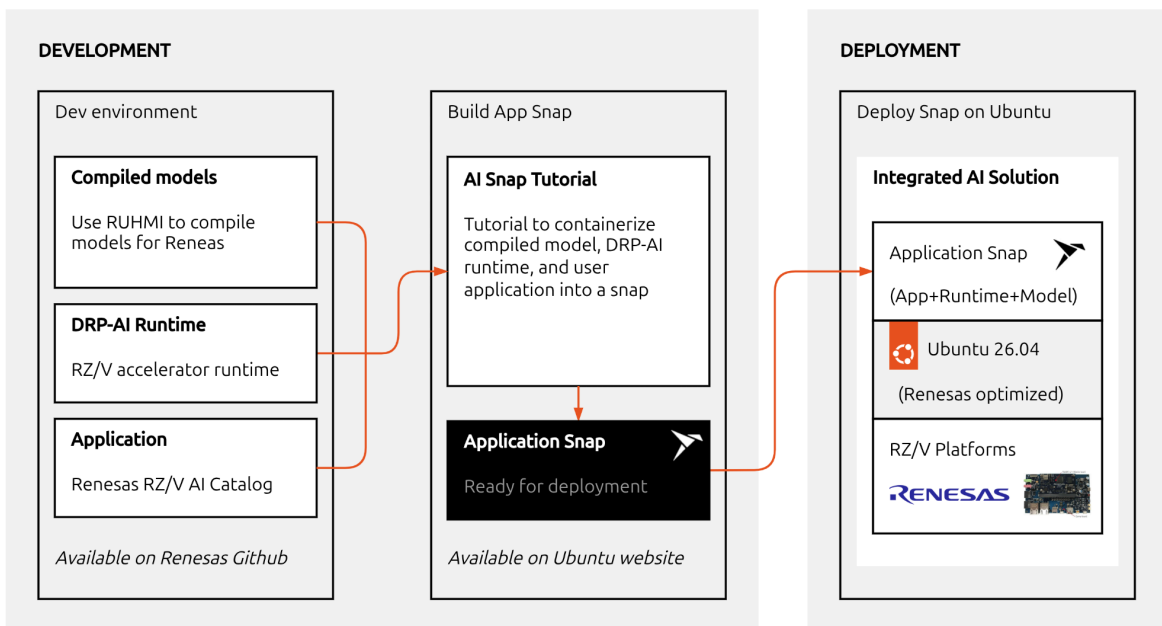
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1. Purpose

This document describes how to install and run Renesas AI application snap on the RZ/V2N board. We also demonstrate how the snap can be built locally via snapcraft.



2. Prerequisites

To get started, the RZ/V2N board should be provisioned with the Ubuntu image that supports this platform. For setup instructions, refer to the Quick Start Guide available at <https://ubuntu.com/download/renesas-iot>.

In this tutorial we have provisioned the RZ/V2N with an **Ubuntu Server 26.04** image.

To run the AI application snap on the RZ/V2N board, you need:

- Ubuntu 26.04 LTS Server image installed
- An HDMI monitor connected to the RZ/V2N
- A USB camera connected to the RZ/V2N
- Serial connection (UART) to run snap commands
- Ethernet connection to internet (to install Ubuntu Frame and AI Application snap)

3. General Information

The AI application snap is based on the AI applications presented in Renesas RZ/V AI Applications repository: https://github.com/renesas-rz/rzv_ai_sdk.

The snap source used in this guide is in: https://github.com/canonical/rzv_ai_applications
The snap source for RZ/V2N is maintained in the branch `add-v2n-support`.

For demonstration purposes, we provide the AI Application Snap: **rzv-ai-applications-v2n**. It contains 3 applications:

- **object-tracker**
- **object-counter**
- **object-detection**

The object-tracker application tracks and counts the number of people entering a designated boundary line, while simultaneously reducing the count for those exiting the boundary line. Details of the application can be found [here](#).

The object-counter counts different types of objects: vehicles (typically for traffic monitoring), animals (for zoo or farm monitoring) and general objects. Therefore it contains three different models. Details of the application can be found [here](#).

The object-detection application detects several types of objects in the capture image of the USB camera and displays the results on the HDMI screen. It uses the YOLOv3 model. Details of the application can be found [here](#).

The snap is published in the Snap Store: <https://snapcraft.io/rzv-ai-applications-v2n>. Therefore we will simply install the snap directly from the store to the RZ/V2N via the network connection.

4. Running the AI Application Snap

Step 1: Install Required Snaps

On the RZ/V2N board, install Ubuntu Frame, which serves as a reliable and secure display server for embedded Linux devices.

```
Shell
$ sudo snap install ubuntu-frame
```

Then, install the AI Applications snap:

```
Shell
$ sudo snap install --devmode rzv-ai-applications-v2n --channel=beta
```

Step 2: Run Ubuntu Frame

Run Ubuntu Frame on the device. You will notice the Ubuntu Frame interface displayed on your HDMI-connected monitor.

```
Shell
$ ubuntu-frame &
```

Step 3: Execute the Applications

You can now run the desired AI applications. The command arguments are identical to those defined in the upstream AI applications provided in Reneas [rzv-ai-sdk](#).

```
Shell
$ rzv-ai-applications-v2n.object-tracker USB
$ rzv-ai-applications-v2n.object-counter <COCO|animal|vehicle> USB
$ rzv-ai-applications-v2n.object-detection
```

5. Building the AI Application Snap (optional)

In case you want to build the snap locally, it only takes cloning the rzv-ai-applications repository and building the snap with the snapcraft tool.

If snapcraft is not installed on your system, you can install it via:

Shell

```
$ snap install snapcraft --classic
```

Refer to [Snapcraft documentation](#) for details. Once snapcraft is installed, clone the repository and build the snap:

Shell

```
$ git clone git@github.com:canonical/rzv\_ai\_applications.git
$ cd rzv_ai_applications
$ git checkout add-v2n-support
$ snapcraft pack
```

This will create the snap file **rzv-ai-applications-v2n_1.0_arm64.snap** locally. Refer to snapcraft.yaml file on how the snap build configuration is set up. There is excellent [documentation](#) and [tutorials](#) on how snapcraft works and how to build your own snaps.