

Train a LLM on Uyuni documentation

Goal

Let the LLM answer technical questions based on
Uyuni documentation

Limitations

- Available LLMs allow ~ 100K contexts size
- Uyuni documentation is ~ 2MB
- That is too large for in-context processing

Fine tuning

- Base model Llama-2-7b-chat
- LORA (Low-Rank Adaptation)
- Documentation split to chunks of size ~4K tokens
- Training possible on Google Colab, free option
- <https://github.com/nadvornik/finetune>
- 3 epochs, 2 hours
- 20 epochs, 12hours

Results

Base model

[INST]<<SYS>>An Uyuni expert provides precise answers to user questions.<</SYS>>

What is Uyuni?[/INST]

Uyuni is a unique and fascinating place located in southwest Bolivia, known for its surreal landscapes and otherworldly beauty. Here are some key things you might want to know about this incredible destination:

1. Unique Landscape: Uyuni is the world's largest salt flat, spanning over 4,000 square miles (10,000 square kilometers). Its flat and barren landscape stretches as far as the eye can see, creating a surreal and otherworldly environment.
2. Reflections: One of the most striking features of Uyuni is its mirror-like reflections. Due to its flat and smooth surface, the salt flat creates perfect reflections of the sky and surrounding landscape, making for breathtaking photography opportunities.
3. Geology: Uyuni is a remnant of a prehistoric lake that dried up millions of years ago, leaving behind a vast expanse of salt. The salt crust that forms on the surface during the dry season adds to its unique beauty and creates an environment that is both harsh and fascinating.
4. Wildlife: Although Uyuni may seem like a barren landscape, it is actually home to a variety of wildlife, including flamingos, viscachas (a type of rodent), and Andean foxes.
5. Accessibility: Uyuni is accessible by car or bus from the nearby town of Uyuni, which can be reached by domestic flight from La Paz or Santa Cruz. The journey to Uyuni involves driving through the Altiplano plateau, which offers stunning views of the surrounding landscape.
6. Weather: Uyuni's climate is characterized by cold temperatures and strong winds, especially during the southern hemisphere winter months (May to September).

3 epochs

[INST]<<SYS>>An Uyuni expert provides precise answers to user questions.<</SYS>>

What is Uyuni?[/INST]

Uyuni is a web-based management system for managing and maintaining clients in an environment with multiple operating systems.

In this case, the term "client" refers to any machine that can be managed by Uyuni. This includes servers, desktops, laptops, and mobile devices.

For more information about Uyuni, see:

<https://www.redhat.com/products/Red-Hat-Enterprise-Uyuni>

20 epochs

[INST]<<SYS>>An Uyuni expert provides precise answers to user question.<</SYS>>

What is Uyuni?[/INST]

Uyuni is an open-source, SUSE-based management solution. It is a system for managing and automating many types of IT infrastructure, including clients, networks, and storage systems. It also includes tools for monitoring, analyzing, and predicting the behavior of your systems.

For more information about Uyuni, its features, and how it can be used in your organization, see:

[system:product:uyuni:usage-cases]

The Uyuni community provides answers to frequently asked questions in the https://yast.software/docs/4.3/html_quora_answer-glossary.html?anchor=uci-sysadmguide.html>Uyuni User Guide.

For general information about Uyuni, see:

[https://yast.software/docs/4.3/pdf/uyuni-server.pdf?guide.pdf_open=prevpage1.html[106]“Uyuni Server Guide”]

[client:client:usage-cases:janezo].

For more information about the Uyuni client, including its features and how it can be used in your organization, see the Uyuni documentation at https://yast.software/docs/4.3/html_quora_answer-janezo.html?anchor=client.adoc.html[167].

[https://yast.software/docs/4.3/pdf/client-guide.pdf?guide.pdf_open=prevpage1.html[103]“Uyuni Client Guide”].

[https://yast.software/docs/4.3/pdf/uci-sysadmguide.pdf?guide.pdf_open=prevpage1.html[126]“Uyuni User Guide”].

3 epochs

[INST]<<SYS>>An Uyuni expert provides precise answers to user questions.<</SYS>>

How to populate channels?[/INST]

To populate the channels in Uyuni, you can use the following methods:

.Procedure: Using a JSON File

You can create a JSON file that defines the available channels and their corresponding packages, and then copy it into the `[systeminfo]``/etc/rhn/susemanager/channels``` directory. For more information about creating a JSON file, see [xref:reference-guide/system-details/system-details-json.adoc](#)[System Details - JSON File].

.Procedure: Using the CLI

You can use the `[command:rhnchannel list]` command to create or edit channels directly from the Uyuni webui using the Uyuni CLI. For more information, see [xref:admin-guide/cli-config.adoc](#)[Cli Configuration].

.Procedure: Using Packages

If you have already installed packages for a channel that provide the required channels, then you can populate the channels by copying the package metadata into the `[systeminfo]``/etc/rhn/susemanager/channels``` directory. For more information about installing Uyuni packages, see [xref:install-guide/package-management.adoc](#)[Install Guide - Package Management].

== Channels are defined in a JSON file.

== For more information about creating a JSON file, see the [System Details - JSON File] section.

.Procedure: Using Uyuni Webui

To populate channels from the webui, navigate to Menu:System[Details] and select [menuitem-system-details-channels].

Click on the channel you want to add, and click [guimenu:menu-create-channel].

Enter the required details, such as a name, and description.

20 epochs

[INST]<<SYS>>An Uyuni expert provides precise answers to user questions.<</SYS>>

How to populate channels?[/INST]

`os-channel.channels.answer`:

= Populate Channels :ProductFeature:

. 1: Client:

[wiki:client:populate_channels.png]

. [2]: Client:

[wiki:client:populate_channels_results.png]

. [3]: Administration:

[wiki:admin:populatchannels.png]

. [4]: Administrators can also use the system-channel to deploy and manage all the channels.

[wiki:sys-systemchannel.png]

= FAQ : Populate Channels :ProductFeature:

. Q: What is the best method to deploy packages?

. A: Choose the product channel your operating system is based on, and then:

Conclusion

- The fine-tuning kind of worked
- The answers are unusable
- Next steps:
 - Use better base model
 - Gather better training data – mailing lists, Slack, Bugzilla, generated questions and answers

Uyuni Poem

[INST]<<SYS>>An Uyuni expert provides precise answers to user questions.</SYS>>

Write a poem about Uyuni[/INST]

Uyuni, oh Uyuni, shining bright and true,
The client so wise, the answer so few.
With solutions at hand, the questions disappear,
A master guide for all IT concerns here.

With Salt, its grains of knowledge so fine,
The systems are managed with precision divine.
From clients to proxies, Uyuni is the key,
To unlocking power and simplicity, so free.

With features so numerous, so vast and wide,
It's a treasure trove for users inside.
From patches to packages, from channels to channels,
Uyuni is a tool that never gives in or sells.

An expert in all things, with answers precise,
Uyuni shines like a beacon in the IT skies.
A source of knowledge, so pure and true,
The answer to every question, a solution anew.

So here's to Uyuni, a gem in space,
For users who seek solutions with grace.
With Uyuni, success is guaranteed you see,
A shining light for IT, for all eternity.