# KNEO 330 EdgeGPT Server Administrator Manual

(v 0.20.9)

Mar 2025



Doc	Description	Firmware	Author	Date
Version		Version		
0.20.3	Update the user interface (UI)	V0.20.3	Oscar Law	2025/01/24
0.20.6	Improve the inquiry accuracy	V0.20.6	Oscar Law	2025/02/13
0.20.8	Fix the inquiry errors	V0.20.8	Oscar Law	2025/03/05
0.20.9	Fix the database creation bugs	V0.20.9	Oscar Law	2025/03/12

## Notice:

1. Kneron Co., Ltd may change any information in this document at any time without any prior notice. The information herein is subject to change without notice.

2. THIS DOCUMENT IS PROVIDED "AS IS" WITHOUT ANY WARRANTY OR CONDITION OF ANY KIND, EITHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OR CONDITION FOR MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR NON-INFRINGEMENT. KNERON DOES NOT ASSUME ANY RESPONSIBILITY AND LIABILITY FOR ITS USE NOR FOR ANY INFRINGEMENT OF PATENTS OR OTHER RIGHTS OF THE THIRD PARTIES THAT MAY RESULT FROM ITS USE.

3. Information in this document is provided in connection with Kneron products.

4. All referenced brands, product names, service names, and trademarks in this document are the property by their respective owners.



K	NEO 33	30 EdgeGPT Server Administrator Manual	.i
1	Intro	oduction	1
2	Edg	eGPT Server	3
	2.1	Product Overview	.3
	2.2	Accessories List	.4
	2.3	Hardware Configuration	5
	2.4	WEBUI Interface	.6
	2.4.	I Session Initialization	6
	2.4.2	2 Knowledge Base Path 1	0
	2.4.3	3 Free Chat Mode1	.1
	2.4.4	4 Knowledge Base Mode 1	5
	2.4.5	5 Knowledge Base Prompt2	25
	2.4.6	5 Knowledge Base Image Inquiry2	26
	2.4.7	7 Company SQL2	27
	2.4.8	8 Company QA	55
	2.4.9	O Company Organization	57
3	Serv	ver Administration	'3
	3.1	User Registration	'3
	3.2	Password Change	'4
	3.3	Access Permissions	'5
	3.4	Password Reset	'6
4	Syst	em Administration7	'8
	4.1	System Management	'8
	4.1.	1 SSH	'9



	4.1.1	2 Pu7	ТҮ	KNEO 330 User Manual (v 0.20.9)	
	4.2	System S	Service		
	4.3	Server H	listory		
	4.4	Network	Configuration		
	4.4.	1 Priv	vate Network		
	4.4.	2 Put	lic Network		
	4.5	External	Storage		
	4.5.	1 US	B Drive		
	4.5.	2 NA	S Storage		
	4.6	System 1	Backup		
	4.7	Data Sou	ırce		
	4.8	Database	e Transfer		
	4.9	Edge So	ftware Reset	96	
	4.10	System 1	Reboot	96	
	4.11	System S	Shutdown	96	
5	Cus	tom Conf	igurations	97	
6	Con	npany SQ	L Functions/Keywords		





KNEO 330 User M	lanual (v 0.20.9)
Figure 2-24 Knowledge Base QA Configuration	
Figure 2-25 Local LLM Prompt Update	
Figure 2-26 4th Industrial Revolution	
Figure 2-27 Knowledge Base Image Inquiry	27
Figure 2-28 Company SQL Spreadsheet	27
Figure 2-29 Company SQL List Command	
Figure 2-30 Company SQL Display Command	
Figure 2-31 Company SQL Show Command	
Figure 2-32 Company SQL Select Command	
Figure 2-33 Company SQL Get Command	
Figure 2-34 Company SQL List Once	
Figure 2-35 Company SQL List Content Command	
Figure 2-36 Company SQL List Items Command	
Figure 2-37 Company SQL List (Ascending) Command	
Figure 2-38 Company SQL List (Descending) Command	
Figure 2-39 Company SQL List Multiple Column	
Figure 2-40 Company SQL Select (List) Multiple Items Command	
Figure 2-41 Company SQL Select Multiple Items Command	
Figure 2-42 Company SQL Select Like Item Command	
Figure 2-43 Company SQL Sort (Ascending) Command	
Figure 2-44 Company SQL Sort (Descending) Command	
Figure 2-45 Company SQL Count Label Command	
Figure 2-46 Company SQL Count Item Command	
Figure 2-47 Company SQL Total Command	
Figure 2-48 Company SQL Add (+) Command	40
Figure 2-49 Company SQL Add (+) Results Command	41



	KNEO 330 User Manual (v 0.20.9)
Figure 2-50 Company SQL Add Results Command	41
Figure 2-51 Company SQL Plus Command	41
Figure 2-52 Company SQL Plus Results Command	
Figure 2-53 Company SQL Sum Command	
Figure 2-54 Company SQL Sum Results Command	
Figure 2-55 Company SQL Sub (-) Command	
Figure 2-56 SQL Sub Command	
Figure 2-57 Company SQL Sub (-) Results Command	
Figure 2-58 Company SQL Minus Results Command	
Figure 2-59 Company SQL Diff Results Command	45
Figure 2-60 Company SQL Mul (*) Command	
Figure 2-61 Company SQL Mul Command	46
Figure 2-62 Company SQL Times (Count) Command	46
Figure 2-63 Company SQL Times II (Count) Command	l47
Figure 2-64 Company SQL Times Command	47
Figure 2-65 Company SQL Div (/) Command	
Figure 2-66 Company SQL Div (/) Results Command	
Figure 2-67 Company SQL Div Command	
Figure 2-68 Company SQL Power (**) Command	
Figure 2-69 Company SQL Power (^) Command	
Figure 2-70 Company SQL IF Command	51
Figure 2-71 Company SQL Greater (>) Command	
Figure 2-72 Company SQL Greater and Equal (>=) Cor	nmand52
Figure 2-73 Company SQL Greater Command	53
Figure 2-74 Company SQL Larger Command	53
Figure 2-75 Company SQL Less (<) Command	54



	KNEO 330 User Manual (v 0.20.9)
Figure 2-76 Company SQL Less and Equal (<=) Comm	and54
Figure 2-77 Company SQL Less Command	54
Figure 2-78 Company SQL Smaller Command	55
Figure 2-79 Company SQL Equal (==) Command	55
Figure 2-80 Company SQL Equal Command	55
Figure 2-81 Company SQL Not (!) Command	
Figure 2-82 Company SQL Not Command	
Figure 2-83 Company SQL Between Commands	57
Figure 2-84 Company SQL Range Commands	
Figure 2-85 Company SQL Min Command	
Figure 2-86 Company SQL Max Command	
Figure 2-87 Company SQL Average Command (I)	
Figure 2-88 Company SQL Average Command (II)	
Figure 2-89 Company SQL Spreadsheet (Date)	60
Figure 2-90 Company SQL Date Format	60
Figure 2-91 Company SQL Date Search Command	61
Figure 2-92 Company SQL Spreadsheet with Multiple S	Sheets61
Figure 2-93 Company SQL Multiple Spreadsheet/Sheet	Command (I)62
Figure 2-94 Company SQL Multiple Spreadsheets/Shee	ts Command (II)63
Figure 2-95 Company SQL Relational Database Comm	and64
Figure 2-96 Company SQL Relational Database Operat	ion64
Figure 2-97 Company QA Spreadsheet	65
Figure 2-98 Company QA Spreadsheet Upload	66
Figure 2-99 Company QA Inquiry	67
Figure 2-100 Company Organization	67
Figure 2-101 Company Organization Create	68



	KNEO 330 User Manual (v 0.20.9)
Figure 2-102 Company Organization Private Group	
Figure 2-103 Company Organization Add User	69
Figure 2-104 Company Organization Dashboard	70
Figure 2-105 Share Custom Knowledge Base	70
Figure 2-106 Select Shared Custom Knowledge Base .	71
Figure 2-107 Access Shared Custom Knowledge Base	72
Figure 3-1 New User Sign-Up	73
Figure 3-2 New User Registration	74
Figure 3-3 User Password Change	75
Figure 3-4 Dashboard Home Page	75
Figure 3-5 Dashboard User Menu	
Figure 3-6 User Role Modification	76
Figure 4-1 Window PowerShell	
Figure 4-2 PuTTY Home Screen	
Figure 4-3 Private/Public Network	
Figure 4-4 Network Connections	
Figure 4-5 Ethernet Status	
Figure 4-6 Ethernet Properties	
Figure 4-7 TCP/IPv4 Properties	
Figure 4-8 Reset IP address	
Figure 4-9 USB Drive Properties	
Figure 4-10 Format the USB Drive with exFAT	91
Figure 4-11 Directory Structure	95



## 1 Introduction

The KNEO 330 is an EdgeGPT server powered by an NPU, tailored for Large Language Model (LLM) applications and offering 48 TOPS of AI computing performance. It features an all-metal body with fan-based cooling and boasts multiple peripheral interfaces for enhanced functionality. Compared to traditional GPU-based LLM inference, the KNEO 330 excels in cost-effectiveness, energy efficiency, and overall performance for Artificial Intelligence Generated Content (AIGC) applications. The system supports multiple-user access and functions like the chatbot with user-defined answers. Moreover, it is no longer limited to the text inputs for the knowledge base creation, it also supports embedded document (.pdf), video subtitle (.srt), and graphics (jpg/png) file formats. Finally, it allows the users to access the custom knowledge base through the private group.

The KNEO 330 comes with Kneron's proprietary edge chatbot software, designed primarily for answering questions and providing information. It functions similarly to an advanced offline virtual assistant. Key features and applications of this chatbot include:

- 1. **Q&A:** Support general inquiry for various areas: science, history, culture, technology, and more.
- 2. **Language Understanding:** Exhibits strong natural language processing abilities, enabling it to comprehend and respond to complex and abstract queries.
- 3. **Multiple Users Access:** Allow multiple users to access the machine without performance degradation.
- 4. **Parallel Processing:** Support multiple machines parallel processing to improve the overall performance
- 5. **Multiple Media Inputs:** Support additional embedded documents (docx/pdf), images (.jpg/.png), and video subtitles (.srt) inputs for the knowledge base creation
- 6. **Traditional Chatbot Support:** Offer the traditional Chatbot with user-defined answers using a new feature (i.e. Company QA)
- 7. **Rational Database:** Utilize a large language model (LLM) to assist with relational database manipulation (e.g., Company SQL) for multiple spreadsheet/sheet access.
- 8. **Knowledge Base Sharing:** Share the custom knowledge base through the private group (i.e. Company Organization)
- 9. **Text Generation:** In addition to answering questions, it can generate articles, craft stories, and produce creative content.



- 10. User Interaction: Facilitates smooth conversations with users, offering helpful responses and suggestions based on database information. It can be applied in various fields such as education, customer support, HR, corporate training, and IT support.
- 11. **Chatbot Assistant:** Customize the chatbot for various financial, insurance, medical, teaching, and meeting assistants.
- 12. Privacy and Security: Provide data protection for user information, data, and privacy using offline mode.

2



- 2.1 Product Overview
- KNEO 330 EdgeGPT Server



<sup>&</sup>lt;sup>1</sup> Use only the top right HDMI port to connect to the monitor for display, while the other HDMI port is designated solely for audio connection only



The KNEO 330 EdgeGPT server is a standard equipment module<sup>2</sup> for data centers. Please consult IT professionals about installation. The KNEO 330 EdgeGPT server adopts an air-cooling system, it is recommended to leave space at the top to ensure proper airflow for cooling.

When the front panel ON/OFF button is activated (indicated by the blue light), it initiates the system in active mode. When the button is turned off, it initiates a soft shutdown, placing the system in standby mode without cutting off the power supply. Pressing the button wakes up the system. The back panel switch directly connects/disconnects the power supply. When the switch is off, the system is completely shut down even if the front panel ON/OFF button is pressed. It recommends the administrator turn off the ON/OFF button first followed by the back panel switch to move the system.

CPU	Intel i5 10 cores 16 threads 4.6 GHz CPU	
NPU	48 TOPS (INT8) equivalent	
DRAM	32 Gb DDR4	
Storage	2Tb SSD	
Power	100-240V, 50/60Hz Avg 140W, Max 320W	
Operating System	Ubuntu Linux	
Size	428 x 350 x 66.6 mm (16.85 x 13.78 x 2.62 in)	
Weight	7.3 kg (16.09 lb.)	

**Product Parameters** 

Table 2-1 KNEO 330 Product Specification

## 2.2 Accessories List

Upon receiving the device, ensure that all accessories are included. Additional Ethernet and HDMI cables are necessary to connect the machine to the internet, and a monitor for system setup.

<sup>&</sup>lt;sup>2</sup> There are multiple input/output data ports, including High-Definition Media Interface (HDMI), Universal Serial Bus (USB), Display Port (DP), LINE OUT (Audio Output), and Sony/Philips Digital Interface Output (SPDIF OUT)



- KNEO 330 EdgeGPT Server
- One AC power cord

In addition, during use, you also need the following conditions:

- Display Monitor or TV with HDMI port.
- Network 100M/1000M wired network.

## 2.3 Hardware Configuration

Please follow the instructions to set up the KNEO 330 EdgeGPT server:

- Connect the power cable to the 100-240V 50/60Hz power cord.
- Connect the device and monitor with the HDMI cable.
- Plug the network cable into the Ethernet port and connect it to the network.
- Once powered on, the device will automatically start, and the default terminal is initialized. The administrator first logs in to the system with user ID: aiuser with password: aiuser, then types the command: ifconfig to display the server IP address shown in inet entry (i.e. 10.200.210.237) for web access

```
Welcome to Ubuntu 22.04.4 LTS (GNU/Linux 6.8.0-40-generic x86 64)
* Documentation: https://help.ubuntu.com
* Management:
                 https://landscape.canonical.com
* Support:
                  https://ubuntu.com/pro
Expanded Security Maintenance for Applications is not enabled.
45 updates can be applied immediately.
7 of these updates are standard security updates.
To see these additional updates run: apt list --upgradable
Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status
Last login: Fri Sep 13 14:23:45 2024 from 10.200.211.96
aiuser@kneron330:~$ ifconfig
eno1: flags=4163<UP, BROADCAST, RUNNING, MULTICAST> mtu 1500
       inet 10.200.210.237 netmask 255.255.255.0 broadcast 192.168.200.255
       inet6 fe80::2979:5613:2a22:d58 prefixlen 64 scopeid 0x20<link>
```



ether 10:7c:61:74:cd:d0 txqueuelen 1000 (Ethernet) RX packets 9407575 bytes 698190452 (698.1 MB) RX errors 0 dropped 606829 overruns 0 frame 0 TX packets 191990 bytes 117483916 (117.4 MB) TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0 lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536

inet 127.0.0.1 netmask 255.0.0.0
inet6 ::1 prefixlen 128 scopeid 0x10<host>
loop txqueuelen 1000 (Local Loopback)
RX packets 211475 bytes 86707283 (86.7 MB)
RX errors 0 dropped 0 overruns 0 frame 0
TX packets 211475 bytes 86707283 (86.7 MB)
TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

## 2.4 WEBUI Interface

#### 2.4.1 Session Initialization



Figure 2-3 Browser Access

The administrator initiates web access using the WEBUI interface. For intranet access, it must employ the prefix: Hypertext Transfer Protocol Secure (i.e. HTTPS)<sup>3</sup>, then enter the IP address (e.g., 10.200.210.237) followed by port 3000 in the browser, resulting in the web address (https://10.200.210.237:3000). For internet access, it enters the domain name (e.g., <domain.com>) with port 3000,

<sup>&</sup>lt;sup>3</sup> HTTPS is the secure requirement to access the KNEO 330 EdgeGPT server



resulting in the web address (https://<domain.com>:3000). The administrator must enter the IP address: (i.e. https://10.200.210.237:3000) to log in to the system.



Figure 2-4 WEBUI Login Page (English)

The WEBUI interface is set to English by default, it can click the icon to switch to Traditional Chinese. The administrator can log in to the system using the username: admin@useradmin.com<sup>4</sup> with the password: admin123.







Figure 2-5 WEBUI Login Page (Chinese)



Figure 2-6 WEBUI Session (English)

The menu in the top-left corner displays the chat history and includes a toggle button to switch it on or off. The username is shown at the bottom-left corner,



along with a button for logging out. In the top-right corner, the administrator can find the Free Chat and Knowledge Base modes toggle button. The administrator clicks the setting button in the top-right corner menu button to open the Settings Menu and switches the language between English and Chinese using the language button. The software release is indicated in the version display.



Figure 2-7 WEBUI Setting Menu

In the setting menu, the administrator first sets the language to English in the Language box, enters the device IP address (e.g., 10.200.210.237) in the Host field, and clicks the ADD DEVICE button. It takes a few minutes for the KNEO 330 to initialize the system.

Gneron	KNEO 330 Use	r Manual (v 0.20.9)
Geron	Settings	×
NewChat	Device Settings	~
Previous 30 Days What are the self-dr	Language Ergish V	Add Device
setect sateUI.satary	Proze Prese enter hoat location	
	Status × nodels	^
	Device Status 10.200210.237 Operation successful, LM Params	^
	Ompany QA	<u>^</u>
	Update Model Config	^
	Oren Dashboard Organization Dashboard	^
A Admin E	Message Kneron Chatbot Knewn variaur val 20 6	

Figure 2-8 WEBUI Device Menu

Once initialization is completed, the device IP address appears in the Device List dialog box. The machine is linked with the system, it is no longer required to initialize the machine in the future. The device IP address will be shown in the Device List dialog box during the next login. The administrator can follow the same steps to add additional machines for inquiries, the additional machine needs to follow the same language model as the Host. It is strongly recommended to run only one machine during an inquiry session.

## 2.4.2 Knowledge Base Path

The knowledge base is stored in the default directory <default directory>. This directory is divided into two subdirectories: EN (for English) and ZN (for Chinese), which store the language-specific knowledge base based on the system language setting. All databases will be stored in the EN subdirectory <saving path> if the language is set to English. The default directory refers to the public/database for the public database and is defined as <username>/database for the regular user. The database is stored in the device with the default directory: <default directory: <default directory.content/EN/<saving path>. For the external device (i.e. USB driver and



NAS storage)<sup>5</sup>, the <default directory> is replaced with the machine data path (i.e. USB driver: /dev/sdb1 and NAS storage: /mnt/kds/data\_feed), the absolute path becomes /dev/sdb1/content/EN/ or /mnt/kds/data\_feed /content/EN.



Figure 2-9 Knowledge Base Data Path

The administrator can set the custom knowledge base path using the Path box with the Add button, which adds the path to the Saving Path List. The administrator can select different data paths using the check mark symbol  $\bigcirc$  and remove the path using the garbage  $\square$  symbol. It is useful to save the database to the other directory or mounted devices.

## 2.4.3 Free Chat Mode

The KNEO 330 offers two chat modes: Free Chat and Knowledge Base modes, which allow the user to switch between these modes using the buttons: Free Chat and Knowledge Base Q&A. Free Chat mode is the default mode which is used for general inquiries. The Knowledge Base mode allows the user to retrieve the correct answer directly from the custom database.

<sup>&</sup>lt;sup>5</sup> Please refer to Section 4.2.1 for detail external device setup





Figure 2-10 Free Chat Mode

For the default Free Chat mode, the user enters the inquiry into the Message Kneron Chatbot box and presses the green arrow key, the response appears in the Dialogue Box. The chat history is shown under the New Chat section. The user edits the prompt using the edit icon  $\checkmark$  and iterates the history with the history icon (< n/n >) where n indicates the times of modification, The user can stop the chat using the red stop button or clear the inquiry using the CLEAR RECORD button. The like/unlike icon  $\Leftrightarrow$  is used for system statistical analysis.



By clicking the edit icon, the administrator opens a window where the prompt can be modified. The Send button evaluates the prompt, and the Cancel button dismisses the inquiry.



Figure 2-12 Chat Session



The user can click on the chat tag to reopen a chat session, and the chat tag can be modified by using the edit button. To download a chat session, the user clicks the download button; the session will be saved in JSON format and compressed into the local machine Download directory. Additionally, the user can select a chat session and click the DELETE SESSION button to remove it. A warning message will appear, prompting the user to confirm the deletion of the chat session from history.



Figure 2-13 Chat Session Delete

The latest software adjusts the LLM parameters to control inquiry results. In Figure 2-14, the Update LLM Params offers two post-processing modes: Top P and Greedy. For Top P mode, the Temperature setting controls output diversity, with lower values producing more conservative and predictable results, while higher values lead to more varied and creative outputs. The range of temperature varies from 0 to 1. The default temperature is set to 0.5. The Top P mode generates random output based on the [Top P] slider, which can be adjusted between 0 and 1. Higher values result in more randomness. The default Top p is set to 0.3. Additionally, the Repetition Penalty prevents repeated outputs by applying a penalty, adjustable between 1 and 1.1. The default Repetition Penalty is set to 1. It recommends maintaining the default settings for general usage. Greedy mode



typically generates the same outputs by selecting those with the highest matching probability, the range is also set between 1 and 1.1

Settings ×	
Texe Dat Device Settings	
What is the self-env Custom models ^	
Customize Saving Path ^	
Update LLM Params	
Welcome to Postprocess mode top P	
Temperature 0.5	
Top P: 0.3	
Repetition penalty: 1	
Update Local LLM Prompt	
Upload Company QA	
Update Model Config	
User Dashboard A	
Organization Dashboard	
A John Message Krevon Chatbot	

Figure 2-14 Chat Mode Setting

## 2.4.4 Knowledge Base Mode

The administrator can create a knowledge base to handle all the custom inquiries, the inputs can be either a single file or multiple files stored in a directory. The administrator clicks the MANAGEMENT button to pop up the management menu. The administrator then enters the name <user>/<database> (e.g., public/bda602) in the Knowledge Base List box<sup>6</sup> for knowledge base creation. There are two types of knowledge bases: public and personal. The public knowledge base is accessible to all users, while the personal knowledge base is shared only with invited users within the Company Organization. Next, the administrator clicks the Management button again and uploads the data<sup>7</sup> using the Drop files box and the Upload button. The administrator clicks the Confirm button on the Confirm Settings page, then the system automatically uploads the files to the system,

<sup>&</sup>lt;sup>6</sup> The system will display an error message if the database name includes special characters.

<sup>&</sup>lt;sup>7</sup> Multiple files are stored in a directory and compressed into a zip format before uploaded to the system.



Management		×
FILES MERGE ORGANIZATION		
Public V / bda602		× v 🗇 Delete
Will upload files into the knowledge base: public/bda602		
+ Expand All — Collapse All 🗊 Delete	⊥ Upload X Clear	
Upload files to create this knowledge base.	bda602.zip	×

Figure 2-15 Create a Custom Knowledge Base

During the file upload process, the LLM parameters setting pops up. The administrator confirms the parameters. The EXTRACT\_TABLE\_OCR and EXTRACT\_PAGE\_OCR parameters are subject to change for document table and page extraction.

Management				×
FILES MERGE ORGANIZATION	Confirm Settings	×		
Public ~ / autonormous_vehicles Will upload files into the knowledge base: public/autonormous vehicles	EN REFER CHUNK SIZE	1024	× v 🗍 🖯 Dele	te
	EN_OVERLAP_SIZE	350		
+ Expand All — Collapse All 🗄 Delete	USE_EXPLAIN	false		
Upload files to create this knowledge base.	USE_SKIP_PDF_WITH_UNDECODED_UNICOD	E true	or click to upload.	
	TIMELINE_SPLIT	false	, mur votr vzzv zvoz douth finiti dost	
	USE_SUMMARIZE	false		
	EXTRACT_TABLE_OCR	false		
	EXTRACT_PAGE_OCR	false		
	USE_GRAPH	false		
	Cancel	Confirm		

Figure 2-16 Confirm Custom Knowledge Base Creation



For uploading multiple files, the administrator can click + Expand All to display the files within the subdirectory and use - Collapse All to hide the list.

Management	×
FILES MERGE ORGANIZATION	
Public V / bda602	× v ) 囟 Delete
Will upload files into the knowledge base: public/bda602	
+ Expand All — Collapse All 🗇 Delete	ڑ, Upload X Clear
٩	Drop files here or click to upload.
✓ □ bda602	extension support: [.txt,.pat,.dock,.ma,.zip,.csv,.sisk,.png,.jpg,.jpeg.]
✓ ➡ Autonormous Vehicles	
C An Introduction to Autonomous Vehicles.pdf	
B How Self-Driving Cars Work – A Simple Overview _ Emerj.pdf	
V 🗅 Finance	
Artificial Intelligence for Credit Card Companies – Current Applications _	
Crock Brokorsno Eirme and Artificial	

Figure 2-17 Custom Knowledge Base Directory List

The KNEO 330 supports multiple file formats, including .txt (text), .pdf (portable document format), .docx (Microsoft Word Document), .xlsx (Microsoft Excel Worksheet)<sup>8</sup>, .csv (Microsoft Excel Comma Separated Value File)<sup>9</sup>, .md (Markdown-formatted text), .jpg/.jpeg (Joint Photographic Experts Group), .png (Portable Network Graphic) and .zip (compressed files). File names should not contain special characters such as space, (), {}, or []. Depending on the file size, uploading may take a few minutes or longer. The administrator can create databases in both public and user directories, whereas general users can create databases only within their user directory.

<sup>&</sup>lt;sup>8</sup> The system supports the Microsoft Excel Worksheet with multiple sheets

<sup>&</sup>lt;sup>9</sup> When saving the spreadsheet in ".csv" format on a UNIX/LINUX system, please choose "Save cell formula instead of calculated values." option



Figure 2-18 Share Custom Knowledge Base

The user can share a custom knowledge base with others in a private group<sup>10</sup> during the database creation process. The administrator should set up the knowledge base using Personal instead of Public shown in Figure 2-18. Once the database is created, the user clicks the ORGANIZATION button, selects the desired knowledge base from the Knowledge Base List, chooses the appropriate organization from the Selected Organizations menu, and presses the ADD button. This allows the knowledge base to be shared with private group users. Additionally, the user can remove the knowledge base from the group by using the REMOVE KNOWLEDGE BASE FROM ORGANIZATIONS option. A symbol (+ or x) is associated with the organization name. During removal, the user should ensure the symbol is set to +.

Once the custom knowledge base is created, the administrator clicks the cross symbol in the top right corner and returns to the knowledge base inquiry page. The knowledge base name appears in the Knowledge Base List box, and loaded files are displayed in the Files in the Knowledge Base box. The Knowledge Base must be selected before inquiries.

<sup>&</sup>lt;sup>10</sup> Please refer to Chapter 2.4.6 Company Organization, it describes how to set up the private group and invite the users to join

Settings     Customize Saving Path     Update LLM Prompt     Update Configure Adde     Update Configure Adde     Configure	×
Customize Saving Path Update LLM Params Update Local LLM Prompt Update Confin Welcome to Update Model Confin	^
Update LLM Params Update Local LLM Prompt Update Configure Update Configure Update Configure Update Configure Update Configure	^
Update Local LLM Prompt Upload Company QA Welcome to Update Model Codin	^
Uplaad Company QA Welcome to 1 Update Model Confin	
Welcome to I Undate Model Contin	^
opare moun comy	^
User Dashboard	^
Organization Dashboard	^
Knowledge Base	~
Knowledge Base List	
public/8DA602	× ~

Figure 2-19 Manage Custom Knowledge Base

The user can select different databases from the Files in the Knowledge Base box for inquiry, enter a prompt into the Message Kneron Chatbot, and adjust the Matched Count: [n] sliding bar (where n is 1, 2, 3, 4, or 5) <sup>11</sup> to access more matching results. Based on the matched count, the system displays the related document with its position in percentage and arranges them according to the match relevance.

Additionally, the user clicks the source [n], which directs to the original page source and allows the user to validate that the results are correct and accurate. The OPEN SOURCE [n] displays the document source for further examination. The user cross-references the document with other sources and ensures the data is properly cited.

<sup>&</sup>lt;sup>11</sup> It recommends setting the Matched Count to 5 if the USE\_GRAPH option (Retrieval-Augmented Generation

<sup>-</sup> RAG) is turned on. It improves the knowledge base matching accuracy.

Not:       Image: Comparison of the induction of th		•	Free Chat	Knowledge Base Q&A
Work is the autonomous which is level of automation     Work     Second Data     Second D	(	A You:		
Kerron Crasteet:     Sector III 12002/0227 (context/Up)/skil/chel022/skil/2/virginal/bald02/skil/2/ski	Ţ	165 What is the autonormous vehicles level of automation?		
<ul> <li>Bestor on the known information provided, automotous whicks are categorized into the levels of automation</li> <li>Level Ti full human central is warranted anythm. The tystem may assist with directing functions six does not take full control.</li> <li>Level Ti full human central is warranted anythm. The tystem may assist with directing functions six does not take full control.</li> <li>Level Ti full human centrol is warranted anythm. The tystem may assist with directing functions six does not take full control.</li> <li>Level Ti full human centrol is based more assist with anythm. The tystem may assist with the starting where first human controls.</li> <li>Level Ti full human centrol is based more assist with the starting where first human controls are not take the starting and the take starting where first human controls are not take to the starting and the take starting and take and take starting and tak</li></ul>		Kneron Chatbot :		
<ul> <li>Lend1. Fight have accepted as warrented anythes. The system may asst with ortain findences but does not take fill doesned.</li> <li>Lend2. While the vehicle accentrations such as accentration phase, and steaming in the system's cancel, the share markets in accentration such as a constraints in the start in</li></ul>	1	As Based on the known information provided, autonomous vehicles are categorized into five levels of automation		
<ul> <li>BMY solf-driving CK instructory video demonstrates what each of these levels might be like for refers and drivers, with an overview of the technologies that enables autonomy.</li> <li>Savere (1) 102:00:10:377:00000000000000000000000000000</li></ul>		Level 1 Full human control is warrantie anythms. The system may assist with certain functions tax does not take full control.     Level 2 While the which centrols is such as acceleration to bask, and starting with the training where the the acceleration starting of the ac		
Source (11) 2220212237 constant/UD/späcic/babl022/babl022/babl022/hutanormous Vehicles/New Self-Driving Cars Work - A Simple Overview_Emerging (12) 2030;     Source (2) 10209; 20237 constant/UD/späcic/babl022/ngines/babl022/hutanormous Vehicles/New Self-Driving Cars Work - A Simple Overview_Emerging (12) 2020; 2027 constant/UD/späcic/babl022/babl022/ngines/babl022/Autonormous Vehicles/New Self-Driving Cars Work - A Simple Overview_Emerging (12) 2020; 2027 constant/UD/späcic/babl022/babl022/ngines/babl022/Autonormous Vehicles/New Self-Driving Cars Work - A Simple Overview_Emerging (11) 2020; 2027 constant/UD/späcic/babl022/babl022/ngines/babl022/Autonormous Vehicles/New Self-Driving Cars Work - A Simple Overview_Emerging (11) 2020; 2027 constant/UD/spacic/babl022/hutanormous Vehicles/New Self-Driving Cars Work - A Simple Overview_Emerging (11) 2020; 2027 constant/UD/spacic/babl022/hutanormous Vehicles/New Self-Driving Cars Work - A Simple Overview_Emerging (11) 2020; 2027 constant/UD/spacic/babl022/hutanormous Vehicles/New Self-Driving Cars Work - A Simple Overview_Emerging (11) 2020; 2027 constant/UD/spacic/babl022/hutanormous Vehicles/New Self-Driving Cars Work - A Simple Overview_Emerging (12) 09h)     Source (12) 0020; 2027 constant/UD/spacic/babl022/hutanormous Vehicles/New Self-Driving Cars Work - A Simple Overview_Emerging (12) 09h)     Overview_Emerging (12) 09h		BMW's self-driving car introductory video demonstrates what each of these levels might be like for riders and drivers, with an overview of the technologies that enable autonomy.		
<ul> <li>Scarrel (2) 102002 (2022) Viciniter (2/Li) yobbi (2) blad602) blad602 / hutportmas vehicles / Nov 5eth-Oniving Cars Work – A Simple Overview _ Emrity (2) 642 (2) 20 (2) 10 (2</li></ul>		Source [1] 10.200.210.237/content/EN/public/bda602/bda602/original/bda602/Autonormous Vehicles/How Self-Driving Cars Work – A Simple Overview_Emerj pdf (23.08%)		
<ul> <li>Scarce III 10 2020 2022 // content / Elity biol. // code602 / hoste602 / original / hoste602 / Autonommus Wehcies / Row Self-Driving Cars Work - A Simple OverviewChemp (of IC 45%)</li> <li>Scarce (4) 10 200 210 237 / content / Elity bable / bable / and / bable / bable / and / bable /</li></ul>		Source [2] 10.200_210.237/content/EN/public/bda602/bda602/original/bda602/Autonormous Vehicles/How Self-Driving Cars Work – A Simple Dverview _ Emery pdf (24.62%)		
Saurce (H) 12020/2022/2016/ster/0456/2/bd4502/nginal/bd4502/nginal/bd4502/Autonormous Wehcles/New Setf-Driving Cars Week – A Simple DeviceEmerg (B) 10200/2023/2016/ster/04/bd4502/bd4502/nginal/bd4502/Autonormous Wehcles/New Setf-Driving Cars Week – A Simple DeviceEmerg (B) 10200/2023/2016/ster/04/bd4502/bd4502/nginal/bd4502/Autonormous Wehcles/New Setf-Driving Cars Work – A Simple DeviceEmerg (B) 10200/2023/2016/ster/04/bd4502/bd4502/bd4502/bd4502/Autonormous Wehcles/New Setf-Driving Cars Work – A Simple DeviceEmerg (B) 10200/2016/ster/04/bd4502/bd4502/bd4502/bd4502/bd4502/bd4502/Autonormous Wehcles/New Setf-Driving Cars Work – A Simple DeviceEmerg (B) 10200/2016/ster/04/bd4502/		Source [3] 10.200.210.237/content/EN/public/bda602/bda602/original/bda602/Autonormous Vehicles/How Self-Driving Cars Work – A Simple Overview _ Emery pdf (16.92%)		
Source (5) 10 2002 C2021 construct (2B / public / bid/602 / odd/602 / odd/602 / Autonomous Vehiclas: / How Safe Driving Cars Work - A Simple Overview _ Emerg (2012 00 Ph)  OPEN SOURCE 1  OPEN SOURCE 2  OPEN SOURCE 3  OPEN SOUR		Source (4) 10.200.210.237/content/EN/public/bda602/bda602/original/bda602/Autonormous Vehicles/How Self-Driving Cars Work – A Simple Overview _ Emery pdf (18.46%)		
OPEN SOURCE 1 OPEN SOURCE 2 OPEN SOURCE 3		Source [5] 10.200.210.237/content/EM/public/bda602/bda602/original/bda602/Autonormous Vehicles/How Self-Driving Cars Work – A Simple Overview _ Emery pdf (20.0%)		
OPEN SOURCE 2 DOEN SOURCE 3		OPEN SOURCE 1		
OPEN SQURCE 1		OPEN SOURCE 2		
		OPEN SOURCE 3		
OPEN SOURCE &		OPEN SOURCE 4		
		A (1)		

Figure 2-20 Knowledge Base Inquiry

The pop-up menu offers two additional functions: merge and delete. To merge two databases, it first clicks the MERGE button, a new pop-up menu shows how to merge from one database to another.



Figure 2-21 Merge Custom Knowledge Base



To delete the database and files, the administrator selects the knowledge base and then clicks <sup>© Delete</sup> button to remove the database from the file system. The administrator can also highlight an individual file from the directory list to delete.

Management		×
FILES MERGE ORGANIZATION		
Public V / bda602		× ~ 🖨 Delete
Will upload files into the knowledge base: public/bda602		
+ Expand All — Collapse All 🗇 Delete	① Upload × Clear	
٩		Drop files here or click to upload.
✓ □ bda602		extension support: [.txt, .pdf, .docx, .md, .zip, .csv, .xlsx, .png, .jpg, .jpeg ]
✓ □ Autonormous Vehicles		
C An Introduction to Autonomous Vehicles.pdf		
B How Self-Driving Cars Work – A Simple Overview _ Emerj.pdf		
✓ C Finance		
Artificial Intelligence for Credit Card C Companies – Current Applications _ Emerj.pdf		
Stock Rinkerane Firms and Artificial		

Figure 2-22 Delete Single/Multiple Files or Custom Knowledge Base

The administrator can configure the knowledge base model through the Update Model Config submenu, which includes KNOWLEDGE \_BASE\_CREATION and KNOWLEDGE\_BASE\_QA.



Settings     ×       Settings     ×       Update Model Config     •       •     •       •     •       •     •       •     •       •     •       •     •       •     •       •     •       •     •       •     •       •     •       •     •       •     •       •     •       •     •       •     •       •     •       •     •       •     • <td< th=""><th>l (v 0.2</th></td<>	l (v 0.2
World       Config       V         Welcometa       Usedse Model Config       Curret Setting Language: English         Welcometa       Usedse Model Config       Usedse Model Config         Welcometa       Usedse Model Config       Usedse Model Config         Usedse Model Config       Usedse Model Config       Usedse Model Config         Welcometa       Usedse Model Config       Usedse Model Config       Usedse Model Config         Number Language: English       Usedse Model Config       Usedse Model Config       Usedse Model Config         Welcometa       Usedse Model Config       Usedse Model Config       Usedse Model Config       Usedse Model Config         Usedse Model Config       Usedse Model Config       Usedse Model Config       Usedse Model Config       Usedse Model Config         Usedse Model Config       Usedse Model Config       Usedse Model Config       Usedse Model Config       Usedse Model Config       Usedse Model Config         Usedse Model Config       Usedse Model Config       Usedse Model Config       Usedse Model Config       Usedse Model Config       Usedse Model Config         Usedse Model Config       Usedse Model Config       Usedse Model Config       Usedse Model Config       Usedse Model Config       Usedse Model Config       Usedse Model Config       Usedse Model Config       Usedse Model Config	
Current String Language Taglab Welcome to Welcome to UC Stars And Stat: 500 UC Stat: 500	
EXTRACT_IARE_COX Have	
NOWLEDGE BASE, QA	
TITLE (THRESHOLD) 10.	

Figure 2-23 Knowledge Base Creation Configuration

model The administrator can optimize the through the option: KNOWLEDGE BASE CREATION, which improves performance by adjusting the chunk size (number of characters) using EN\_REFER\_CHUNK\_SIZE<sup>12</sup>. It refers to the amount of processing data ranging from 0 to 1024 during the reasoning. The chunk size can effectively manage memory usage and improve processing efficiency. Reducing the chunk size increases accuracy with longer processing time. The processing chunks are linked together through the overlap controlled by EN\_OVERLAP\_SIZE. It refers to the number of words or phrases shared between two or more text segments during the processing. It recommends setting the overlap to approximately 15% to 25% of the chunk size. Overlap can preserve contextual information to achieve better accuracy with more computational resources. The overlap size must be less than half of the chunk size.

USE\_EXPLAIN connects the keyword to relevant information during knowledge base creation, offering a more detailed explanation when answering questions. The USE\_SKIP\_PDF\_WITH\_UNDECODED\_UNICODE option is used to prevent Unicode errors in the PDF files, it bypasses PDF files with undefined Unicode

<sup>&</sup>lt;sup>12</sup> The prefix EN refers to the English setting and ZH is used for the Traditional Chinese one



characters for knowledge base creation. TIMELINE\_SPLIT is the input file option that allows the system to process the video SubRip Subtitle (.SRT) file<sup>13</sup>, and then build the knowledge base. The Subtitle file consists of the index, timestamp, and content for sequential data handling.

KNEO 330 offers additional enhanced features: EXTRACT\_TABLE\_OCR, EXTRACT\_PAGE\_OCR, and USE\_GRAPH to extract data from the different sources in the PDF files, those features improve the overall inquiry accuracy. EXTRACT\_TABLE\_OCR extracts the embedded table and utilizes the table contents to address inquiry. EXTRACT\_PAGE\_OCR focuses on the embedded image, which converts the uploaded PDF document into an image and extracts information using OCR. While users can access the data from the embedded images, a downside is that extracting information from images takes more time during the knowledge base creation. USE\_GRAPH applies the Retrieval-Augmented Generation (RAG) approach to combine the LLM model with the relevant database to generate the response. It improves the overall accuracy and relevance with the drawback of long processing time.

The administrator can enhance the accuracy of inquiries by adjusting the KNOWLEDGE\_BASE\_QA\_THRESHOLD and TITLE\_THRESHOLD. KNOWLEDGE\_BASE\_QA\_THRESHOLD improves the matching between inquiries and sources. A higher threshold makes it easy to match inquiries with the source, but the drawback is that it is less accurate. TITLE\_THRESHOLD is

00:00:05,000 --> 00:00:10,000 Hello, welcome to Kneron.

1

2 00:00:12,000 --> 00:00:15,000 This is an example of an SRT file.

<sup>&</sup>lt;sup>13</sup> The SubRip Subtitle (SRT) format is a plain-text file format used for video subtitles. It contains a sequence of subtitles, each with an index, start, and end timecodes (formatted as hours, minutes, seconds, and milliseconds), and the corresponding subtitle text with an empty line separating the entries. The timecodes ensure that each subtitle appears at the correct moment in the video. The basic format is listed as below:



the matching option that enhances the matching process by using the file names of the knowledge base.



Figure 2-24 Knowledge Base QA Configuration

The administrator can improve the accuracy through the search using REPHRASE QUERY, USE SPLIT RERANK, USE RERANK SORTING, and USE HISTORY. REPHRASE QUERY allows the system to rephrase the inquiry. USE SPLIT RERANK is set to TRUE, which divides and ranks content within the same document for accuracy improvement. Alternatively, USE RERANK SORTING is set to TRUE to sort and rank across different sources with longer processing time. The kev difference between USE SPLIT RERANK and USE RERANK SORTING is that the former focuses on a single source (the same document), while the latter applies to multiple sources (various documents). Moreover, the USE\_HISTORY utilizes past inquiry history to improve the accuracy of current results.



KNEO 330 User Manual (v 0.20.9) Enabling both USE\_SPLIT\_RERANK and USE\_RERANK\_SORTING may slow down operations. The administrator can toggle these options to balance accuracy and inquiry speed.

## 2.4.5 Knowledge Base Prompt

Currently, the KNEO 330 supports advanced Prompt Engineering to modify prompts through the Update Local LLM Prompt, which includes the Knowledge Base Q&A Prompt, Table Extraction Prompt, and Page Extraction Prompt options. Knowledge Base Q&A Prompt defines the role of the EdgeGPT server, functioning as a virtual assistant to respond to inquiries. Table Extraction Prompt retrieves the content from the input document table cells. Page Extraction Prompt guides the user in retrieving all the content, including text, tables, and images, from the input document. Since the accuracy of responses heavily depends on the Prompt settings, please consult the Kneron FAE before making any changes. Otherwise, it is recommended that the default settings be left unchanged.

Peron		Settings
New Chut		Device Settings
What is the self-driv		Custom models
		Customize Saving Path
		Update LLM Params
	Welcometo	Update Local LLM Prompt
		Current Setting Language: English
		Knowledge Base Q&A Prompt
		Based on the known information provided, determine whether the known information is relevant to the question. If it is relevant, then based on the known information, please find the most relevant original professional content to answer the question.
		Table Extraction Prompt
		<image/>
		Describe the table cells and sub-cells completely and correctly line-by-line in details in
		Page Extraction Prompt
		<image/>
		Describe the image in detail, including each step indicated by arrows, text, box content, and
	Mossane Knemn Chathol	Reset Promote Update Promote
Admin 🕒	Colorest Colorest Colorest	neset erompts

Figure 2-25 Local LLM Prompt Update



2.4.6 Knowledge Base Image Inquiry



Figure 2-26 4th Industrial Revolution<sup>14</sup>

KNEO 330 allows users to upload images into a knowledge base for further exploration. The user must enable the EXTRACT PAGE OCR option in the Update Model Config by setting it to True and then creating the knowledge base. For example, the knowledge base is created using the image of the 4<sup>th</sup> Industrial Revolution in Figure 2-26, then inquires the system with the prompt "What is the 3<sup>rd</sup> Industrial Revolution?" It analyzes the image and provides the detail response related with the prompt.

<sup>&</sup>lt;sup>14</sup> Albert Chun-Chen Liu, Oscar Ming Kin Law, and Iain Law, Understanding Artificial Intelligence: Fundamentals and Applications, Wiley, 2022.



Figure 2-27 Knowledge Base Image Inquiry

In addition to providing the answer, the user clicks the source and offers a comprehensive description of the objects in the image.

## 2.4.7 Company SQL

	Α	В	С	D	E	F	G	Н	1
1	ID	First Name	Last Name	Gender	Position	Salary	Bonus	Income	
2	1	John	Smith	Male	Director	\$100,000	\$15,000	\$120,000	
3	2	Mary	Johnson	Female	Manager	\$75,000	\$10,000	\$90,000	
4	3	James	Davis	Male	Manager	\$80,000	\$12,000	\$95,000	
5	4	Emily	Brown	Female	Saleman	\$50,000	\$5,000	\$57,500	
6	5	Robert	Miller	Male	Saleman	\$55,000	\$5,000	\$62,500	
7	6	Jennifer	Wilson	Female	Saleman	\$45,000	\$4,000	\$50,000	
8	7	Michael	Taylor	Male	Saleman	\$55,000	\$6,000	\$62,000	
9	8	Elizabeth	Anderson	Female	Saleman	\$50,000	\$4,500	\$55,000	
10	9	Daniel	Thomas	Male	Saleman	\$45,000	\$4,500	\$50,000	
11	10	Olivia	Moore	Female	Saleman	\$50,000	\$4,500	\$55,000	
12									
	$\langle \rangle$	Company	+						

Figure 2-28 Company SQL Spreadsheet


KNEO 330 offers a new feature: the relational database using Company SQL, which leverages a large language model (LLM) to manage the database through Structured Query Language (SQL) with multiple spreadsheets/sheets. Initially, the administrator creates the knowledge database using a spreadsheet, but it only supports the Excel Worksheet (.xlsx), not the Excel Separated Value file (.csv). The sample spreadsheet format<sup>15</sup> is shown in Figure 2-28. The first row contains the label keywords, while the column entries correspond to these keywords. The administrator can manipulate the database using general sentences, and the basic commands are demonstrated to access the database using the label keywords.

- The label keywords are specified in the first row
- The corresponding column contents are organized under these label keywords

This document presents the SQL commands, covering basic commands (i.e. lists, display, show, total, sort, select), arithmetic functions (addition, subtraction, multiplication, division), and logical operations (not, equal, greater, less). It advises users to use the symbol " to specify labels (e.g., "label") and ' to represent the values (e.g. "item"). The Large Language Model (LLM) model may interpret different inputs inconsistently

The administrator can display the database content using the keywords list, display, print, show, or select. KNEO 300 outputs all the items in the spreadsheet. The administrator can specify each item's case-sensitive name.

Syntax: LIST <item> <order> <option>

Syntax: DISPLAY <item> <order> <option>

Syntax: SHOW <item> <order> <option>

<sup>&</sup>lt;sup>15</sup> If the spreadsheet format is invalid, it may lead to incorrect Company SQL data.



Syntax: SELECT <item> <order> <option>

Syntax: GET <item> <order> <option>

where

item: the database item name

order: sort order (i.e. ascending and descending)

option: display option (i.e. once)

	You :	
	list "Gender"	0
1	Kneron Chatbot :	
	Gender	
	Male	
	Female	
	Male	
	Female	
	Male	
	Female	
	Male	
	Female	
	Male	
	Female	
	Service [1] 10 200 210 227 (m)	the MCAL (as the last of the second of the last of the second of the second of the second of the second of the
	Source [1] 10.200.210.237/cdi	ntent/en/public/company/company/originat/company_oz.xtsx
	OPEN SOURCE 1	
	6 <del>7</del>	

Figure 2-29 Company SQL List Command

Kneron Chatbot :     Gender     Kneron Chatbot :     Gender     Male     Female     Male     Kemale     Kemale     Male	
Kneron Chatbot :         LSS       Gender         Male       Female         Female       Male         Female       Female         Male       Female	0
ISS Gender Mate Female Mate Female Mate Female Mate Female Mate Female Mate Female	
Mate Female Mate Female Mate Female Mate Female Mate Female	
Female Male Female Male Female Male Female Male Female	
Male Female Male Female Male Female Male Female	
Female Male Female Male Female Male Female	
Male Fermale Male Fermale Male Fermale	
Female Male Female Male Female	
Mate Female Male Female	
reinde Male Female	
Female	
Source [1] 10.200.210.237/content/EN/public/company/company/original/company_02.xlsx	
OPEN SOURCE 1	

Figure 2-30 Company SQL Display Command

A	You :	
12:08	show "Gender"	0
Kn	Kneron Chatbot :	
12:08	Gender	
	Male	
	Female	
	Male	
	Female	
	Male	
	Female	
	Male	
	Female	
	Male	
	Female	
	Source [1] 10 200 210 227/content /EN/public/company/company/original/company/ 02 visy	
	<ul> <li>Source [1] to 2002 bits in concerns env provide company, company, onginate company_detxesx</li> </ul>	
	OPEN SOURCE 1	
	A TI	
	Figure 2-31 Company SOL Show Command	

Figure 2-31 Company SQL Show Command

Α	You :	
12:11	select "Gender"	0
Kn	Kneron Chatbot :	
12:11	Gender	
	Male	
	Female	
	Male	
	Female	
	Male	
	Female	
	Female	
	Male	
	Female	
	Source [1] 10.200.210.237/content/EN/public/company/company/original/company/	any_02.xlsx
	OPEN SOURCE 1	

Figure 2-32 Company SQL Select Command



Figure 2-33 Company SQL Get Command

The administrator can limit the output to display once



Figure 2-34 Company SQL List Once

The administrator can use the name to display<sup>16</sup> the database item:

Α	You :
2:19	list 0
Kn	Kneron Chatbot :
12:19	id_Bacecbf3 ID First_Name Last_Name Gender Position Salary Bouns Income
	11 John Smith Male Director 100000 15000 120000
	2 2 Mary Johnson Female Manager 75000 10000 90000
	3 3 James Davis Male Manager 80000 12000 95000
	4 4 Emily Brown Female Saleman 50000 5000 57500
	5 S Robert Miller Male Saleman 55000 5000 62500
	6 6 Jennifer Wilson Female Saleman 45000 4000 50000
	7 7 Michael Taylor Male Saleman 55000 6000 62000
	8 8 Elizabeth Anderson Female Saleman 50000 4500 55000
	9 9 Daniel Thomas Male Saleman 45000 4500 50000
	10 10 Olivia Moore Female Saleman 50000 4500 55000
	Source [1] 10.200.210.237/content/EN/public/company/company/original/company_02.xLsx
	OBEN COURCE 1
	<u>DPENSOURCE</u>
	Figure 2.25 Company SOL List Content Command
	rigure 2-55 Company SQL List Content Commana

<sup>&</sup>lt;sup>16</sup> The administrator can display all the items using the commands, display, print, show, and select

	KNEO 330 User Manua
Α	You :
12:21	list "Male"
Kn	Kneron Chatbot :
12:21	id_Bacecbf3 ID First_Name Last_Name Gender Position Salary Bouns Income
	1 1 John Smith Male Director 100000 15000 120000 3 3 James Davis Male Manager 80000 12000 95000
	5 5 Robert Miller Male Saleman 55000 5000 62500
	7 7 Michael Taylor Male Saleman 55000 6000 62000 9 9 Daniel Thomas Male Saleman 45000 4500 50000
	Source [1] 10.200.210.237/content/EN/public/company/company/original/company_02.xlsx
	OPEN SOURCE 1
	<u>۵</u> 🖓

Figure 2-36 Company SQL List Items Command

The administrator can sort the output in ascending or descending order.

Α	You :
12:42	list "Gender" ascending
Kn	Kneron Chatbot :
12:42	Gender Female Female Female Female Male Male Male Male Male Male Male
	OPEN SOURCE1 ආ දා

Figure 2-37 Company SQL List (Ascending) Command

Α	You :
12:43	list "Gender" descending
Kn	Kneron Chatbot :
12:43	Gender
	Male
	Male
	Male
	Mate
	Male
	Female
	Female
	Female
	Female
	Source [1] 10.200.210.237/content/EN/public/company/company/original/company_02.xlsx

Figure 2-38 Company SQL List (Descending) Command

The administrator outputs multiple columns, the order is based on the prompt description<sup>17</sup>.

Α	You :	
12:47	list "First Name", "Last Name", "Gender"	0
G	Kneron Chatbot :	
12:47	First_Name Last_Name Gender	
	John Smith Male	
	Mary Johnson Female	
	James Davis Male	
	Emily Brown Female	
	Robert Miller Male	
	- Michael Taylor Male	
	Flizabeth Anderson Female	
	Daniel Thomas Male	
	Olivia Moore Female	
	Source [1] 10.200.210.237/content/EN/public/company/company/original/company_02.xlsx	
	OPEN SOURCE 1	
	<b>心 夺</b>	

Figure 2-39 Company SQL List Multiple Column

<sup>&</sup>lt;sup>17</sup> The administrator can output similar multiple columns using the commands, display, print, and show



The administrator can select the database item with a multiple-column display<sup>18</sup>

Syntax: LIST	<item> DISPLAY SHOW <item></item></item>
Syntax: SELECT <sup>19</sup> <item></item>	<item> LIST DISPLAY PRINT SHOW LIKE<sup>20</sup></item>
where	
item: the database ite	em name

where

Α	You :	
12:26	list "Male" show "First Name", "Last Name"	0
Kn	Kneron Chatbot :	
12:26	First_Name Last_Name	
	John Smith	
	James Davis	
	Robert Miller	
	MichaelTaylor	
	Daniel Thomas	
	Source [1] 10.200.210.237/content/EN/public/company/company/original/company_02.xlsx	
	OPEN SOURCE 1	
	<b>企 </b>	

Figure 2-40 Company SQL Select (List) Multiple Items Command

 <sup>&</sup>lt;sup>18</sup> The simple keywords: and/or are permitted to use in the operation
 <sup>19</sup> SELECT is also used to access multiple spreadsheets and sheets, that is explained later.

<sup>&</sup>lt;sup>20</sup> LIKE selects the substring for the comparison

	KNEO	330 User Manual
Α	You :	
12:58	select "Male", list "First Name", "Last Name"	0
Kn	Kneron Chatbot :	
12:58	Male First_Name Last_Name	
	1 Daniel Thomas 1 James Davis	
	1 John Smith	
	1 Michael Taylor	
	1 Robert Miller  Source (1110.200.210.237/content/EN/public/company/company/original/company 02.xlsx	
	·	
	OPEN SOURCE 1	

# Figure 2-41 Company SQL Select Multiple Items Command

Α	You :		
12:39	select (like(Gender,"Fe")), list "First Name", "Last Name"		0
_			
Kn	Kneron Chatbot :		
12:39	First_Name Last_Name		
	Mary Johnson		
	Emily Brown		
	Jennifer Wilson		
	Elizabeth Anderson		
	Olivia Moore		
	Source [1] 10.200.210.237/content/EN/public/company/company	y/original/company_02.xlsx	
	OPEN SOURCE 1		

Figure 2-42 Company SQL Select Like Item Command

The administrator organizes the database items using the sort commands and displays the results in ascending and descending orders.

Syntax: SORT <item> <order>

where

<item>: the database item name



KNEO 330 User Manual (v 0.20.9) sort order (i.e. ascending and descending)

A	You :	
3:09	sort "Gender" ascending list "First Name", "Last Name", "Gender"	0
Kn	Kneron Chatbot :	
3:09	First_Name Last_Name Gender	
	Mary Johnson Female	
	Emily Brown Female	
	Jennifer Wilson Female	
	Elizabeth Anderson Female	
	Olivia Moore Female	
	John Smith Male	
	James Davis Male	
	Robert Miller Male	
	Michael Taylor Male	
	Daniel Thomas Male	
	Source [1] 10.200.210.237/content/EN/public/company/company/original/company_02.xlsx	
	OPEN BOUNCE I	
	δ <b>9</b>	

# Figure 2-43 Company SQL Sort (Ascending) Command

A	You :	
13:11	sort "Gender" descending list "First Name", "Last Name", "Gender"	0
Kn	Kneron Chatbot :	
13:11	First_Name Last_Name Gender John Smith Male James Davis Male Robert Miller Male Michael Taylor Male Daniel Thomas Male Mary Johnson Female Emily Brown Female	
	Elizabeth Anderson Female Olivia Moore Female	
	► Source [1] 10.200.210.237/content/EN/public/company/company/original/company_02.xlsx	
	OPEN SOURCE 1	
	<u>ර</u> ප	

Figure 2-44 Company SQL Sort (Descending) Command



The administrator counts the database items

Syntax: C	COU	NT <label>  <item></item></label>
where		
object:		item type
item:		item name
	A	Yau :
	13:14	count "Gender"
	Kn	Kneron Chatbot :
	13:14	Gender Gender_Count Female 5
		Male 5
		Source [1] 10.200.210.237/content/EN/public/company/company/original/company_02.xlsx
		OPEN SOURCE 1
	<b>A</b> 13:36	Figure 2-45 Company SQL Count Label Command
	(S) 13:36	Kneron Chatbot : Male_Count 5 Source [1] 10.200.210.237/content/EN/public/company/company/original/company_02.xlsx
		OPEN SOURCE 1 企 マ

Figure 2-46 Company SQL Count Item Command

The administrator calculates the column value of database objects (i.e. amount) using the command: total and then displays the results.

Syntax: TOTAL <object | item>



Figure 2-47 Company SQL Total Command

The administrator performs simple arithmetic operations<sup>21</sup> using the syntax, addition: +, add, plus, sum, subtraction: -, sub, minus, diff, multiplication: \*, mul, times, and division, -, div.

Syntax: + (operation)

Syntax: ADD (<object | operation>)

Syntax: PLUS (<object | operation>)

Syntax: SUM (<object | operation>)

Syntax: - (operation)

Syntax: SUB (<object | operation>)

Syntax: MINUS (operation)

Syntax: DIFF (operation)

<sup>&</sup>lt;sup>21</sup> Perform the arithmetic operations on individual items, it prefers to use the arithmetic symbols: +, -, \*, / because the LLM interprets differently for the commands: plus, minus, times, div etc.



Syntax: \* (operation) Syntax: TIMES (<object | operation>)<sup>22</sup> Syntax: / (operation) Syntax: DIV (operation) Syntax: \*\* (operation) Syntax: ^ (operation) where object: item type operation: basic arithmetic operations Α You : 'Salary' + 'Bonus' 14:11 0 Kr Kneron Chatbot : 14:11 Total\_Earnings 115000 85000 92000 55000 60000 49000 61000 54500 49500 54500 Source [1] 10.200.210.237/content/EN/public/company/company/original/company\_02.xlsx **OPEN SOURCE 1** P

Figure 2-48 Company SQL Add (+) Command

<sup>&</sup>lt;sup>22</sup> TIMES also functions as COUNT to count the number of the items



You:

14:17

Add(total(Salary'),total(Bonus'))

Image: Solution of the state of th

Α	You :		
14:23	plus(Satary)	0	
	Kneron Chatbot :		
14:23	Tota_Salary 605000		
	<ul> <li>Source [1] 10.200.210.237/content/EN/public/company/company/original/company_02.xlsx</li> </ul>		
	OPEN SOURCE 1		
	<u>ර</u>		

Figure 2-51 Company SQL Plus Command



Figure 2-54 Company SQL Sum Results Command

You :			
23	list('Income' - 'Salary')	0	
n	Kneron Chatbot :		
23	Difference		
	20000		
	15000		
	15000		
	7500		
	7500		
	5000		
	7000		
	5000		
	5000		
	5000		
	Source [1] 10 200 210 237/content /EN/public/company/company/original/company/	02.xlsx	

Figure 2-55 Company SQL Sub (-) Command



Figure 2-56 SQL Sub Command



Figure 2-58 Company SQL Minus Results Command

A	You :		
9:40	list(diff('Income';Salary'))	0	
(ne	Kneron Chatbot :		
3:40	Difference		
	20000		
	15000		
	15000		
	7500		
	7500		
	5000		
	7000		
	5000		
	5000		
	5000		

Figure 2-59 Company SQL Diff Results Command



Figure 2-60 Company SQL Mul (\*) Command

Α	You :	
0:00	mul(Salary,2)	0
Kne	Kneron Chatbot :	
0:00	DoubleSalary	
	200000	
	150000	
	160000	
	100000	
	110000	
	30000	
	10000	
	90000	
	100000	

Figure 2-61 Company SQL Mul Command

Α	You :	
12:28	times("Gender*)	0
Kn	Kneron Chatbot :	
12:28	Gender_Count 2	
	Source [1] 10.200.210.237/content/EN/public/company/company/original/company_02.xlsx	
	OPEN SOURCE 1	
	<b>心</b>	
	Figure 2-62 Company SQL Times (Count) Command	



Α	You :
12:54	times('Salary',2)
Kn	Kneron Chatbot :
12:54	Double_Salary
	200000
	150000
	160000
	100000
	110000
	90000
	110000
	100000
	90000
	100000
	Source [1] 10.200.210.237/content/EN/public/company/company/original/company_02.xLsx
	OPEN SOURCE 1
	Figure 2-64 Company SOL Times Command

-	
2:57	list('Salary'/2)
(n	Kneron Chatbot :
2:57	Half_Salary
	50000
	37500
	40000
	25000
	27500
	22500
	27500
	23000
	2500
	2300

Figure 2-65 Company SQL Div (/) Command



Α	You :	
13:29	div('Salary',2)	0
Kn	Kneron Chatbot :	
13:29	Half_Salary	
	50000	
	37500	
	40000	
	25000	
	27500	
	22500	
	27500	
	25000	
	2500	
	25000	

Figure 2-67 Company SQL Div Command



Figure 2-68 Company SQL Power (\*\*) Command

Α	You :
13:33	'Salary' ^ 2
Kn	Kneron Chatbot :
3:33	Squared_Salary
	100000000
	562500000
	250000000
	302500000
	202500000
	302500000
	250000000
	202500000
	250000000
	Source [1] 10 200 210 227/content/EN/nublic/company/company/original/company/02 visy

Figure 2-69 Company SQL Power (^) Command

The administrator executes the logical operations (i.e. greater/larger, less/smaller, equal, not, between) with the database objects.

Syntax: IF	<logical operations=""></logical>
Syntax: SELECT	<logical operations=""></logical>
Syntax: AND	<logical operations=""></logical>
Syntax: OR	<logical operations=""></logical>
Syntax: BETWEEN	<logical operations=""></logical>
Syntax: >	<item> <actions></actions></item>
Syntax: >=	<item> <actions></actions></item>
Syntax: GREATER THAN	<item> <actions></actions></item>
Syntax: LARGER THAN	<item> <actions></actions></item>
Syntax: <	<item> <actions></actions></item>
Syntax: <=	<item> <actions></actions></item>



KNEO 330 User Manual (v 0.20.9) Syntax: LESS THAN <item> <actions> Syntax: SMALLER THAN <item> <actions> <item> <actions> Syntax: == Syntax: EQUAL <item> <actions> Syntax: NOT <item> <actions> where item: item name actions: basic actions You : 13-59 if 'Salary' > 50000 list "First Name", "Last Name" 0 Kn Kneron Chatbot : 13:59 First\_Name Last\_Name John Smith Mary Johnson James Davis Robert Miller Michael Taylor Source [1] 10.200.210.237/content/EN/public/company/company/original/company\_02.xlsx OPEN SOURCE 1 ፊ ዋ

## Figure 2-70 Company SQL IF Command

A	You :	
4:05	select 'Salary' > 50000 list "First Name", "Last Name"	0
(n)	Kneron Chatbot :	
:05	First_Name Last_Name	
	John Smith	
	Mary Johnson	
	James Davis Robert Miller	
	Michael Taylor	
	Source [1] 10.200.210.237/content/EN/public/company/company/original/company_02.xlsx	

# Figure 2-71 Company SQL Greater (>) Command



Figure 2-72 Company SQL Greater and Equal (>=) Command

16	STON KNI	EO 330 User Manual (v (
A	You :	
:35	Select 'Salary' greater than 50000 list "First Name", "Last Name"	0
n	Kneron Chatbot :	
:35	First_Name Last_Name	
	John Smith	
	James Davis	
	Robert Miller	
	Michael Taylor	
	Source [1] 10.200.210.237/content/EN/public/company/company/original/company_02.xlsx	
	OPEN SOURCE 1	

# Figure 2-73 Company SQL Greater Command







Figure 2-77 Company SQL Less Command



<b>A</b> 10:22	You : Select 'Salary' smaller than 50000 list "First Name", "Last Name"	0
Kn	Kneron Chatbot :	
10:22	First_Name Last_Name Jennifer Wilson	
	Daniel Thomas	
	Source [1] 10/200210237/Concentry Extypuole/Company/Company/Original/Company_02.xtsx     OPEN SQURCE 1	.6

## Figure 2-78 Company SQL Smaller Command



Figure 2-80 Company SQL Equal Command



58	select Gender != "Male" list "First Name", "Last Name"
n	Kneron Chatbot :
8	First_Name Last_Name
	Mary Johnson
	Emily Brown
	Jennifer Wilson
	Elizabeth Anderson
	Olivia Moore
	Source [1] 10.200.210.237/content/EN/public/company/company/original/company_02.xlsx
	OPEN SOURCE 1
	<i>∆ ♀</i>



The administrator selects the range of the database objects using the keywords: between and from:

Syntax: BETWEEN <range> <operation>



## Syntax: FROM <range> <operation>

where

range	:	items range
action	ıs:	basic actions
(	A	You :
1	11:27	select 'Salary' between 50000 and 75000 list "First Name", "Last Name"
	Kn	Kneron Chatbot :
1	11:27	First_Name Last_Name
		Emily Brown
		Robert Miller Michael Taylor
		Elizabeth Anderson
		Olivia Moore
		Source [1] 10.200.210.237/content/EN/public/company/company/original/company_02.xlsx
		OPEN SOURCE 1

# Figure 2-83 Company SQL Between Commands

Α	You :
11:29	select 'Salary' from 50000 to 75000 list 'First Name', "Last Name" 🖉
Kne	Kneron Chatbot :
11:29	First_Name Last_Name Mary Johnson Emily Brown Robert Miller Michael Taylor Elizabeth Anderson Olivia Moore > Source [1] 10.200.210.237/content/EN/public/company/original/company_02.xlsx OPEN SOURCE 1 ①   ⑦

Figure 2-84 Company SQL Range Commands

The administrator can select the max/min value of the object (i.e. amount)



<u>OPEN SOURCE 1</u> ለኅ ርዖ KNEO 330 User Manual (v 0.20.9)

wher	e	
object:		item type
	Δ	Vall
	11:44	min('Salary')
	Kne	Kneron Chatbot :
	11:44	Min_Salary
		5. Comment (110, 200, 210, 227, for starts / CN / starts / for starts
		Source [1] 10.200.210.237/content/en/public/company/company/original/company_02.xtsx
		OPEN SOURCE 1
		Eigung 2.85 Company SQL Min Command
		Figure 2-85 Company SQL Min Commana
	Α	You :
	11:45	max('Salary')
	Kn	Kneron Chatbot :
	11:45	Max_Salary
		10000
		Source [1] 10.200.210.237/content/EN/public/company/company/original/company_02.xlsx

Figure 2-86 Company SQL Max Command

Company SQL can also average the column value of the object (i.e. amount) Syntax: AVERAGE(object)



### where

object: item type

 Image: Solution of the second second

### Figure 2-87 Company SQL Average Command (I)

Δ	You	
11:41	average(Salary)	0
Kn	Kneron Chatbot :	
11:41	Average_Salary 60500.0	
	Source [1] 10.200.210.237/content/EN/public/company/company/original/company_02.xlsx	
	OPEN SOURCE 1	
	Figure 2-88 Company SQL Average Command (II)	

Company SQL displays the date along with the time tag "00:00:00". The administrator can use the substring command to extract the date only



	А	В	С	D	E	F	G
1	Invoice	Date	Product	Volume	Price	ID	
2	1	1/22/2024	Α	3	\$5,000	3	
3	2	2/12/2024	В	2	\$3,000	1	
4	3	2/28/2024	С	2	\$4,000	7	
5	4	3/21/2024	Α	1	\$5,000	4	
6	5	4/8/2024	D	3	\$4,500	1	
7	6	4/18/2024	В	2	\$3,000	6	
8	7	5/15/2024	D	2	\$4,500	5	
9	8	6/9/2024	Α	1	\$5,000	9	
10	9	7/12/2024	D	1	\$4,500	2	
11	10	8/26/2024	С	3	\$4,000	10	
12	11	9/29/2024	С	2	\$4,000	8	
13	12	10/10/2024	Α	2	\$5,000	2	
14	13	11/17/2024	D	3	\$4,500	1	
15	14	11/25/2024	В	1	\$3,000	2	
16	15	12/11/2024	Α	1	\$5,000	3	
17							
	< >	Invoice	+	-			

Figure 2-89 Company SQL Spreadsheet (Date)



Figure 2-90 Company SQL Date Format

Gneron

KNEO 330 User Manual (v 0.20.9)

The administrator can search the data transaction using the command:

Α	You :	
13:00	select ("Date" == "2024-05-15"), list "Invoice", "Date"	D
Kne	Kneron Chatbot :	
13:00	Invoice Date	
	7 2024-05-15	
	► Source [1] 10.200.210.237/content/EN/public/invoice/invoice/original/Invoice_01.xlsx	
	OPEN SOURCE 1	
	<b>企</b> <i>♀</i>	

Figure 2-91 Company SQL Date Search Command

Company SQL supports multiple spreadsheets and sheets for relational database inquiry. The administrator first creates the knowledge base and loads it with the spreadsheets where the spreadsheet can contain several sheets. The administrator can access the content using the following commands:

	A	В	С	D	E	
1	Product	Stock	Cost			
2	A	20	\$3,000			
3	В	25	\$2,000			
4	С	30	\$2,500			
5	D	25	\$3,000			
6						
	< >	Company Invoice Inventory				

Figure 2-92 Company SQL Spreadsheet with Multiple Sheets

Syntax: spreadsheet(sheet)

Syntax: spreadsheet.sheet

where



spreadsheet name

KNEO 330 User Manual (v 0.20.9)

sheet name

In the example, the administrator accesses the spreadsheet: database with the sheet name: Company

You :	
select database(Company), list "First Name", "Last Name"	2
Kneron Chathot :	
First_Name Last_Name John Smith Mary Johnson James Davis Emily Brown Robert Miller Jennifer Wilson Michael Taylor Elizabeth Anderson Daniel Thomas Olivia Moore  ► Source [1] 10.200.210.237/content/EN/public/database/database/original/database_01.xtsx OPEN SOURCE1	
	You : select database(Company), list "First Name", "Last Name" Kneron Chatbot : First_Name Last_Name John Smith Mary Johnson James Davis Emily Brown Robert Miller Jennifer Wilson Michael Taylor Elizabeth Anderson Daniel Thomas Olivia Moore Source [1] 10.200.210.237/content/EN/public/database/database/original/database_01.xlsx OPEN SOURCE 1 ①

Figure 2-93 Company SQL Multiple Spreadsheet/Sheet Command (I)

You :	
select database.Company, list "First Name", "Last Name"	0
Kneron Chatbot :	
First_Name Last_Name	
John Smith	
Mary Johnson	
James Davis	
Emily Brown	
Robert Miller	
Jennifer Wilson	
Michael Taylor	
Elizabeth Anderson	
Daniel Thomas	
Olivia Moore	
	You : select database.Company, list "First Name", "Last Name" Kneron Chatbot : First, Name Last_Name John Smith Mary Johnson James Davis Emily Brown Robert Miller Jennifer Wilson Michael Taylor Elizabeth Anderson Daniel Thomas Olivia Moore

Figure 2-94 Company SQL Multiple Spreadsheets/Sheets Command (II)

Syntax: SELECT <spreadsheet.sheet1>, <spreadsheet.sheet2> FROM <spreadsheet.sheet1> JOIN <spreadsheet.sheet2> ON <sheet1.item> == <sheet2.item>, <action>

where

spreadsheet:	spreadsheet name
sheet:	sheet name
item:	item name
action:	operations


14:28

14

#### KNEO 330 User Manual (v 0.20.9)

0

You :

select database.Comapny, database.Invoice, from dabase.Company join database.Invoice, on <u>Company.ID</u> == <u>Invoice.ID</u>

(ne	Kneron Chatbot :
+:28	ID First_Name Last_Name Invoice Date Product Volume Price
	1 John Smith 2 2024-02-12 B 2 3000
	1 John Smith 5 2024-04-08 D 3 4500
	1 John Smith 13 2024-11-17 D 3 4500
	2 Mary Johnson 9 2024-07-12 D 1 4500
	2 Mary Johnson 12 2024-10-10 A 2 5000
	2 Mary Johnson 14 2024-11-25 B 1 3000
	3 James Davis 1 2024-01-22 A 3 5000
	3 James Davis 15 2024-12-11 A 1 5000
	4 Emily Brown 4 2024-03-21 A 1 5000
	5 Robert Miller 7 2024-05-15 D 2 4500
	6 Jennifer Wilson 6 2024-04-18 B 2 3000
	7 Michael Taylor 3 2024-02-28 C 2 4000
	8 Elizabeth Anderson 11 2024-09-29 C 2 4000
	9 Daniel Thomas 8 2024-06-09 A 1 5000
	10 Olivia Moore 10 2024-08-26 C 3 4000
	Source [1] 10.200.210.237/content/EN/public/database/database/original/database_01.xlsx
	OPEN SOURCE 1

## Figure 2-95 Company SQL Relational Database Command

Α	You :	
10:13	select database.Comapny, database.Invoice, from dabase.Company join database.Invoice, on <u>Company.ID</u> == <u>Invoice.ID</u> , list (Invoice.Volume * Invoice.Price)	0
Kn	Kneron Chatbot :	
10:13	First_Name Last_Name Invoice Date Product Volume Price ID Total_Amount	
	John Smith 2 2024-02-12 B 2 3000 1 6000	
	John Smith 5 2024-04-08 D 3 4500 1 13500	
	John Smith 13 2024-11-17 D 3 4500 1 13500	
	Mary Johnson 9 2024-07-12 D 1 4500 2 4500	
	Mary Johnson 12 2024-10-10 A 2 5000 2 10000	
	Mary Johnson 14 2024-11-25 B 1 3000 2 3000	
	James Davis 1 2024-01-22 A 3 5000 3 15000	
	James Davis 15 2024-12-11 A 1 5000 3 5000	
	Emily Brown 4 2024-03-21 A 1 5000 4 5000	
	Robert Miller 7 2024-05-15 D 2 4500 5 9000	
	Jennifer Wilson 6 2024-04-18 B 2 3000 6 6000	
	Michael Taylor 3 2024-02-28 C 2 4000 7 8000	
	Elizabeth Anderson 11 2024-09-29 C 2 4000 8 8000	
	Daniel Thomas 8 2024-06-09 A 1 5000 9 5000	
	Olivia Moore 10 2024-08-26 C 3 4000 10 12000	
	Source [1] 10.200.210.237/content/EN/public/database/database/original/database_01.xlsx	
	OPEN SOURCE 1	

Figure 2-96 Company SQL Relational Database Operation



	А	В
1	Questions	Answers
2	Who is the first American president?	George Washington
3	Who is the longest British ruler?	Queen Elizabeth II
4	When is the Boston tea party?	December 16, 1773.
5	Which countries are the axis in the World War 2?	Germany, Italy and Japan
6	Who first landed on the moon?	NeilArmstrong
7	Why the first industrial revolution was so important?	The First Industrial Revolution (1760-1840) revolutionized manufacturing, transportation, and communication, laying the groundwork for modern industrial society.
8	What is the nobel prize ?	The Nobel Prize is a prestigious international award recognizing outstanding contributions in Physics, Chemistry, Medicine, Literature, Peace, and Economic
9	Who is the first black American president?	Barack Obama
10	What were the four important inventions in the ancient China?	Paper, Printing, Gun Powder, and the Compass
11	What was the most famous Pyramid?	The Great Pyramid of Giza, also known as the Pyramid of Khufu

Figure 2-97 Company QA Spreadsheet

Company QA provides a standard one-to-one question-and-answer conventional chatbot feature. It allows users to set questions with predefined answers using a spreadsheet in the Knowledge Base. The system supports multiple spreadsheets, and the matching is based on the input order. The search engine searches for the results from the first spreadsheet to the last one until it finds the answer. The system supports the spreadsheet in .xlsx (Microsoft Excel Worksheet)<sup>23</sup> and .csv (Microsoft Excel Comma Separated Value File). The administrator can input a new spreadsheet to overwrite the old one for inquiries. An example of the input file is shown in Figure 2-97. The first row includes comments indicating that column A contains questions and column B contains answers. The actual questions and their corresponding answers begin from the second row onward.

- The comments are defined in the first row (i.e. row 1), which is ignored during the processing
- The questions are defined in the first column (i.e. col A)
- The answers are defined in the second column (i.e. col B)

<sup>&</sup>lt;sup>23</sup> Company QA only supports the Microsoft Excel Worksheet with single sheet only



The administrator can directly load the spreadsheet into the system using the Upload Company QA in Figure 2-98 and drag the spreadsheet into the box, then click the button UPLOAD FILES to upload the spreadsheet to the system.



Figure 2-98 Company QA Spreadsheet Upload

The system replies to the inquiry based on the Company QA spreadsheet shown in Figure 2-99.

veron		Free Chat Knowledge Base Q&A #
New Chat	_	
	A You :	
What is the first ma	13:10 What is the first man landed in the moon?	0
	Kneron Chatbot :	
	13:10 Wright Flyer	
	This answer is from Company QA.	
	<b>心 </b>	
	Message Kneron Chatbot	> CLEAR

Figure 2-99 Company QA Inquiry

#### 2.4.9 Company Organization

The KNEO 330 enables users to share custom knowledge bases within a private group using the special feature, called Company Organization. The Company Organization allows users to create a knowledge base to share with others. The administrator first creates the group using the Organization Dashboard in Figure 2-100 and then includes the users in the private group. While all users can access and share the knowledge base, only the creator can modify it.



Figure 2-100 Company Organization



To create the new private group, the administrator clicks Organization Dash and selects Open Organization Dashboard to open the windows, then press the CREATE ORGANIZATION button to enter the organization's name. It displays the message Create organization '<organization>' success.

(C <sup>a</sup> ron		васк 🌐	MODE : KNOWLEDGE BASE Q&A
	Organization Dashboard		
	CREATE ORGANIZATION		
	Create an Organization X		
	Kneron		
	CREATE		

Figure 2-101 Company Organization Create

The name of the private group is displayed in the dashboard, the administrator can delete the private group using the small cross associated with the private group.



Figure 2-102 Company Organization Private Group

Upon selecting the private group, the administrator can invite a new user to join the private group using the e-mail address.

Organization Dash	nboard	×
CREATE ORGANIZATION		
sdsu×	Add new member to SDSU $ imes$	
Organization: SDSU		
+ NEW MEMBER	userA@kneron.us	
Email	ADD	
Figure	e 2-103 Company Organization Add User	

The Company Organization Dashboard displays the user information including the email address and the role. The administrator uses the ADD MODERATOR button to assign the role of moderator<sup>24</sup>. The moderator can invite other users to the private

<sup>&</sup>lt;sup>24</sup> The administrator must join the organization to access the knowledge base and change the role to the moderator



group. Only the database creator can modify the knowledge base. The group members can access the information but not make any changes. The administrator can remove the user from the private group using the **REMOVE** button.

Organization Dashboard					
CREATE ORGANIZATION					
sdsu×					
Organization: SDSU					
+ NEW MEMBER					
Email	Role				
admin@useradmin.com	moderator	DELETE MODERATOR	REMOVE		
usera@kneron.us	regular	ADD MODERATOR	REMOVE		
userb@kneron.us	regular	ADD MODERATOR	REMOVE		

Figure 2-104 Company Organization Dashboard

All users in the private group must log out and log back into the system to activate their access rights. Without doing this, other users will not be able to access the new knowledge base

Management			×
FILES MERGE	ORGANIZATION		
	Admin/a	/autonormous_vehicles <	
	Add or remove knowledge base from	n organizations:	
	SDSU	> No available options	
		>>	
		¢	
		~	
		Set	

Figure 2-105 Share Custom Knowledge Base

The knowledge base must be first added to the organization. The owner begins by clicking the ORGANIZATION button and selecting the knowledge base to be included. The left panel displays available organizations, while the right panel shows the selected organization. The user can use the > / >> buttons to add the knowledge base and the </ << buttons to remove it from the selected organization.

Gneron		KNEO 33	0 User Manual (v 0.20.9)
Kreron		Settings	×
New Chat	)	Update LLM Params	^
	172	Organization Dashboard	^
		Knowledge Base	~
		Knowledge Base List	
	Welcome to	Please select a Knowledge Base or enter keywords to search.	~
		public/industrial_revolution	
		public/bda602	
		public/kneron_doc_center	
		Admin/autonormous_vehicles	
U userA C+	Software Version v0.20.7		

Figure 2-106 Select Shared Custom Knowledge Base

If another user wants to access the custom knowledge base, they first select the database from the Knowledge Base List and then ask a question from the shared database. The custom knowledge base will not appear in the Knowledge Base List if it is not shareable.



Figure 2-107 Access Shared Custom Knowledge Base



3.1 User Registration



Account email	
Password	
LOGIN	
Don't have an account (sign Up)	

Figure 3-1 New User Sign-Up

The new users can create an account by selecting the Sign Up button on the login screen. In the pop-up menu, the new user enters the personal information, including username, email address, and password. The username can include letters, numbers, and the special characters "." and "\_". After completing the form, the user can click the SIGN UP button to register the account. To log in to the KNEO 330, the users must use their email address, not their username. The username will display in the lower left corner after logging in.



Figure 3-2 New User Registration

To reset the password, the user clicks on the username in the bottom left corner, which opens the User Settings menu. The user then enters their current password, followed by the new password, and clicks the **SUBMIT** button to complete the change.

## 3.2 Password Change

To change the password, the user clicks their username in the bottom left corner, which opens the User Setting menu. The user then inputs the current password, followed by the new one, and clicks the SUBMIT button to complete the change.



Figure 3-3 User Password Change

## 3.3 Access Permissions

The administrator can grant the system administrator rights (i.e. admin) to the user through access permissions. The administrator first opens the user dashboard using the USER DASHBOARD IN NEW TAB in the Setting menu and sets the user access permissions. The administrator clicks the login button, then enters the e-mail: admin@useradmin.com and password: admin123 to log in to the system.



Figure 3-4 Dashboard Home Page



The dashboard consists of two menus, Home and User. In the User menus, it shows the user name, e-mail, role, status, and last login time.

Da	ashboard	Home User				💄 Admin 👻
Lis	List (2) With selected-					
		Username	Email	Role	Active	Last Login At
	1	Admin	admin@useradmin.com	admin	0	
	1	userA	usera@kneron.us	regular	0	

Figure 3-5 Dashboard User Menu

By default, all users are assigned the regular role. The administrator edits the user role by clicking the pen icon and modifying access permissions (admin or regular) in the Role box, then clicking the Save button to apply the changes.

Dashboard Home	User	👤 Admin 👻
List Edit		
Roles	× regular	
Email *	usera@kneron.us	
Username *	userA	
Active		
Confirmed At		
Last Login	2024-11-01 18:18:00	
	Save Save and Continue Editing Cancel	
	Figure 2 6 User Pole Modification	

Figure 3-6 User Role Modification

## 3.4 Password Reset

For security reasons, the administrator cannot reset user passwords. If the user forgets their password, they must contact the administrator to delete the account via the Dashboard. The user re-registers with the same username on the Login



Page. The username must match the old one; otherwise, the knowledge base is denied access.



## 4 System Administration

## 4.1 System Management

Open the Windows PowerShell Terminal with administrative privileges to access the KNEO 330 EdgeGPT server for system management. Right-click the Windows start icon in the lower left corner, then select Terminal (Admin) to launch the terminal window. The system administrator can use the ping command followed by the IP address (e.g., 10.200.210.237) to verify the machine's accessibility. It gets a Reply from the machine to confirm that the machine is alive. After completing the ping process, press CTRL-C to stop it, and then proceed to initialize the server using SSH or PuTTY.



Figure 4-1 Window PowerShell





#### 4.1.1 SSH

Use the ssh command to log in to the KNEO 330. The username and password are both aiuser.

```
C:\Users\oscar> ssh aiuser@10.200.210.237
aiuser@10.200.210.237's password:
```

After logging in, the following message is displayed<sup>25</sup>:

```
Welcome to Ubuntu 22.04.4 LTS (GNU/Linux 6.5.0-44-generic x86_64)
* Documentation: https://help.ubuntu.com
* Management: https://landscape.canonical.com
* Support: https://ubuntu.com/pro
Expanded Security Maintenance for Applications is not enabled.
0 updates can be applied immediately.
Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status
The list of available updates is more than a week old.
To check for new updates run: sudo apt update
Last login: Tue Aug 27 13:31:53 2024 from 10.200.211.96
```

<sup>&</sup>lt;sup>25</sup> Please use the aiuser commands to access KNEO 330, as standard LINUX commands may not function correctly



### 4.1.2 PuTTY

Download putty from the official website (<u>https://www.chiark.greenend.org.uk</u>/~sgtatham/putty/latest.html) and select the 64-bit x86 package from the Windows Installer options. Once the software is downloaded, double-click the binary file and follow the on-screen instructions to complete the installation. Next, launch putty as shown in Figure 4-2, and enter the IP address (i.e., 10.200.210.237) along with port number 22.



Figure 4-2 PuTTY Home Screen



Administrators and users can save the IP address and port number under 'Saved Sessions' (e.g., EdgeGPT Server) and use the Load command to initialize the KNEO 330 in future sessions. For now, click the 'Open' button to start the PuTTY session and log in using the username aiuser with the password aiuser.

## 4.2 System Service

The administrator can manage the service, which stops or starts the server and model software using the command: sudo aiservice <action> <service> where <action> refers to status, start, and stop. <service> sets to kneron-backend or kneron-edge. kneron-backend refers to the server software and the kneron-edge represents the model software.

To display the server activities:

aiuser@kneron330:~\$ sudo aiservice status kneron-backend Active: active (running) since Wed 2024-11-06 10:30:31 PST; 1min 0s ago

To monitor the software activities:

```
aiuser@kneron330:~$ sudo aiservice status kneron-edge
Active: active (running) since Wed 2024-11-06 10:30:31 PST; 1min 0s ago
```

To activate the backend service

```
aiuser@kneron330:~$ sudo aiservice start kneron-backend Service kneron-backend started.
```

To stop the backend service

```
aiuser@kneron330:~$ sudo aiservice stop kneron-backend Service kneron-backend stopped.
```

To activate the frontend service



aiuser@kneron330:~\$ sudo aiservice start kneron-edge Service kneron-edge started.

#### To stop the frontend service

```
aiuser@kneron330:~$ sudo aiservice stop kneron-edge
Service kneron-edge stopped.
```

## 4.3 Server History

The administrator can display the server history using the command: sudo ailog <action> where action refers to show or clear

To show the server history

```
aiuser@kneron330:~$ sudo ailog --show | more
Latest AI log: log_2024-09-25_09-45-50.log
INFO [main] 09:45:51,365 org.apache.tika.server.core.TikaServerProcess
Starting Apache Tika 2.4.1 server
INFO [main] 09:45:51,424 org.apache.tika.server.core.TikaServerProcess
loading resource from SPI: class org.apache.tika
.server.standard.resource.XMPMetadataResource
....
Start the Kneron Chatbot WebUI Service :
- https://10.200.210.237:3000/
- WebUI version: v1.2.17
```

To clear the server history, the administrator must stop the server using aiservice, then apply the ailog –clear to clear the history

```
aiuser@kneron330:~$ sudo aiservice stop kneron-edge
Service kneron-edge stopped.
aiuser@kneron330:~$ sudo ailog --clear
Warning: This operation will clear all the AI logs. Also please stop the edge
service before clearing the logs.
Continue?(Y/N) Y
Chatbot log cleared.
```



The KNEO 330 EdgeGPT server supports both private and public network connections. In a private network, the KNEO 330 communicates directly with a computer via a one-to-one connection, without internet access. The KNEO 330 can interact with other computers on a public network, including accessing the internet through a router. All connections are established using a static IP address or Dynamic Host Configuration Protocol (DHCP) assignment.



Figure 4-3 Private/Public Network

To configure the network, the administrator uses the command: ainetwork  $\langle dhcp \rangle$  |  $\langle static \rangle \langle device \rangle \langle ip \rangle \langle gateway \rangle$ . For a private network (i.e. static), the  $\langle ip \rangle$  and  $\langle gateway \rangle$  can be manually configured, with the  $\langle ip \rangle$  defined as a private IP address in the format 192.168.x.y (where x is user-defined, and y is assigned a value between 2 and 9). The  $\langle gateway \rangle$  is set to 192.168.x.1. The IP addresses are dynamically configured for the public network.

#### 4.4.1 Private Network

To configure the private network, the administrator stops the system activities using the command: sudo aiservice stop kneron-edge and identifies the device



name (i.e. enp4s0) with the command: ifconfig, then assigns the IP address (i.e. 192.168.10.6/24) and gateway address (192.168.10.1) to the system. Finally, the administrator reactivates the system<sup>26</sup>.

```
aiuser@kneron330:~$ aiuser@kneron330:~$ sudo aiservice stop kneron-edge
Service kneron-edge stopped.
aiuser@kneron330:~$ ifconfig
enp4s0: flags=4163<UP, BROADCAST, RUNNING, MULTICAST> mtu 1500
       inet6 fe80::a1e6:75c8:9ef9:5253 prefixlen 64 scopeid 0x20<link>
       ether 74:56:3c:a6:63:2e txqueuelen 1000 (Ethernet)
       RX packets 2665345 bytes 208510786 (208.5 MB)
       RX errors 0 dropped 66923 overruns 0 frame 0
       TX packets 335690 bytes 135277190 (135.2 MB)
       TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
       inet 127.0.0.1 netmask 255.0.0.0
       inet6 ::1 prefixlen 128 scopeid 0x10<host>
       loop txqueuelen 1000 (Local Loopback)
       RX packets 464501 bytes 145332991 (145.3 MB)
       RX errors 0 dropped 0 overruns 0 frame 0
       TX packets 464501 bytes 145332991 (145.3 MB)
       TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
aiuser@kneron330:~$ sudo ainetwork static enp4s0 192.168.10.6/24 192.168.10.1
** (generate:117831): WARNING **: 11:04:07.632: `gateway4` has been
deprecated, use default routes instead.
See the 'Default routes' section of the documentation for more details.
** (process:117829): WARNING **: 11:04:07.805: `gateway4` has been
deprecated, use default routes instead.
See the 'Default routes' section of the documentation for more details.
** (process:117829): WARNING **: 11:04:07.904: `gateway4` has been
deprecated, use default routes instead.
See the 'Default routes' section of the documentation for more details.
** (process:117829): WARNING **: 11:04:07.904: `gateway4` has been
deprecated, use default routes instead.
See the 'Default routes' section of the documentation for more details.
Network configuration is updated.
aiuser@kneron330:~$ sudo aiservice start kneron-edge
Service kneron-edge started.
aiuser@kneron330:~$ ifconfig
```

<sup>&</sup>lt;sup>26</sup> All the commands are started with the prompt: aiuser@kneron330:







Figure 4-4 Network Connections

After the system is configured as a private network, the system is connected to the host computer via Ethernet. The IP address of the host computer is required to be updated to support the private network. The administrator accesses the network configuration using the command: view network connections through the Windows search and then selects the Ethernet icon, which shows the Ethernet status.

Network Connections					- 0 X
	> Network and Internet > Net	work Connections		~ C	Search Net P
Arganize • Diable this network device Biaton Connection Diable this network device Biberon	Diagnose this connection	Rename this consection	View status of this connection	Charge settings of this connection	•• • •

The administrator clicks the Properties button, which pops up the Ethernet menu to show the list of Ethernet properties.

🔄 Network Connectio	ns			- 0 ×
$\leftarrow \  \   \rightarrow \  \   \land \  \   \land$	😻 > Control Panel > Network and	Internet > Network Connections >	~ C	Search Net. ,0
Organize *				••••••••••••••••••••••••••••••••••••••
Bluetoch Network Connection	Ehernet GPT	Kneron VPN Wi-Fi	Ethemat Nature         X           Ethemat Noperties         X           Ethemat Noperties         X           Ethemat Noperties         X           Ethemat Noperties         Control           Output         Control           The connection uses the following terms:         Configure           The connection uses the following terms:         X           With The Africa Network Networks         X           With The Africa Network Network Networks         X           With One Office Networks Africation Networks         Monosch LIBH Notoco Dhere           Monosch LIBH Notoco Dhere         Networks Networks Africation Networks           Networks Network Africation Networks         Networks Device           Networks Networks Africation Networks         Networks Device Networks           Deviction         Networks Device Ontworks           Deviction         The should retrocol the provide communication across diverse interconnected networks.	
			OK Cancel	

Figure 4-6 Ethernet Properties



The administrator selects the item: Internet Protocol Version 4 (TCP/IPv4) and displays the TCP/IPv4 properties



Figure 4-7 TCP/IPv4 Properties

The administrator sets the IP address as 192.168.10.6, the subnet mask as 255.255.255.0, and the default gateway as 192.168.10.1, and then click the OK button to complete the setup. The administrator can access the system using the new IP address 192.168.10.6 rather than 10.200.210.237.



Figure 4-8 Reset IP address

To reset the IP address for dynamic access, the administrator toggles the button: Obtain an IP address automatically followed by the OK button. The host computer is restored to the original configuration: the IP address is dynamically assigned by the system.

#### 4.4.2 Public Network

To manage the public network, the administrator stops system activities by executing the command: sudo aiservice stop kneron-edge. Next, the system is configured to DHCP mode using the command: sudo ainetwork dhcp. Afterward, the administrator reactivates the system with sudo aiservice start kneron-edge. The IP address, such as 10.200.210.237, can then be verified using the ifconfig command.

```
aiuser@kneron330:~$ sudo aiservice stop kneron-edge
Service kneron-edge stopped.
aiuser@kneron330:~$ sudo ainetwork dhcp
Network configuration is updated.
aiuser@kneron330:~$ sudo aiservice start kneron-edge
Service kneron-edge started.
```



## 4.5 External Storage

The KNEO 330 can store its knowledge base on a USB drive or Network Attached Storage (NAS). The USB drive connects directly to the KNEO 330 via the USB port, while the NAS is accessed through the internet.

### 4.5.1 USB Drive

A USB drive is mounted in KNEO 330 with the format: exFAT, not vFAT. To verify the USB drive format in Windows, the administrator inserts the drive into a USB port and opens File Explorer, then right-clicking on the drive and selecting Properties, the format information is displayed in the pop-up menu, including the driver type, file system format, used/free space, and disk capacity.



						KΝ	NEO 330 User Manual (v 0.20.9)
🛑 USB Dri	ve (D:)	) Properties				$\times$	
General T	Fools	Hardware	Sharing	Customize			
_							
Type:		R Drive					
File system	n: ex	FAT					
Used s	space:	3	80,565,466,	112 bytes	28.4 GB		
Free s	pace:	9	2,477,456,	384 bytes	86.1 GB		
Capac	ity:	12	23,042,922,	496 bytes	114 GB		
		D	rive D:		Details		
		ОК		Cancel	Apply		

Figure 4-9 USB Drive Properties

The administrator right-clicks on the drive and invokes the Format commands, which sets the File System to exFAT (Default) to format the drive.



KNEO 330 User Manual (v 0.20.9
--------------------------------

	×	
Capacity:		
114 GB	$\sim$	
File system		
exFAT (Default)	$\sim$	
Allocation unit size		
128 kilobytes	~	
Volume label		
Volume label		
Volume label Format options		
Volume label Format options Quick Format		

Figure 4-10 Format the USB Drive with exFAT

Before the administrator mounts the device into the system, it first checks the device information using the command: lsblk

aiuser@knero	n330:~\$ 1	[sb]	lk 🔰			
NAME	MAJ:MIN	RM	SIZE	RO	TYPE	MOUNTPOINTS
100p0	7:0	0	4K	1	loop	/snap/bare/5
loop1	7:1	0	74.3M	1	loop	/snap/core22/1564
loop2	7:2	0	74.3M	1	loop	/snap/core22/1612
loop3	7:3	0	269.8M	1	loop	/snap/firefox/4793
loop4	7:4	0	271.2M	1	loop	/snap/firefox/4848
loop5	7:5	0	497M	1	loop	/snap/gnome-42-2204/141
loop6	7:6	0	505.1M	1	loop	/snap/gnome-42-2204/176
loop7	7:7	0	91.7M	1	loop	/snap/gtk-common-themes/1535
loop8	7:8	0	12.9M	1	loop	/snap/snap-store/1113
loop9	7:9	0	12.3M	1	loop	/snap/snap-store/959
loop10	7:10	0	40.4M	1	loop	/snap/snapd/20671
loop11	7:11	0	38.8M	1	loop	/snap/snapd/21759
loop12	7:12	0	476K	1	loop	/snap/snapd-desktop-integration/157
loop13	7:13	0	500K	1	loop	/snap/snapd-desktop-integration/178
loop14	7:14	0	256G	0	loop	
kneron_enc	252:0	0	256G	0	crypt	/mnt/kneron_enc
sda	8:0	1	57.3G	0	disk	



-sda1	8:1	1	57.3G	0 part	
nvme0n1	259:0	0	1.9T	0 disk	
-nvme0n1p1	259:1	0	512M	0 part	/boot/efi
└_nvme0n1p2	259:2	0	1.9T	0 part	<pre>/var/snap/firefox/common/host-</pre>
hunspell					

The administrator can mount the USB drive to the system with mount points 0-3 using aimount command: sudo aimount <mount point> <device> where <device> is referred to /dev/sda1 or /dev/sdb1. Since the device /dev/sda1 is taken, . It mounts the USB drive /dev/sdb1 to mount point 2 with the command: sudo amount 2 /dev/sdb1

```
aiuser@kneron330:~$ sudo aimount 2 /dev/sdb1
Device /dev/sdb1 mounted at /home/aiuser/mnt/data2
```

The administrator can check the system device using the command: sudo aimount –show

```
aiuser@kneron330:~$ sudo aimount --show
Mount point 0: /home/aiuser/mnt/data0
Mount point 1: /home/aiuser/mnt/data1
Mount point 2: /home/aiuser/mnt/data2
Mount point 3: /home/aiuser/mnt/data3
Current status:
/dev/sdb1 115G 29G 87G 25% /home/aiuser/mnt/data2
```

The administrator unmounts the USB drive using the command: sudo aiumount <mount point> and checks the system device using the command: sudo aiumount -show

```
aiuser@kneron330:~$ sudo aiumount 2
Device at /home/aiuser/mnt/data2 is unmouted.
aiuser@kneron330:~$ sudo aiumount --show
Mount point 0: /home/aiuser/mnt/data0
Mount point 1: /home/aiuser/mnt/data1
```



#### 4.5.2 NAS Storage

Similarly, the administrator can mount the external NAS storage on KNEO 330 using the command: sudo aimount <mount point> <machine>:<volume> where <machine> is referred to NAS IP address and <volume> is set to the directory name. For example, the external NAS storage is referred to as the drive /mnt/kds/data\_feed in the machine 10.200.100.60, and links it to mount point 1, the command becomes: sudo aimount 1 10.200.100.60:/mnt/kds/data\_feed

aiuser@kneron330:~\$ sudo aimount 1 10.200.100.60:/mnt/kds/data\_feed
Device 10.200.100.60:/mnt/kds/data\_feed mounted at /home/aiuser/mnt/data1

The administrator can check the system device using the command: sudo aimount –show

```
aiuser@kneron330:~$ sudo aimount --show
Mount point 0: /home/aiuser/mnt/data0
Mount point 1: /home/aiuser/mnt/data1
Mount point 2: /home/aiuser/mnt/data2
Mount point 3: /home/aiuser/mnt/data3
Current status:
10.200.100.60:/mnt/kds/data_feed 42T 7.7T 34T 19%
/home/aiuser/mnt/data0
```

The administrator unmounts the NAS storage using the command: sudo aiumount <mount point> and checks the system device using the command: sudo aiumount -show

```
aiuser@kneron330:~$ sudo aimount 1 10.200.100.60:/mnt/kds/data_feed
Device 10.200.100.60:/mnt/kds/data_feed mounted at /home/aiuser/mnt/data1
aiuser@kneron330:~$ sudo aiumount 1
```



```
Device at /home/aiuser/mnt/data1 is unmouted.
aiuser@kneron330:~$ sudo aiumount --show
Mount point 0: /home/aiuser/mnt/data0
Mount point 1: /home/aiuser/mnt/data1
Mount point 2: /home/aiuser/mnt/data2
Mount point 3: /home/aiuser/mnt/data3
Current status:
```

## 4.6 System Backup

The administrator can back up system information to external storage using the command: sudo aibackup <information> <location> [filename]. This command allows backing up different types of information, including the database (knowledge base), app\_configs (user configurations), user\_info (user profiles), and user\_filter (custom configurations). The location parameter specifies the external storage mount point (e.g., 0, 1, 2, 3). The filename is optional with a default value: database (chatbot\_database.tar.gz), app\_configs (chatbot\_user\_configs.tar.gz), user\_info (chatbot\_users.db), user\_filter (user\_filter\_config.json).

To back up the information (i.e. knowledge base) use the command: sudo aibackup database 1

```
aiuser@kneron330:~$ sudo aibackup database 1
Backup database to /home/aiuser/mnt/data1/chatbot database.tar.gz
```

The administrator can restore backup information using the command: sudo airestore <information> <location> <filename>. The information and filename correspond to the backup one, and the location is set to an external mount point (e.g., 0, 1, 2, 3).

To restore the information (i.e. knowledge base) using the command: sudo airestore database 1 chatbot\_database.tar.gz



aiuser@kneron330:~\$ sudo airestore database 1 chatbot\_database.tar.gz
Warning: This operation will overwrite the current database. We recommand you
to backup the current database before restore.
Continue?(Y/N) Y
Restore database from /home/aiuser/mnt/data1/chatbot database.tar.gz

## 4.7 Data Source

The administrator can access the source of the uploaded files from the backup file: chatbot\_database.tar.gz. The backup file is first uncompressed, and the source of the uploaded files is stored under the directory: content, divided into English  $\langle EN \rangle$  and Chinese  $\langle ZN \rangle$ . They store the different language databases that are dependent on the system settings. All the databases are stored under the  $\langle EN \rangle$  subdirectory if the language is set to English. It contains several subdirectories organized by username, including one for the administrator labeled  $\langle public \rangle$  and others for registered users labeled  $\langle username \rangle$ . The  $\langle database \rangle$  represents the knowledge base name.



## 4.8 Database Transfer

The KENO 330 offers NAS storage or a USB drive for transferring the knowledge base to another machine. The administrator can transfer the knowledge base using NAS storage, the storage can be remounted on a different KENO 330 to restore the database.



The administrator can also transfer the database to other KNEO 330 using the USB drive. It mounts the USB drive in another KENO 330 and then restores the database from the USB drive. The database can be transferred to remote machines using Dropbox or OneDrive<sup>27</sup>. The USB drive is plugged into Windows and then uploaded to Dropbox or OneDrive. The database can then be downloaded to other remote machines from Dropbox or OneDrive.

## 4.9 Edge Software Reset

If the prompts and parameters are changed, the administrator can reset the edge software by running the command: sudo edge-reset

## 4.10 System Reboot

Before rebooting the system, all the users log out from the system, and the administrator initializes the reboot command sudo reboot to hardware reset the system.

## 4.11 System Shutdown

Before turning off the system, it is recommended that all users log out first and the knowledge base is backed up to an external USB drive or NAS storage. The administrator then initiates the shutdown command sudo poweroff to ensure the data is properly saved. Avoid disconnecting the power before the software fully shuts down, as this could damage the file system.

<sup>&</sup>lt;sup>27</sup> Please access online information to upload/download the data from the Dropbox and OneDrive.

# 5 Custom Configurations

The administrator can customize the KENO 330 using the user\_filter\_config.json file. The file is divided into three sections: the first ("standard\_query\_answer"<sup>28</sup>) defines the standard query responses, the second ("sensitive\_query\_answer") handles sensitive query responses, and the last section ("standard\_names") maps incorrect names to their correct ones.

```
"standard query answer": [
   ["what is kneron doc center", "Kneron doc center provides documents for
Kneron toolchain, etc."]
 1,
 "sensitive query answer": [
    ["火藥", "根據當地法律規定,道德或涉及敏感內容,我們無法提供這個問題的答案"],
   ["gunpowder", "According to local laws, ethics, or sensitive content, we
are unable to provide an answer to this query"],
   ["成人圖","根據當地法律規定,道德或涉及敏感內容,我們無法提供這個問題的答案"],
         ["porn pics", "According to local laws, ethics, or sensitive
content, we are unable to provide an answer to this query"]
 "standard_names": {
   "後麵": "後面",
   "皇後": "皇后",
   "麵對": "面對"
   "Alot": "A lot"
   "Irregardless", "Regardless
   "Anyways", "Anyway"
```

<sup>&</sup>lt;sup>28</sup> All "standard\_query\_answer", "sensitive\_query\_answer", and "standard\_names" are keywords which can't be changed. All the characters including the symbols must be standard ASCII code, the Chinese characters are only allowed within the "<content>"

# 6 Company SQL Functions/Keywords

The user can manipulate the knowledge base using a list of Company SQL symbols, keywords, and functions as follows:

+
-
*
**
/
==
>
>=
<
<=
ADD
AND
AVERAGE
AVG
BETWEEN
COUNT
DIFF
DISPLAY
DIV
EQUAL
FROM
GET
GREATER
IF
LARGER
LESS
LIST
MAX



MIN MINUS MUL NOT OR PLUS PRINT RANGE SELECT SHOW SMALLER SORT SUB SUBSTRING SUBSTRING SUM

TOTAL
O known b