COMMISSIONING GUIDE FOR VPQ-2

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The purpose of this document is to serve as a guide for the Krueger VPQ-2 series diffusers. We have captured as much pertinent information as possible to provide a thorough overview on how to setup, install, and operate the VPQ-2.

Information is subject to change at anytime, without notice.

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Components

The purpose of this document is to serve as a guide for Krueger's VPQ-2 diffusers. It will cover all components and setup parameters for the digital VAV system.

For additional questions or assistance, please contact us at kruegerinfo@krueger-hvac.com.
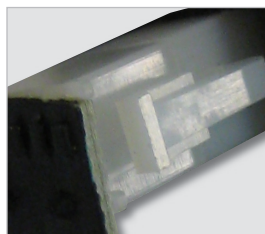

USB Module: Allows a laptop to communicate with the diffuser network for programming.

VPQ-2: Digitally controlled VAV diffuser with plaque face, which includes its own communication module. There is no physical difference between a master and slave diffuser.

Master Communications Module (MCM): Allows for large diffuser networks and integration with BACnet and LONworks. This takes the place of the USB module.

Power Pack: Module which will provide power to the VPQ-2.

4-pin Cable: This cable carries power and signal from diffuser to diffuser and power pack to diffuser.

Thermostat: Digital thermostat used to control either a single diffuser or a network of diffusers.

6-pin RJ12 Cable: This cable connects the thermostat to the diffuser.

Termination Plug: Small, 4-pin plug which electrically signals the end of a diffuser chain. Shipped installed in each diffuser and power pack.
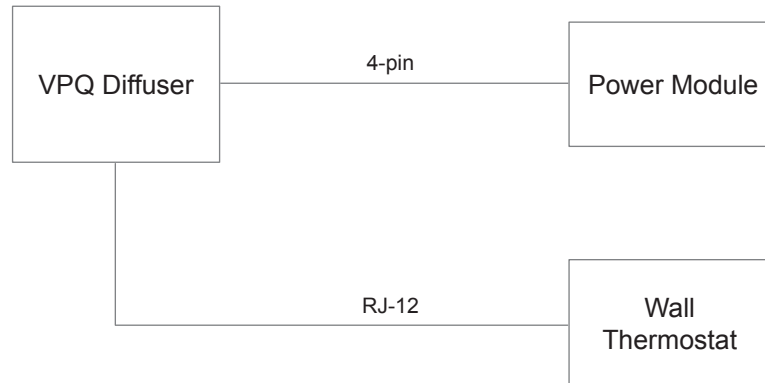

4-pin RJ9 Cable: This cable connects the USB module to the diffuser network via the power pack OR diffuser.
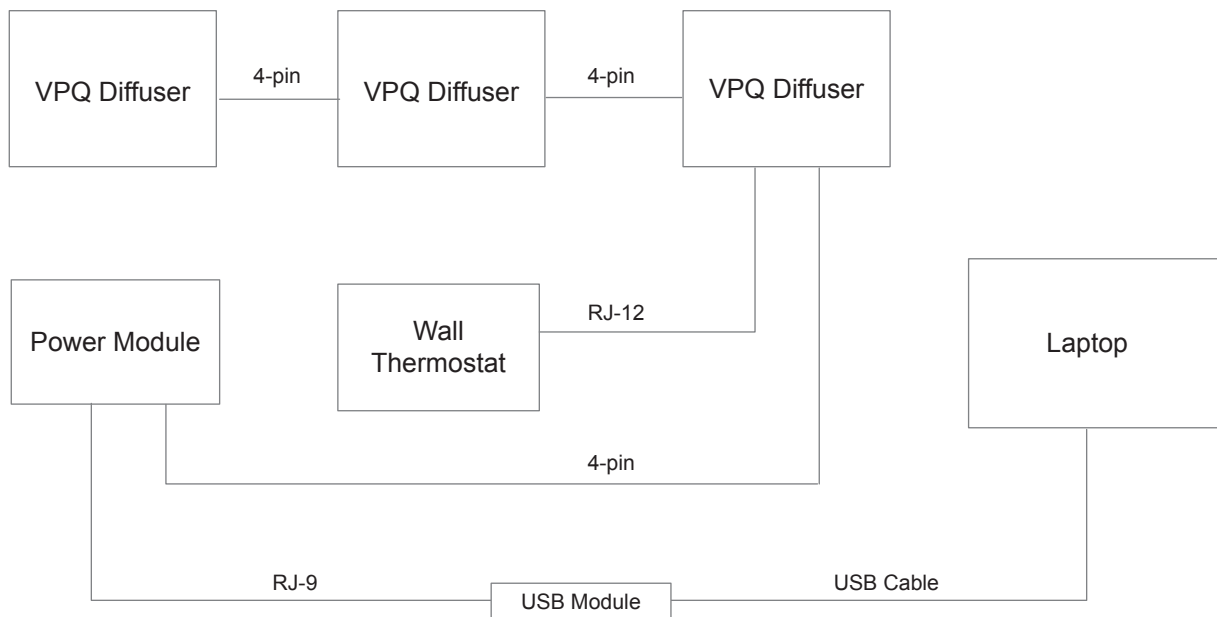
NOTE: Each VPQ-2 diffuser will come with a 4-pin cable. The thermostat option will include the 6-pin RJ12 cable. The USB module and MCM will include the 4-pin RJ9 cable. All cables are 25' standard. 75' cables are available as parts.
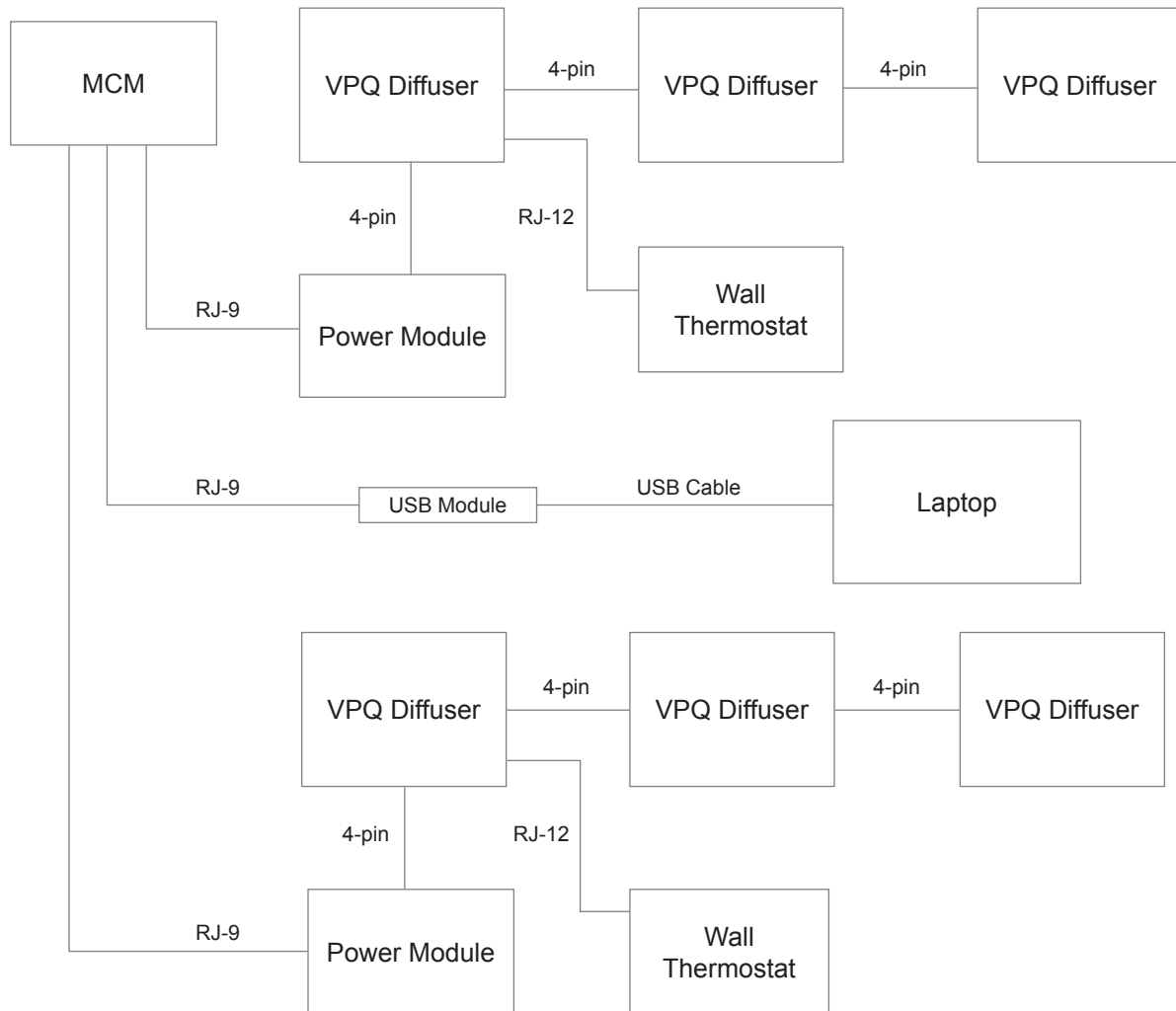
Wiring Options

Single Primary Diffuser

	4-pin	
VPQ Diffuser		Power Module

	RJ-12	
		Wall Thermostat

Daisy Chain Primary and Secondary

VPQ Diffuser —4-pin— VPQ Diffuser —4-pin— VPQ Diffuser

Power Module

Wall Thermostat —RJ-12—

Laptop

4-pin

RJ-9 — USB Module — USB Cable

Wiring Options

Typical MCM Network

Rules

1. Each power pack will power up (12) diffusers. It has (2) outlets; you may daisy-chain up to (6) diffusers per outlet. The last diffuser in each run must have a termination plug installed. Every diffuser connected to a power pack is part of the power pack's local network.
2. A USB module or MCM is REQUIRED if any diffuser is to be configured as a slave. If all diffusers are masters, they can be configured with the thermostat.
3. A "loop" is defined as a thermostat and any diffusers it is connecting; master or slave.
4. The master diffuser is the unit to which the thermostat is connected.
5. Without an MCM, any diffuser loop is limited to (12) diffusers. This means that you may have (1) thermostat which controls (1) master diffuser and (11) slave diffusers, all connected to the same power pack. The MCM can connect to up to (4) power packs, which will allow any diffuser network to be expanded to (48) units.
6. The MCM may be addressed via an IP address for easy diffuser network programming.

Software Installation

To begin the software installation process, navigate to our website at http://www.krueger-hvac.com/vpq/.

To find to this page without the link, go to **www.krueger-hvac.com**.
Navigate to **Resource** Menu > **Software & E-Tools** > **VPQ-2 Commissioning Software**.

Click on the appropriate download type for your operating system.

» Remember the location of the downloaded file. Navigate there and double click to run the ***.exesetup** file.
» Follow the on-screen instructions for the MLMServer setup until your installation is complete.
» Once your installation is complete and if you are using the USB module for diffuser control, plug the device into the laptop controlling the diffusers.
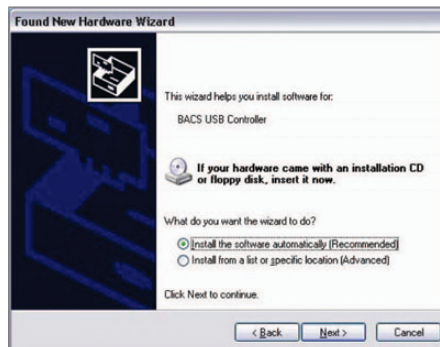
1

2

3

You will receive the above prompt asking if you want to search for software.

Select "**No, not this time**" and click on the **Next** button.

You will receive the above prompt asking you what you want the wizard to do.

Select "**Install the software automatically**" and click on the **Next** button.

You will receive the above prompt about compatibility with Windows XP.

Click "**Continue Anyway**".

This completes your software installation.

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Diffuser Commissioning & Setup

Initial Power Up
» Motors run full open to full close for calibration.
NOTE: During this time, no adjustments can be made
(2 - 5 minutes, depending on size of network).
» Thermostat shows version number and cycles to
setpoint temperature.
» USB plugs into power pack.

General Rules
» The below mentioned process will work with any
combination of zones or diffusers.
» Anytime a thermostat is plugged or unplugged into
a diffuser, you will need to reset the setpoints and
setpoint limits.
» Any change to the quantity of loops require a re-sync
after completion.

Commissioning via Software
» Open software from the Start menu and navigate to
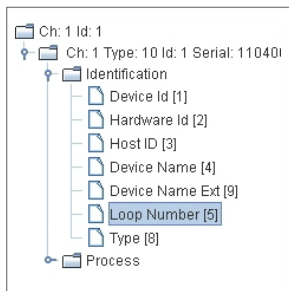"**Rickard Air**" as shown below.

Rickard Air	▸	MLM Server	▸	MLM Application
Skype	▸		MLM Server
SolidWorks 2010	▸		Uninstall MLMServer

» Click "**Connect**" icon.
» In the "**USB**" tab, enter the serial number of USB
module; click on the "**Connect**" button.

Connection options
TCP/IP USB SERVER
Serial # 10110033
Channel 1
Connect Cancel
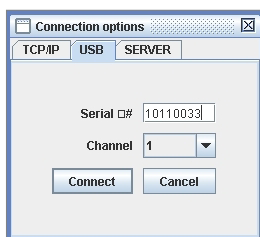
» Click "**Sync**" icon.
- Initial sync will show errors and warnings; close the
window.

Single Loop Operation
» In the "**Physical**" tab, click a diffuser and navigate to
"**Identification**", then "**Loop Number**".

Ch: 1 Id: 1
  Ch: 1 Type: 10 Id: 1 Serial: 11040l
    Identification
      Device Id [1]
      Hardware Id [2]
      Host ID [3]
      Device Name [4]
      Device Name Ext [9]
      Loop Number [5]
      Type [8]
    Process

- Each loop is defined as a zone.
- Each zone is controlled by a single thermostat.
- The last diffuser in the daisy chain must have the terminal
resistor in place.

» The loop should start with the number one.
- In the "**Loop Number**" field, enter the number one and
press the "**Write**" button.

Loop Number 1

Write ◉ Read
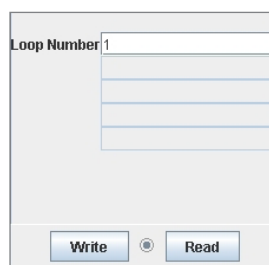
- When loop changes are made to the diffuser, any
attached thermostat will follow suit.
- Click on other diffusers shown in the window and update
the loop number to the same value.
- After you have entered all of your loop designations,
press the "**Sync**" button.
- After sync is complete, you will see warning messages
indicating new nodes; close the window.

» Here is an example of the finished setup.

11040091 Z1	11040018 Z1	11040078 Z1	11040073 Z1
	69.5°F 64.0°F		
	:)		
C1 L1	C1 L1	C1 L1	C1 L1
	Zone 1	Zone 1	Zone 1

Diffuser Commissioning & Setup (Continued)
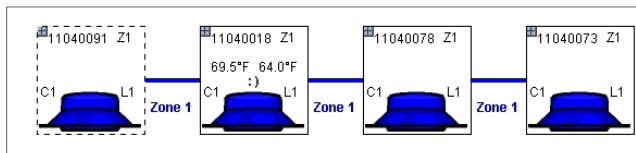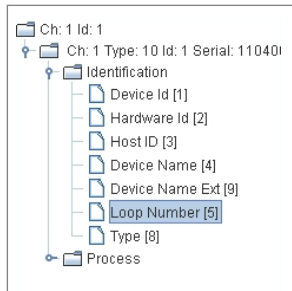
Multiple Loop Operation

» In the "**Physical**" tab, click a diffuser and navigate to "**Identification**", then "**Loop Number**".

- Each loop is defined as a zone.
- Each zone is controlled by a single thermostat.
- The last diffuser in the daisy chain must have the terminal resistor in place.

» The loops should start with the number one and increment, two, three, four, etc.

- In the "**Loop Number**" field, enter the number one and press the "**Write**" button.
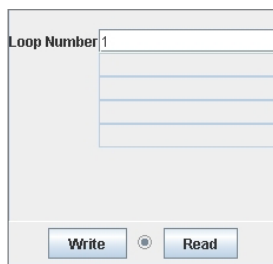
- When loop changes are made to the diffuser, any attached thermostat will follow suit.

» Repeat the process for all connected diffusers and designate loops as required.

- Remember, you cannot have more than one thermostat per loop.
- After you have entered all of your loop designations, press the "**Sync**" button.
- After sync is complete, you will see warning messages indicating new nodes; close the window.

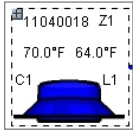Here are a few examples of the finished setup.
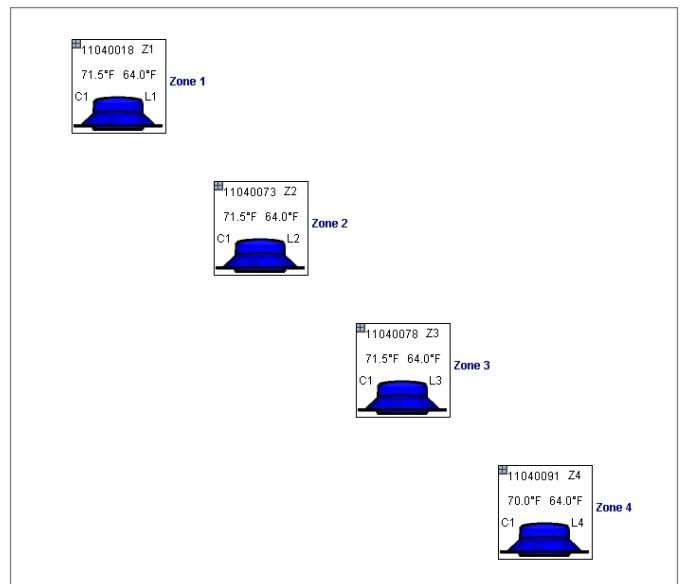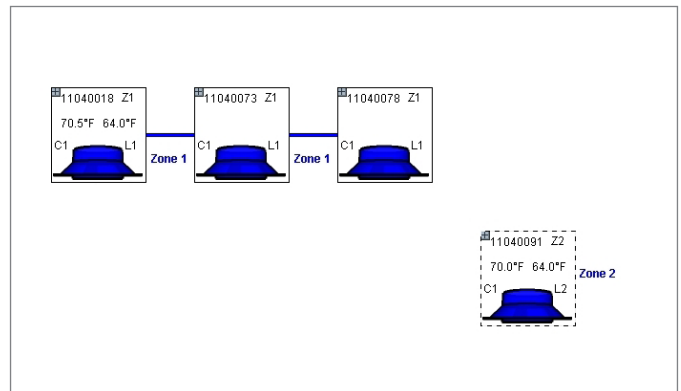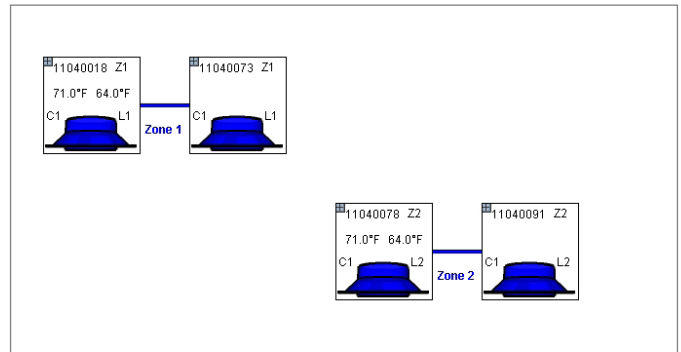
» Continue to thermostat settings.

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Diffuser Commissioning & Setup (Continued)

Thermostat Settings

» Click the diffuser with temperatures above the device.

» You will see two folders on the left. Click the one labeled "**Type 7**".

» Check the loop number and ensure it matches the value of the diffuser previously setup.

» Click the "**Process**" tab; you can adjust your setpoint and setpoint limits. Remember to click "**Write**" after any changes. *See Figures 1 and 2 below.*

   - To maximize the range of operation enter, a high delta between your max and min setpoint limits.

» Click the "**Setup**" folder and click "**Edit Mode**", place a check mark in the "**Setup Menu Enable**" only; click "**Write**". *See Figure 3 below.*

Motor Settings

» Click on the diffuser you wish to adjust.

» Click the folder labeled "**Type 10**" on the left and expand the "**Process**" folder.

» Click "**Motor Min**" and enter desired motor minimum percentage, 0-100. *See Figure 4 below.*
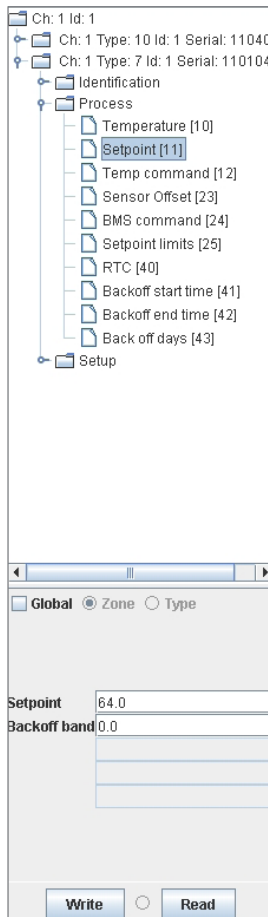
   - You may also set a motor maximum percentage.
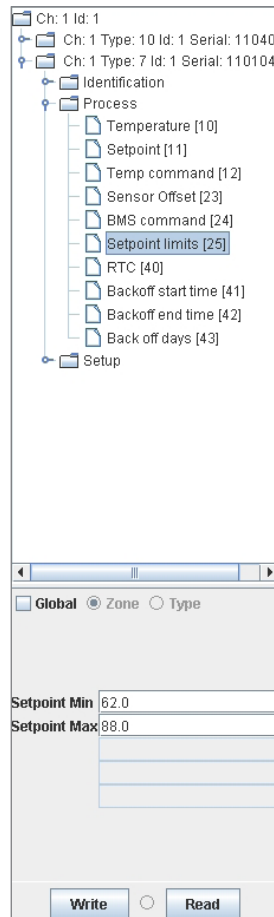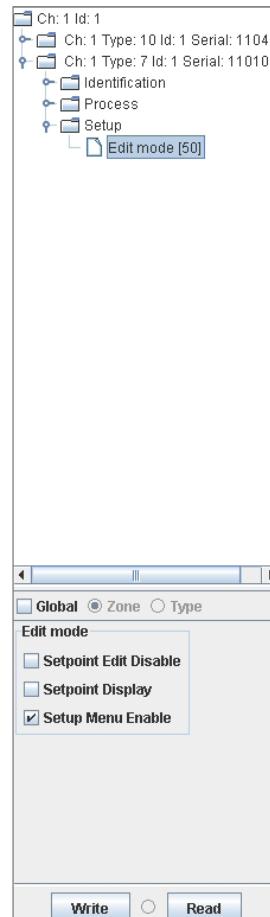

Figure 1

Figure 2
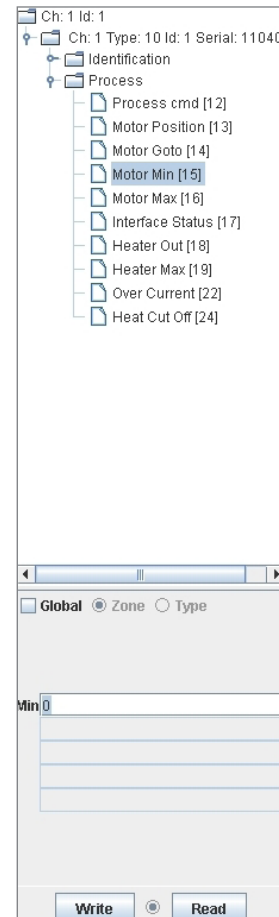

Figure 3

Figure 4

Notes

Learn More About Other
Krueger Air Distribution Solutions

Terminal Units

Bypass & Retrofit

Dual Duct

Single Duct

Fan Powered

Raised Floor

Raised Floor Diffusers

Raised Floor Terminal Units

Diffusers

Air Nozzles

Critical Room Solutions

Linear Slot

Louvered

Modular Core

Perforated

Plaque & Architectural

Plenum Slot

Round

Grilles & Registers

Duct Mounted

Industrial

Linear Bar

Return

Security

Stainless Steel

Supply

Transfer

Displacement Ventilation

Chilled Beams

Accessories & Dampers

Engineering Information

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