



## **Holoscan CLI - Run Command**

# Table of contents

Synopsis

---

Examples

---

Positional Arguments

---

Flags

---

`holoscan run` - simplifies running a packaged Holoscan application by reducing the number of arguments required compared to `docker run`. In addition, it follows the guidelines of [HAP specification](#) when launching your packaged Holoscan application.

### **Warning**

When running a packaged Holoscan application on Kubernetes or other service providers, running Docker with non root user, and running Holoscan CLI `run` command where the logged-on user's ID is different, ensure to specify the `USER ID` that is used when building the application package.

For example, include the `securityContext` when running a Holoscan packaged application with `UID=1000` using Argo:

```
spec: securityContext: runAsUser: 1000 runAsNonRoot: true
```

## Synopsis

```
holoscan run [--help | -h] [--log-level | -l {DEBUG,INFO,WARN,ERROR,CRITICAL}] [--address ADDRESS] [--driver] [--input | -i INPUT] [--output | -o OUTPUT] [--fragments | -f FRAGMENTS] [--worker] [--worker-address WORKER_ADDRESS] [--config CONFIG] [--network | -n NETWORK] [--nic NETWORK_INTERFACE] [--use-all-nics] [--render | -r] [--quiet | -q] [--shm-size] [--terminal] [--device] [--gpu] [--uid UID] [--gid GID] image:[tag]
```

## Examples

To run a packaged Holoscan application:

```
holoscan run -i /path/to/my/input -o /path/to/application/generated/output my-application:1.0.1
```

# Positional Arguments

`image:[tag]`

Name and tag of the Docker container image to execute.

# Flags

`[--address ADDRESS]`

Address ( `[&lt;IP or hostname&gt;[:&lt;port&gt;]` ) of the *App Driver*. If not specified, the *App Driver* uses the default host address ( `0.0.0.0` ) with the default port number ( `8765` ).

For example:

```
--address my_app_network --address my_app_network:8765
```

## Note

Ensure that the IP address is not blocked and the port is configured with the firewall accordingly.

`[--driver]`

Run the **App Driver** on the current machine. Can be used together with the `[--worker]` option to run both the **App Driver** and the **App Worker** on the same machine.

`[--input |-i INPUT]`

Specifies a directory path with input data for the application to process. When specified, a directory mount is set up to the value defined in the environment variable

`HOLOSCAN_INPUT_PATH`.

**(i) Note**

Ensure that the directory on the host is accessible by the current user or the user specified with `-uid`.

**(i) Note**

Use the host system path when running applications inside Docker (DooD).

**[--output | -o OUTPUT]**

Specifies a directory path to store application-generated artifacts. When specified, a directory mount is set up to the value defined in the environment variable

`HOLOSCAN_OUTPUT_PATH`.

**(i) Note**

Ensure that the directory on the host is accessible by the current user or the user specified with `-uid`.

**[--fragments | -f FRAGMENTS]**

A Comma-separated names of the fragments to be executed by the **App Worker**. If not specified, only one fragment (selected by the **App Driver**) will be executed. `all` can be used to run all the fragments.

**[--worker]**

Run the **App Worker**.

### **[--worker-address WORKER\_ADDRESS]**

The address ( [`&lt;IP or hostname&gt;`][:`&lt;port&gt;`] ) of the **App Worker**. If not specified, the **App Worker** uses the default host address ( `0.0.0.0` ) with a randomly chosen port number between `10000` and `32767` that is not currently in use. This argument automatically sets the `HOLOSCAN_UCX_SOURCE_ADDRESS` environment variable if the worker address is a local IP address. Refer to [Environment Variables for Distributed Applications](#) for details.

For example:

```
--worker-address my_app_network --worker-address my_app_network:10000
```

### **(i) Note**

Ensure that the IP address is not blocked and the port is configured with the firewall accordingly.

### **[--config CONFIG]**

Path to the application configuration file. If specified, it overrides the embedded configuration file found in the environment variable `HOLOSCAN_CONFIG_PATH`.

### **[--network | -n NETWORK]**

The Docker network that the application connects to for communicating with other containers. The **Runner** use the `host` network by default if not specified. Otherwise, the specified value is used to create a network with the `bridge` driver.

For advanced usages, first create a network using `docker network create` and pass the name of the network to the `--network` option. Refer to [Docker Networking](#) documentation for additional details.

### **[--nic NETWORK\_INTERFACE]**

Name of the network interface to use with a distributed multi-fragment application. This option sets `UCX_NET_DEVICES` environment variable with the value specified and is required when running a distributed multi-fragment application across multiple nodes. See [UCX Network Interface Selection](#) for details.

### **[--use-all-nics]**

When set, this option allows UCX to control the selection of network interface cards for data transfer. Otherwise, the network interface card specified with ‘-nic’ is used. This option sets the environment variable `UCX_CM_USE_ALL_DEVICES` to `y`. (default: False)

When this option is not set, the CLI runner always sets `UCX_CM_USE_ALL_DEVICES` to `n`.

### **[--render | -r]**

Enable graphic rendering from your application. Defaults to `False`.

### **[--quiet | -q]**

Suppress the STDOUT and print only STDERR from the application. Defaults to `False`.

### **[--shm-size]**

Sets the size of `/dev/shm`. The format is `<number(int,float)>`

`[MB|m|GB|g|Mi|MiB|Gi|GiB]`. Use `config` to read the shared memory value defined in the `app.json` manifest. By default, the container is launched using `--ipc=host` with host system’s `/dev/shm` mounted.

### **[--terminal]**

Enters terminal with all configured volume mappings and environment variables.

### **[--device]**

Map host devices into the application container.

By default, the CLI searches the `/dev/` path for devices unless the specified string starts with `/`.

For example:

```
# mount all AJA capture cards --device ajantv* # mount AJA capture card 0 and 1 --  
device ajantv0 ajantv1 # mount V4L2 video device 1 and AJAX capture card 2 --device  
video1 --device /dev/ajantv2
```

### **Warning**

When using the `--device` option, append `--` after the last item to avoid misinterpretation by the CLI. E.g.

```
holoscan run --render --device ajantv0 video1 -- my-application-  
image:1.0
```

### **[--gpu]**

Override the value of the `NVIDIA_VISIBLE_DEVICES` environment variable with the default value set to the value defined in the [package manifest file](#) or `all` if undefined.

Refer to the [GPU Enumeration](#) page for all available options.

### **Note**

The default value is `nvidia.com/igpu=0` when running a HAP built for iGPU on a system with both iGPU and dGPU,



**i Note**

A single integer value translates to the device index, not the number of GPUs.

**[--uid UID]**

Run the application with the specified user ID (UID). Defaults to the current user's UID.

**[--gid GID]**

Run the application with the specified group ID (GID). Defaults to the current user's GID.

**i Note**

The Holoscan Application supports various environment variables for configuration. Refer to [Environment Variables for Distributed Applications](#) for details.

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