

Mirella Glowinska

## Knative Functions

## Start Local Registry

```
PS C:\Users\Mirella> docker run -d -p 5000:5000 --name registry registry:2
Unable to find image 'registry:2' locally
2: Pulling from library/registry
6d464ea18732: Download complete
8e82f80af0de: Download complete
bbbdd6c6894b: Download complete
44cf07d57ee4: Download complete
3493bf46cdec: Download complete
Digest: sha256:a3d8aaa63ed8681a604f1dea0aa03f100d5895b6a58ace528858a7b332415373
Status: Downloaded newer image for registry:2
3a741dbd9c2a77aad98cc8661ba2163235f8cd8e3bed61bdb19b50f9d17bcd3d
```

## Create Function

```
PS C:\Users\Mirella> func create -l node hello

      %%%%
     %%%%
    %%%% @   @   %%%%
   @%%  %%%%  @%%
  @%%  %%%%  @%%
 @%%  %%%%  @%%
@%%  %%%%  @%%
 @%%  %%%%  @%%
  @%%  %%%%  @%%
   @%%  %%%%  @%%
    %%%%
     %%%%
      %%%%
```

Error: unknown argument create

Azure Functions Core Tools  
Core Tools Version: 4.0.7030 Commit hash: N/A +bb4c949899cd5659d6bfe8b92cc923453a2e8f88 (64-bit)  
Function Runtime Version: 4.1037.0.23568

Usage: func [context] [context] <action> [--options]

Contexts:

|                    |   |
|--------------------|---|
| azure              | Commands to log in to Azure and manage resources                |
| azurecontainerapps | Commands for working with Container Service and Azure Functions |

## Build with Local Registry

```
PS C:\Users\Mirella> powershell.exe -ExecutionPolicy Bypass -File "C:\Users\Mirella\AppData\Roaming\npm\func.ps1" new --
name hello --language node --template "HTTP Trigger"
Use the up/down arrow keys to select a worker runtime:node
Use the up/down arrow keys to select a language:javascript
The new Node.js programming model is generally available. Learn more at https://aka.ms/AzFuncNodeV4
Writing package.json
Writing .funcignore
Writing .gitignore
Writing host.json
Writing local.settings.json
Writing C:\Users\Mirella\.vscode\extensions.json
Running 'npm install'...Use the up/down arrow keys to select a template:HTTP Trigger
Function name: [httpTrigger] Creating a new file C:\Users\Mirella\src\functions\hello.js
The function "hello" was created successfully from the "HTTP Trigger" template.
```

## Build Manually Using Docker

```

running npm install ...
PS C:\Users\Mirella\src\functions> docker build -t localhost:5000/knative/hello .
[+] Building 314.2s (10/10) FINISHED                                docker:desktop-linux
=> [internal] load build definition from Dockerfile                  0.1s
=> => transferring dockerfile: 578B                                0.0s
=> [internal] load metadata for mcr.microsoft.com/azure-functions/node:4-node20 0.6s
=> [internal] load .dockerignore                                    0.1s
=> => transferring context: 59B                                     0.0s
=> [1/5] FROM mcr.microsoft.com/azure-functions/node:4-node20@sha256:028a19f187a41b0c438ae7fa29e6ed5bc4 113.1s
=> => resolve mcr.microsoft.com/azure-functions/node:4-node20@sha256:028a19f187a41b0c438ae7fa29e6ed5bc442 0.1s
=> => sha256:e6c827930b3d15ae529136409b1e3e1256ced589a51b0d29be9c12f63b831281 61.96MB / 61.96MB 18.6s
=> => sha256:c3c4848567b1aa81dadd284d2175192b225ec0943ecfd012375be2c55500e066 125.84MB / 125.84MB 35.4s
=> => sha256:08c4fd2b2d6929c024e03574d0bd58a409728257908a9acf248644b81419cdd1 336.50kB / 336.50kB 0.4s
=> => sha256:53b21721dcb9ee97d7c20d6f4dc630b4a16007962846adaa89b3ec83376fbb48 4.69MB / 4.69MB 1.5s
=> => sha256:1824f6cd9f17f63611d0c28c7efa4d56c686d108ede54a905a5ald2c9ef7af55 1.87MB / 1.87MB 0.6s

```

## Push to Local Registry

```

PS C:\Users\Mirella\src\functions> docker push localhost:5000/knative/hello
Using default tag: latest
The push refers to repository [localhost:5000/knative/hello]
7e4783e0de3c: Pushed
78f394ff90b4: Pushed
8715c03abd5b: Pushed
90d9ff25e8c1: Pushed
6251ee80d668: Pushed
7736ee2b216c: Pushed
e6c827930b3d: Pushed
53b21721dcb9: Pushed
feac955calae: Pushed
08c4fd2b2d69: Pushed
b7f238171a9f: Pushed
8a9731833009: Pushed
56efa3ddd819: Pushed
a72e83df948d: Pushed
d4cbe17498cd: Pushed
c1dd68632935: Pushed
89320e7119e2: Pushed

```

## Verify Registry Content

```

PS C:\Users\Mirella\src\functions> ls

Directory: C:\Users\Mirella\src\functions

Mode                LastWriteTime         Length Name
----                -
-a-----         16/04/2025         15:50           400 hello.js

```

```

latest: digest: sha256:3b07e818e4678e72eead827b251cce4b9b1daf0fad4e0fc716d91d67c79f0556 size: 856
PS C:\Users\Mirella\src\functions> curl http://localhost:5000/v2/_catalog

StatusCode      : 200
StatusDescription : OK
Content         : {"repositories":["knative/hello"]}

RawContent      : HTTP/1.1 200 OK
                  Docker-Distribution-API-Version: registry/2.0
                  X-Content-Type-Options: nosniff
                  Content-Length: 35
                  Content-Type: application/json; charset=utf-8
                  Date: Wed, 16 Apr 2025 15:37:46 GMT...
Forms           : {}
Headers         : {[Docker-Distribution-API-Version, registry/2.0], [X-Content-Type-Options, nosniff],
                  [Content-Length, 35], [Content-Type, application/json; charset=utf-8]...}
Images          : {}
InputFields     : {}
Links           : {}
ParsedHtml      : mshtml.HTMLDocumentClass
RawContentLength : 35

```

## Knative Servicing

### Install Knative Serving Components

```

PS C:\Users\Mirella> kubectl apply -f https://github.com/knative/serving/releases/download/knative-v1.14.0/serving-crds.
yaml
customresourcedefinition.apiextensions.k8s.io/certificates.networking.internal.knative.dev created
customresourcedefinition.apiextensions.k8s.io/configurations.serving.knative.dev created
customresourcedefinition.apiextensions.k8s.io/clusterdomainclaims.networking.internal.knative.dev created
customresourcedefinition.apiextensions.k8s.io/domainmappings.serving.knative.dev created
customresourcedefinition.apiextensions.k8s.io/ingresses.networking.internal.knative.dev created
customresourcedefinition.apiextensions.k8s.io/metrics.autoscaling.internal.knative.dev created
customresourcedefinition.apiextensions.k8s.io/podautoscalers.autoscaling.internal.knative.dev created
customresourcedefinition.apiextensions.k8s.io/revisions.serving.knative.dev created
customresourcedefinition.apiextensions.k8s.io/routes.serving.knative.dev created
customresourcedefinition.apiextensions.k8s.io/serverlesservices.networking.internal.knative.dev created
customresourcedefinition.apiextensions.k8s.io/services.serving.knative.dev created
customresourcedefinition.apiextensions.k8s.io/images.caching.internal.knative.dev created

customresourcedefinition.apiextensions.k8s.io/images.caching.internal.knative.dev created
PS C:\Users\Mirella> kubectl apply -f https://github.com/knative/serving/releases/download/knative-v1.14.0/serving-core.
yaml
namespace/knative-serving created
role.rbac.authorization.k8s.io/knative-serving-activator created
clusterrole.rbac.authorization.k8s.io/knative-serving-activator-cluster created
clusterrole.rbac.authorization.k8s.io/knative-serving-aggregated-addressable-resolver created
clusterrole.rbac.authorization.k8s.io/knative-serving-addressable-resolver created
clusterrole.rbac.authorization.k8s.io/knative-serving-namespaced-admin created
clusterrole.rbac.authorization.k8s.io/knative-serving-namespaced-edit created
clusterrole.rbac.authorization.k8s.io/knative-serving-namespaced-view created
clusterrole.rbac.authorization.k8s.io/knative-serving-core created
clusterrole.rbac.authorization.k8s.io/knative-serving-podspecable-binding created
serviceaccount/controller created
clusterrole.rbac.authorization.k8s.io/knative-serving-admin created
clusterrolebinding.rbac.authorization.k8s.io/knative-serving-controller-admin created

```

### Verify Installation

```

secret/webhook-cert created
PS C:\Users\Mirella> kubectl get pods -n knative-serving
NAME                                READY   STATUS    RESTARTS   AGE
activator-6c95757667-b6sth          1/1     Running   0           2m47s
autoscaler-867475bbcf-2wzvzb       1/1     Running   0           2m46s
controller-84c6f99f7c-m4nvl        1/1     Running   0           2m46s
webhook-5b4998477-q67mb             1/1     Running   0           2m45s
PS C:\Users\Mirella>

```

### Deploy sample service

```
PS C:\Users\Mirella\Downloads> .\kn-windows-amd64.exe service create hello-serving --image ghcr.io/knative/helloworld-go:latest --port 8080 --env TARGET="World"
Warning: Kubernetes default value is insecure, Knative may default this to secure in a future release: spec.template.spec.containers[0].securityContext.allowPrivilegeEscalation, spec.template.spec.containers[0].securityContext.capabilities, spec.template.spec.containers[0].securityContext.runAsNonRoot, spec.template.spec.containers[0].securityContext.seccompProfile
Creating service 'hello-serving' in namespace 'default':

0.139s The Route is still working to reflect the latest desired specification.
0.267s Configuration "hello-serving" is waiting for a Revision to become ready.
0.363s ...
```

## Verify services

```
PS C:\Users\Mirella\Downloads> .\kn-windows-amd64.exe service list
NAME          URL                                     LATEST          AGE          CONDITIONS
REASON
hello-serving  http://hello-serving.default.svc.cluster.local  hello-serving-000001  3m21s  1 OK / 3
error: the server doesn't have a resource type "ksvc"
PS C:\Users\Mirella\Downloads> minikube kubectl get ksvc
NAME          URL                                     LATESTCREATED    LATESTREADY
Y            REASON
hello-serving  http://hello-serving.default.svc.cluster.local  hello-serving-000001  hello-serving-000001
```

## KNnative Eventing

### Install Knative Eventing Components

```
C:\Users\Mirella>kubectl apply -f https://github.com/knative/eventing/releases/download/knative-v1.17.5/eventing-crds.
ml
customresourcedefinition.apiextensions.k8s.io/apiserversources.sources.knative.dev created
customresourcedefinition.apiextensions.k8s.io/brokers.eventing.knative.dev created
customresourcedefinition.apiextensions.k8s.io/channels.messaging.knative.dev created
customresourcedefinition.apiextensions.k8s.io/containersources.sources.knative.dev created
customresourcedefinition.apiextensions.k8s.io/eventpolicies.eventing.knative.dev created
customresourcedefinition.apiextensions.k8s.io/eventtypes.eventing.knative.dev created
customresourcedefinition.apiextensions.k8s.io/integrationsinks.sinks.knative.dev created
customresourcedefinition.apiextensions.k8s.io/integrationsources.sources.knative.dev created
customresourcedefinition.apiextensions.k8s.io/jobsinks.sinks.knative.dev created
customresourcedefinition.apiextensions.k8s.io/parallels.flows.knative.dev created
customresourcedefinition.apiextensions.k8s.io/pingsources.sources.knative.dev created
customresourcedefinition.apiextensions.k8s.io/requestreplies.eventing.knative.dev created
customresourcedefinition.apiextensions.k8s.io/sequences.flows.knative.dev created
customresourcedefinition.apiextensions.k8s.io/sinkbindings.sources.knative.dev created
customresourcedefinition.apiextensions.k8s.io/subscriptions.messaging.knative.dev created
customresourcedefinition.apiextensions.k8s.io/triggers.eventing.knative.dev created
```

```
C:\Users\Mirella>kubectl get ksvc -n default
NAME          URL                                     LATESTCREATED    LATESTREADY    READY    REASON
helloworld-go
```

```
C:\Users\Mirella>kubectl apply -f https://github.com/knative/operator/releases/download/knative-v1.17.6/operator.yaml
namespace/knative-operator created
secret/operator-webhook-certs created
deployment.apps/operator-webhook created
service/operator-webhook created
Warning: resource customresourcedefinitions/knativeeventings.operator.knative.dev is missing the kubectl.kubernetes.io/last-applied-configuration annotation which is required by kubectl apply. kubectl apply should only be used on resources created declaratively by either kubectl create --save-config or kubectl apply. The missing annotation will be patched automatically.
customresourcedefinition.apiextensions.k8s.io/knativeeventings.operator.knative.dev configured
Warning: resource customresourcedefinitions/knativeservings.operator.knative.dev is missing the kubectl.kubernetes.io/last-applied-configuration annotation which is required by kubectl apply. kubectl apply should only be used on resources created declaratively by either kubectl create --save-config or kubectl apply. The missing annotation will be patched automatically.
customresourcedefinition.apiextensions.k8s.io/knativeservings.operator.knative.dev configured
Warning: resource clusterroles/knative-serving-operator-aggregated is missing the kubectl.kubernetes.io/last-applied-configuration annotation which is required by kubectl apply. kubectl apply should only be used on resources created declaratively by either kubectl create --save-config or kubectl apply. The missing annotation will be patched automatically.
```

```
C:\Users\Mirella>kn service create cloudevents-player --image quay.io/ruben/cloudevents-player:latest -n knative-operator
Creating service 'cloudevents-player' in namespace 'knative-operator':
```

```
C:\Users\Mirella>kn source binding create ce-player-binding --subject "Service:serving.knative.dev/v1:cloudevents-player" --sink broker:example-broker -n knative-operator
```

