

# Deploying with Pivotal Cloud Foundry

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## Introduction

Pivotal Cloud Foundry is a popular open-source platform as a service (PaaS) that enables developers to deploy, manage, and scale applications quickly and efficiently. Coupled with CredHub, a service for securely storing and accessing credentials, it provides a robust environment for building and running applications. In this blog post, we will walk through setting up Pivotal Cloud Foundry, using CredHub to manage secrets, deploying an application, and monitoring it using `cf logs`.

## Getting Started with Pivotal Cloud Foundry

Pivotal Cloud Foundry simplifies the deployment and scaling of applications. Here's how to get started:

### 1. Installing Pivotal Cloud Foundry CLI:

- Download and install the Pivotal Cloud Foundry CLI from the official website.
- Verify the installation:

```
cf --version
```

### 2. Logging in to Pivotal Cloud Foundry:

- Target your Pivotal Cloud Foundry API endpoint:

```
cf api https://api.your-cloud-foundry-instance.com
```

- Log in using your credentials:

```
cf login
```

### 3. Setting up Spaces and Orgs:

- Create and manage organizations and spaces to logically separate applications and resources.

## Securing Secrets with CredHub

CredHub allows you to securely store, generate, and access credentials in your applications. Here's how to integrate CredHub with Pivotal Cloud Foundry:

### 1. Setting up CredHub:

- Ensure CredHub is deployed and configured within your Pivotal Cloud Foundry environment.
- Use the CredHub CLI to interact with CredHub:

```
credhub login -s https://credhub.your-cloud-foundry-instance.com --ca-cert <path-to-ca-cert>
```

### 2. Storing Secrets:

- Store a secret in CredHub:

```
credhub set -n /cflab/db_password -t password -w s3cr3t
```

- Retrieve a secret:

```
credhub get -n /cflab/db_password
```

### 3. Integrating CredHub with Applications:

- Bind CredHub secrets to your Pivotal Cloud Foundry applications using service bindings or environment variables.

## Deploying an Application on Pivotal Cloud Foundry

Deploying applications on Pivotal Cloud Foundry is straightforward. Here's a step-by-step guide:

### 1. Preparing Your Application:

- Ensure your application has a `manifest.yml` file for configuration:

```
applications:  
- name: my-app  
  memory: 512M  
  instances: 1  
  path: .
```

### 2. Pushing Your Application:

- Deploy the application using the `cf push` command:

```
cf push my-app
```

### 3. Scaling Your Application:

- Scale the number of instances:

```
cf scale my-app -i 3
```

### 4. Managing Environment Variables:

- Set environment variables for your application:

```
cf set-env my-app DB_PASSWORD s3cr3t
```

- Restage your application to apply the changes:

```
cf restage my-app
```

## Monitoring and Fetching Logs

Pivotal Cloud Foundry provides robust logging capabilities to help you monitor your applications:

### 1. Viewing Logs:

- Fetch recent logs for your application:

```
cf logs my-app --recent
```

- Stream logs in real-time:

```
cf logs my-app
```

### 2. Analyzing Logs:

- Use the logs to troubleshoot issues, monitor performance, and gain insights into application behavior.

### 3. Setting Up Log Management:

- Integrate with log management tools like Loggregator or third-party services to aggregate and analyze logs.

## Conclusion

By leveraging Pivotal Cloud Foundry and CredHub, you can securely deploy and manage applications with ease. Pivotal Cloud Foundry's PaaS capabilities streamline the deployment process, while CredHub ensures that your application's secrets are stored securely. With robust logging and monitoring tools, you can maintain high visibility into your application's performance and health. This setup not only enhances security but also improves operational efficiency and scalability.