

# 5CFE9D;}

.css-kun0x7{fill:transparent;opacity:0.5;margin:0 0.2rem;}.css-kun0x7:hover{fill:#FAF40A;}

.css-1ix0nx7{fill:transparent;opacity:0.5;}.css-1ix0nx7:hover{fill:#F14544;} On this page

## Build your own hook

Whenever starting on a new project, it is always a good idea to use a framework which can assist in development and that can make the setup process easier. Similarly, when building your own hooks, will would want to use a few utilities to 1) Mining the correct salt for your hook address 2) Using a router which acquire the lock and then call various functions on the pool manager 3) Deploying the hook to a deterministic address

Many of these steps are already taken care by a few template repositories which are listed [here](#)

## Hooks Template

One of the most popular templates is the [v4-template](#) which is created by [Sauce](#) .

You can clone the repository and then follow the instructions in the README to get started.

## Getting Started

1. Installation
2. : The template requires Foundry. Install dependencies using:

forge install Copy 1. Testing 2. : Run tests with:

forge test Copy

## Counter Hook

The template includes an example hook (Counter.sol ), a test for it, and scripts for deploying hooks.

Here are some of the things to note about the Counter hook:

1. It extends theBaseHook
2. contract which is defined in the [v4-periphery](#)
3. repository.

import

{ BaseHook }

from

"v4-periphery/BaseHook.sol" ;

contract

Counter

is BaseHook { // ... hook code here } Copy 1. The hook gets called before and after every swap and modify position call. This is done as part ofgetHookPermissions 2. function

function

getHookPermissions ( )

public

pure override returns

( Hooks . Permissions memory )

{ return Hooks . Permissions ( { beforeInitialize :

false , afterInitialize :

false , beforeAddLiquidity :

true , afterAddLiquidity :

false , beforeRemoveLiquidity :

true , afterRemoveLiquidity :

false , beforeSwap :

true , afterSwap :

true , beforeDonate :

false , afterDonate :

false , noOp :

false , accessLock :

false } ) ; } Copy 1. Corresponding to the hooks calls, the hook implements the following functions:

function

beforeSwap ( address , PoolKey calldata key , IPoolManager . SwapParams calldata ,

bytes

calldata ) external override returns

( bytes4 ) { beforeSwapCount [ key . told ( ) ] ++ ; return BaseHook . beforeSwap . selector ; }

function

afterSwap ( address , PoolKey calldata key , IPoolManager . SwapParams calldata , BalanceDelta ,

bytes

calldata ) external override returns

( bytes4 ) { afterSwapCount [ key . told ( ) ] ++ ; return BaseHook . afterSwap . selector ; }

function

beforeAddLiquidity ( address , PoolKey calldata key , IPoolManager . ModifyLiquidityParams calldata , bytes

calldata )

external override returns

( bytes4 )

{ beforeAddLiquidityCount [ key . told ( ) ] ++ ; return BaseHook . beforeAddLiquidity . selector ; }

function

beforeRemoveLiquidity ( address , PoolKey calldata key , IPoolManager . ModifyLiquidityParams calldata , bytes

calldata )

external override returns

( bytes4 )

{ beforeRemoveLiquidityCount [ key . told ( ) ] ++ ; return BaseHook . beforeRemoveLiquidity . selector ; } Copy 1. In each of these functions, Counter hook increments a counter. You can see this in the beforeSwap 2. function:

function

beforeSwap ( address , PoolKey calldata key , IPoolManager . SwapParams calldata ,

bytes

calldata ) external override returns

```
( bytes4 ) { beforeSwapCount [ key . told ( ) ] ++ ; return BaseHook . beforeSwap . selector ; } Copy
```

## Additional Resources

- [v4-periphery](#)
- : For advanced hook implementations.
- [v4-core](#)
- : The core repository for Uniswap v4. [Edit this page](#) .css-1tclyyl{margin-top:1.5rem;} .css-1c3fvx8{display:-webkit-box;display:-webkit-flex;display:-ms-flexbox;display:flex;-webkit-flex-direction:row;-ms-flex-direction:row;flex-direction:row;-webkit-align-items:center;-webkit-box-align:center;-ms-flex-align:center;align-items:center;-webkit-box-pack:center;-ms-flex-pack:center;-webkit-justify-content:center;justify-content:center;} .css-1wsnqg4{font-size:1rem;padding-right:0.5rem;} Helpful? .css-y2jwfw{fill:transparent;opacity:0.5;}.css-y2jwfw:hover{fill:#5CFE9D;}

.css-kun0x7{fill:transparent;opacity:0.5;margin:0 0.2rem;}.css-kun0x7:hover{fill:#FAF40A;}

.css-1ix0nx7{fill:transparent;opacity:0.5;}.css-1ix0nx7:hover{fill:#F14544;} [Previous Hook Deployment](#) [Next Testing Hooks](#) \* [Hooks Template](#) \* [Getting Started](#) \* [Counter Hook](#) \* [Additional Resources](#)