

Emergency Shutdown (ES) CLI

Level : Intermediate

Estimated-Time : 30 minutes

Description

Emergency Shutdown (ES) is the last resort to protect the Maker Protocol against a serious threat, such as but not limited to governance attacks, long-term market irrationality, hacks and security breaches. The Emergency Shutdown Module (ESM) is responsible for coordinating emergency shutdown, the process used to gracefully shutdown the Maker Protocol and properly allocate collateral to both Vault users and Dai holders. This guide outlines the steps and procedures necessary to check, interact with and trigger the ESM.

Learning Objectives: To be able to Check, Deposit and Trigger Emergency Shutdown.

Table of Contents

1. Installation
2. Contract Address Setup
3. Commands and Explanations
- 4.
5.
 - Checking your MKR balance
6.
 - Checking and setting your MKR approval
7.
 - Checking the live() flag
8.
 - Checking the ESM threshold
9.
 - Deposit a trial amount of MKR into the ESM
10.
 - Depositing MKR into the ESM
11.
 - Checking how much MKR is in the ESM
12.
 - Checking whether the ESM has been triggered
13. *
- 14.

1. Installation

In order to interface with the Ethereum blockchain, the user needs to install `seth`, a command line tool as part of the [@app.Tools](#) toolset. We also provide further [installation information here](#). Once the user has installed and configured `seth` correctly to use the main Ethereum network and the address which holds their MKR they can query contract balances, approvals and transfers.

1. Contract Address Setup

...

Copy * The user will require the following contract addresses; MCD_END and MCD_ESM accessible at [Changelog.makerdao.com](#) as well as the Maker contract address, to be added in place of MKR_ADR below, which can be verified on [Etherscan](#). * These should be setup in the following manner:

...

...

```
Copy export MCD_END= 0xab14d3ce3f733cacb76ec2abe7d2fcb00c99f3d5 export MCD_ESM= 0x0581a0abe32aae9b5f0f68defab77c6759100085 export MKR_ADR= export MY_ADR=
```

example values for depositing into the ESM

```
export TRIAL_AMOUNT=(seth --to-uint256 (seth --to-wei 0.1 eth)) export REMAINING_AMOUNT=(seth --to-uint256 (seth --to-wei 50000 eth))
```

...

1. Commands and Explanations

Checking your MKR balance

Before depositing your MKR into the ESM contract, first check your address MKR balance:

...

```
Copy seth --from-wei (seth call MKR_ADR "balanceOf(address)" MY_ADR | seth --to-dec)
```

100000.000000000000000000

...

Checking and setting your MKR approval

In order to execute the contract functions of the MKR token it is required that approvals be set on the token. The first step is to check if the ESM contract is allowed to withdraw from your address:

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```
Copy seth call MKR_ADR "allowance(address,address)" MY_ADR MCD_ESM
```

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Depositing e.g. 50,000 MKR into the ESM

To deposit MKR into the esm contract we use thejoin function and specify the amount.

...

Copy seth send MCD_ESM "join(uint256)" REMAINING_AMOUNT

...

Please specify the amount of MKR that you intend to deposit into the ESM.

Checking whether the ESM has been triggered

To validate that the Emergency Shutdown has been triggered, thefired() function can be called which will return a boolean.

...

Copy seth call MCD_ESM "fired()" | seth --to-dec

0 -> ES has not been triggered

...

Triggering the ESM

In order for the emergency shutdown to trigger, it is required that theSum() is greater than themin() . Only then can thefire() function be executed successfully.

...

Copy seth send MCD_ESM "fire()"

...

Note: If triggering the ESM is not successful, ensure gas is set at an appropriate level

Note: The triggering of the ESM is not to be taken lightly; for a full explanation of the implications please review the below documentation.

Links

- [ESM.sol](#)
- [Further Documentation](#)
- [End Documentation](#)
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[Description](#) * [Table of Contents](#) * [1. Installation](#) * [2. Contract Address Setup](#) * [3. Commands and Explanations](#)

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