

# VolumeDumpingRestrictionTM

- **Introduced in:** v2.0.0
- **Contract name:** VolumeDumpingRestrictionTM
- **Compatible Protocol version range:** TBD
- **Type:** Transfer Manager Module
- **State Machine Chart:** <https://www.lucidchart.com/documents/edit/c96ff64c-5b89-4b9c-985a-01637266bf88/0?shared=true&>

## How it works

The Idea of the module is to prevent the token holders especially employees / affiliates impact the stock price by limiting the no. of tokens they can sell with in a rolling period (Copied from specs).

## Key functionalities (as defined in the Smart Contract)

### Initialization

This module is initialized with no parameters. That means during creation of this contract there's no need to call any type of `configure()` function.

### Transfer Verification

- `verifyTransfer()` is used to prevent the lockup tokens to be transferred.
- Transfer is only be performed when the transfer amount is less than or equal to the release amount for a given lockup. (Currently there is no way to know the release time i.e when new tokens will be released from the lockup).
- Module restriction are impact a transaction only when `dumpingRestriction` is present for the `_from` account and current time within the range between `dumpingRestriction.startTime` & `dumpingRestriction.endTime`.
- Withdrawn of tokens(i.e transfer of tokens) logic described as

Transfer is performed according to the periodID that is calculated as `uint256 periodId = now.sub(userDumpingRestriction.startTime).div(userDumpingRestriction.rollingPeriod);` (It seems wrong to me ex- startTime is 1000, now is 2000 and

rolling period is 200 then for a first txn periodId is 5 which seems unreasonable to me). It is allowing the transaction with restricting the time period as given in lucidchart [According to it. if rolling period is 30 days it means user only allowed to transact there allowed amount of tokens with in the 30 days period means if first txn is performed on 1 jan 2018 then after 31 jan 2018 user is not allowed to transact.

@Pablo R @Thomas B please confirm ?.

According to me allowed time period will be calculated as - `periodId = now.sub(userDumpingRestriction.startTime).div(releaseFrequency)` and then add the restriction the for this particular `periodId` txn only be allowed from `now` to `now.add(rollingPeriod)`.

@Pablo R @Thomas B This module also have the same problem as we are facing in the `lockUpVolumeRestrictionTM`

transaction calculation will be affected when more tokens are transferred to the same restricted address. <https://github.com/PolymathNetwork/polymath-core/blob/883f8e1331af412fd3022b5d8d48f5125da614a4/contracts/modules/TransferManager/VolumeDumpingRestrictionTM.sol#L339>.

Ex-

A will have the balance of 1000 tokens

percentage allowed - 10% = 100 tokens

First txn deduct the 50 tokens and after first txn A will get the 1000 tokens from B.

for the second transaction(same periodId) calculation will look like this

$(1950 + 50) * (10)/100$  -- it is totally wrong because now it will allow him to deduct 200 tokens instead of more 50 tokens.

I am sure external developer write the wrong algo but I did not ask him to change as I am not sure what the business need and we also need to add some explanation/description in the lucidchart regarding the change.

## Add dumping restriction

`addDumpingRestriction()` function is used to add the dumping restriction for a given address.

It can be called by the issuer or any delegate that has the `ADMIN` type permission for this module.

function signature - `function addDumpingRestriction(address _userAddress, uint256 _percentAllowed, uint256 _startTime, uint256 _endTime, uint256 _rollingPeriod)`

Note - Only one dumping restriction is allowed for a given address.

## Restrict multiple addresses in one transaction

A batch version of `addDumpingRestriction()` function called `addDumpingRestrictionMulti()` is available to add multiple addresses in a single transaction with a same restrictions on parameters and calling permissions as `addDumpingRestriction()` has.

**Note:** `addDumpingRestrictionMulti()` will hit the block gas limit if the no. of addresses is more than 75 (It is an approximate figure not tested).

## Remove the dumping restriction of a particular employees/affiliate

`removeRestriction()` function is used to remove a volume dumping restriction for a given address. It will also remove all the data the related to the employees/affiliate dumping restriction.

## Remove the dumping restriction in one go.

A batch version of `removeRestriction()` function called `removeRestrictionMulti()` is available to remove multiple addresses in a single transaction with a same restrictions on parameters and calling permissions as `removeRestriction()` has.

**Note:** `removeRestrictionMulti()` will hit the block gas limit if the no. of addresses is more than 75 (It is an approximate figure not tested).

## Modify the dumping restriction for a given address.

`modifyVolumeDumpingRestriction()` is used to modify the Volume dumping restriction for a given address. It will allow to modify the restriction only when present restriction `endTime > now` similarly as `addDumpingRestriction()` or `removeRestriction()` it also have the batch version called `modifyVolumeDumpingRestrictionMulti()` to facilitate the modification of multiple restriction for multiple addresses.

## Special considerations / notes

None

## **Troubleshooting / FAQs**

None

## **Know Issues / bugs**

None