

# lock duration is possible to set below minimum lock duration limit

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## Lines of code

<https://github.com/code-423n4/2024-05-munchables/blob/57dff486c3cd905f21b330c2157fe23da2a4807d/src/managers/LockManager.sol#L256-L261>

## Impact

The way lock duration is set by calling `LockManager::setLockDuration()` it is possible to set a lock duration which is less than minimum lock duration.

## Proof of Concept

Suppose minimum lock duration is 60 seconds. A lock was created at timestamp X which is the `lastLockTime` of the lock. So `unlockTime` will be (X + 60 seconds).

```
lastLockTime(X)
unlockTime(X+60)
|-----|
<----- duration = minDuration = 60 secs ----->
```

Now, at the time of (x+40 secs) player called the `setLockDuration()` with 30 secs as argument. As (X + 40 + 30) = (x + 70) is greater than the `unlockTime` i.e (X+60) so the call will not revert by `LockDurationReducedError`. Finally `unlockTime` = `lastLockTime` + `duration` = X + 30. As of the new `unlockTime` the lock is already unlocked. So we can see that actually (X + 30) is far less than minimum duration, still the player managed to unlock 20 seconds before [because he called the `setLockDuration()` at (X + 40)]. The problem is in the process of checking the condition for whether the duration is reduced or not i.e `LockDurationReducedError`. The `if` condition looks like:

```
if (
    uint32(block.timestamp) + uint32(_duration) <
    lockedTokens[msg.sender][tokenContract].unlockTime
) {
    revert LockDurationReducedError();
}
```

You can see that `uint32(_duration)` is added with `block.timestamp` but it should not, it should be added with `lastLockTime`. The new duration looks like:

```

                                X + 40 secs
lastLockTime(X)                  setLockDuration()
unlockTime(X+60)
|-----|-----|
|----- duration = minDuration = 60 secs -----|
|-----|-----|
X                                X+30
|-----|
|----- new duration = 30 -----|

```

## Tools Used

Manual review

## Recommended Mitigation Steps

Change the `if` block from present to this:

```

        if (
            lockedTokens[msg.sender][tokenContract].lastLockTime +
uint32(_duration) <
            lockedTokens[msg.sender][tokenContract].unlockTime
        ) {
            revert LockDurationReducedError();
        }

```