



About Me

- Likes exploring food cuisines and anime ^.^
- DevSecOps @ Tenable
 - Adversary Emulation
 - Attack Path Construction
 - Signature Writing



Agenda

- What is Mutant?
- What does it do?
- Where are we lagging?
- What does the future hold?



mutant

Pushing Security Left by Mutating Byte Code

Features



Cross Compilation



Constant Obfuscation



Compile/Run time Byte
Code Encryption

Cross Compilation



Byte Code

Runs on Mutant Virtual Machine



Executable Binary

Runs on YOUR machine



Constant Obfuscation





Compile Time Encryption

Encrypts all the bytecode before writing to the compiled file

```
... object to mirror_
mirror_mod.mirror_object
operation == "MIRROR_X":
    mirror_mod.use_x = True
    mirror_mod.use_y = False
    mirror_mod.use_z = False
operation == "MIRROR_Y":
    mirror_mod.use_x = False
    mirror_mod.use_y = True
    mirror_mod.use_z = False
operation == "MIRROR_Z":
    mirror_mod.use_x = False
    mirror_mod.use_y = False
    mirror_mod.use_z = True
```

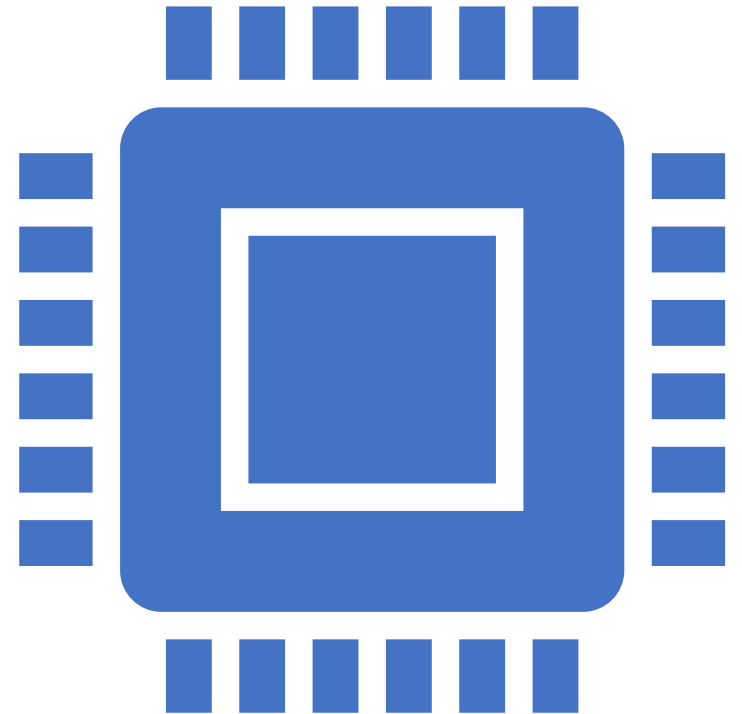
```
... selection at the end -add
mirror_ob.select= 1
mirror_ob.select=1
context.scene.objects.active
("Selected" + str(modifier_ob
mirror_ob.select = 0
= bpy.context.selected_object
data.objects[one.name].select
print("please select exactly
-- OPERATOR CLASSES -----
```

```
... types.Operator):
... X mirror to the selected
... object.mirror_mirror_x"
... mirror X"
```

```
... context):
... context.active_object is not
```

Runtime Encryption

- Encrypts individual instructions
- Decrypts only when that instruction is in use
- Runtime byte code mutation



Limitations

Keygen algorithm is deterministic

Community adoption

Not a plugin for LLVM/JVM/CLR....yet

Not Battle tested

- Side Channel attacks
- Other memory attacks

What's Next?



Improve Unicode
Support



Identifier
Obfuscation



Byte Code
Compression



Working REPL in
Website

It's FOSS!

<https://github.com/gaurav-gogia/mutant>

Lets
Connect!



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gaurav-gogia

Thank You!



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awesome event



And YOU, my fellow researchers,
developers, managers, etc.. for listening
to my talk and providing feedback
throughout the conference!