iAWACS 2010: W32/ELF/Diffuser

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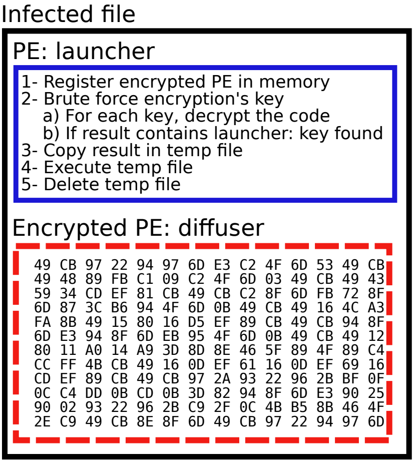
Agenda

1. Main features
2. Launcher
3. Diffuser
4. Questions

Main features

- Type: PE infection
- Payload: user's documents deletion
- Static analysis countermeasure: self-encryption
- Dynamic analysis countermeasure: temporal obfuscation

Launcher 1/6



Infected file

PE: launcher

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Encrypted PE: diffuser

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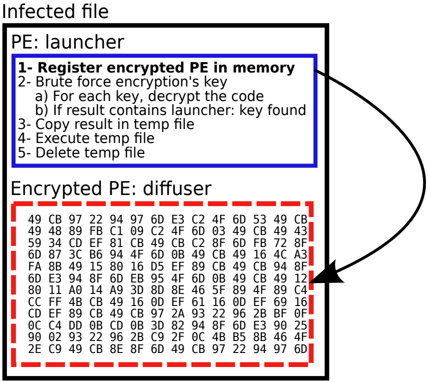
0C C4 DD 0B CD 0B 3D 82 94 8F 6D E3 90 25
90 02 93 22 96 2B C9 2F 0C 4B B5 8B 46 4F
2E C9 49 CB 8E 8F 6D 49 CB 97 22 94 97 6D
```

Launcher 2/6



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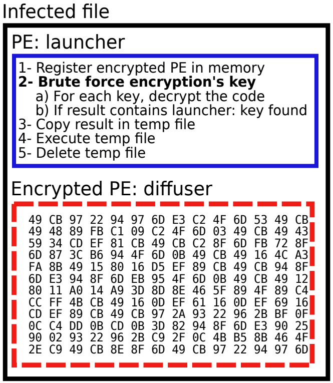
Launcher 3/6



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90 02 93 22 96 2B C9 2F 0C 4B B5 8B 46 4F
2E C9 49 CB 8E 8F 6D 49 CB 97 22 94 97 6D
```
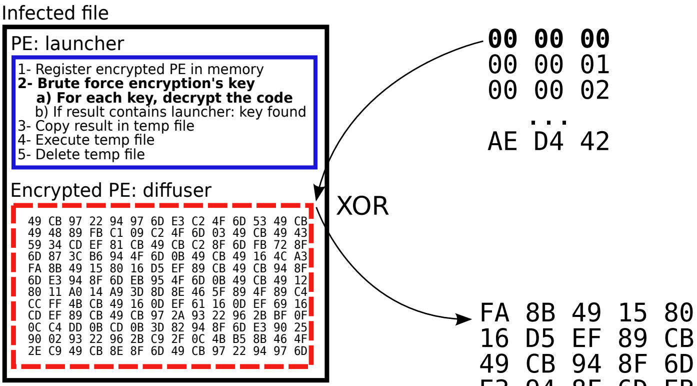

```
00 00 00
00 00 01
00 00 02
   ...
AE D4 42
```

Launcher 4/6



Infected file

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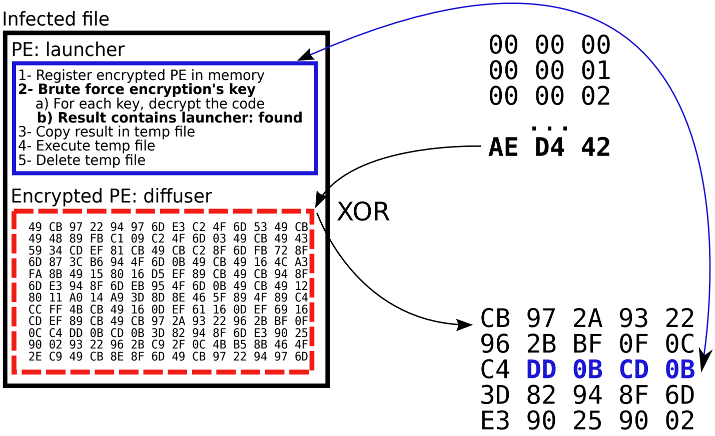
2E C9 49 CB 8E 8F 6D 49 CB 97 22 94 97 6D
```

```
00 00 00
00 00 01
00 00 02
  ...
AE D4 42
```

XOR

```
FA 8B 49 15 80
16 D5 EF 89 CB
49 CB 94 8F 6D
E3 94 8F 6D EB
95 4F 6D 0B 49
```

Launcher 5/6



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```

```
00 00 00
00 00 01
00 00 02
   ...
AE D4 42
```

XOR

```
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96 2B BF 0F 0C
C4 DD 0B CD 0B
3D 82 94 8F 6D
E3 90 25 90 02
```
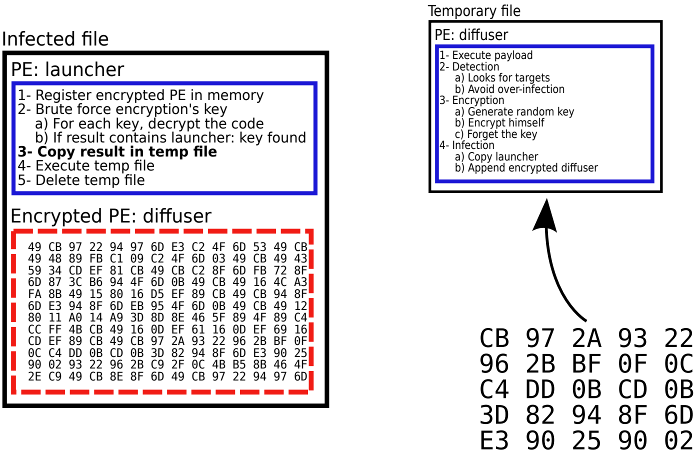

Launcher 6/6



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FA 8B 49 15 80 16 D5 EF 89 CB 49 CB 94 8F
6D E3 94 8F 6D EB 95 4F 6D 0B 49 CB 49 12
80 11 A0 14 A9 3D 8D 8E 46 5F 89 4F 89 C4
CC FF 4B CB 49 16 0D EF 61 16 0D EF 69 16
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Temporary file

PE: diffuser

1- Execute payload
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  a) Looks for targets
  b) Avoid over-infection
3- Encryption
  a) Generate random key
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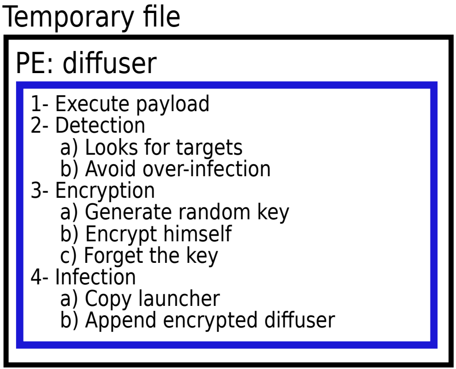
  c) Forget the key
4- Infection
  a) Copy launcher
  b) Append encrypted diffuser

```
CB 97 2A 93 22
96 2B BF 0F 0C
C4 DD 0B CD 0B
3D 82 94 8F 6D
E3 90 25 90 02
```

Diffuser 1/13



Temporary file

PE: diffuser

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    a) Generate random key
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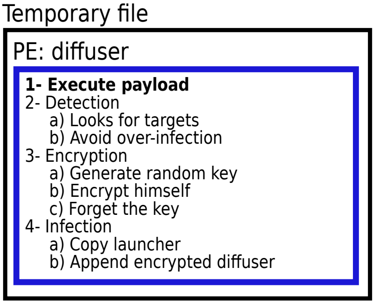
4- Infection
    a) Copy launcher
    b) Append encrypted diffuser

Diffuser 2/13



Temporary file

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  a) Generate random key
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Diffuser 3/13

Temporary file

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2- Detection
  a) Looks for targets
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3- Encryption
  a) Generate random key
  b) Encrypt himself
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4- Infection
  a) Copy launcher
  b) Append encrypted diffuser

Diffuser 4/13

Temporary file

PE: diffuser

1- Execute payload

2- Detection

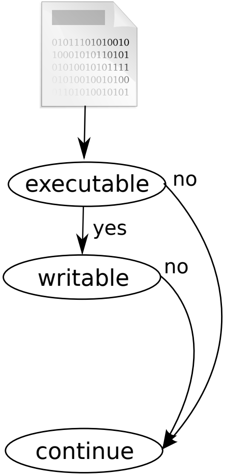
- **a) Looks for targets**
- b) Avoid over-infection

3- Encryption

- a) Generate random key
- b) Encrypt himself
- c) Forget the key

4- Infection

- a) Copy launcher
- b) Append encrypted diffuser



Diffuser 5/13

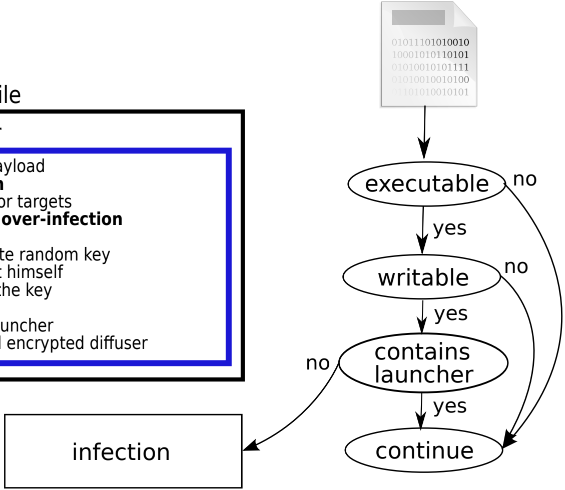
Temporary file

PE: diffuser

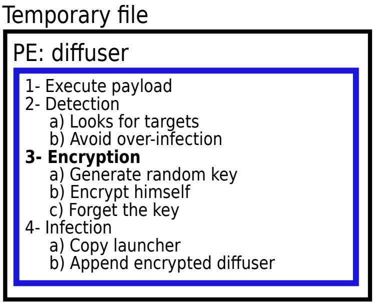
1- Execute payload
2- Detection
- a) Looks for targets
- **b) Avoid over-infection**

3- Encryption
- a) Generate random key
- b) Encrypt himself
- c) Forget the key

4- Infection
- a) Copy launcher
- b) Append encrypted diffuser



Diffuser 6/13



Temporary file

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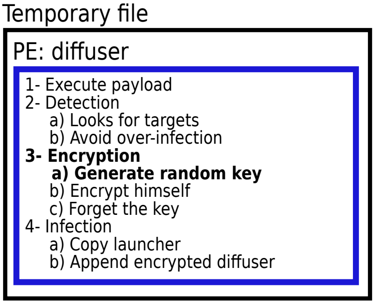
Diffuser 7/13

AE 42 5D



Temporary file

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a) Copy launcher

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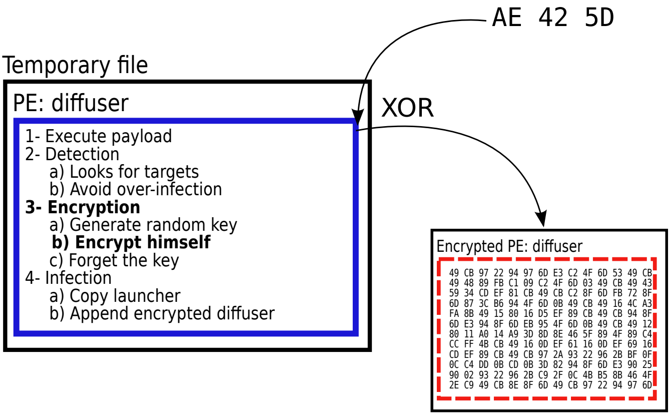
Diffuser 8/13



AE 42 5D

XOR

Temporary file

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2E C9 49 CB 8E 8F 6D 49 CB 97 22 94 97 6D
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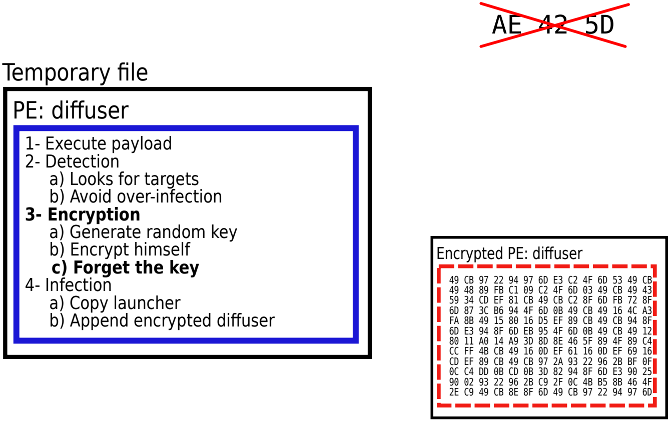
Diffuser 9/13



~~AE 42 5D~~

Temporary file

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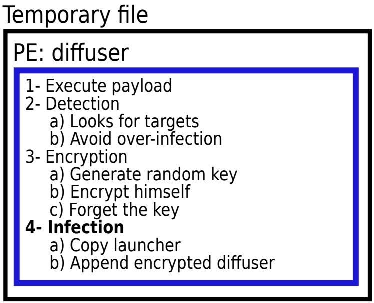
Diffuser 10/13



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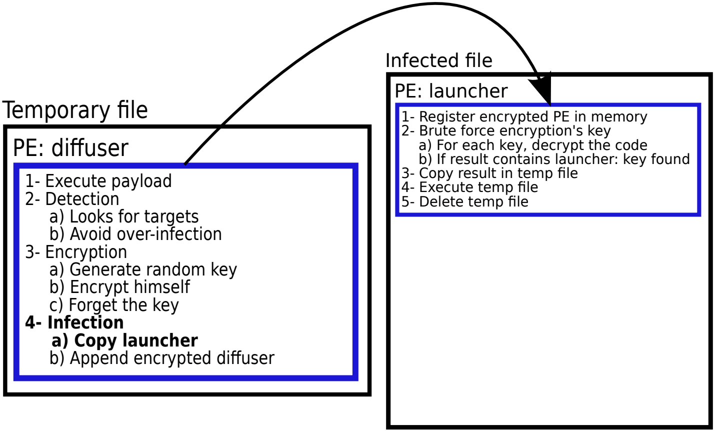
Diffuser 11/13



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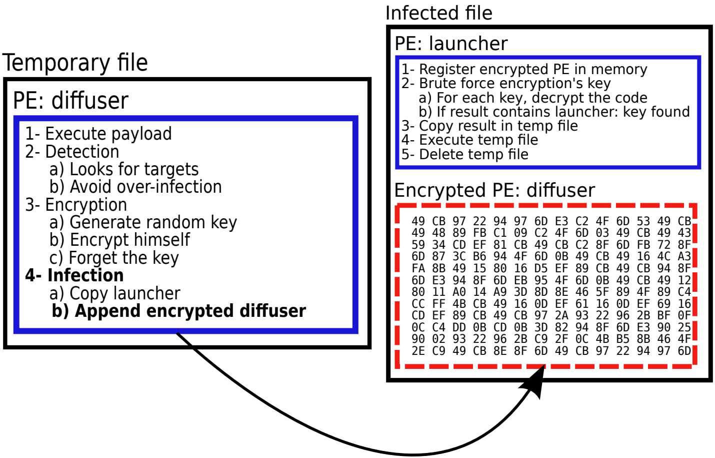
Diffuser 12/13



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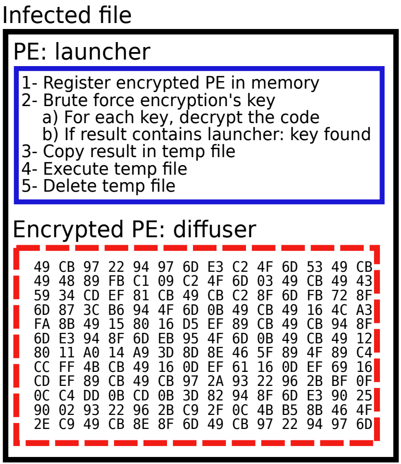
Diffuser 13/13



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Questions

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