Debugging.TV

Frame 0x20

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Topics

- Malware Analysis Patterns
- Malware Modeling
- Injection Residue
- Example

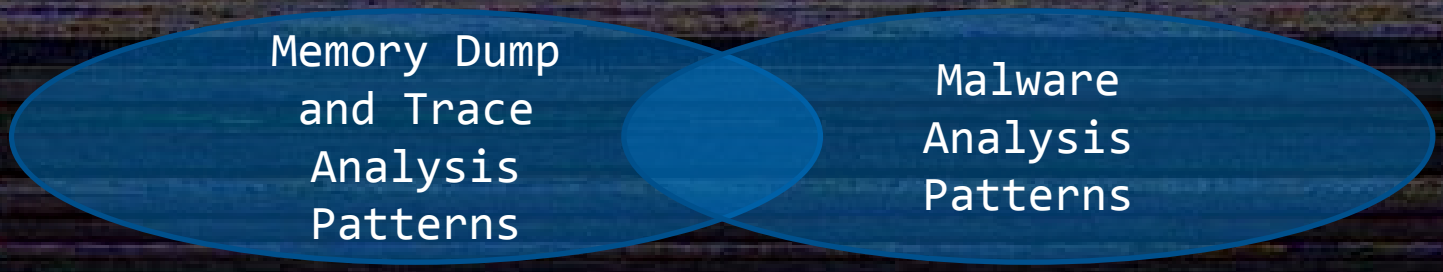
Malware Patterns

Malware:

> software that uses planned alteration of structure and behaviour of software to serve malicious purposes.

Malware analysis patterns:

> intentional abnormal software structure and behavior patterns



Malware Modeling

Real scenario:

Simplified modeling scenario:

Coding post-attack effects

DLL Injection Example

```
LPWSTR szDLL = L".\\winspool.dll";

int main(int _argc, WCHAR* argv[])
{
	for (int i = 0; i < 100; ++i)
		_beginthread(thread, 0, (void *)INFINITE);

	Sleep(10000);

	CreateRemoteThread (GetCurrentProcess(), NULL, 0, reinterpret_cast<LPTHREAD_START_ROUTINE>(LoadLibraryW),
		szDLL,0, NULL);

	Sleep(INFINITE);

	return 0;
}

// winspool.dll

BOOL APIENTRY DllMain( HMODULE hModule, DWORD  ul_reason_for_call, LPVOID lpReserved)
{
	switch (ul_reason_for_call)
	{
		case DLL_PROCESS_ATTACH:
		case DLL_THREAD_ATTACH:

			StartSpying();  // calls CreateFile(L"RedOctober.dll", …);
			Sleep(INFINITE);

		case DLL_THREAD_DETACH:
		case DLL_PROCESS_DETACH:
		break;
	}
	return TRUE;
}
```

Injection Residue

Execution Residue:

Data Residue

```
00000000`08d4f2c0  00000000`005381f0 ""
00000000`08d4f2c8  000007fe`f6e3e248 ".\RedOctober.dll"
00000000`08d4f2d0  00000000`00000000
```

Call Footprint

```
00000000`08d4f2c0  00000000`005381f0
00000000`08d4f2c8  000007fe`f6e3e248 winspool+0xe248
00000000`08d4f2d0  00000000`00000000
00000000`08d4f2d8  00000000`00000000
00000000`08d4f2e0  00000000`00000000
00000000`08d4f2e8  00000000`76bf18ed kernel32!CreateFileWImplementation+0x7d
00000000`08d4f2f0  00000000`00000000
[…]
00000000`08d4f340  00000000`08d4f3d0
00000000`08d4f348  000007fe`fd4e1203 KERNELBASE!SleepEx+0xab
00000000`08d4f350  00000000`08d4f408
```

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