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Entering a Covenant: .NET Command and Control



Ryan Cobb · Follow



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- **Covenant** — Covenant is the server-side component of the client-server architecture. Covenant runs the command and control server hosted on infrastructure shared between operators. I will also frequently use the term “Covenant” to refer to the entire overarching project that includes all components of the architecture.
- **Elite** — Elite is the client-side component of the client-server architecture. Elite is a command-line interface that operators use to interact with the Covenant server to conduct operations.
- **Grunt** — A “Grunt” is the name of Covenant’s implant that is deployed to

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users can start Elite clients that connect to the same Covenant server and operate independently or collaboratively.

- **API Driven** — Covenant is driven by a server-side API that enables multi-user collaboration and is easily extendible. Additionally, Covenant includes a Swagger UI that makes development and debugging easier and more convenient.
- **Listener Profiles** — Covenant supports listener “profiles” that control how the network communication between Grunt implants and Covenant listeners look on the wire.

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- **Tracking Indicators** — Covenant tracks “indicators” throughout an operation, and summarizes them in the `Indicators` menu. This allows an operator to conduct actions that are tracked throughout an operation and easily summarize those actions to the blue team during or at the end of an assessment for deconfliction and educational purposes. This feature is still in it’s infancy and still has room for improvement.
- **Developed in C#** — Personally, I enjoy developing in C#, which may not be a surprise for anyone that has read my latest blogs or tools. Not everyone might agree that development in C# is ideal, but hopefully

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```
$ ~/Covenant/Covenant > docker build -t covenant .

$ ~/Covenant/Covenant > docker run -it -p 7443:7443 -p 80:80 -p
443:443 --name covenant covenant-username AdminUser --computername
0.0.0.0

$ ~/Elite/Elite > docker build -t elite .

$ ~/Elite/Elite > docker run -it -rm -name elite elite --username
AdminUser --computername <covenant_ip>
```

When you first launch Elite, you'll be prompted for a username, password, and certificate hash. After authenticating, you'll be presented with the

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You'll see that you have a few options. The first thing you'll want to do is to start a `Listener`. Navigating to the `Listeners` menu, you will see the types of listeners you have the option of using:

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Renaming Listeners

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PowerShell Launcher Menu

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Hosted PowerShell Launcher

Finally, there's the more generic `code` command that returns the C# stager and/or grunt code that could be used for more customized launch scenarios:

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Generated C# Stager

And as always, the `help` command will give you more information about all the options available:

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Grunts have another interesting built-in command, `sharpshell`, that combines some features of the SharpGen and SharpShell projects to allow for the execution of inline C# code that compiles against the `SharpSploit` library:

Output SharpShell Example

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will have similar effects on .NET tradecraft in the future. .NET 4.8 is still in the “early access” phase of development, so it may be some time before organizations have deployed .NET 4.8 throughout the enterprise. However, the sooner an organization can do so, the better.

These methods of detection and prevention will certainly be effective against Covenant specifically. Covenant is almost entirely reliant on the System.Reflection.Assembly.Load() function. AMSI in .NET will certainly target assemblies loaded in this manner.

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The idea behind tracking indicators is to allow operators to conduct actions and easily summarize those actions to the blue team during or at the end of an assessment. Covenant's capability for tracking indicators has a lot of room for improvement, and this is a feature I will continue to enhance. Eventually, I would love to track many other types of indicators and incorporate some sort of report generation.

Roadmap

I plan to actively develop and continue to enhance Covenant. I have plans

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- **Enhanced Indicator Tracking** — As alluded to earlier in the post, indicator tracking is a feature I would like to further enhance. Specifically, I'd like to add many more types of indicators that are tracked, and eventually would like to track them based on specific tasks conducted on Grunt implants.
- **Improved User Roles** — Covenant implements a user and role structure that I think can be enhanced. I'd like to allow for the idea of administrative users, read-only users, etc. Eventually users could be assigned with specific privileges for specific listeners or Grunt implants.

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Written by Ryan Cobb

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