SEC599 | DEFEATING ADVANCED ADVERSARIES

599.6

APT Defender Capstone

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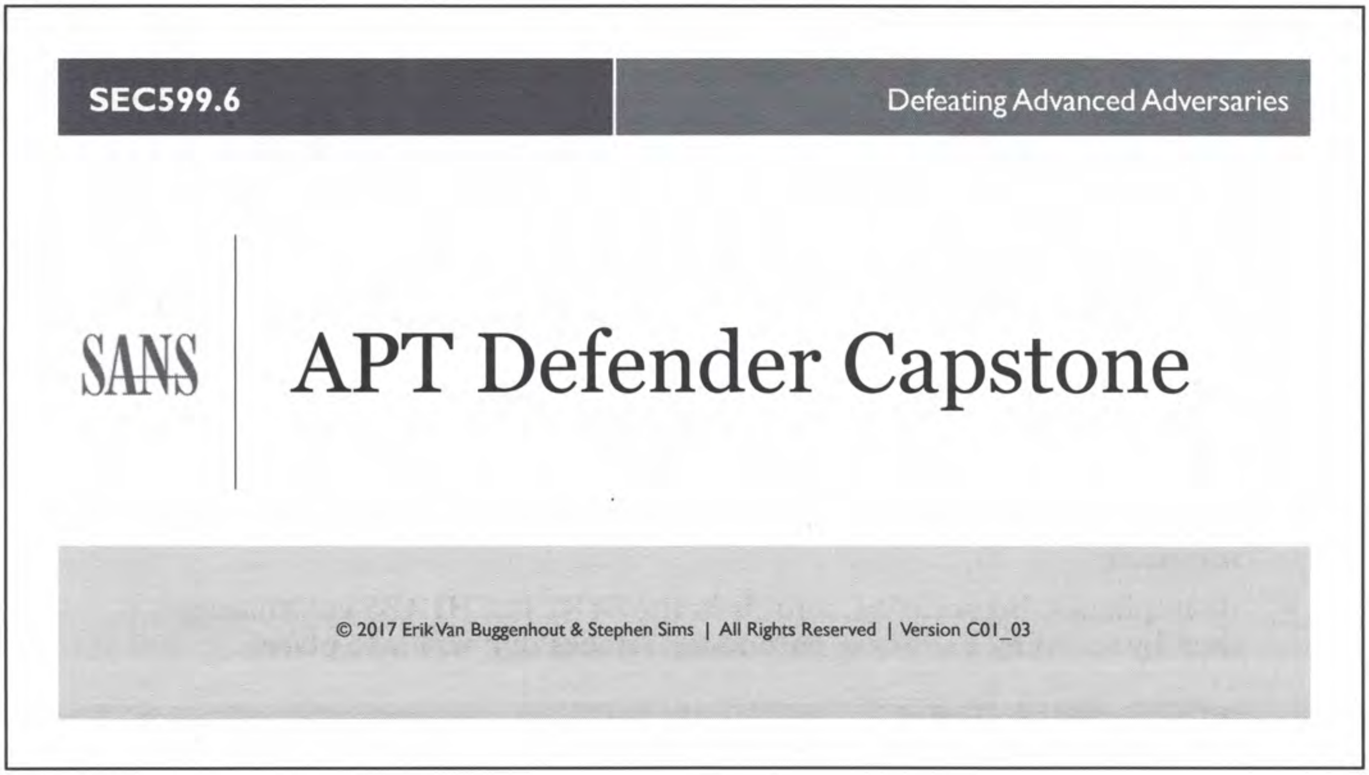

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Defeating Advanced Adversaries

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APT Defender Capstone

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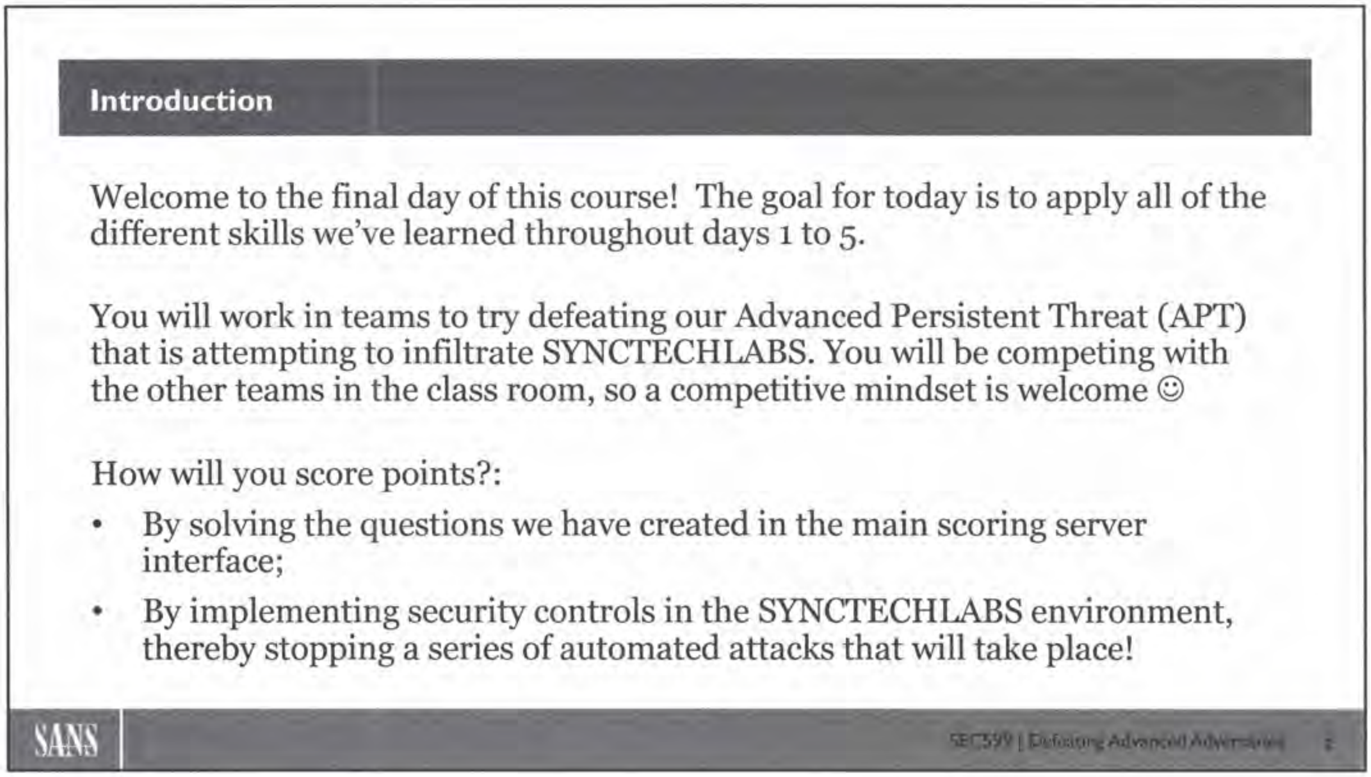

Introduction

Welcome to the final day of this course! The goal for today is to apply all of the different skills we've learned throughout days 1 to 5.

You will work in teams to try defeating our Advanced Persistent Threat (APT) that is attempting to infiltrate SYNCTECHLABS. You will be competing with the other teams in the class room, so a competitive mindset is welcome ☺

How will you score points?:

- By solving the questions we have created in the main scoring server interface;
- By implementing security controls in the SYNCTECHLABS environment, thereby stopping a series of automated attacks that will take place!

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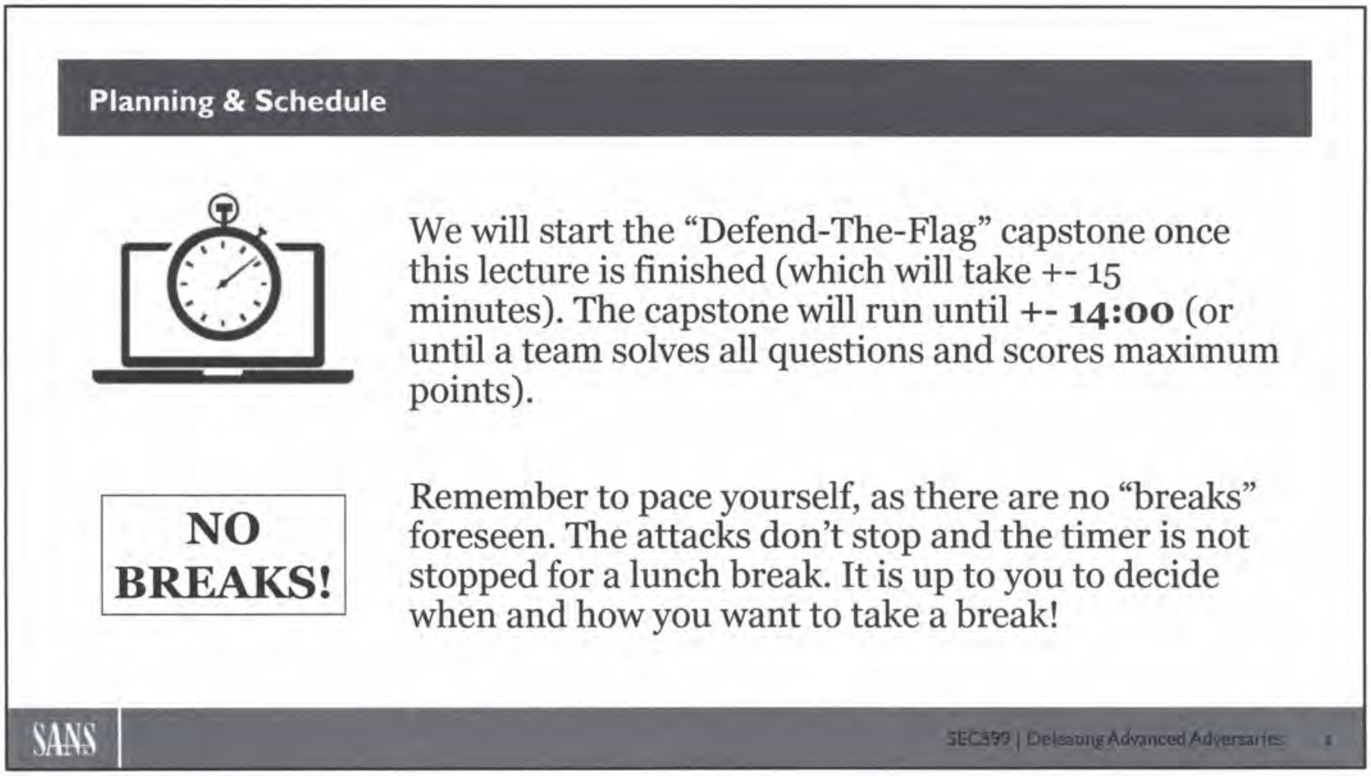

Planning & Schedule

We will start the "Defend-The-Flag" capstone once this lecture is finished (which will take +- 15 minutes). The capstone will run until **+- 14:00** (or until a team solves all questions and scores maximum points).

NO BREAKS!

Remember to pace yourself, as there are no "breaks" foreseen. The attacks don't stop and the timer is not stopped for a lunch break. It is up to you to decide when and how you want to take a break!

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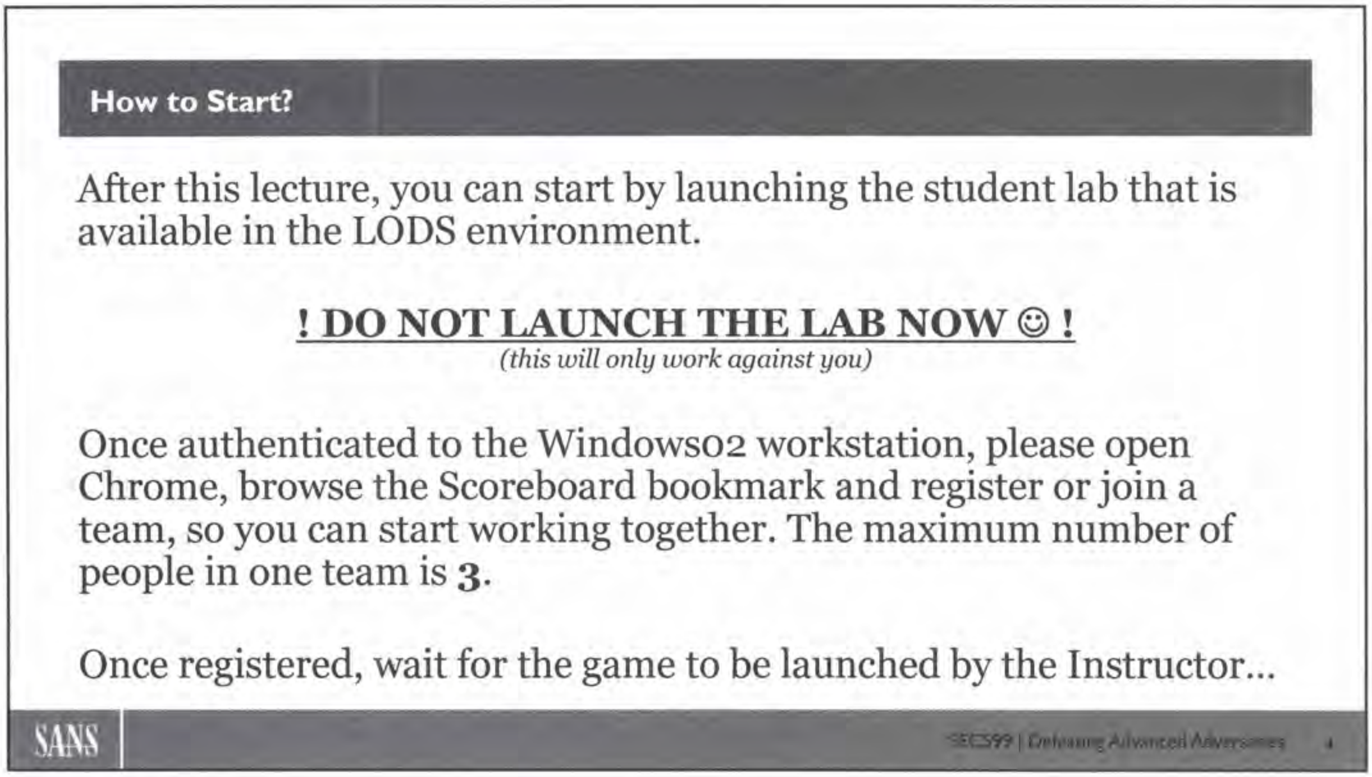

How to Start?

After this lecture, you can start by launching the student lab that is available in the LODS environment.

! DO NOT LAUNCH THE LAB NOW ☺ !

(this will only work against you)

Once authenticated to the Windows02 workstation, please open Chrome, browse the Scoreboard bookmark and register or join a team, so you can start working together. The maximum number of people in one team is **3**.

Once registered, wait for the game to be launched by the Instructor...

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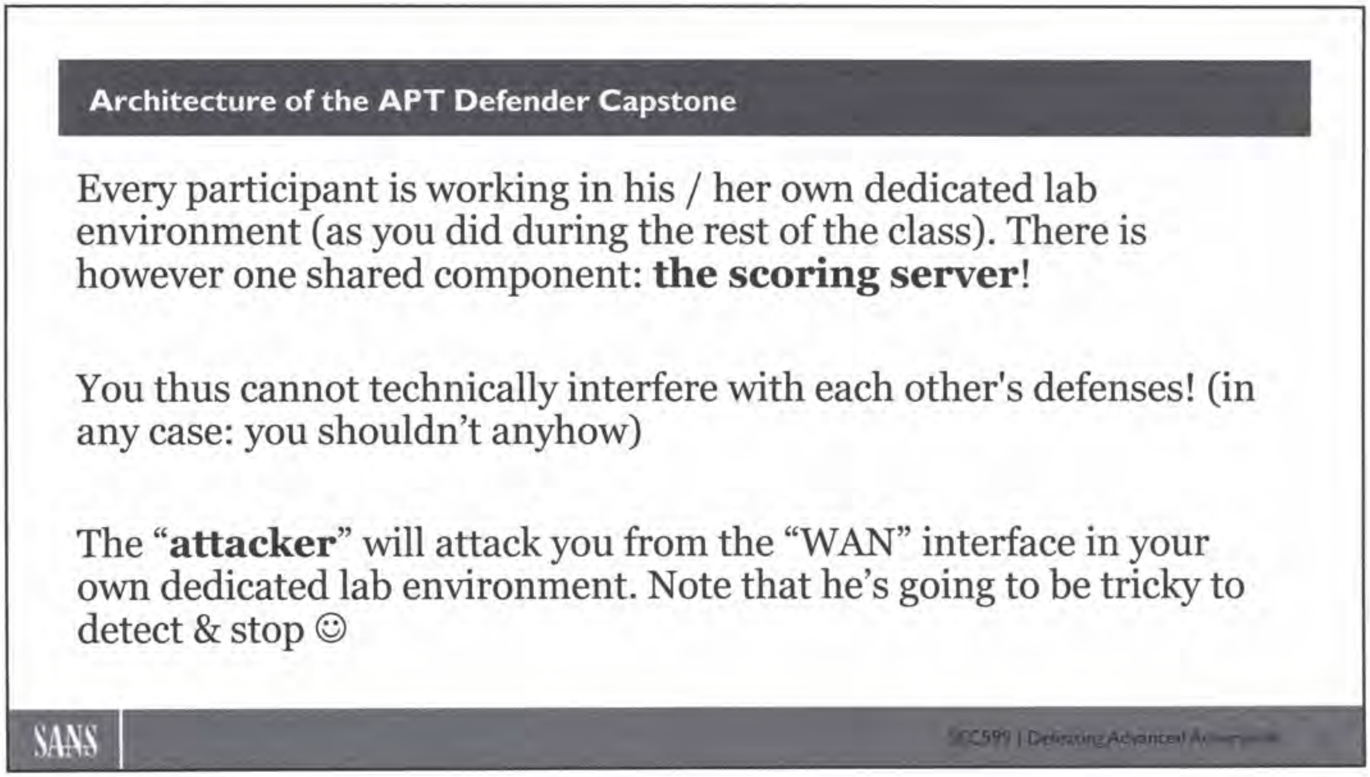
How to start?

After this lecture, you can start by launching the student lab that is available in the LODS environment.

DO NOT LAUNCH THE LAB NOW ☺ - This will only put you at a disadvantage…

Once authenticated to the Windows02 workstation, please open Chrome, browse the Scoreboard bookmark and register or join a team, so you can start working together. The maximum number of people in one team is 3. Once registered, wait for the game to be launched by the Instructor, you can however already configure the "attacker server"!



Architecture of the APT Defender Capstone

Every participant is working in his / her own dedicated lab environment (as you did during the rest of the class). There is however one shared component: **the scoring server**!

You thus cannot technically interfere with each other's defenses! (in any case: you shouldn't anyhow)

The "**attacker**" will attack you from the "WAN" interface in your own dedicated lab environment. Note that he's going to be tricky to detect & stop ☺

Architecture of the APT Defender Capstone

A quick note on the architecture of our APT Defender Capstone: Avery participant is working in his / her own dedicated lab environment (as you did during the rest of the class). There is, however, one shared component: the scoring server!

You thus cannot technically interfere with each other's defenses! (in any case: you shouldn't try anyhow). We have a list of Rules of Engagements that are listed near the end of this deck.

The "attacker" will attack you from the "WAN" interface in your own dedicated lab environment. Note that he's going to be tricky to detect & stop…

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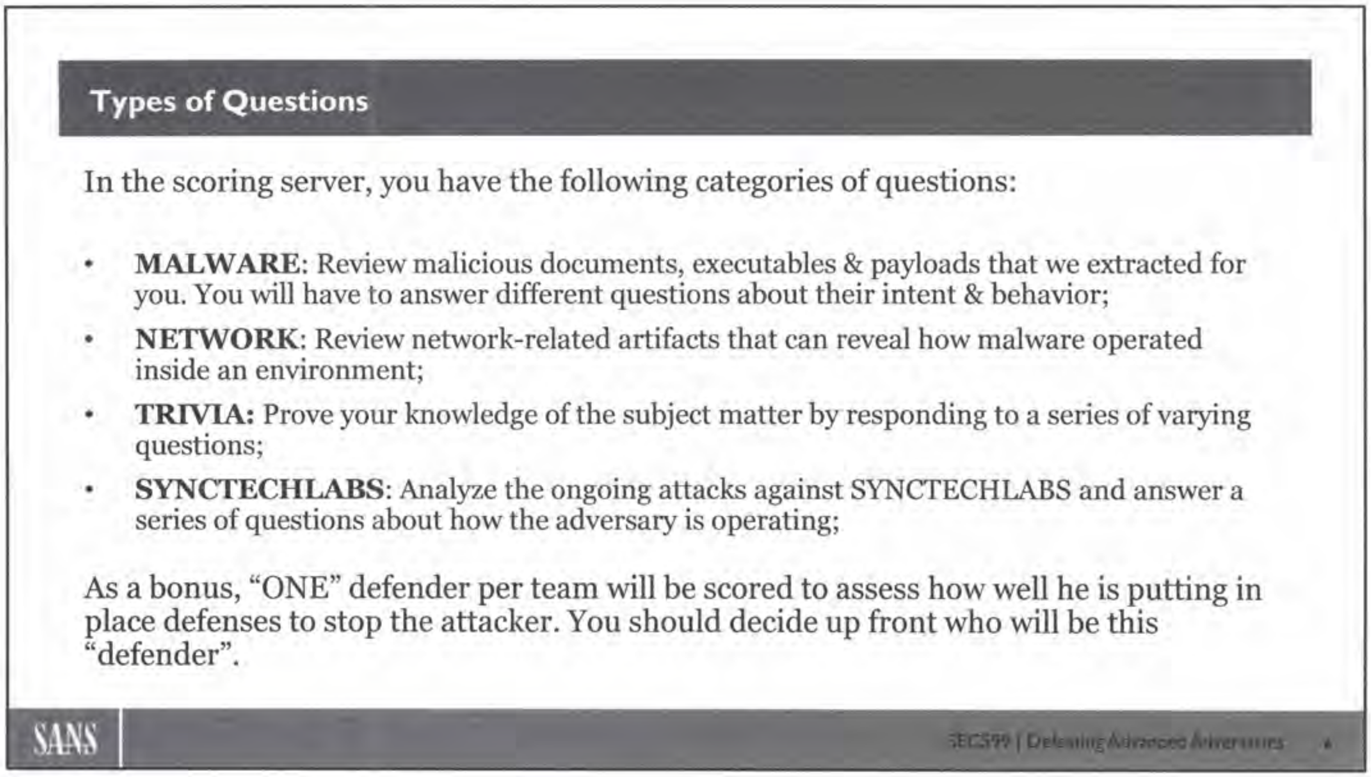

Types of Questions

In the scoring server, you have the following categories of questions:

- **MALWARE**: Review malicious documents, executables & payloads that we extracted for you. You will have to answer different questions about their intent & behavior;
- **NETWORK**: Review network-related artifacts that can reveal how malware operated inside an environment;
- **TRIVIA:** Prove your knowledge of the subject matter by responding to a series of varying questions;
- **SYNCTECHLABS**: Analyze the ongoing attacks against SYNCTECHLABS and answer a series of questions about how the adversary is operating;

As a bonus, "ONE" defender per team will be scored to assess how well he is putting in place defenses to stop the attacker. You should decide up front who will be this "defender".

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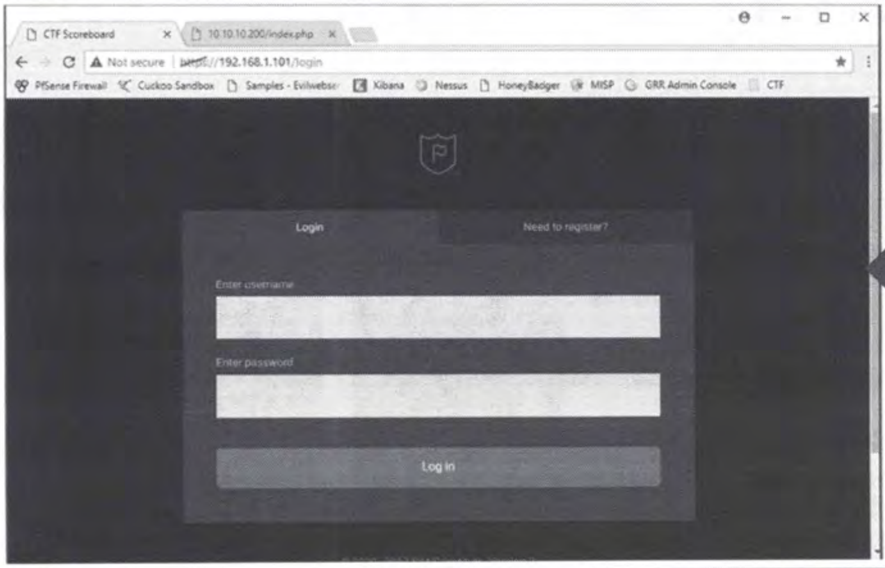
Registering a User & Team



Throughout day 6, you will interact with our central scoring server, where you will first have to register a user and join a team, so you can authenticate to the scoring interface.

There is a limit of 3 users per team.

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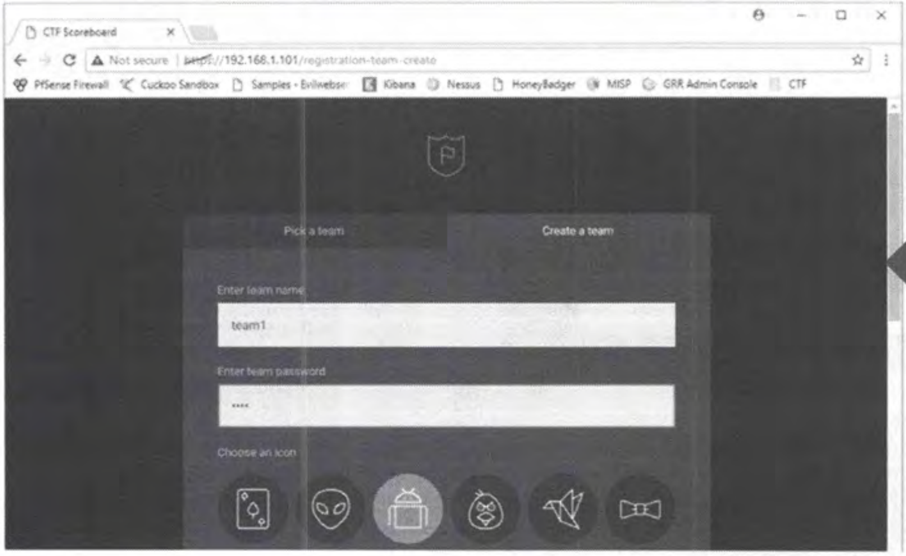
Creating a Team



Enter team name

team1

Enter team password

****

Choose an icon

Create a team name, password and icon.

Note that you should share the teamname and password with all participants that want to play in your team!

Creating a team

Create a team name, password, and icon. Feel free to get creative, but remember that you should share the team name and password with all participants that want to play in your team!

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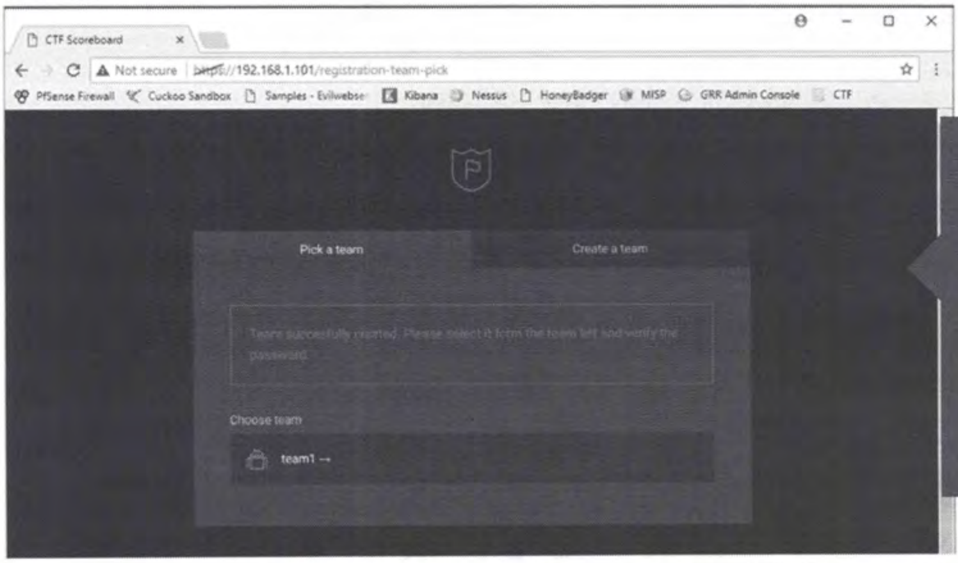
Joining a Team



Team successfully created. Please select it from the team list and verify the password.

Choose team

team1 →

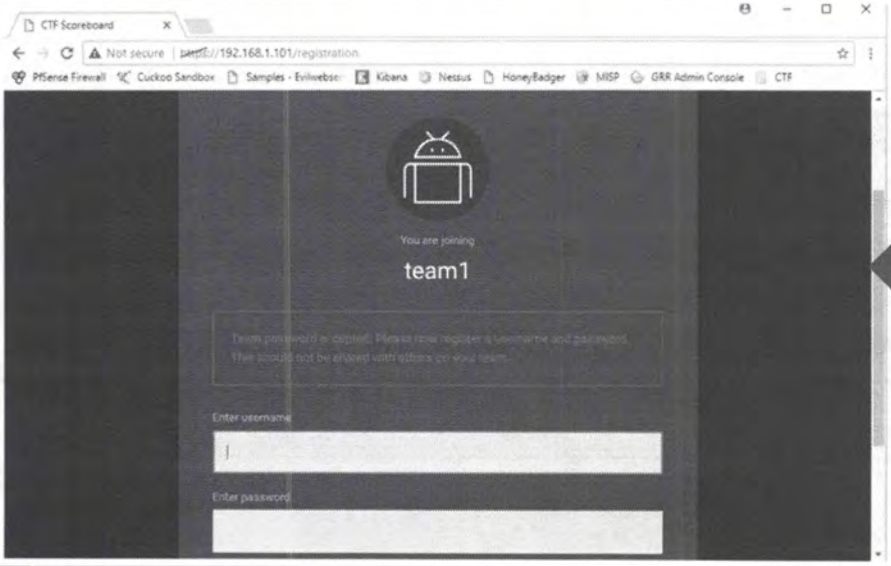
If you would like to join an existing team, just select it from the web interface!

Remember: you will need the password for the team in order to be able to join it!

Joining a team

If you would like to join an existing team, just select it from the web interface! Remember: you will need the password for the team in order to be able to join it!

Creating Your Username



https://192.168.1.101/registration

You are joining

team1

Team password accepted. Please now register a username and password. This should not be shared with others on your team.

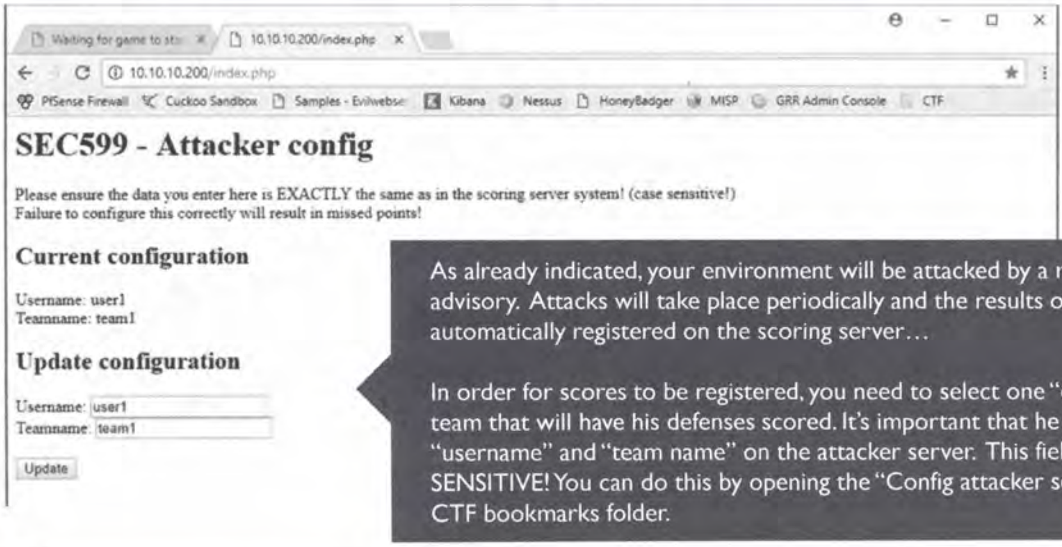
Enter username

Enter password

Once the team password is accepted, you can now create your very own username!

Creating your username
Once the team password is accepted, you can now create your very own username!

For the "One Defender" Only - Configure the Attacker Server



SEC599 - Attacker config

Please ensure the data you enter here is EXACTLY the same as in the scoring server system! (case sensitive!)
Failure to configure this correctly will result in missed points!

Current configuration

Username: user1
Teamname: team1

Update configuration

Username: user1
Teamname: team1

Update

As already indicated, your environment will be attacked by a rather persistent advisory. Attacks will take place periodically and the results of which will be automatically registered on the scoring server…

In order for scores to be registered, you need to select one "defender" in your team that will have his defenses scored. It's important that he registers his "username" and "team name" on the attacker server. This field is CASE SENSITIVE! You can do this by opening the "Config attacker server" from the CTF bookmarks folder.

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This step is important: an incorrect configuration here will score you 0 points on all attempted attacks!

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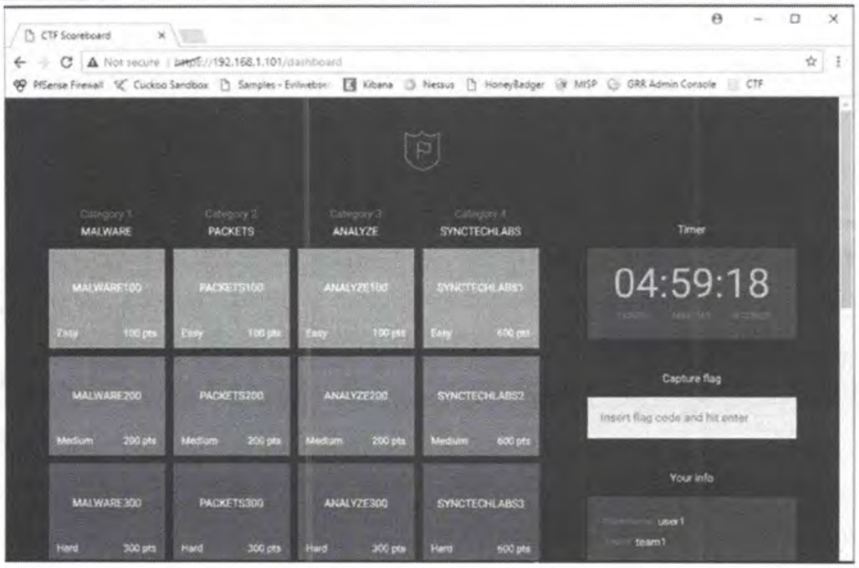
Main Interface



Category 1 MALWARE	Category 2 PACKETS	Category 3 ANALYZE	Category 4 SYNCTECHLABS
MALWARE100 Easy 100 pts	PACKETS100 Easy 100 pts	ANALYZE100 Easy 100 pts	SYNCTECHLABS1 Easy 600 pts
MALWARE200 Medium 200 pts	PACKETS200 Medium 200 pts	ANALYZE200 Medium 200 pts	SYNCTECHLABS2 Medium 600 pts
MALWARE300 Hard 300 pts	PACKETS300 Hard 300 pts	ANALYZE300 Hard 300 pts	SYNCTECHLABS3 Hard 600 pts

Timer

04:59:18

Capture flag

Insert flag code and hit enter

Your info

user1

team1

Once the game is started and you are authenticated, you should receive a screen very similar to the one to the right.

All tiles represent questions you can click and subsequently attempt to answer!

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Main interface

Once the game is started and you are authenticated, you should receive a screen very similar to the one to the right.

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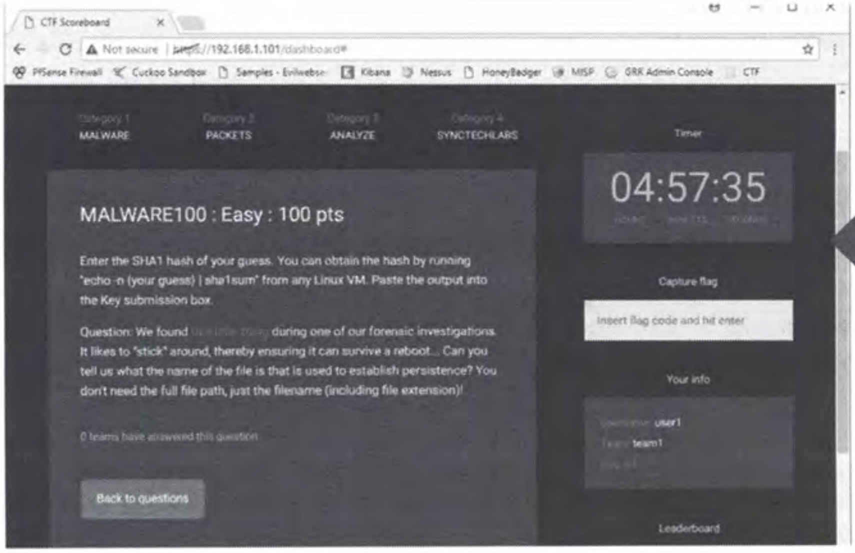
Submitting Answers



MALWARE100 : Easy : 100 pts

Enter the SHA1 hash of your guess. You can obtain the hash by running "echo -n (your guess) | sha1sum" from any Linux VM. Paste the output into the Key submission box.

Question: We found this little thing during one of our forensic investigations. It likes to "stick" around, thereby ensuring it can survive a reboot... Can you tell us what the name of the file is that is used to establish persistence? You don't need the full file path, just the filename (including file extension)!

0 teams have answered this question

When clicking one of the questions, you will receive a detailed question description, along with some guidance on how to submit your guess. The flags are all SHA1 checksums, so you will often need to create a SHA1 checksum of your guess!

The interface will also provide an insight in what teams have already solved the question!

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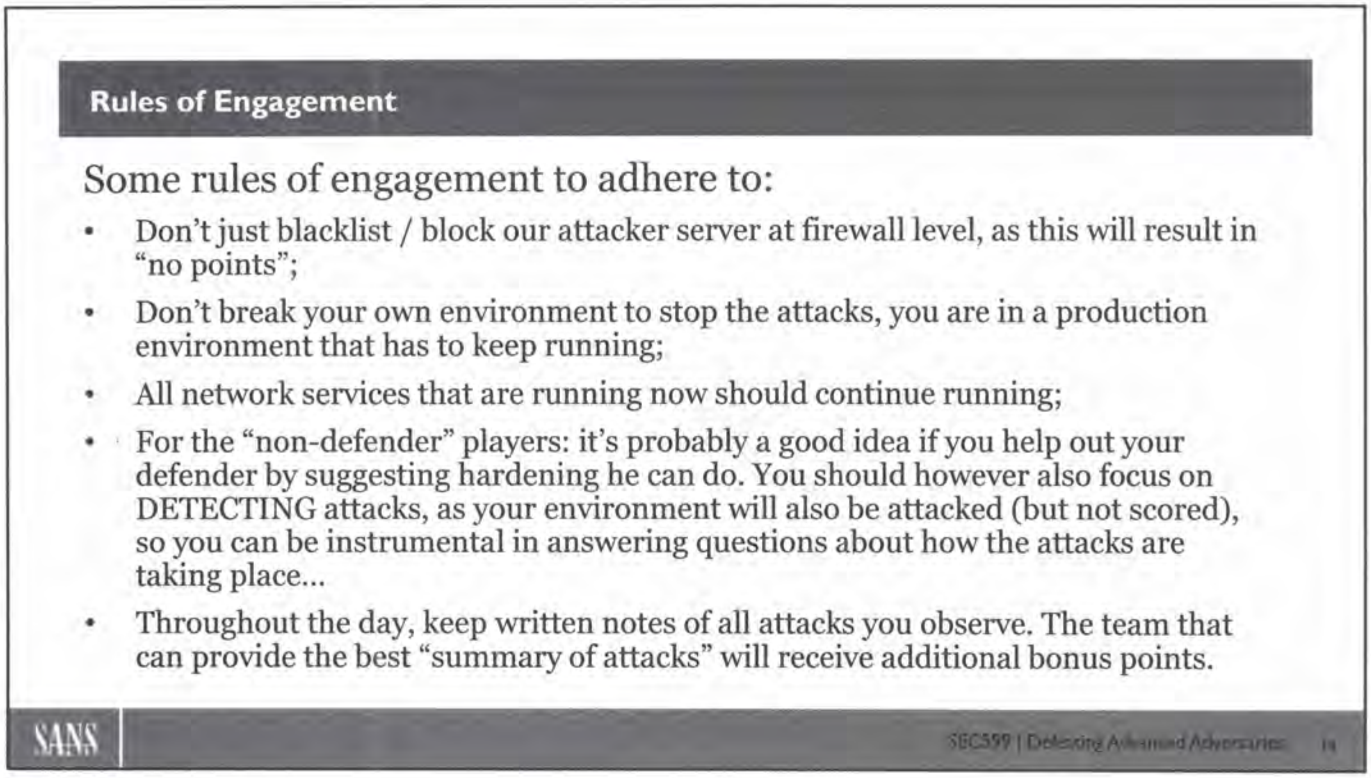

Rules of Engagement

Some rules of engagement to adhere to:

- Don't just blacklist / block our attacker server at firewall level, as this will result in "no points";
- Don't break your own environment to stop the attacks, you are in a production environment that has to keep running;
- All network services that are running now should continue running;
- For the "non-defender" players: it's probably a good idea if you help out your defender by suggesting hardening he can do. You should however also focus on DETECTING attacks, as your environment will also be attacked (but not scored), so you can be instrumental in answering questions about how the attacks are taking place...
- Throughout the day, keep written notes of all attacks you observe. The team that can provide the best "summary of attacks" will receive additional bonus points.

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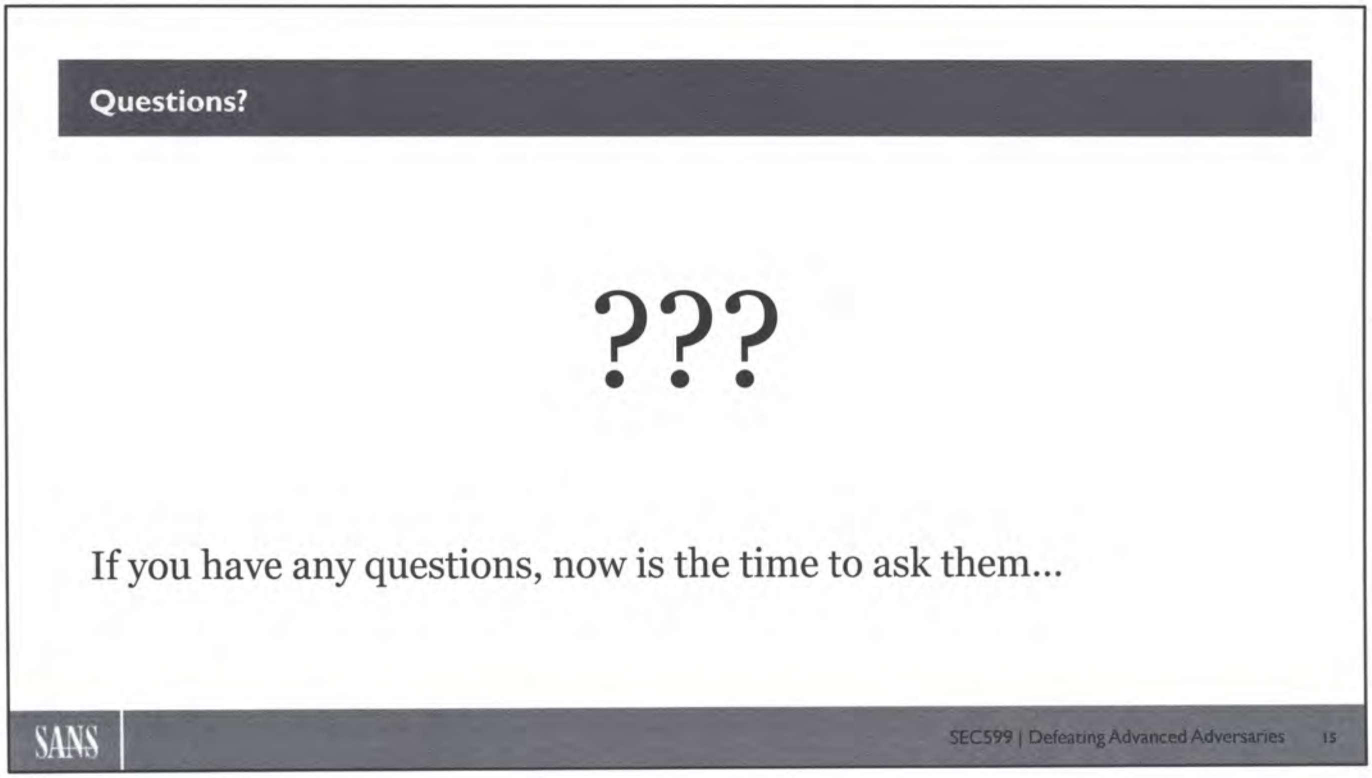

Questions?

???

If you have any questions, now is the time to ask them...

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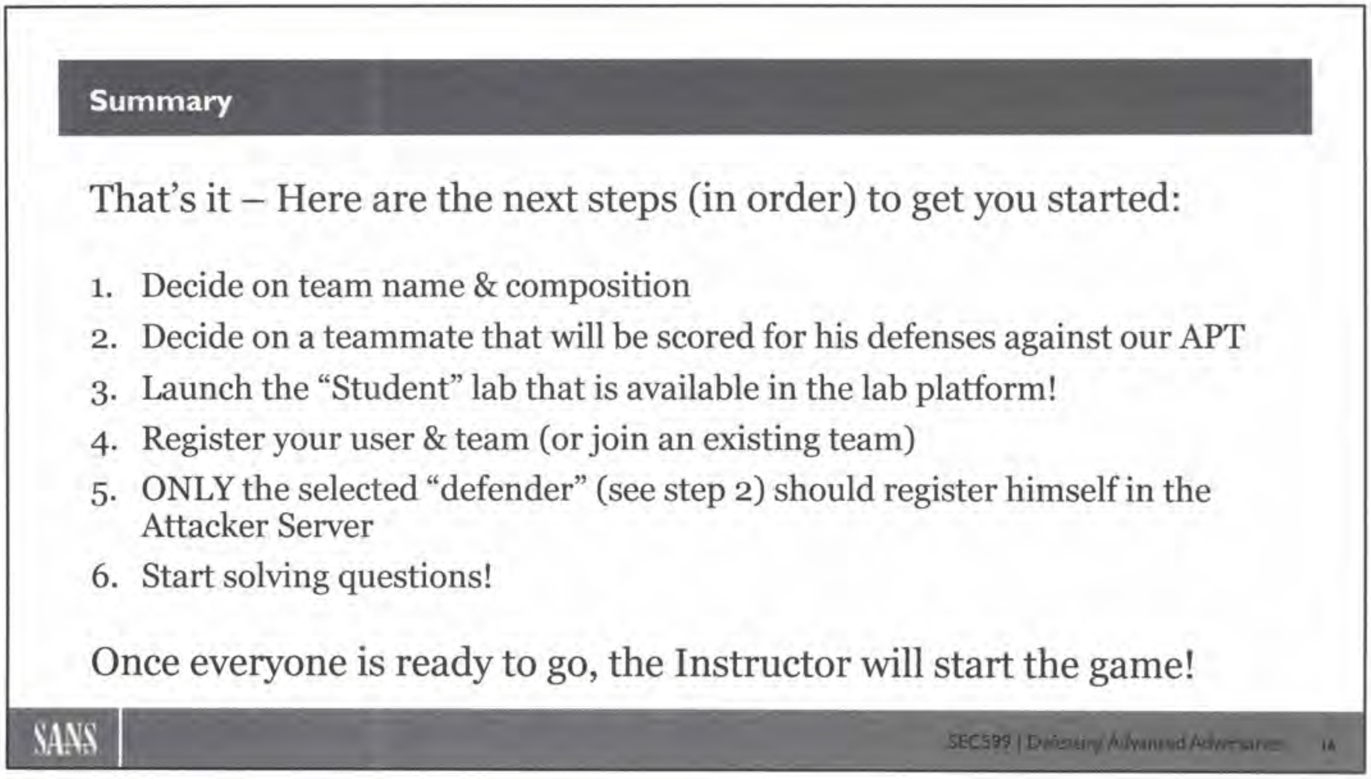

Summary

That's it – Here are the next steps (in order) to get you started:

1. Decide on team name & composition
2. Decide on a teammate that will be scored for his defenses against our APT
3. Launch the "Student" lab that is available in the lab platform!
4. Register your user & team (or join an existing team)
5. ONLY the selected "defender" (see step 2) should register himself in the Attacker Server
6. Start solving questions!

Once everyone is ready to go, the Instructor will start the game!

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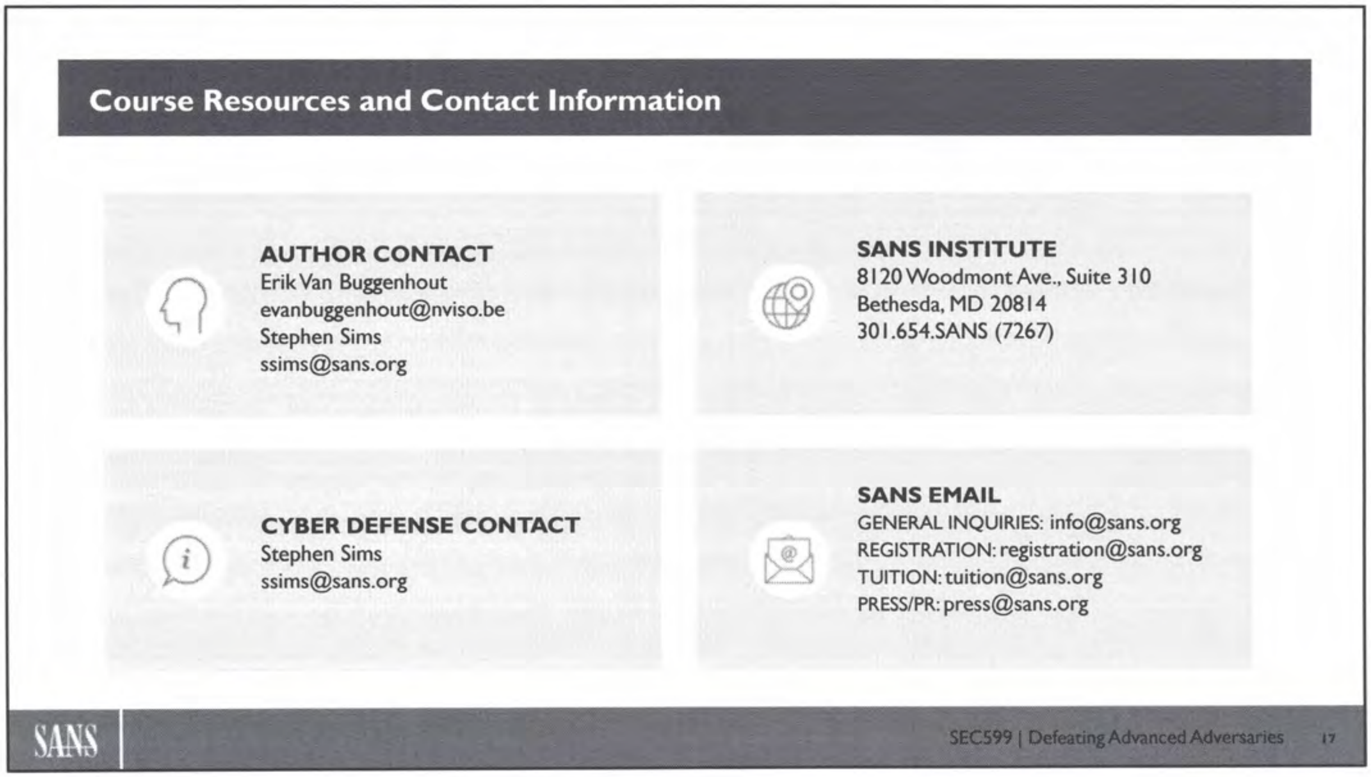

Course Resources and Contact Information

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