Sniffing and Scraping

What is Sniffing?

In its simplest form, sniffing is the act of intercepting and monitoring traffic on a network. This can be done using software that captures all data packets passing through a given network interface or by using hardware devices explicitly designed for this purpose.

What are Sniffing Attacks?

A sniffing attack occurs when an attacker uses a packet sniffer to intercept and read sensitive data passing through a network. Common targets for these attacks include unencrypted email messages, login credentials, and financial information.

In some cases, attackers may also use sniffing attack tools and packet sniffers to inject malicious code into otherwise innocuous data packets in an attempt to hijack a target's computer or other devices.

How Do Hackers Intercept Packets?

There are several ways an attacker can capture packets passing through a network. One popular method is to set up a packet sniffer on a computer connected to the network in question. This computer acts as a proxy between the targeted devices and the rest of the world, allowing the attacker to capture all traffic passing through.

Another common technique is **ARP** poisoning, in which the attacker tricks devices on the network into thinking they are communicating with another device when they are not. This allows the attacker to intercept and read all traffic passing between the two "devices".

What is Data Scraping?

A website is packed with information you want. But you often don't have the time or energy to click through every page and keep detailed notes. Enter data scraping. With one tool, you can get all of the information you want (without all of the pesky clicking and tapping).

Companies created their data scraping tools with humans in mind. They don't spit out things like code or tags or formatting rules. Instead, the results are easy for you to read and manipulate.

There are three main types of data scraping:

1. **Report mining:** Programs pull data from websites into user-generated reports. It's a bit like printing a page, but the printer is the user's report
2. **Screen scraping:** The tool pulls information on legacy machines into modern versions
3. **Web scraping:** Tools pull data from websites into reports users can customize

We can use data scraping for:

1. **Competitor analysis:** A company you'd like to beat publishes all colors, sizes, and prices of a product online. Data scraping could tell you how much your product should cost and how many people want to buy it. Experts consider this form of analysis one of the best ways to use data scraping.
2. **Data aggregation:** Have you ever visited a website filled with headlines from newspapers all around the world? Or have you ever hit a page that has prices and products from several different companies, all in one place? Data scraping makes this possible.

How does data scraping work?

Using tools that someone has already programmed for this purpose, these tools typically follow a three-step process:

1. **Request:** The program uses a "GET" command to pull data from a page you chose
2. **Parse:** The scraper looks for the specific data field you identified
3. **Display:** The requested information flows into a report you specified or created