Store User SSH Keys in Active Directory for SSH Authentication

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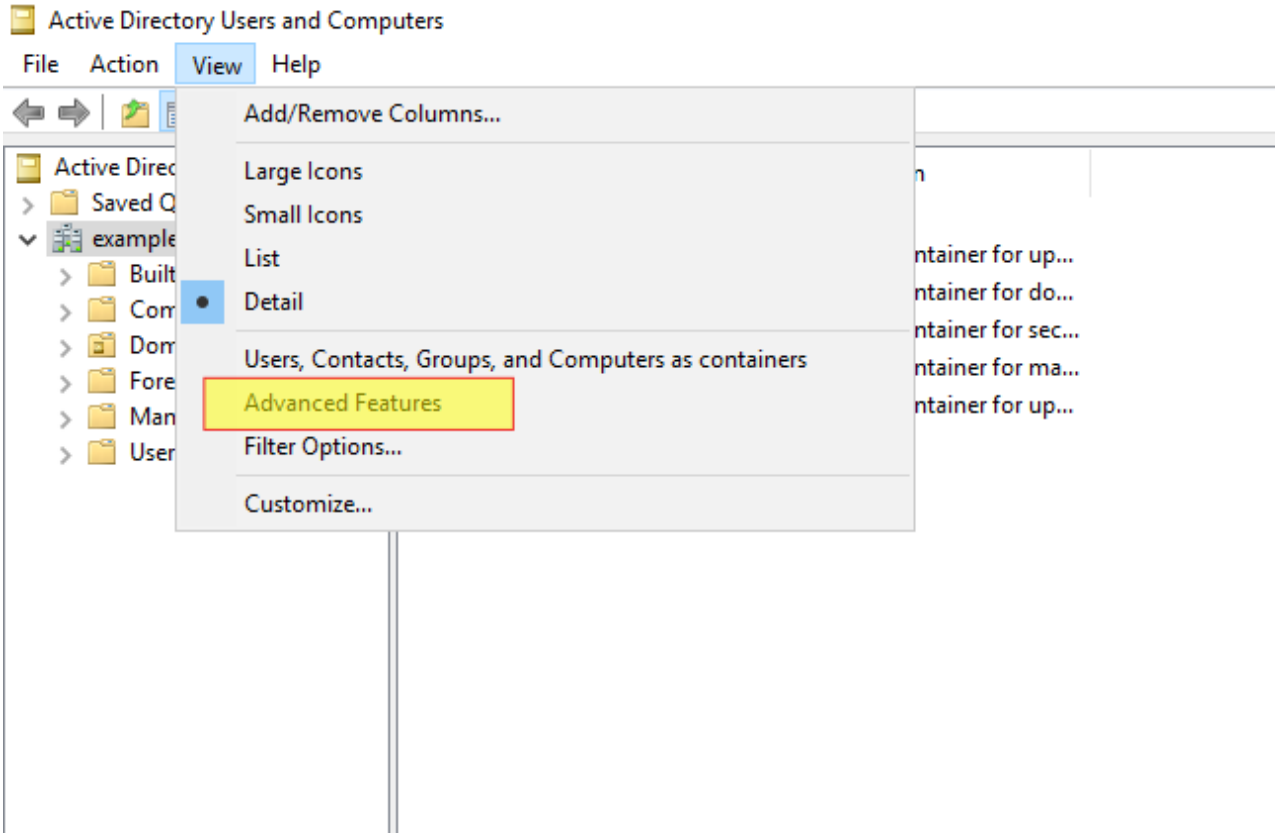

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Solution Verified - Updated June 12 2025 at 11:48 AM -
English

Environment

- Red Hat Enterprise Linux 7
- Red Hat Enterprise Linux 8
- Red Hat Enterprise Linux 9
- Red Hat Enterprise Linux 10
- System Security Services Daemon (SSSD)
- OpenSSH

Issue

- Active Directory (AD) users want to login via SSH using ssh keys

- SSH public keys are to be stored centrally in AD
- SSSD joins AD directly [1], or IdM client enrolled into IdM domain with AD trust[2]

1. Integrating RHEL systems directly with Windows Active Directory: Connecting directly to AD ↩

2. Managing a cross-forest trust between an IdM and AD domain ↩

Resolution

First, store ssh key in `altSecurityIdentities` attribute. Then, configure SSSD to fetch the attribute of the user, and instruct OpenSSH to look up the user's public key with `sss_ssh_authorizedkeys` command.

1. Active Directory Server

2. SSSD

2.a. SSSD joins AD directly

1. Append `ssh` to `services` parameter in */etc/sssd/sssd.conf*

   Raw

   ```
   services = nss, pam, ssh
   ```

2. Add `ldap_user_extra_attrs` and `ldap_user_ssh_public_key` parameters to `[domain]` section of */etc/sssd/sssd.conf*

   Raw

   ```
   [domain/ad.example.com]
   ldap_user_extra_attrs = altSecurityIdentities
   ldap_user_ssh_public_key = altSecurityIdentities
   ```

3. Clear `sssd` cache and restart

   Raw

   ```
   # systemctl stop sssd; rm -rf /var/lib/sss/{db,mc}/*; systemctl start sssd
   ```

2.b. IdM client enrolled into IdM domain with AD trust

1. Add `ldap_user_extra_attrs` and `ldap_user_ssh_public_key` parameters to AD sub-domain `[domain]` section of */etc/sssd/sssd.conf*, on all IdM servers.

   Raw

   ```
   [domain/idm.example.com/ad.example.com]
   ldap_user_extra_attrs = altSecurityIdentities
   ldap_user_ssh_public_key = altSecurityIdentities
   ```

2. Clear `sssd` cache and restart

   Raw

   ```
   # systemctl stop sssd; rm -rf /var/lib/sss/{db,mc}/*; systemctl start sssd
   ```

3. As of SSSD 2.9, below warning message would appear in `/var/log/sssd/sssd.log`. These messages can safely be ignored. This logging bug is being tracked in RHEL-19186.

   Raw

   ```
   [rule/allowed_subdomain_options]: Attribute 'ldap_user_extra_attrs' is not
   allowed in section 'domain/idm.example.com/example.com'. Check for typos.
   [rule/allowed_subdomain_options]: Attribute 'ldap_user_ssh_public_key' is
   not allowed in section 'domain/idm.example.com/example.com'. Check for
   typos.
   ```

3. OpenSSH

1. Add below SSH parameters to */etc/ssh/sshd_config*

   Raw

   ```
   AuthorizedKeysCommand /usr/bin/sss_ssh_authorizedkeys
   AuthorizedKeysCommandUser nobody
   ```

2. Restart `sshd`

   Raw

   ```
   # systemctl restart sshd
   ```

Root Cause

AD user via IdM/AD trust can store SSH keys in IdM by overriding Default Trust View attributes.

Diagnostic Steps

`sss_ssh_authorizedkeys` shows authorized_keys of a user:

Raw

```
# sss_ssh_authorizedkeys bob@ad.example.com
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAABAQDU3PmPi... bob@ad.example.com
```

Product(s)

Red Hat Enterprise Linux

Component

openssh

sssd

Category

Configure

Tags

active_directory

ssh

sssd

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