

Ansible Secrets: Examples and Usage Patterns

This directory contains practical examples for consuming secrets within application projects. These patterns ensure that sensitive data remains encrypted on disk and is only decrypted into memory at runtime by authorized users.

Architectural Overview

Application scripts operate independently of the Ansible Deployment Project (/opt/ansible_secrets). They interact solely with the Runtime Secrets Directory (/opt/credential_store) via system-wide helper scripts.

Component	Location	Purpose
Bash Helper	/usr/local/bin/get_secret.sh	Decrypts a specific secret to stdout.
Python Library	/usr/local/lib/ansible_secrets	Provides programmatic secret retrieval.
Credential Store	/opt/credential_store	Contains GPG-encrypted secrets and the master passphrase.

1. Bash Example: GitHub Identity Loader

The load_github_identity.sh script is a reference implementation for non-interactively loading an SSH key into the ssh-agent.

Key Features

- Idempotency: Checks if the identity is already loaded before attempting decryption.
- Process Management: Automatically handles ssh-agent lifecycle and persists environment variables to `~/.ssh/agent.env`.
- Security: Uses `SSHASKPASS` with a temporary, self-deleting helper script to feed the passphrase to `ssh-add`.

Shell Integration

To automate your workflow, add the following to your `~/.bashrc` or `~/.bashrc_custom`:

1. Ensure the identity is loaded into the agent

```
load_github_identity.sh
```

2. Source the agent environment into the current shell

```
if [ -f "$HOME/.ssh/agent.env" ]; then
    . "$HOME/.ssh/agent.env" > /dev/null
fi
```

2. Python Example: Programmatic Retrieval

Python applications should use the `secret_retriever` module for direct integration.

Usage Pattern

```
import os
from ansible_secret_helpers.secret_retriever import get_secret

def main():
    try:
        # Retrieve secret 'gitphrase' (matches gitphrase_pswd.txt.gpg)
        git_pass = get_secret("gitphrase")

        # Application logic here...
        # print(f"Successfully retrieved secret of length: {len(git_pass)}")

        # Best Practice: Explicitly clear secret from memory when done
        del git_pass

    except Exception as e:
        print(f"Failed to retrieve secret: {e}")

if __name__ == "__main__":
    main()
```

3. Mandatory Security Protocols

To maintain the integrity of the Ansible Secrets system, all application scripts must adhere to the following:

1. Access Control: The executing user must be a member of the appsecretaccess group.
2. Memory Hygiene:
 - Bash: Always use trap unset SECRET_VAR EXIT to prevent secrets from lingering in the environment.
 - Python: Minimize the scope of secret variables and avoid passing them to logging functions.
3. No Disk Persistence: Plaintext secrets must never be written to disk, including temporary files or /dev/shm.
4. Permissions: Production scripts should be owned by service_account:appsecretaccess with mode 0750.

Troubleshooting

- “Permission Denied”: Check group membership with groups. Note that group changes require a fresh login session to take effect.
- “GPG: decryption failed”: Ensure the GPG passphrase file is present at /opt/credential_store/.gpg_passp and readable by your group.