
ara Documentation

Release 1.7.5

ARA Records Ansible authors

Jun 30, 2026

CONTENTS

1	Table of Contents	3
1.1	Introduction	3
1.2	Getting started	3
1.3	Ansible configuration to use ara	3
1.4	Ansible plugins and use cases	4
1.4.1	ara_default callback: recording playbooks from Ansible	4
1.4.2	ara_label: managing labels on playbooks	11
1.4.3	ara_api: free-form API queries	12
1.4.4	ara_playbook: get the running playbook or one in specific	13
1.4.5	ara_record: arbitrary key/values in playbook reports	13
1.5	ARA API server configuration	14
1.5.1	Overview	15
1.5.2	Configuration variables	17
1.6	ARA API Server authentication and security	26
1.6.1	Setting a custom secret key	27
1.6.2	Authentication and user management	27
1.6.3	Setting up authentication for the Ansible plugins	31
1.6.4	Using authentication with the API clients	32
1.6.5	Managing hosts allowed to serve the API	32
1.6.6	Managing CORS (cross-origin resource sharing)	32
1.7	API Documentation	32
1.7.1	Built-in API browser interface	33
1.7.2	Relationship between objects	35
1.8	Using ARA API clients	38
1.8.1	ARA Offline API client	38
1.8.2	ARA HTTP API client	38
1.8.3	Example API usage	39
1.9	Distributed sqlite database backend	40
1.9.1	Use case	40
1.9.2	Configuration	41
1.10	Running ARA API server container images	41
1.10.1	Building an image with buildah	42
1.10.2	Running an image with podman	42
1.10.3	Sending data to the API server	44
1.10.4	Common operations	44
1.11	CLI: ara API client	45
1.11.1	ara	45
1.11.2	ara expire	46
1.11.3	ara playbook list	47
1.11.4	ara playbook show	50

1.11.5	ara playbook delete	51
1.11.6	ara playbook metrics	52
1.11.7	ara playbook prune	55
1.11.8	ara play list	57
1.11.9	ara play show	59
1.11.10	ara play delete	61
1.11.11	ara host list	62
1.11.12	ara host show	64
1.11.13	ara host delete	66
1.11.14	ara host metrics	67
1.11.15	ara record list	69
1.11.16	ara record show	71
1.11.17	ara record delete	73
1.11.18	ara result list	74
1.11.19	ara result show	76
1.11.20	ara result delete	77
1.11.21	ara task list	78
1.11.22	ara task show	81
1.11.23	ara task delete	82
1.11.24	ara task metrics	83
1.12	CLI: ara-manage (django API server)	86
1.12.1	ara-manage	86
1.12.2	ara-manage prune	87
1.12.3	ara-manage changepassword	88
1.12.4	ara-manage createsuperuser	89
1.12.5	ara-manage makemigrations	90
1.12.6	ara-manage migrate	91
1.12.7	ara-manage runserver	92
1.12.8	ara-manage generate	93
1.13	Contributing to ARA	94
1.13.1	Code contributions	94
1.14	FAQ	96
1.14.1	Where is the source code ?	96
1.14.2	What's an Ansible callback ?	96
1.14.3	What versions of Ansible are supported ?	96
1.14.4	Why ARA instead of <X> ?	96
1.14.5	Can I set up the different components of ARA on different servers ?	96
1.15	Troubleshooting	97
1.15.1	Increasing verbosity and obtaining debug logging	97
1.15.2	Playbooks are not recorded	98
1.15.3	Database exceptions	99
1.15.4	Bad Request (400) and ALLOWED_HOSTS	99
1.15.5	Improving playbook recording performance	99
1.16	Changelog and release notes	100
1.16.1	1.7.5 (2026-02-23)	100
1.16.2	1.7.4 (2025-12-01)	101
1.16.3	1.7.3 (2025-08-21)	102
1.16.4	1.7.2 (2024-08-29)	104
1.16.5	1.7.1 (2024-02-06)	105
1.16.6	1.7.0 (2023-09-10)	106
1.16.7	1.6.1 (2022-12-12)	107
1.16.8	1.6.0 (2022-12-01)	108
1.16.9	1.5.8 (2022-03-24)	111
1.16.10	1.5.7 (2021-07-31)	112

1.16.11	1.5.6 (2021-04-14)	114
1.16.12	1.5.5 (2021-01-29)	115
1.16.13	1.5.4 (2020-12-18)	115
1.16.14	1.5.3 (2020-10-23)	117
1.16.15	1.5.2 (2020-10-16)	117
1.16.16	1.5.1 (2020-09-23)	118
1.16.17	1.5.0.1 (2020-09-23)	118
1.16.18	1.5.0 (2020-09-23)	118
1.16.19	1.4.3 (2020-08-11)	120
1.16.20	1.4.2 (2020-07-02)	120
1.16.21	1.4.1 (2020-05-26)	121
1.16.22	1.4.0 (2020-04-16)	122
1.16.23	0.16.7 (2020-04-14)	124
1.16.24	1.3.2 (2019-12-12)	124
1.16.25	1.3.1 (2019-12-06)	124
1.16.26	1.3.0 (2019-12-03)	125
1.16.27	0.16.6 (2019-11-18)	127
1.16.28	1.2.0 (2019-10-25)	127
1.16.29	1.1.0 (2019-07-02)	128
1.16.30	0.16.5 (2019-06-04)	129
1.16.31	1.0.1 (2019-06-05)	129
1.16.32	1.0.0 (2019-06-03)	129
1.16.33	0.16.4 (2019-05-22)	130
1.16.34	0.16.3 (2019-01-21)	130
1.16.35	0.16.2 (2019-01-02)	131
1.16.36	0.16.1 (2018-09-04)	131
1.16.37	0.16.0 (2018-08-27)	131
1.16.38	0.15.0 (2018-05-01)	133
1.16.39	0.14.6 (2018-02-05)	133
1.16.40	0.14.5 (2017-10-26)	134
1.16.41	0.14.4 (2017-09-20)	134
1.16.42	0.14.3 (2017-09-17)	135
1.16.43	0.14.2 (2017-08-29)	135
1.16.44	0.14.1 (2017-08-27)	135
1.16.45	0.14.0 (2017-07-31)	136
1.16.46	0.13.3 (2017-06-30)	137
1.16.47	0.13.2 (2017-06-22)	137
1.16.48	0.13.1 (2017-05-21)	138
1.16.49	0.13.0 (2017-05-04)	138
1.16.50	0.12.5 (2017-04-19)	140
1.16.51	0.12.4 (2017-04-01)	140
1.16.52	0.12.3 (2017-03-09)	141
1.16.53	0.12.2 (2017-03-07)	141
1.16.54	0.12.1 (2017-03-03)	142
1.16.55	0.12.0 (2017-03-01)	142
1.16.56	0.11.0 (2017-02-13)	143
1.16.57	0.10.5 (2017-01-16)	144
1.16.58	0.10.4 (2017-01-15)	144
1.16.59	0.10.3 (2016-12-12)	144
1.16.60	0.10.2 (2016-12-10)	144
1.16.61	0.10.1 (2016-12-05)	145
1.16.62	0.10.0 (2016-12-01)	145
1.16.63	0.9.3 (2016-11-14)	145
1.16.64	0.9.2 (2016-10-22)	145

1.16.65	0.9.1 (2016-09-15)	146
1.16.66	0.9.0 (2016-09-13)	146
1.16.67	0.8.1 (2016-06-03)	146
1.16.68	0.8.0 (2016-06-02)	146
1.16.69	0.7.1 (2016-05-30)	147
1.16.70	0.7.0 (2016-05-27)	147
1.16.71	0.6.0 (2016-05-21)	147
1.16.72	0.5.2 (2016-05-18)	147
1.16.73	0.5.1 (2016-05-17)	147
1.16.74	0.5.0 (2016-05-14)	147
1.16.75	0.4.0 (2016-05-10)	147
1.16.76	0.3.1 (2016-05-09)	147
1.16.77	0.3 (2016-05-09)	147
1.16.78	0.2 (2016-05-09)	148
1.16.79	0.1 (2016-05-08)	148
1.17	Distribution packages	148
1.17.1	Fedora	148
1.17.2	Debian	149
1.17.3	Ubuntu	149
1.17.4	Arch	150
1.18	MCP Server for ARA Records Ansible	150
1.18.1	Why	150
1.18.2	Requirements	151
1.18.3	Installation	151
1.18.4	Configuration	151
1.18.5	Tool Catalog	152
1.18.6	Compatibility	152
1.18.7	See also	152



TABLE OF CONTENTS

1.1 Introduction

ARA aims to do one thing and do it well: Record Ansible playbooks and provide you with the tools you need to make your playbook results intuitive for you and for your systems.

The great thing about ARA is that it is not mutually exclusive with other software and systems you might already be using Ansible with today.

1.2 Getting started

The [README](#) is the best place to get started.

It will tell you about:

- [what ara is](#)
- [what it does](#)
- [how it works](#)
- [what dependencies it needs](#)
- [how to get started](#)
- [a live demo](#)
- [this documentation](#), the *troubleshooting guide* as well as *changelog and release notes*
- [where the project community hangs out](#)
- [how to contribute](#)
- [the project blog](#) with development news, release note highlights, tips, benchmarks and more
- [the project authors and contributors](#)
- [the open source license \(GPLv3\)](#)

1.3 Ansible configuration to use ara

In order to be able to use ara *Ansible plugins*, Ansible must first know where they have been installed.

Since this location will be different depending on the operating system, the version of python or how ara has been installed, there are convenient python helper modules that provide the right paths:

```

$ python3 -m ara.setup.path
/usr/lib/python3.7/site-packages/ara

$ python3 -m ara.setup.plugins
/usr/lib/python3.7/site-packages/ara/plugins

$ python3 -m ara.setup.action_plugins
/usr/lib/python3.7/site-packages/ara/plugins/action
$ export ANSIBLE_ACTION_PLUGINS=$(python3 -m ara.setup.action_plugins)

$ python3 -m ara.setup.callback_plugins
/usr/lib/python3.7/site-packages/ara/plugins/callback
$ export ANSIBLE_CALLBACK_PLUGINS=$(python3 -m ara.setup.callback_plugins)

$ python3 -m ara.setup.lookup_plugins
/usr/lib/python3.7/site-packages/ara/plugins/lookup
$ export ANSIBLE_LOOKUP_PLUGINS=$(python3 -m ara.setup.lookup_plugins)

# Note: This doesn't export anything, it only prints the commands.
# To export directly from the command, use:
#     source <(python3 -m ara.setup.env)
$ python3 -m ara.setup.env
export ANSIBLE_CALLBACK_PLUGINS=/usr/lib/python3.7/site-packages/ara/plugins/callback
export ANSIBLE_ACTION_PLUGINS=/usr/lib/python3.7/site-packages/ara/plugins/action
export ANSIBLE_LOOKUP_PLUGINS=/usr/lib/python3.7/site-packages/ara/plugins/lookup

$ python3 -m ara.setup.ansible
[defaults]
callback_plugins=/usr/lib/python3.7/site-packages/ara/plugins/callback
action_plugins=/usr/lib/python3.7/site-packages/ara/plugins/action
lookup_plugins=/usr/lib/python3.7/site-packages/ara/plugins/lookup

```

These helpers are also available directly in python:

```

>>> from ara.setup import callback_plugins
>>> print(callback_plugins)
/usr/lib/python3.7/site-packages/ara/plugins/callback

>>> from ara.setup import action_plugins
>>> print(action_plugins)
/usr/lib/python3.7/site-packages/ara/plugins/action

>>> from ara.setup import lookup_plugins
>>> print(lookup_plugins)
/usr/lib/python3.7/site-packages/ara/plugins/lookup

```

1.4 Ansible plugins and use cases

1.4.1 ara_default callback: recording playbooks from Ansible

The `ara_default` Ansible callback plugin can be enabled by *configuring Ansible* with the `ANSIBLE_CALLBACK_PLUGINS` environment variable or the `callback_plugins` setting in an `ansible.cfg` file.

The callback is the component that recovers data during playbook execution and sends it to the API.

By default, the callback is configured up to use the local API server with the offline API client but it can be set up to use a remote API server, authenticate with credentials and more:

```

callback: ara
callback_type: notification
requirements:
  - ara
short_description: Sends playbook execution data to the ARA API internally or over HTTP
description:
  - Sends playbook execution data to the ARA API internally or over HTTP
options:
  api_client:
    description: The client to use for communicating with the API
    default: offline
    env:
      - name: ARA_API_CLIENT
    ini:
      - section: ara
        key: api_client
    choices: ['offline', 'http']
  api_server:
    description: When using the HTTP client, the base URL to the ARA API server
    default: http://127.0.0.1:8000
    env:
      - name: ARA_API_SERVER
    ini:
      - section: ara
        key: api_server
  api_username:
    description: If authentication is required, the username to authenticate with
    default: null
    env:
      - name: ARA_API_USERNAME
    ini:
      - section: ara
        key: api_username
  api_password:
    description: If authentication is required, the password to authenticate with
    default: null
    env:
      - name: ARA_API_PASSWORD
    ini:
      - section: ara
        key: api_password
  api_cert:
    description: If a client certificate is required, the path to the certificate to use.
    default: null
    env:
      - name: ARA_API_CERT
    ini:
      - section: ara
        key: api_cert

```

(continues on next page)

(continued from previous page)

```
api_key:
  description: If a client certificate is required, the path to the private key to use.
  default: null
  env:
    - name: ARA_API_KEY
  ini:
    - section: ara
      key: api_key
api_ca:
  description: The path to a CA bundle.
  default: null
  env:
    - name: ARA_API_CA
  ini:
    - section: ara
      key: api_ca
api_insecure:
  description: Can be enabled to ignore SSL certification of the API server
  type: bool
  default: false
  env:
    - name: ARA_API_INSECURE
  ini:
    - section: ara
      key: api_insecure
api_timeout:
  description: Timeout, in seconds, before giving up on HTTP requests
  type: integer
  default: 30
  env:
    - name: ARA_API_TIMEOUT
  ini:
    - section: ara
      key: api_timeout
argument_labels:
  description: |
    A list of CLI arguments that, if set, will be automatically applied to playbooks_
    ↪as labels.
    Note that CLI arguments are not always named the same as how they are_
    ↪represented by Ansible.
    For example, --limit is "subset", --user is "remote_user" but --check is "check".
  type: list
  default:
    - remote_user
    - check
    - tags
    - skip_tags
    - subset
  env:
    - name: ARA_ARGUMENT_LABELS
  ini:
    - section: ara
```

(continues on next page)

(continued from previous page)

```

    key: argument_labels
callback_threads:
  description:
    - The number of threads to use in API client thread pools (maximum 4)
    - When set to 0, no threading will be used (default) which is appropriate for
↪usage with sqlite
    - Using threads is recommended when the server is using MySQL or PostgreSQL
  type: integer
  default: 0
  env:
    - name: ARA_CALLBACK_THREADS
  ini:
    - section: ara
      key: callback_threads
default_labels:
  description: A list of default labels that will be applied to playbooks
  type: list
  default: []
  env:
    - name: ARA_DEFAULT_LABELS
  ini:
    - section: ara
      key: default_labels
ignored_facts:
  description:
    - List of host facts that will not be saved by ARA
    - Every fact can be ignored by specifying 'all'
  type: list
  default: ["ansible_env"]
  env:
    - name: ARA_IGNORED_FACTS
  ini:
    - section: ara
      key: ignored_facts
ignored_arguments:
  description: List of Ansible arguments that will not be saved by ARA
  type: list
  default: ["extra_vars"]
  env:
    - name: ARA_IGNORED_ARGUMENTS
  ini:
    - section: ara
      key: ignored_arguments
ignored_files:
  description:
    - List of file path patterns that will not be saved by ARA
    - Note that the default pattern ('.ansible/tmp') gets dynamically set to the value
↪of ANSIBLE_LOCAL_TEMP
    - The configuration for ANSIBLE_LOCAL_TEMP is typically ~/.ansible/tmp unless it
↪is changed.
  type: list
  default: [".ansible/tmp"]

```

(continues on next page)

(continued from previous page)

```

env:
  - name: ARA_IGNORED_FILES
ini:
  - section: ara
    key: ignored_files
localhost_as_hostname:
  description:
    - Associates results to the hostname (or fqdn) instead of localhost when the
    ↪inventory name is localhost
    - Defaults to false for backwards compatibility, set to true to enable
    - This can be useful when targeting localhost, using ansible-pull or ansible-
    ↪playbook -i 'localhost,'
    - This helps differentiating results between hosts, otherwise everything would
    ↪be recorded under localhost.
  type: boolean
  default: false
env:
  - name: ARA_LOCALHOST_AS_HOSTNAME
ini:
  - section: ara
    key: localhost_as_hostname
localhost_as_hostname_format:
  description:
    - The format to use when recording the hostname for localhost
    - This is used when recording the controller hostname or when ARA_LOCALHOST_TO_
    ↪HOSTNAME is true
    - There are different formats to choose from based on the full (or short)
    ↪configured hostname and fqdn
    - Defaults to 'fqdn' (i.e, server.example.org) but can be set to 'fqdn_short'
    ↪(server)
    - Other options include 'hostname' and 'hostname_short' which may be suitable
    ↪depending on server configuration
  default: fqdn
env:
  - name: ARA_LOCALHOST_AS_HOSTNAME_FORMAT
ini:
  - section: ara
    key: localhost_as_hostname_format
  choices: ['fqdn', 'fqdn_short', 'hostname', 'hostname_short']
record_controller:
  description:
    - Whether ara should record the controller hostname on which the playbook ran
    - Defaults to true but may be optionally set to false for privacy or other use
    ↪cases
  type: boolean
  default: true
env:
  - name: ARA_RECORD_CONTROLLER
ini:
  - section: ara
    key: record_controller
record_controller_name:

```

(continues on next page)

(continued from previous page)

```

description:
  - The name to use when recording the controller hostname.
  - Defaults to the system hostname.
type: string
env:
  - name: ARA_RECORD_CONTROLLER_NAME
ini:
  - section: ara
    key: record_controller_name
record_user:
description:
  - Whether ara should record the user that ran a playbook
  - Defaults to true but may be optionally set to false for privacy or other use_
↔cases
type: boolean
default: true
env:
  - name: ARA_RECORD_USER
ini:
  - section: ara
    key: record_user
record_user_name:
description:
  - The name to use when recording the user that ran a playbook.
  - Defaults to the OS user which ran the playbook.
type: string
env:
  - name: ARA_RECORD_USER_NAME
ini:
  - section: ara
    key: record_user_name
record_task_content:
description:
  - Whether ara should record the content of a task
  - Defaults to true, set to false for privacy or other use cases
type: boolean
default: true
env:
  - name: ARA_RECORD_TASK_CONTENT
ini:
  - section: ara
    key: record_task_content

```

For example, a customized callback plugin configuration might look like this in an `ansible.cfg` file:

```

[ara]
api_client = http
api_server = https://demo.recordsansible.org
api_username = user
api_password = password
api_timeout = 15
callback_threads = 4

```

(continues on next page)

(continued from previous page)

```

argument_labels = check, tags, subset
default_labels = prod, deploy
ignored_facts = all
ignored_files = .ansible/tmp, vault.yaml, vault.yml
ignored_arguments = extra_vars, vault_password_files
localhost_as_hostname = true
localhost_as_hostname_format = fqdn

```

or as environment variables:

```

export ARA_API_CLIENT=http
export ARA_API_SERVER="https://demo.recordsansible.org"
export ARA_API_USERNAME=user
export ARA_API_PASSWORD=password
export ARA_API_TIMEOUT=15
export ARA_CALLBACK_THREADS=4
export ARA_ARGUMENT_LABELS=check, tags, subset
export ARA_DEFAULT_LABELS=prod, deploy
export ARA_IGNORED_FACTS=all
export ARA_IGNORED_FILES=.ansible/tmp, vault.yaml, vault.yml
export ARA_IGNORED_ARGUMENTS=extra_vars, vault_password_files
export ARA_LOCALHOST_AS_HOSTNAME=true
export ARA_LOCALHOST_AS_HOSTNAME_FORMAT=fqdn

```

Recording ad-hoc commands

It is possible to record `ad-hoc` commands in addition to playbooks since ara 1.4.1 and Ansible 2.9.7.

Ad-hoc command recording can be enabled by setting to `true` the `ANSIBLE_LOAD_CALLBACK_PLUGINS` environment variable or `bin_ansible_callbacks` in an `ansible.cfg` file.

Playbook names and labels

Playbooks recorded by the ara callback can be given names or labels in order to make them easier to find and identify later.

They are set as ordinary Ansible variables and are evaluated at the beginning of each play. They can be provided directly in playbook files:

```

- name: Deploy prod environment
  hosts: prod
  vars:
    ara_playbook_name: deploy prod
    ara_playbook_labels:
      - deploy
      - prod
  roles:
    - application

```

or as extra-vars:

```

ansible-playbook -i hosts playbook.yaml \
  -e ara_playbook_name="deploy prod" \
  -e ara_playbook_labels=deploy,prod

```

Once set, they can be searched for in the UI, the API:

- `/api/v1/playbooks?name=prod`
- `/api/v1/playbooks?label=prod`

or the CLI:

- `ara playbook list --name prod`
- `ara playbook list --label prod`

Default labels

Default labels will be applied to every playbook recorded by the callback plugin and can be specified with an `ansible.cfg` file:

```
[defaults]
# ...
[ara]
default_labels = deploy,prod
```

or through the environment variable `ARA_DEFAULT_LABELS`:

```
export ARA_DEFAULT_LABELS=deploy,prod
```

CLI argument labels

CLI argument labels will automatically apply labels to playbooks when specified CLI arguments are used.

For example, if `--check` is used and set up as an argument label, the playbook will be tagged with `check:True` if `--check` was used or `check:False` if it wasn't.

Note

Some CLI arguments are not always named the same as how they are represented by Ansible. For example, `--limit` is “subset”, `--user` is “remote_user” but `--check` is “check”.

Argument labels can be configured through an `ansible.cfg` file:

```
[defaults]
# ...
[ara]
argument_labels = check,subset,tags
```

or through the environment variable `ARA_ARGUMENT_LABELS`:

```
export ARA_ARGUMENT_LABELS=check,subset,tags
```

1.4.2 ara_label: managing labels on playbooks

The `ara_label` Ansible action plugin can be enabled by *configuring Ansible* with the `ANSIBLE_ACTION_PLUGINS` environment variable or the `action_plugins` setting in an `ansible.cfg` file.

It provides another way to manage labels on playbooks recorded by `ara` from within your playbooks:

```

- name: Add a static label to this playbook (the one that is running)
  # Note: By default Ansible will run this task on every host.
  # Consider the use case and declare 'run_once: true' when there is no need to
  # run this task more than once.
  # This might sound obvious but it avoids updating the same labels 100 times
  # if there are 100 hosts, incurring a performance penalty needlessly.
  run_once: true
  ara_label:
    state: present
    labels:
      - state:running

- name: Add dynamically templated labels to this playbook
  ara_label:
    state: present
    labels:
      - "git:{{ lookup('git -C {{ playbook_dir }} rev-parse HEAD') }}"
      - "os:{{ ansible_distribution }}-{{ ansible_distribution_version }}"

- name: Add labels to a specific playbook
  ara_label:
    state: present
    playbook_id: 1
    labels:
      - state:deployed

- name: Remove labels from the running playbook (if they exist)
  ara_label:
    state: absent
    labels:
      - state:running

```

1.4.3 ara_api: free-form API queries

The `ara_api` Ansible lookup plugin can be enabled by *configuring Ansible* with the `ANSIBLE_LOOKUP_PLUGINS` environment variable or the `lookup_plugins` setting in an `ansible.cfg` file.

It can be used to do free-form queries to the ara API while the playbook is running:

```

- name: Test playbook
  hosts: localhost
  tasks:
    - name: Get failed results
      set_fact:
        failed: "{{ lookup('ara_api', '/api/v1/results?status=failed') }}"

    - name: Print task data from failed results
      vars:
        task_id: "{{ item.task | string }}"
        task: "{{ lookup('ara_api', '/api/v1/tasks/' + task_id ) }}"
        host_id: "{{ item.host | string }}"
        host: "{{ lookup('ara_api', '/api/v1/hosts/' + host_id) }}"
      debug:

```

(continues on next page)

(continued from previous page)

```

    msg: "{{ host.name }} failed | {{ task.name }} ({{ task.path }}:{{ task.lineno }}
↪)"
    loop: "{{ failed.results }}"

```

1.4.4 ara_playbook: get the running playbook or one in specific

The ara_playbook Ansible action plugin can be enabled by *configuring Ansible* with the ANSIBLE_ACTION_PLUGINS environment variable or the action_plugins setting in an ansible.cfg file.

Without any arguments, it can be used to return data about the playbook from which it is running:

```

- name: Test playbook
  hosts: localhost
  tasks:
    - name: Get the currently running playbook
      ara_playbook:
        register: query

    - name: Retrieve playbook id
      set_fact:
        playbook_id: "{{ query.playbook.id | string }}"

    # With the playbook id we can create a link to the playbook report
    - name: Recover base url from ara
      set_fact:
        api_base_url: "{{ lookup('ara_api', '/api/') }}"

    - name: Print link to playbook report
      vars:
        ui_base_url: "{{ api_base_url.api[0] | regex_replace('/api/v1/', '') }}"
      debug:
        msg: "{{ ui_base_url }}/playbooks/{{ playbook_id }}.html"

```

With an argument, it can retrieve data from a specific playbook:

```

- name: Test playbook
  hosts: localhost
  tasks:
    - name: Get a specific playbook
      ara_playbook:
        playbook: 9001
        register: query

    - name: Print data about the playbook
      debug:
        msg: "Playbook {{ query.playbook.status }} in {{ query.playbook.duration }}"

```

1.4.5 ara_record: arbitrary key/values in playbook reports

The ara_record Ansible action plugin can be enabled by *configuring Ansible* with the ANSIBLE_ACTION_PLUGINS environment variable or the action_plugins setting in an ansible.cfg file.

It can be used to attach data or metadata to playbook reports so they are available later:

```

- name: Test playbook
  hosts: localhost
  tasks:
    - name: Get git version of playbooks
      command: git rev-parse HEAD
      register: git_version

    - name: Record git version
      ara_record:
        key: "git_version"
        value: "{{ git_version.stdout }}"
      register: version

    - name: Print recorded data
      debug:
        msg: "{{ version.playbook_id }} - {{ version.key }}: {{ version.value }}"

```

It is possible to declare a type which can be used to render the data appropriately later:

```

- name: Record different things
  ara_record:
    key: "{{ item.key }}"
    value: "{{ item.value }}"
    type: "{{ item.type }}"
  loop:
    - { key: "log", value: "error", type: "text" }
    - { key: "website", value: "http://domain.tld", type: "url" }
    - { key: "data", value: '{ "key": "value" }', type: "json" }
    - { key: "somelist", value: ['one', 'two'], type: "list" }
    - { key: "somedict", value: {'key': 'value' }, type: "dict" }

```

Adding records to playbooks after their completion

`ara_record` can attach data to a specific playbook by providing a playbook id. This can be useful for attaching data that might only be available once a playbook has been completed:

```

- name: Attach data to a specific playbook
  ara_record:
    playbook: 9001
    key: logs
    value: "{{ lookup('file', '/var/log/ansible.log') }}"
    type: text

```

Or as an ad-hoc command:

```

ansible localhost -m ara_record \
  -a "playbook=14 key=logs value={{ lookup('file', '/var/log/ansible.log') }}"

```

1.5 ARA API server configuration

The API server ships with sane defaults, supports the notion of different environments (*such as dev, staging, prod*) and allows you to customize the configuration with files, environment variables or a combination of both.

The API is a Django application that leverages `django-rest-framework`. Both `Django` and `django-rest-framework` have extensive configuration options which are not necessarily exposed or made customizable by ARA for the sake of simplicity.

1.5.1 Overview

This is a brief overview of the different configuration options for the API server. For more details, click on the configuration parameters.

Environment Variable	Default	Usage
<i>ARA_ALLOWED_HOSTS</i>	["127.0.0.1", "localhost", ":::1"]	Django's <code>ALLOWED_HOSTS</code> setting
<i>ARA_BASE_DIR</i>	~/.ara/server	Default directory for storing data and configuration
<i>ARA_BASE_PATH</i>	/	Default URL-path under which ARA resides
<i>ARA_CORS_ORIGIN_WHITELIST</i>	["http://127.0.0.1:8000", "http://localhost:3000"]	django-cors-headers's <code>CORS_ORIGIN_WHITELIST</code> setting
<i>ARA_CORS_ORIGIN_REGEX_WHITELIST</i>	[]	django-cors-headers's <code>CORS_ORIGIN_REGEX_WHITELIST</code> setting
<i>ARA_CSRF_TRUSTED_ORIGINS</i>	[]	Django's <code>CSRF_TRUSTED_ORIGINS</code> setting
<i>ARA_DATABASE_CONN_MAX_AGE</i>	0	Django's <code>CONN_MAX_AGE</code> database setting
<i>ARA_DATABASE_ENGINE</i>	django.db.backends.sqlite3	Django's <code>ENGINE</code> database setting
<i>ARA_DATABASE_HOST</i>	None	Django's <code>HOST</code> database setting
<i>ARA_DATABASE_NAME</i>	~/.ara/server/ansible.sqlite	Django's <code>NAME</code> database setting
<i>ARA_DATABASE_PASSWORD</i>	None	Django's <code>PASSWORD</code> database setting
<i>ARA_DATABASE_PORT</i>	None	Django's <code>PORT</code> database setting
<i>ARA_DATABASE_USER</i>	None	Django's <code>USER</code> database setting
<i>ARA_DATABASE_OPTIONS</i>	{}	Django's <code>OPTIONS</code> database setting
<i>ARA_DEBUG</i>	False	Django's <code>DEBUG</code> setting
<i>ARA_DISTRIBUTED_SQLITE_BACKEND</i>	False	Whether to enable distributed sqlite backend
<i>ARA_DISTRIBUTED_SQLITE_BACKEND_PREFIX</i>	ara-report	Prefix to delegate to the distributed sqlite backend
<i>ARA_DISTRIBUTED_SQLITE_BACKEND_ROOT</i>	/var/www/logs	Root under which sqlite databases are expected
<i>ARA_ENV</i>	default	Environment to load configuration for
<i>ARA_EXTERNAL_AUTH</i>	False	Whether or not to enable external authentication
<i>ARA_LOGGING</i>	See <i>ARA_LOGGING</i>	Logging configuration
<i>ARA_LOG_LEVEL</i>	INFO	Log level of the different components
<i>ARA_PAGE_SIZE</i>	100	Amount of results returned per page by the API
<i>ARA_READ_LOGIN_REQUIRED</i>	False	Whether authentication is required for reading data
<i>ARA_SECRET_KEY</i>	Randomized token, see <i>ARA_SECRET_KEY</i>	Django's <code>SECRET_KEY</code> setting
<i>ARA_SETTINGS</i>	~/.ara/server/settings.yaml	Path to an API server configuration file
<i>ARA_TIME_ZONE</i>	Local system timezone	Time zone used when storing and returning results
<i>ARA_WRITE_LOGIN_REQUIRED</i>	False	Whether authentication is required for writing data

1.5.2 Configuration variables

ARA_ALLOWED_HOSTS

- **Environment variable:** ARA_ALLOWED_HOSTS
- **Configuration file variable:** ALLOWED_HOSTS
- **Type:** list
- **Provided by:** Django's `ALLOWED_HOSTS`
- **Default:** `["127.0.0.1", "localhost", ":::1"]`
- **Examples:**
 - `export ARA_ALLOWED_HOSTS='["api.ara.example.org", "web.ara.example.org"]'`
 - In a YAML configuration file:

```
dev:
  ALLOWED_HOSTS:
    - 127.0.0.1
    - localhost
production:
  ALLOWED_HOSTS:
    - api.ara.example.org
    - web.ara.example.org
```

A list of strings representing the host/domain names that this Django site can serve.

If you are planning on hosting an instance of the API server somewhere, you'll need to add your domain name to this list.

ARA_BASE_DIR

- **Environment variable:** ARA_BASE_DIR
- **Configuration file variable:** BASE_DIR
- **Type:** string
- **Default:** `~/ .ara/server`

The directory where data will be stored by default.

Changing this location influences the default root directory for the `ARA_DATABASE_NAME` and `ARA_SETTINGS` parameters.

This is also used to determine the location where the default configuration file, `settings.yaml`, will be generated by the API server.

ARA_BASE_PATH

- **Environment variable:** ARA_BASE_PATH
- **Configuration file variable:** BASE_PATH
- **Type:** string
- **Default:** `/`

The URL path under which ARA should get deployed.

By default this is empty, meaning that ARA will listen directly on /. This setting can be used in conjunction with a reverse proxy to deploy ARA on sub paths without having the reverse proxy to rewrite all URLs in the generated HTML.

ARA_CORS_ORIGIN_WHITELIST

- **Environment variable:** ARA_CORS_ORIGIN_WHITELIST
- **Configuration file variable:** CORS_ORIGIN_WHITELIST
- **Provided by:** [django-cors-headers](#)
- **Type:** list
- **Default:** ["127.0.0.1:8000", "localhost:3000"]
- **Examples:**
 - export ARA_CORS_ORIGIN_WHITELIST="['https://api.ara.example.org', 'https://web.ara.example.org']"
 - In a YAML configuration file:

```
dev:
  CORS_ORIGIN_WHITELIST:
    - http://127.0.0.1:8000
    - http://localhost:3000
production:
  CORS_ORIGIN_WHITELIST:
    - https://api.ara.example.org
    - https://web.ara.example.org
```

Hosts in the whitelist for [Cross-Origin Resource Sharing](#).

This setting is typically used in order to allow the API and a web client (such as [ara-web](#)) to talk to each other.

ARA_CORS_ORIGIN_REGEX_WHITELIST

- **Environment variable:** ARA_CORS_ORIGIN_REGEX_WHITELIST
- **Configuration file variable:** CORS_ORIGIN_REGEX_WHITELIST
- **Provided by:** [django-cors-headers](#)
- **Type:** list
- **Default:** []
- **Examples:**
 - export ARA_CORS_ORIGIN_REGEX_WHITELIST="['^https://pr-\d+.ara-web.example.org\$']"
 - In a YAML configuration file:

```
dev:
  CORS_ORIGIN_REGEX_WHITELIST:
    - '^https://pr-\d+.ara-web.example.org$'
production:
  CORS_ORIGIN_REGEX_WHITELIST:
    - '^https://web.ara.example.(org|net)$'
```

Hosts in the whitelist for [Cross-Origin Resource Sharing](#).

This setting is typically used in order to allow the API and a web client (such as [ara-web](#)) to talk to each other.

Especially useful for situations like CI where the deployment domain may not be known in advance, this setting is applied in addition to the individual domains in the `CORS_ORIGIN_WHITELIST`.

ARA_CSRF_TRUSTED_ORIGINS

- **Environment variable:** `ARA_CSRF_TRUSTED_ORIGINS`
- **Configuration file variable:** `CSRF_TRUSTED_ORIGINS`
- **Provided by:** Django’s `CSRF_TRUSTED_ORIGINS` setting
- **Type:** list
- **Default:** `[]`
- **Examples:**
 - `export CSRF_TRUSTED_ORIGINS="['api.ara.example.org', 'web.ara.example.org']"`
 - In a YAML configuration file:

```
dev:
  CSRF_TRUSTED_ORIGINS:
    - 127.0.0.1:8000
    - localhost:3000
production:
  CSRF_TRUSTED_ORIGINS:
    - api.ara.example.org
    - web.ara.example.org
```

A list of hosts which are trusted origins for unsafe requests (e.g. POST). For a secure unsafe request, Django’s CSRF protection requires that the request have a Referer header that matches the origin present in the Host header. This prevents, for example, a POST request from `subdomain.example.com` from succeeding against `api.example.com`. If you need cross-origin unsafe requests over HTTPS, continuing the example, add “`subdomain.example.com`” to this list. The setting also supports subdomains, so you could add “`.example.com`”, for example, to allow access from all subdomains of `example.com`.

ARA_DATABASE_CONN_MAX_AGE

- **Environment variable:** `ARA_DATABASE_CONN_MAX_AGE`
- **Configuration file variable:** `DATABASE_CONN_MAX_AGE`
- **Provided by:** Django’s `CONN_MAX_AGE` database setting
- **Type:** integer
- **Default:** `0`

The lifetime of a database connection, in seconds, before it is recycled by Django.

The default of `0` results in connections being closed automatically after each request and is appropriate if the API server is not running as a persistent service.

When running the API server as a persistent service, this setting can be increased to values such as `300` in order to enable persistent connections and avoid the performance overhead of re-establishing connections for each request.

When using the `django.db.backends.mysql` database engine, this value should be lower than the MySQL server's `wait_timeout` configuration to prevent the database server from closing the connection before Django can complete queries.

ARA_DATABASE_ENGINE

- **Environment variable:** `ARA_DATABASE_ENGINE`
- **Configuration file variable:** `DATABASE_ENGINE`
- **Provided by:** Django's `ENGINE` database setting
- **Type:** string
- **Default:** `django.db.backends.sqlite3`
- **Examples:**
 - `django.db.backends.sqlite3`
 - `django.db.backends.postgresql`
 - `django.db.backends.mysql`
 - `ara.server.db.backends.distributed_sqlite`

The Django database driver to use.

When using anything other than `sqlite3` default driver, make sure to set the other database settings to allow the API server to connect to the database.

ARA_DATABASE_NAME

- **Environment variable:** `ARA_DATABASE_NAME`
- **Configuration file variable:** `DATABASE_NAME`
- **Provided by:** Django's `NAME` database setting
- **Type:** string
- **Default:** `~/.ara/server/ansible.sqlite`

The name of the database.

When using `sqlite`, this is the absolute path to the `sqlite` database file. When using drivers such as MySQL or PostgreSQL, it's the name of the database.

ARA_DATABASE_USER

- **Environment variable:** `ARA_DATABASE_USER`
- **Configuration file variable:** `DATABASE_USER`
- **Provided by:** Django's `USER` database setting
- **Type:** string
- **Default:** None

The username to connect to the database.

Required when using something other than `sqlite`.

ARA_DATABASE_PASSWORD

- **Environment variable:** ARA_DATABASE_PASSWORD
- **Configuration file variable:** DATABASE_PASSWORD
- **Provided by:** Django's `PASSWORD` database setting
- **Type:** string
- **Default:** None

The password to connect to the database.

Required when using something other than sqlite.

ARA_DATABASE_HOST

- **Environment variable:** ARA_DATABASE_HOST
- **Configuration file variable:** DATABASE_HOST
- **Provided by:** Django's `HOST` database setting
- **Type:** string
- **Default:** None

The host for the database server.

Required when using something other than sqlite.

ARA_DATABASE_PORT

- **Environment variable:** ARA_DATABASE_PORT
- **Configuration file variable:** DATABASE_PORT
- **Provided by:** Django's `PORT` database setting
- **Type:** string
- **Default:** None

The port to use when connecting to the database server.

It is not required to set the port if you're using default ports for MySQL or PostgreSQL.

ARA_DATABASE_OPTIONS

- **Environment variable:** ARA_DATABASE_OPTIONS
- **Configuration file variable:** DATABASE_OPTIONS
- **Provided by:** Django's `OPTIONS` database setting
- **Type:** dictionary
- **Default:** {}
- **Example:**

```
export ARA_DATABASE_OPTIONS='@json {"ssl": {"ca": "/etc/ssl/certificate.pem"}}'
# or in settings.yaml:
DATABASE_OPTIONS:
  ssl:
    ca: "/etc/ssl/certificate.pem"
```

Database options to pass to the Django database backend.

ARA_DEBUG

- **Environment variable:** ARA_DEBUG
- **Configuration file variable:** DEBUG
- **Provided by:** Django's `DEBUG`
- **Type:** string
- **Default:** false

Whether or not Django's debug mode should be enabled.

The Django project recommends turning this off for production use.

ARA_DISTRIBUTED_SQLITE

- **Environment variable:** ARA_DISTRIBUTED_SQLITE
- **Configuration file variable:** DISTRIBUTED_SQLITE
- **Provided by:** `ara.server.db.backends.distributed_sqlite` and `ara.server.wsgi.distributed_sqlite`
- **Type:** bool
- **Default:** False

Whether or not to enable the distributed sqlite database backend and WSGI application.

This feature is useful for loading different ARA sqlite databases dynamically based on request URLs.

For more information, see: *distributed sqlite backend*.

ARA_DISTRIBUTED_SQLITE_PREFIX

- **Environment variable:** ARA_DISTRIBUTED_SQLITE_PREFIX
- **Configuration file variable:** DISTRIBUTED_SQLITE_PREFIX
- **Provided by:** `ara.server.db.backends.distributed_sqlite` and `ara.server.wsgi.distributed_sqlite`
- **Type:** string
- **Default:** ara-report

Under which URL should requests be delegated to the distributed sqlite wsgi application. `ara-report` would delegate everything under `*/ara-report/*`

The path leading to this prefix must contain the `ansible.sqlite` database file, for example: `/var/www/logs/some/path/ara-report/ansible.sqlite`.

For more information, see: *distributed sqlite backend*.

ARA_DISTRIBUTED_SQLITE_ROOT

- **Environment variable:** ARA_DISTRIBUTED_SQLITE_ROOT
- **Configuration file variable:** DISTRIBUTED_SQLITE_ROOT
- **Provided by:** `ara.server.db.backends.distributed_sqlite` and `ara.server.wsgi.distributed_sqlite`

- **Type:** string
- **Default:** /var/www/logs

Root directory under which databases will be found relative to the requested URLs.

This will restrict where the WSGI application will go to seek out databases.

For example, the URL `example.org/some/path/ara-report` would translate to `/var/www/logs/some/path/ara-report`.

For more information, see: *distributed sqlite backend*.

ARA_ENV

- **Environment variable:** ARA_ENV
- **Configuration file variable:** None, this variable defines which section of a configuration file is loaded.
- **Type:** string
- **Default:** development
- **Provided by:** dynaconf

If you are using the API server in different environments and would like keep your configuration in a single file, you can use this variable to select a specific environment's settings.

For example:

```
# Default settings are used only when not provided in the environments
default:
  READ_LOGIN_REQUIRED: false
  WRITE_LOGIN_REQUIRED: false
  LOG_LEVEL: INFO
  DEBUG: false
# Increase verbosity and debugging for the default development environment
development:
  LOG_LEVEL: DEBUG
  DEBUG: true
  SECRET_KEY: dev
# Enable write authentication when using the production environment
production:
  WRITE_LOGIN_REQUIRED: true
  SECRET_KEY: prod
```

With the example above, loading the development environment would yield the following settings:

- `READ_LOGIN_REQUIRED: false`
- `WRITE_LOGIN_REQUIRED: false`
- `LOG_LEVEL: DEBUG`
- `DEBUG: true`
- `SECRET_KEY: dev`

Another approach to environment-specific configuration is to use `ARA_SETTINGS` and keep your settings in different files such as `dev.yaml` or `prod.yaml` instead.

 **Tip**

If it does not exist, the API server will generate a default configuration file at `~/ .ara/server/settings.yaml`. This generated file sets up all the configuration keys in the **default** environment. This lets users override only the parameters they are interested in for specific environments.

ARA_EXTERNAL_AUTH

- **Environment variable:** ARA_EXTERNAL_AUTH
- **Configuration file variable:** EXTERNAL_AUTH
- **Type:** bool
- **Default:** False
- **Provided by:** django-rest-framework [authentication](#)

Whether or not to enable external authentication.

ARA_LOGGING

- **Environment variable:** *Not recommended, use configuration file*
- **Configuration file variable:** LOGGING
- **Type:** dictionary
- **Default:**

```
LOGGING:
  disable_existing_loggers: false
  formatters:
    normal:
      format: '%(asctime)s %(levelname)s %(name)s: %(message)s'
  handlers:
    console:
      class: logging.StreamHandler
      formatter: normal
      level: INFO
      stream: ext://sys.stdout
  loggers:
    ara:
      handlers:
        - console
      level: INFO
      propagate: 0
  level: INFO
  version: 1
```

The python logging configuration for the API server.

ARA_LOG_LEVEL

- **Environment variable:** ARA_LOG_LEVEL
- **Configuration file variable:** LOG_LEVEL
- **Type:** string

- **Default:** INFO

Log level of the different components from the API server.

ARA_LOG_LEVEL changes the log level of the default logging configuration provided by [ARA_LOGGING](#).

ARA_SETTINGS

- **Environment variable:** ARA_SETTINGS
- **Configuration file variable:** None, this variable defines the configuration file itself.
- **Type:** string
- **Default:** None
- **Provided by:** [dynaconf](#)

Location of an API server configuration file to load settings from. The API server will generate a default configuration file at `~/.ara/server/settings.yaml` that you can use to get started.

Note that while the configuration file is in YAML by default, it is possible to have configuration files written in `ini`, `json` and `toml` as well.

Settings and configuration parsing by the API server is provided by the [dynaconf](#) python library.

ARA_PAGE_SIZE

- **Environment variable:** ARA_PAGE_SIZE
- **Configuration file variable:** PAGE_SIZE
- **Type:** integer
- **Default:** 100
- **Provided by:** [django-rest-framework pagination](#)

When querying the API server or the built-in reporting interface, the amount of items per page returned by default.

ARA_READ_LOGIN_REQUIRED

- **Environment variable:** ARA_READ_LOGIN_REQUIRED
- **Configuration file variable:** READ_LOGIN_REQUIRED
- **Type:** bool
- **Default:** False
- **Provided by:** [django-rest-framework permissions](#)

Determines if authentication is required before being authorized to query all API endpoints exposed by the server.

There is no concept of granularity: users either have access to query everything or they don't.

Enabling this feature first requires setting up [users](#).

ARA_SECRET_KEY

- **Environment variable:** ARA_SECRET_KEY
- **Configuration file variable:** SECRET_KEY
- **Provided by:** Django's [SECRET_KEY](#)
- **Type:** string

- **Default:** Randomized with `django.utils.crypto.get_random_string()`

A secret key for a particular Django installation. This is used to provide cryptographic signing, and should be set to a unique, unpredictable value.

If it is not set, a random token will be generated and persisted in the default configuration file.

ARA_TIME_ZONE

- **Environment variable:** `ARA_TIME_ZONE`
- **Configuration file variable:** `TIME_ZONE`
- **Provided by:** Django's `TIME_ZONE`
- **Type:** string
- **Default:** Local system timezone
- **Examples:**
 - UTC
 - US/Eastern
 - America/Montreal
 - Europe/Paris

The time zone to store and return results in.

ARA_WRITE_LOGIN_REQUIRED

- **Environment variable:** `ARA_WRITE_LOGIN_REQUIRED`
- **Configuration file variable:** `WRITE_LOGIN_REQUIRED`
- **Type:** bool
- **Default:** False
- **Provided by:** `django-rest-framework permissions`

Determines if authentication is required before being authorized to post data to all API endpoints exposed by the server.

There is no concept of granularity: users either have access to query everything or they don't.

Enabling this feature first requires setting up *users*.

1.6 ARA API Server authentication and security

The API server ships with a default configuration that emphasizes simplicity to let users get started quickly.

By default:

- A random `SECRET_KEY` will be generated once if none are supplied
- No users are created
- API authentication and permissions are not enabled
- `ALLOWED_HOSTS` and `CORS_ORIGIN_WHITELIST` are configured for use on localhost

These default settings can be configured according to the requirements of your deployments.

Note

For production use and to avoid unintentionally leaking passwords, tokens, secrets or otherwise sensitive information that ara might come across and record, it is strongly encouraged to:

- 1) *Enable authentication for the web interface and API* (see below)
- 2) *Configure the callback plugin to ignore sensitive files, host facts and CLI arguments (such as extra vars)*

1.6.1 Setting a custom secret key

By default, the API server randomly generates a token for the `ARA_SECRET_KEY` setting if none have been supplied by the user.

This value is persisted in the server configuration file in order to prevent the key from changing on every instantiation of the server.

The default location for the server configuration file is `~/.ara/server/settings.yaml`.

You can provide a custom secret key by supplying the `ARA_SECRET_KEY` environment variable or by specifying the `SECRET_KEY` setting in your server configuration file.

1.6.2 Authentication and user management

It is recommended to set up authentication to protect the ara API and reporting interface since the data collected by ara can be sensitive or otherwise non-public information about your hosts, playbook files or task results.

There are two main ways of managing authentication:

- 1) Via a server/proxy in front of the API server (recommended, best performance)
- 2) Via django's built-in authentication (impacts performance but doesn't require server/proxy in front)

In the first scenario, there could be an nginx reverse proxy or apache2/httpd server with `mod_proxy` authenticating against a `.htpasswd` file, ldap and other authentication mechanisms supported by the servers.

Once authenticated, users and clients have read/write access unless there is a specific proxy configuration based on the URL or methods (GET/POST/PATCH/DELETE).

In the second case, there can still be a server/proxy in front but it wouldn't manage the authentication. Users are managed in django and authentication is done against the database backend for each request, incurring a performance hit when validating access and permissions.

This method provides the possibility of a simple "read-only" access by setting `READ_LOGIN_REQUIRED: false` and `WRITE_LOGIN_REQUIRED: true`.

#1: Authentication via a server/proxy

When authentication is handled by a server or proxy in front of the ara API server, the following should be set in `~/.ara/server/settings.yaml`:

```
default:
# [...]
EXTERNAL_AUTH: true
READ_LOGIN_REQUIRED: false
WRITE_LOGIN_REQUIRED: false
# [...]
```

`EXTERNAL_AUTH` is used to accept authentication provided by the server in front of the API server.

READ_LOGIN_REQUIRED and *WRITE_LOGIN_REQUIRED* should both be false as they are only used when django is the one handling the authentication.

Once the ara API server has been restarted with the right settings, it is ready to accept requests from a server or proxy in front of it.

What follows are some example proxy configurations that have been contributed by users.

.htpasswd with nginx or apache2/httpd

- 1) Set up the right configuration in settings.yaml (see parent)
- 2) Install and start nginx or apache2/httpd
- 3) Create a .htpasswd file with an encrypted username/password, for example: `htpasswd -c -m /etc/httpd/.htpasswd username`
- 4) Set up a virtual host configuration in nginx or apache2/httpd
- 5) Ensure ara and proxy servers have been restarted with new configuration
- 6) Complete

For apache2/httpd, you can get started with the following configuration:

```
# /etc/httpd/conf.d/ara.conf
# or /etc/apache2/sites-{available|enabled}/ara.conf
<VirtualHost *:80>
    ServerName ara.example.org
    ProxyPass / http://127.0.0.1:8000/
    ProxyPassReverse / http://127.0.0.1:8000/

    <Location />
        Deny from all
        AuthUserFile /etc/httpd/.htpasswd
        AuthName "Privileged access"
        AuthType Basic
        Satisfy Any
        require valid-user
    </Location>
</VirtualHost>
```

For nginx, you can get started with the following configuration:

```
# /etc/nginx/conf.d/ara.conf
# or /etc/nginx/sites-{available|enabled}/ara.conf
upstream ara_api {
    # fail_timeout=0 means we always retry an upstream even if it failed
    # to return a good HTTP response
    server 127.0.0.1:8000 fail_timeout=0;
}

server {
    listen 80 default_server;
    server_name ara.example.org;
    auth_basic "Privileged access";
    auth_basic_user_file /etc/nginx/.htpasswd;
```

(continues on next page)

(continued from previous page)

```

# Everything, including static files, is served by the backend
location ~ {
    # checks if the file exists, if not found proxy to app
    try_files $uri @proxy_to_app;
}

location @proxy_to_app {
    proxy_set_header X-Forwarded-For $proxy_add_x_forwarded_for;
    proxy_set_header X-Forwarded-Proto $scheme;
    proxy_set_header Host $http_host;

    proxy_redirect off;
    proxy_pass http://ara_api;
}
}

```

ldap with apache2/httpd and mod_ldap

- 1) Set up the right configuration in settings.yaml (see parent)
- 2) Install and start apache2/httpd with mod_ldap
- 3) Set up a virtual host configuration for apache2/httpd
- 4) Ensure ara and proxy servers have been restarted with new configuration
- 5) Complete

You can get started with the following configuration:

```

# /etc/httpd/conf.d/ara.conf
# or /etc/apache2/sites-{available|enabled}/ara.conf
<VirtualHost *:80>
    ServerName ara.example.org
    ProxyPass / http://127.0.0.1:8000/
    ProxyPassReverse / http://127.0.0.1:8000/

    <Location />
        AuthName "Privileged access"
        AuthType Basic
        AuthBasicProvider ldap
        AuthLDAPURL "ldap://openldap/dc=example,dc=org?uid"
        AuthLDAPBindDN "cn=admin,dc=example,dc=org"
        AuthLDAPBindPassword "some_password"
        Require valid-user
        Allow from all
        Order allow,deny
    </Location>
</VirtualHost>

```

#2: Authentication via django

The API server can leverage Django's built-in [user management](#) but doesn't create any user by default.

Note

Creating users does not enable authentication on the API. In order to make authentication required for using the API, see [Enabling authentication for read or write access](#).

In order to create users, you'll need to create a superuser account before running the API server:

```
$ ara-manage createsuperuser --username=joe --email=joe@example.com
Password:
Password (again):
Superuser created successfully.
```

Tip

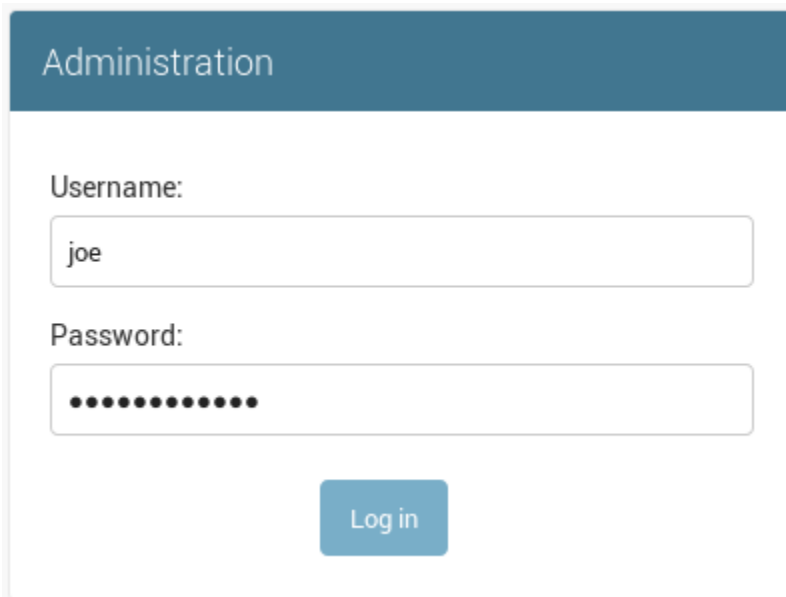
If you ever need to reset the password of a superuser account, this can be done with the "changepassword" command:

```
$ ara-manage changepassword joe
Changing password for user 'joe'
Password:
Password (again):
Password changed successfully for user 'joe'
```

Once the superuser has been created, make sure the API server is started and then login to the Django web administrative interface using the credentials you just set up.

By default, you can start the API server with `ara-manage runserver` and access the admin interface at `http://127.0.0.1:8000/admin/`.

Log in to the admin interface:



Administration

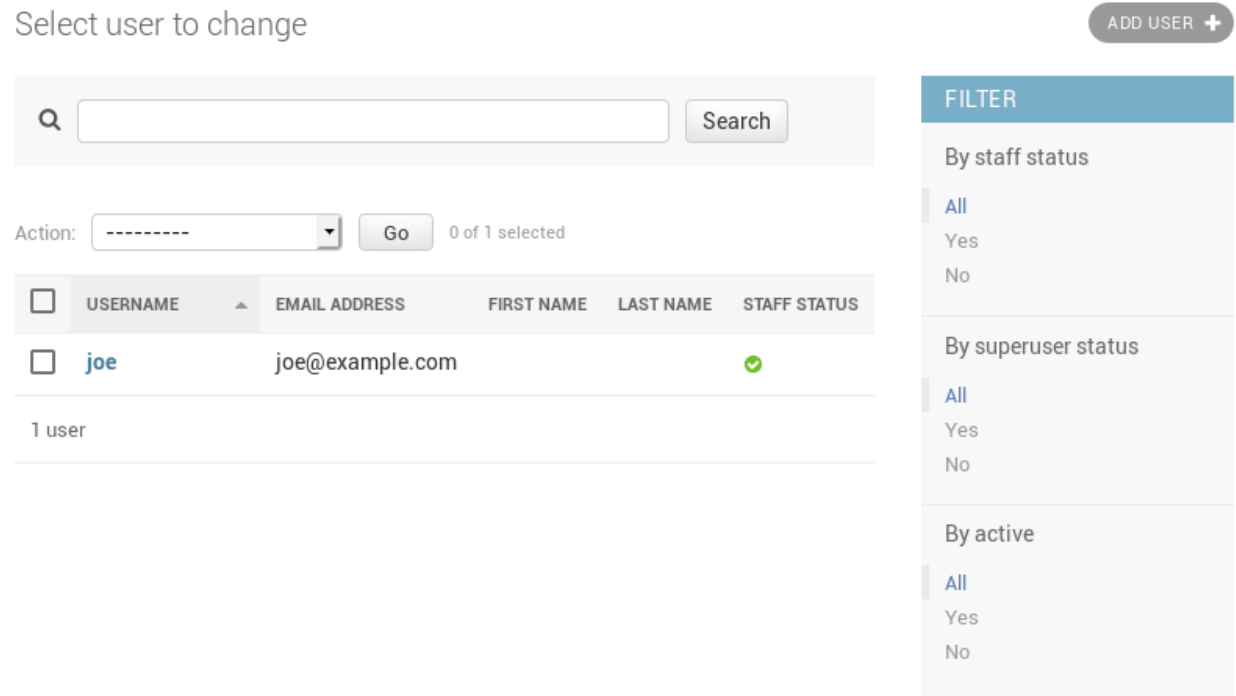
Username:

Password:

Access the authentication and authorization configuration:



And from here, you can manage existing users or create new ones:



Enabling authentication for read or write access

Once django users have been created, you can enable authentication against the API for read (ex: GET) and write (ex: DELETE, POST, PATCH) requests.

This is done with the two following configuration options:

- `ARA_READ_LOGIN_REQUIRED` for read access
- `ARA_WRITE_LOGIN_REQUIRED` for write access

These settings are global and are effective for all API endpoints.

1.6.3 Setting up authentication for the Ansible plugins

The callback plugin used to record playbooks as well as the `ara_record` action plugin will need to authenticate against the API if authentication is enabled and required.

You can specify the necessary credentials through the `ARA_API_USERNAME` and `ARA_API_PASSWORD` environment variables or through your `ansible.cfg` file:

```
[defaults]
# ...
```

(continues on next page)

(continued from previous page)

```
[ara]
api_client = http
api_server = http://api.example.org
api_username = ara
api_password = password
```

1.6.4 Using authentication with the API clients

To instantiate an authenticated client with the built-in basic HTTP authentication provided by Django:

```
from ara.clients.utils import get_client
client = get_client(
    client="http",
    endpoint="http://api.example.org",
    username="ara",
    password="password"
)
```

If you have a custom authentication that is supported by the `python requests` library, you can also pass the relevant `auth` object directly to the client:

```
from ara.clients.http import AraHttpClient
from requests_oauthlib import OAuth1
auth = OAuth1(
    "YOUR_APP_KEY",
    "YOUR_APP_SECRET",
    "USER_OAUTH_TOKEN",
    "USER_OAUTH_TOKEN_SECRET"
)
client = AraHttpClient(endpoint="http://api.example.org", auth=auth)
```

1.6.5 Managing hosts allowed to serve the API

By default, `ARA_ALLOWED_HOSTS` authorizes `localhost`, `:::1` and `127.0.0.1` to serve requests for the API server.

In order to host an instance of the API server on another domain the domain must be part of this list or the application server will deny any requests sent to it.

1.6.6 Managing CORS (cross-origin resource sharing)

The `ARA_CORS_ORIGIN_WHITELIST` default was designed to allow a local development instance of an `ara-web` dashboard to communicate with a local development instance of the API server.

The whitelist must contain the domain names where you plan on hosting instances of `ara-web`.

`ara-web` has since been archived but this could prove useful for other use cases.

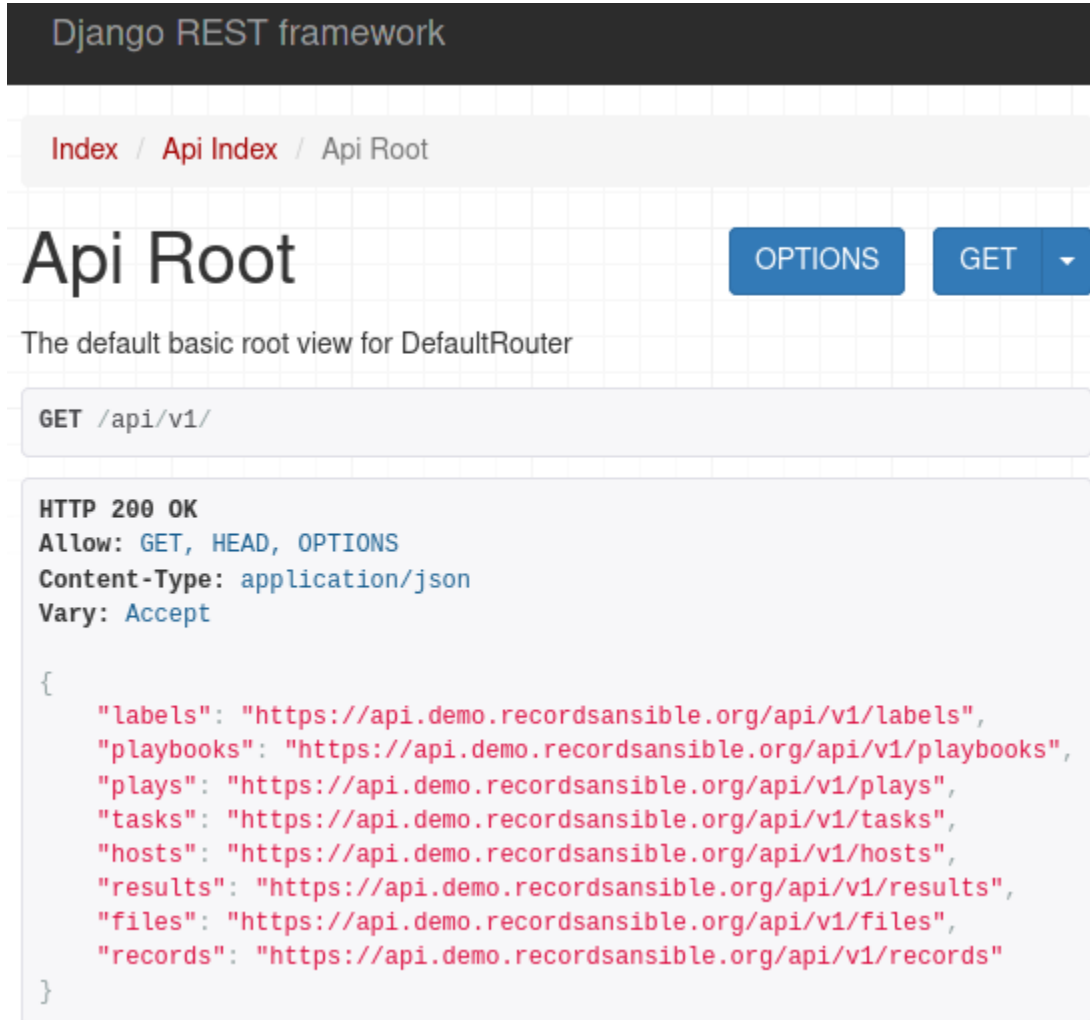
1.7 API Documentation

The API documentation is a work in progress.

1.7.1 Built-in API browser interface

ARA ships with a helpful interface to navigate the API directly from your favorite web browser.

For example, if you run `ara-manage runserver`, this interface would be available at `http://127.0.0.1:8000/api/v1/`:



The screenshot shows the Django REST framework interface for the 'Api Root' endpoint. At the top, it says 'Django REST framework'. Below that is a breadcrumb trail: 'Index / Api Index / Api Root'. The main heading is 'Api Root', with 'OPTIONS' and 'GET' buttons to its right. A description reads: 'The default basic root view for DefaultRouter'. Below this, the method 'GET /api/v1/' is shown. The response details are: 'HTTP 200 OK', 'Allow: GET, HEAD, OPTIONS', 'Content-Type: application/json', and 'Vary: Accept'. The response body is a JSON object listing various API endpoints:

```
{
  "labels": "https://api.demo.recordsansible.org/api/v1/labels",
  "playbooks": "https://api.demo.recordsansible.org/api/v1/playbooks",
  "plays": "https://api.demo.recordsansible.org/api/v1/plays",
  "tasks": "https://api.demo.recordsansible.org/api/v1/tasks",
  "hosts": "https://api.demo.recordsansible.org/api/v1/hosts",
  "results": "https://api.demo.recordsansible.org/api/v1/results",
  "files": "https://api.demo.recordsansible.org/api/v1/files",
  "records": "https://api.demo.recordsansible.org/api/v1/records"
}
```

You can navigate the interface and drill down to list views, for example:

Playbook List

[Filters](#)[OPTIONS](#)[GET](#)

```
GET /api/v1/playbooks
```

```
HTTP 200 OK
```

```
Allow: GET, POST, HEAD, OPTIONS
```

```
Content-Type: application/json
```

```
Vary: Accept
```

```
{
  "count": 5,
  "next": null,
  "previous": null,
  "results": [
    {
      "id": 1,
      "duration": "19.449979",
      "items": {
        "plays": 3,
        "tasks": 38,
        "results": 38,
        "hosts": 2,
        "files": 5,
        "records": 6
      },
      "labels": [],
      "started": "2019-03-19T19:25:31.010846",
      "ended": "2019-03-19T19:25:50.460825",
      "name": "Smoke tests",
      "ansible_version": "2.6.15.post0",
      "status": "failed",
      "path": "/tmp/ara-integration-tests/ara/tests/integration/smoke.yaml"
    }
  ]
}
```

You can also see what a detailed view looks like by querying a specific object id:

Playbook Instance

OPTIONS

GET

```
GET /api/v1/playbooks/1
```

```
HTTP 200 OK
```

```
Allow: GET, PUT, PATCH, DELETE, HEAD, OPTIONS
```

```
Content-Type: application/json
```

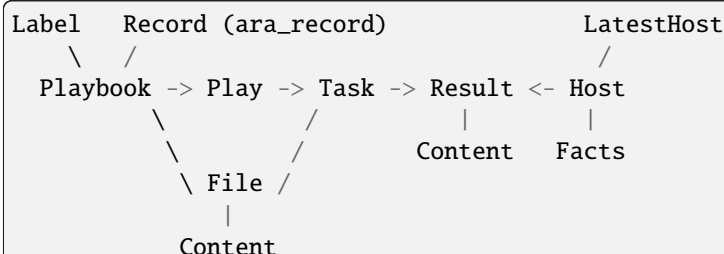
```
Vary: Accept
```

```
{
  "id": 1,
  "duration": "19.449979",
  "items": {
    "plays": 3,
    "tasks": 38,
    "results": 38,
    "hosts": 2,
    "files": 5,
    "records": 6
  },
  "arguments": {
    "verbosity": 3,
    "inventory": [
      "/etc/ansible/hosts"
    ],
    "listhosts": null,
    "subset": null,
    "module_path": null,
    "extra_verbosity": "Not saved by API as configured by ignored arguments!"
  }
}
```

Alternatively, you may also find an up-to-date live demonstration of the API at <https://demo.recordsansible.org>.

1.7.2 Relationship between objects

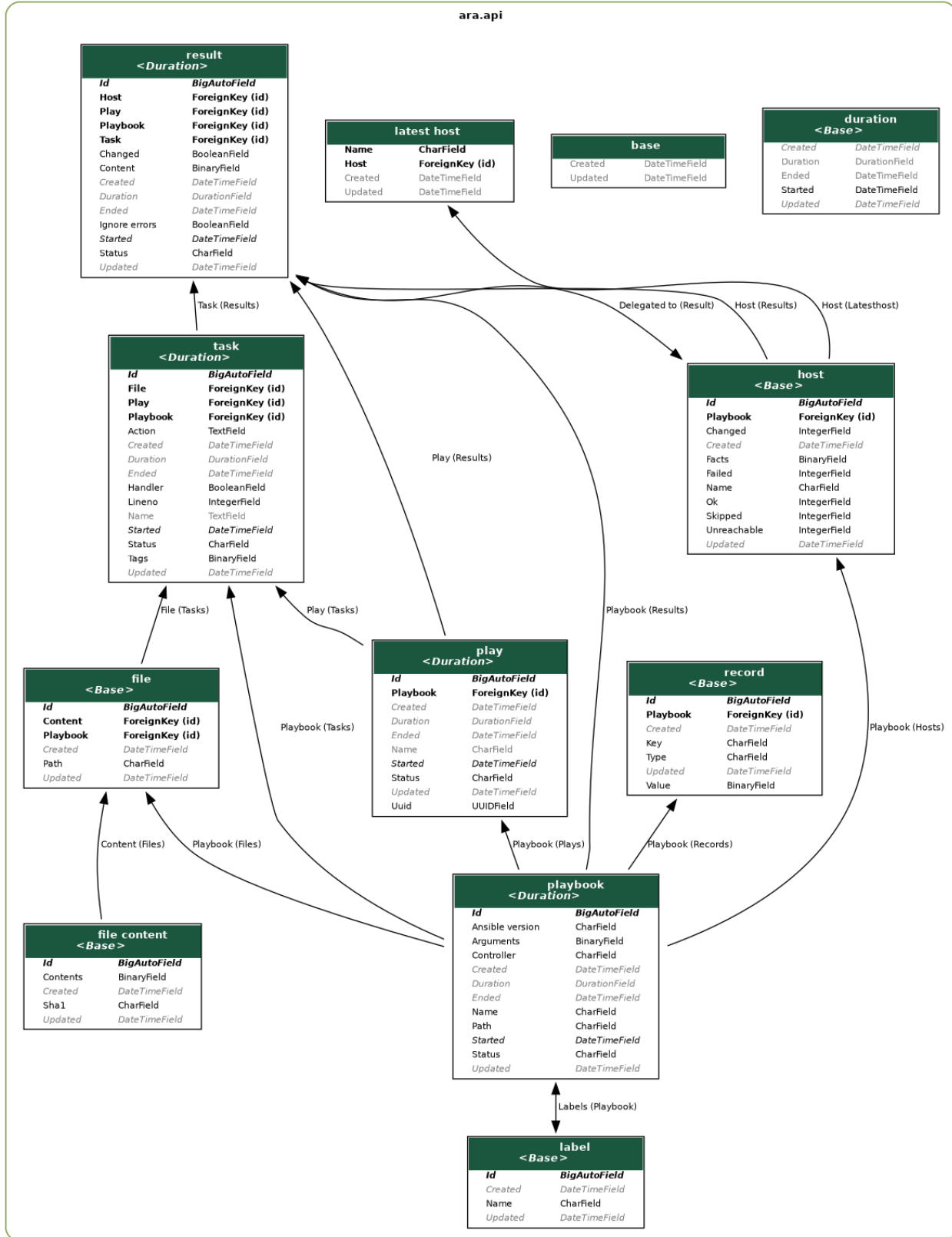
Here's a high level overview of how data is generally organized:



- Every object except labels and LatestHost are associated to a parent playbook
- Labels are applied on a playbook while a LatestHost references a specific Host
- Records have a key, a value and a type provided by *ara_record*

- In a playbook there are plays
- In a play there are tasks
- In a task there are results
- Results have a relation to their parent task and the host the task ran on
- Results have content with data returned by Ansible for a task on a host
- Hosts have stats provided by Ansible and facts (if they have been set or gathered)
- A LatestHost relation keeps track of the last playbook a host name was involved in
- Playbooks and Tasks both have a path and a reference to a File
- A file has content compressed and uniquely stored, hashed by sha1

These relationships are also represented in the database model:



 **Tip**

Open the image above in a new tab to see it in full resolution.

Additional fields may only be available in the detailed views. For example:

- Playbooks arguments with `/api/v1/playbooks/<id>`
- Hosts facts with `/api/v1/hosts/<id>` or `/api/v1/latesthosts`
- Results content with `/api/v1/results/<id>`
- Files content with `/api/v1/files/<id>`

ARA ships with two built-in API clients to help you get started. You can learn more about those clients in [Using ARA API clients](#).

1.8 Using ARA API clients

When installing ARA, you are provided with a REST API server and two API clients out of the box:

- `AraOfflineClient` can query the API without needing an API server to be running
- `AraHttpClient` is meant to query a specified API server over http

1.8.1 ARA Offline API client

If your use case doesn't require a remote or persistent API server, the offline client lets you query the API without needing to start an API server.

In order to use this client, you would instantiate it like this:

```
#!/usr/bin/env python3
# Import the client
from ara.clients.offline import AraOfflineClient

# Instantiate the offline client
client = AraOfflineClient()
```

Note that, by default, instantiating an offline client will automatically run SQL migrations.

If you expect the migrations to have already been run when you instantiate the client, you can disable automatic SQL migrations with by specifying `run_sql_migrations=False`:

```
client = AraOfflineClient(run_sql_migrations=False)
```

1.8.2 ARA HTTP API client

`AraHttpClient` works with the same interface, methods and behavior as `AraOfflineClient`.

You can set your client to communicate with a remote `ara-server` API by specifying an endpoint parameter:

```
#!/usr/bin/env python3
# Import the client
from ara.clients.http import AraHttpClient

endpoint = "https://demo.recordsansible.org"
```

(continues on next page)

(continued from previous page)

```
# Instantiate the HTTP client with an endpoint where an API server is listening
client = AraHttpClient(endpoint=endpoint)

# SSL verification can be disabled with verify=False
client = AraHttpClient(endpoint=endpoint, verify=False)
```

1.8.3 Example API usage

For more details on the API endpoints, see *API Documentation*.

Otherwise, once you've instantiated your client, you're ready to query the API.

Here's a code example to help you get started:

```
#!/usr/bin/env python3
# Import the client
from ara.clients.http import AraHttpClient

# Instantiate the HTTP client with an endpoint where an API server is listening
client = AraHttpClient(endpoint="https://demo.recordsansible.org")

# Get a list of failed playbooks
# /api/v1/playbooks?status=failed
playbooks = client.get("/api/v1/playbooks", status="failed")

# If there are any results from our query, get more information about the
# failure and print something helpful
template = "{timestamp}: {host} failed '{task}' ({task_file}:{lineno})"

for playbook in playbooks["results"]:
    # Get failed results for the playbook
    results = client.get("/api/v1/results?playbook=%s" % playbook["id"])

    # For each result, print the task and host information
    for result in results["results"]:
        task = client.get("/api/v1/tasks/%s" % result["task"])
        host = client.get("/api/v1/hosts/%s" % result["host"])

        print(template.format(
            timestamp=result["ended"],
            host=host["name"],
            task=task["name"],
            task_file=task["path"],
            lineno=task["lineno"]
        ))
))
```

Running this script would then provide an output that looks like the following:

```
2020-04-18T17:16:13.394056Z: aio1_repo_container-0c92f7a2 failed 'repo_server : Install_
↳ EPEL gpg keys' (/home/zuul/src/opendev.org/openstack/openstack-ansible-repo_server/
↳ tasks/repo_install.yml:16)
2020-04-18T17:14:59.930995Z: aio1_repo_container-0c92f7a2 failed 'repo_server : File and_
↳ directory setup (root user)' (/home/zuul/src/opendev.org/openstack/openstack-ansible-
```

(continues on next page)

(continued from previous page)

```

↪repo_server/tasks/repo_pre_install.yml:78)
2020-04-18T17:14:57.909155Z: aio1_repo_container-0c92f7a2 failed 'repo_server : Git_
↪service data folder setup' (/home/zuul/src/opendev.org/openstack/openstack-ansible-
↪repo_server/tasks/repo_pre_install.yml:70)
2020-04-18T17:14:57.342091Z: aio1_repo_container-0c92f7a2 failed 'repo_server : Check if_
↪the git folder exists already' (/home/zuul/src/opendev.org/openstack/openstack-ansible-
↪repo_server/tasks/repo_pre_install.yml:65)
2020-04-18T17:14:56.793499Z: aio1_repo_container-0c92f7a2 failed 'repo_server : Drop_
↪repo pre/post command script' (/home/zuul/src/opendev.org/openstack/openstack-ansible-
↪repo_server/tasks/repo_pre_install.yml:53)
2020-04-18T17:14:54.507660Z: aio1_repo_container-0c92f7a2 failed 'repo_server : File and_
↪directory setup (non-root user)' (/home/zuul/src/opendev.org/openstack/openstack-
↪ansible-repo_server/tasks/repo_pre_install.yml:32)
2020-04-18T17:14:51.281530Z: aio1_repo_container-0c92f7a2 failed 'repo_server : Create_
↪the nginx system user' (/home/zuul/src/opendev.org/openstack/openstack-ansible-repo_
↪server/tasks/repo_pre_install.yml:22)

```

1.9 Distributed sqlite database backend

The ARA API server provides an optional backend that dynamically loads sqlite databases based on the requested URL with the help of a WSGI application middleware.

In summary, it maps an URL such as `http://example.org/some/path/ara-report` to a location on the file system like `/var/www/logs/some/path/ara-report` and loads an `ansible.sqlite` database from that directory, if it exists.

Note

This backend is not enabled by default and is designed with a specific range of use cases in mind. This documentation attempts to explain if this might be a good fit for you.

1.9.1 Use case

Running at least one Ansible playbook with the ARA Ansible callback plugin enabled will generate a database at `~/.ara/server/ansible.sqlite` by default.

sqlite, in the context of ARA, is good enough for most use cases:

- it is portable: everything the API server needs is in a single file that you can upload anywhere
- no network dependency or latency: sqlite is on your filesystem and doesn't rely on a remote database server
- relatively lightweight: Ansible's own integration tests used ~13MB for 415 playbooks, 1935 files, 12456 tasks, 12762 results, 586 hosts (and host facts)

However, since write concurrency does not scale very well with sqlite, it might not be a good fit if you plan on having a single API server handle data for multiple `ansible-playbook` commands running at the same time.

The distributed sqlite database backend and WSGI middleware provide an alternative to work around this limitation.

This approach works best if it makes sense to logically split your playbooks into different databases. One such example is in continuous integration (CI) where you might have multiple jobs running Ansible playbooks concurrently.

If each CI job is recording to its own database, you probably no longer have write concurrency issues and the database can be uploaded in your logs or as an artifact after the job has been completed.

The file hierarchy on your log or artifact server might end up looking like this:

```

/var/www/logs/
├── 1
│   ├── ara-report
│   │   └── ansible.sqlite
│   └── console.txt
├── 2
│   ├── logs.tar.gz
│   └── some
│       └── path
│           ├── ara-report
│           └── ansible.sqlite
└── 3
    ├── builds.txt
    ├── dev
    │   ├── ara-report
    │   └── ansible.sqlite
    └── prod
        ├── ara-report
        └── ansible.sqlite

```

With the above example file tree, a single instance of the API server with the distributed sqlite backend enabled would be able to respond to queries at the following endpoints:

- <http://example.org/1/ara-report>
- <http://example.org/2/some/path/ara-report>
- <http://example.org/3/dev/ara-report>
- <http://example.org/3/prod/ara-report>

1.9.2 Configuration

For enabling and configuring the distributed sqlite backend, see:

- `ARA_DISTRIBUTED_SQLITE`
- `ARA_DISTRIBUTED_SQLITE_PREFIX`
- `ARA_DISTRIBUTED_SQLITE_ROOT`

When recording data to a sqlite database, the location of the database can be defined with `ARA_DATABASE_NAME`.

1.10 Running ARA API server container images

The ARA API server is a good candidate for being served out of a container as the configuration and state can be kept in persistent files and databases.

The project maintains [different scripts](#) that are used to build and push simple container images to [DockerHub](#).

The scripts are designed to yield images that are opinionated and “batteries-included” for the sake of simplicity. They install the necessary packages for connecting to MySQL and PostgreSQL databases and set up gunicorn as the application server.

You are encouraged to use these scripts as a base example that you can build, tweak and improve the container image according to your specific needs and preferences.

For example, precious megabytes can be saved by installing only the things you need and you can change the application server as well as its configuration.

1.10.1 Building an image with buildah

You will need to install `buildah`.

The different scripts to build container images are available in the git repository:

- `fedora-distribution.sh`: Builds an image from Fedora 43 [distribution packages](#)
- `fedora-pypi.sh`: Builds an image from PyPi packages on Fedora 43
- `fedora-source.sh`: Builds an image from [git source](#) on Fedora 43
- `centos-pypi.sh`: Builds an image from PyPi packages on CentOS 9 Stream
- `centos-source.sh`: Builds an image from [git source](#) on CentOS 9 Stream

The scripts have no arguments other than the ability to specify an optional name and tag:

```
$ git clone https://codeberg.org/ansible-community/ara
$ cd ara/contrib/container-images
$ ./fedora-source.sh ara-api:latest
# [...]
Getting image source signatures
Copying blob 59bbb69efd73 skipped: already exists
Copying blob ccc3e7c17eae done
Copying config fb679fc301 done
Writing manifest to image destination
Storing signatures
fb679fc301dde7007b4d219f1d30060b3b4b0d5883b030ee7058d7e9f5969fbe
```

The image will be available for use once the script has finished running:

```
$ buildah images
REPOSITORY          TAG          IMAGE ID          CREATED          SIZE
localhost/ara-api   latest       fb679fc301dd     25 minutes ago  451 MB
```

1.10.2 Running an image with podman

You will need to install `podman`.

Once an image has been built with the scripts above, you can validate that it is available to podman:

```
$ podman images
REPOSITORY          TAG          IMAGE ID          CREATED          SIZE
localhost/ara-api   latest       fb679fc301dd     31 minutes ago  451 MB
```

First, create a directory where settings, logs and sqlite databases will persist inside a volume and then start the container:

```
$ mkdir -p ~/.ara/server
$ podman run --name ara-api --detach --tty \
  --volume ~/.ara/server:/opt/ara:z -p 8000:8000 \
  localhost/ara-api
bc4b7630c265bdac161f2e08116f3f45c2db519fb757ddf865bb0f212780fa8d
```

You can validate if the container is running properly with podman:

```

$ podman ps
CONTAINER ID   IMAGE                                COMMAND                                  CREATED        STATUS
bc4b7630c265   localhost/ara-api:latest            /usr/bin/gunicorn...                  12 seconds ago Up 11
seconds ago   0.0.0.0:8000->8000/tcp               ara-api

$ podman logs ara-api
[ara] No setting found for SECRET_KEY. Generating a random key...
[ara] Writing default settings to /opt/ara/settings.yaml
[ara] Using settings file: /opt/ara/settings.yaml
Operations to perform:
Apply all migrations: admin, api, auth, contenttypes, db, sessions
Running migrations:
Applying contenttypes.0001_initial... OK
Applying auth.0001_initial... OK
Applying admin.0001_initial... OK
Applying admin.0002_logentry_remove_auto_add... OK
Applying admin.0003_logentry_add_action_flag_choices... OK
Applying api.0001_initial... OK
Applying api.0002_remove_host_alias... OK
Applying api.0003_add_missing_result_properties... OK
Applying api.0004_duration_in_database... OK
Applying api.0005_unique_label_names... OK
Applying contenttypes.0002_remove_content_type_name... OK
Applying auth.0002_alter_permission_name_max_length... OK
Applying auth.0003_alter_user_email_max_length... OK
Applying auth.0004_alter_user_username_opts... OK
Applying auth.0005_alter_user_last_login_null... OK
Applying auth.0006_require_contenttypes_0002... OK
Applying auth.0007_alter_validators_add_error_messages... OK
Applying auth.0008_alter_user_username_max_length... OK
Applying auth.0009_alter_user_last_name_max_length... OK
Applying auth.0010_alter_group_name_max_length... OK
Applying auth.0011_update_proxy_permissions... OK
Applying db.0001_initial... OK
Applying sessions.0001_initial... OK
[2020-05-05 17:29:22 +0000] [1] [INFO] Starting gunicorn 20.0.4
[2020-05-05 17:29:22 +0000] [1] [INFO] Listening at: http://0.0.0.0:8000 (1)
[2020-05-05 17:29:22 +0000] [1] [INFO] Using worker: sync
[2020-05-05 17:29:22 +0000] [5] [INFO] Booting worker with pid: 5
[2020-05-05 17:29:22 +0000] [6] [INFO] Booting worker with pid: 6
[2020-05-05 17:29:23 +0000] [7] [INFO] Booting worker with pid: 7
[2020-05-05 17:29:23 +0000] [8] [INFO] Booting worker with pid: 8

```

At this point, the API server will be running but it'll be empty.

Data must be sent to it by running an Ansible playbook with the ARA callback installed and configured to use this API server.

1.10.3 Sending data to the API server

Here's an example of how it works:

```
# Create and source a python3 virtual environment
python3 -m venv ~/.ara/virtualenv
source ~/.ara/virtualenv/bin/activate

# Install Ansible and ARA
pip3 install ansible ara

# Configure Ansible to know where ARA's callback plugin is located
export ANSIBLE_CALLBACK_PLUGINS=$(python3 -m ara.setup.callback_plugins)

# Set up the ARA callback to know where the API server is
export ARA_API_CLIENT=http
export ARA_API_SERVER="http://127.0.0.1:8000"

# Run any of your Ansible playbooks as you normally would
ansible-playbook playbook.yml
```

As each task from the playbook starts and completes, their data will be available on the API server in real time as you refresh your queries.

1.10.4 Common operations

Modifying ARA's API server settings

Settings for the API server will be found in `~/.ara/server/settings.yaml` (or `/opt/ara/settings.yaml` inside the container) and modifications are effective after a container restart:

```
podman restart ara-api
```

See the [documentation](#) for the full list of available options.

Running outside of localhost

To run an API server that can be queried from other hosts, edit `~/.ara/server/settings.yaml` and add the desired hostname (or IP) in `ALLOWED_HOSTS`.

Connecting to mysql, mariadb or postgresql backends

The ARA API server is a good candidate for living in a container because the state can be stored on remote database servers.

To connect to database backends other than the sqlite default, edit `~/.ara/server/settings.yaml` and look for the following settings:

- `DATABASE_ENGINE`
- `DATABASE_NAME`
- `DATABASE_USER`
- `DATABASE_PASSWORD`
- `DATABASE_HOST`
- `DATABASE_PORT`

- DATABASE_CONN_MAX_AGE

Running SQL migrations

The container image will automatically take care of running SQL migrations before starting.

However, if you need to run them manually, either for a new database or after an upgrade, the command `ara-manage migrate` can be run from inside the container:

```
$ podman exec -it ara-api ara-manage migrate
[ara] Using settings file: /opt/ara/settings.yaml
Operations to perform:
Apply all migrations: admin, api, auth, contenttypes, db, sessions
Running migrations:
Applying contenttypes.0001_initial... OK
Applying auth.0001_initial... OK
Applying admin.0001_initial... OK
Applying admin.0002_logentry_remove_auto_add... OK
Applying admin.0003_logentry_add_action_flag_choices... OK
Applying api.0001_initial... OK
Applying api.0002_remove_host_alias... OK
Applying api.0003_add_missing_result_properties... OK
Applying api.0004_duration_in_database... OK
Applying api.0005_unique_label_names... OK
Applying contenttypes.0002_remove_content_type_name... OK
Applying auth.0002_alter_permission_name_max_length... OK
Applying auth.0003_alter_user_email_max_length... OK
Applying auth.0004_alter_user_username_opts... OK
Applying auth.0005_alter_user_last_login_null... OK
Applying auth.0006_require_contenttypes_0002... OK
Applying auth.0007_alter_validators_add_error_messages... OK
Applying auth.0008_alter_user_username_max_length... OK
Applying auth.0009_alter_user_last_name_max_length... OK
Applying auth.0010_alter_group_name_max_length... OK
Applying auth.0011_update_proxy_permissions... OK
Applying db.0001_initial... OK
Applying sessions.0001_initial... OK
```

1.11 CLI: ara API client

Installing ara provides an ara command line interface client in order to query API servers from shell scripts or from the terminal.

1.11.1 ara

```
$ ara --help
usage: ara [--version] [-v | -q] [--log-file LOG_FILE] [-h] [--debug]

A CLI client to query ARA API servers

options:
  --version          show program's version number and exit
  -v, --verbose      Increase verbosity of output. Can be repeated.
```

(continues on next page)

(continued from previous page)

```
-q, --quiet          Suppress output except warnings and errors.
--log-file LOG_FILE Specify a file to log output. Disabled by default.
-h, --help          Show help message and exit.
--debug            Show tracebacks on errors.
```

Commands:

```
complete          print bash completion command (cliff)
expire            Expires objects that have been in the running state for too long
help              print detailed help for another command (cliff)
host delete       Deletes the specified host and associated resources
host list         Returns a list of hosts based on search queries
host metrics      Provides metrics about hosts
host show         Returns a detailed view of a specified host
play delete       Deletes the specified play and associated resources
play list         Returns a list of plays based on search queries
play show         Returns a detailed view of a specified play
playbook delete   Deletes the specified playbook and associated resources
playbook list     Returns a list of playbooks based on search queries
playbook metrics  Provides metrics about playbooks
playbook prune    Deletes playbooks beyond a specified age in days
playbook show     Returns a detailed view of a specified playbook
record delete     Deletes the specified record and associated resources
record list       Returns a list of records based on search queries
record show       Returns a detailed view of a specified record
result delete     Deletes the specified result and associated resources
result list       Returns a list of results based on search queries
result show       Returns a detailed view of a specified result
task delete       Deletes the specified task and associated resources
task list         Returns a list of tasks based on search queries
task metrics      Provides metrics about actions in tasks
task show         Returns a detailed view of a specified task
```

1.11.2 ara expire

Note

This command requires write privileges. You can read more about read and write permissions [here](#).

```
$ ara expire --help
usage: ara expire [-h] [--client <client>] [--server <url>]
                [--timeout <seconds>] [--username <username>]
                [--password <password>] [--ssl-cert <path/to/certificate>]
                [--ssl-key <path/to/key>] [--ssl-ca <path/to/cacert>]
                [--insecure] [--hours HOURS] [--order <order>]
                [--limit <limit>] [--confirm]
```

Expires objects that have been in the running state for too long

options:

```
-h, --help          show this help message and exit
```

(continues on next page)

(continued from previous page)

```

--client <client>      API client to use, defaults to ARA_API_CLIENT or
                        'offline'
--server <url>         API server endpoint if using http client, defaults to
                        ARA_API_SERVER or 'http://127.0.0.1:8000'
--timeout <seconds>   Timeout for requests to API server, defaults to
                        ARA_API_TIMEOUT or 30
--username <username> API server username for authentication, defaults to
                        ARA_API_USERNAME or None
--password <password> API server password for authentication, defaults to
                        ARA_API_PASSWORD or None
--ssl-cert <path/to/certificate>
                        If a client certificate is required, the path to the
                        certificate to use, defaults to ARA_API_CERT or None
--ssl-key <path/to/key>
                        If a client certificate is required, the path to the
                        private key to use, defaults to ARA_API_KEY or None
--ssl-ca <path/to/cacert>
                        Path to a certificate authority for trusting the API
                        server certificate, defaults to ARA_API_CA or None
--insecure             Ignore SSL certificate validation, defaults to
                        ARA_API_INSECURE or False
--hours HOURS         Expires objects that have been running state for this
                        many hours (default: 24)
--order <order>       Orders objects by a field ('id', 'created', 'updated',
                        'started', 'ended')
                        Defaults to 'started' descending so the oldest objects
                        would be expired first.
                        The order can be reversed by using '-': ara expire
                        --order--started
--limit <limit>       Only expire the first <limit> determined by the
                        ordering. Defaults to ARA_CLI_LIMIT or 200.
--confirm             Confirm expiration of objects, otherwise runs without
                        expiring any objects

```

Examples:

```

# Return which objects would be expired by omitting --confirm
ara expire

# Expire running objects without updates faster than the default
ara expire --hours 4 --confirm

```

1.11.3 ara playbook list

```

$ ara playbook list --help
usage: ara playbook list [-h] [-f {csv,json,table,value,yaml}] [-c COLUMN]
                        [--quote {all,minimal,none,nonnumeric}] [--noindent]
                        [--max-width <integer>] [--fit-width] [--print-empty]
                        [--sort-column SORT_COLUMN] [--sort-ascending |
                        --sort-descending] [--client <client>]

```

(continues on next page)

(continued from previous page)

```

[--server <url>] [--timeout <seconds>]
[--username <username>] [--password <password>]
[--ssl-cert <path/to/certificate>]
[--ssl-key <path/to/key>] [--ssl-ca <path/to/cacert>]
[--insecure] [--label <label>]
[--ansible_version <ansible_version>]
[--client_version <client_version>]
[--server_version <server_version>]
[--python_version <python_version>] [--user <user>]
[--controller <controller>] [--name <name>]
[--path <path>] [--status <status>] [--long]
[--order <order>] [--limit <limit>]

```

Returns a list of playbooks based on search queries

options:

```

-h, --help          show this help message and exit
--client <client>   API client to use, defaults to ARA_API_CLIENT or
                    'offline'
--server <url>      API server endpoint if using http client, defaults to
                    ARA_API_SERVER or 'http://127.0.0.1:8000'
--timeout <seconds> Timeout for requests to API server, defaults to
                    ARA_API_TIMEOUT or 30
--username <username>
                    API server username for authentication, defaults to
                    ARA_API_USERNAME or None
--password <password>
                    API server password for authentication, defaults to
                    ARA_API_PASSWORD or None
--ssl-cert <path/to/certificate>
                    If a client certificate is required, the path to the
                    certificate to use, defaults to ARA_API_CERT or None
--ssl-key <path/to/key>
                    If a client certificate is required, the path to the
                    private key to use, defaults to ARA_API_KEY or None
--ssl-ca <path/to/cacert>
                    Path to a certificate authority for trusting the API
                    server certificate, defaults to ARA_API_CA or None
--insecure          Ignore SSL certificate validation, defaults to
                    ARA_API_INSECURE or False
--label <label>     List playbooks matching the provided label
--ansible_version <ansible_version>
                    List playbooks that ran with the specified Ansible
                    version (full or partial)
--client_version <client_version>
                    List playbooks that were recorded with the specified
                    ara client version (full or partial)
--server_version <server_version>
                    List playbooks that were recorded with the specified
                    ara server version (full or partial)
--python_version <python_version>
                    List playbooks that were recorded with the specified

```

(continues on next page)

(continued from previous page)

```

python version (full or partial)
--user <user>          List playbooks that were run by the specified user
                       (full or partial)
--controller <controller>
                       List playbooks that ran from the provided controller
                       (full or partial)
--name <name>         List playbooks matching the provided name (full or
                       partial)
--path <path>         List playbooks matching the provided path (full or
                       partial)
--status <status>     List playbooks matching a specific status
                       ('completed', 'running', 'failed')
--long                Don't truncate paths and include additional fields:
                       name, plays, files, records
--order <order>       Orders playbooks by a field ('id', 'created',
                       'updated', 'started', 'ended', 'duration')
                       Defaults to '-started' descending so the most recent
                       playbook is at the top.
                       The order can be reversed by omitting the '-': ara
                       playbook list --order=started
--limit <limit>       Returns the first <limit> determined by the ordering.
                       Defaults to ARA_CLI_LIMIT or 50.

output formatters:
  output formatter options

  -f, --format {csv,json,table,value,yaml}
                        the output format, defaults to table
  -c, --column COLUMN  specify the column(s) to include, can be repeated to
                        show multiple columns
  --sort-column SORT_COLUMN
                        specify the column(s) to sort the data (columns
                        specified first have a priority, non-existing columns
                        are ignored), can be repeated
  --sort-ascending     sort the column(s) in ascending order
  --sort-descending    sort the column(s) in descending order

CSV Formatter:
  --quote {all,minimal,none,nonnumeric}
                        when to include quotes, defaults to nonnumeric

json formatter:
  --noindent           whether to disable indenting the JSON

table formatter:
  --max-width <integer>
                        Maximum display width, <1 to disable. You can also use
                        the CLIFF_MAX_TERM_WIDTH environment variable, but the
                        parameter takes precedence.
  --fit-width          Fit the table to the display width. Implied if --max-
                        width greater than 0. Set the environment variable
                        CLIFF_FIT_WIDTH=1 to always enable

```

(continues on next page)

(continued from previous page)

```
--print-empty      Print empty table if there is no data to show.
```

Query a running API server for the 10 latest failed playbooks:

```
ara playbook list --client http \
  --server https://demo.recordsansible.org \
  --status failed \
  --limit 10
```

Get a list of playbooks matching a partial path and order the results by duration using the default offline API client:

```
ara playbook list --path="playbooks/site.yaml" --order=duration
```

Get a list of playbooks and format the results as json or yaml instead of pretty tables:

```
ara playbook list -f json
ara playbook list -f yaml
```

1.11.4 ara playbook show

```
$ ara playbook show --help
usage: ara playbook show [-h] [-f {json,shell,table,value,yaml}] [-c COLUMN]
                        [--noindent] [--prefix PREFIX]
                        [--max-width <integer>] [--fit-width] [--print-empty]
                        [--client <client>] [--server <url>]
                        [--timeout <seconds>] [--username <username>]
                        [--password <password>]
                        [--ssl-cert <path/to/certificate>]
                        [--ssl-key <path/to/key>] [--ssl-ca <path/to/cacert>]
                        [--insecure]
                        <playbook-id>
```

Returns a detailed view of a specified playbook

positional arguments:

```
<playbook-id>      Playbook to show
```

options:

```
-h, --help          show this help message and exit
--client <client>   API client to use, defaults to ARA_API_CLIENT or
                    'offline'
--server <url>      API server endpoint if using http client, defaults to
                    ARA_API_SERVER or 'http://127.0.0.1:8000'
--timeout <seconds> Timeout for requests to API server, defaults to
                    ARA_API_TIMEOUT or 30
--username <username>
                    API server username for authentication, defaults to
                    ARA_API_USERNAME or None
--password <password>
                    API server password for authentication, defaults to
                    ARA_API_PASSWORD or None
--ssl-cert <path/to/certificate>
```

(continues on next page)

(continued from previous page)

```

        If a client certificate is required, the path to the
        certificate to use, defaults to ARA_API_CERT or None
--ssl-key <path/to/key>
        If a client certificate is required, the path to the
        private key to use, defaults to ARA_API_KEY or None
--ssl-ca <path/to/cacert>
        Path to a certificate authority for trusting the API
        server certificate, defaults to ARA_API_CA or None
--insecure
        Ignore SSL certificate validation, defaults to
        ARA_API_INSECURE or False

output formatters:
  output formatter options

  -f, --format {json,shell,table,value,yaml}
        the output format, defaults to table
  -c, --column COLUMN
        specify the column(s) to include, can be repeated to
        show multiple columns

json formatter:
  --noindent
        whether to disable indenting the JSON

shell formatter:
  a format a UNIX shell can parse (variable="value")

  --prefix PREFIX
        add a prefix to all variable names

table formatter:
  --max-width <integer>
        Maximum display width, <1 to disable. You can also use
        the CLIFF_MAX_TERM_WIDTH environment variable, but the
        parameter takes precedence.
  --fit-width
        Fit the table to the display width. Implied if --max-
        width greater than 0. Set the environment variable
        CLIFF_FIT_WIDTH=1 to always enable
  --print-empty
        Print empty table if there is no data to show.

```

Show details about a playbook from a running API server and format the result in json:

```
ara playbook show --client http --server https://demo.recordsansible.org 1 -f json
```

Show details about a playbook from a local installation using the default offline API client and format the result in yaml:

```
ara playbook show 1 -f yaml
```

1.11.5 ara playbook delete

Note

This command requires write privileges. You can read more about read and write permissions [here](#).

```
$ ara playbook delete --help
usage: ara playbook delete [-h] [--client <client>] [--server <url>]
                          [--timeout <seconds>] [--username <username>]
                          [--password <password>]
                          [--ssl-cert <path/to/certificate>]
                          [--ssl-key <path/to/key>]
                          [--ssl-ca <path/to/cacert>] [--insecure]
                          <playbook-id>
```

Deletes the specified playbook and associated resources

positional arguments:

<playbook-id> Playbook to delete

options:

-h, --help show this help message and exit

--client <client> API client to use, defaults to ARA_API_CLIENT or 'offline'

--server <url> API server endpoint if using http client, defaults to ARA_API_SERVER or 'http://127.0.0.1:8000'

--timeout <seconds> Timeout for requests to API server, defaults to ARA_API_TIMEOUT or 30

--username <username> API server username for authentication, defaults to ARA_API_USERNAME or None

--password <password> API server password for authentication, defaults to ARA_API_PASSWORD or None

--ssl-cert <path/to/certificate> If a client certificate is required, the path to the certificate to use, defaults to ARA_API_CERT or None

--ssl-key <path/to/key> If a client certificate is required, the path to the private key to use, defaults to ARA_API_KEY or None

--ssl-ca <path/to/cacert> Path to a certificate authority for trusting the API server certificate, defaults to ARA_API_CA or None

--insecure Ignore SSL certificate validation, defaults to ARA_API_INSECURE or False

1.11.6 ara playbook metrics

```
$ ara playbook metrics --help
usage: ara playbook metrics [-h] [-f {csv,json,table,value,yaml}] [-c COLUMN]
                          [--quote {all,minimal,none,nonnumeric}]
                          [--noindent] [--max-width <integer>] [--fit-width]
                          [--print-empty] [--sort-column SORT_COLUMN]
```

(continues on next page)

(continued from previous page)

```

[--sort-ascending | --sort-descending]
[--client <client>] [--server <url>]
[--timeout <seconds>] [--username <username>]
[--password <password>]
[--ssl-cert <path/to/certificate>]
[--ssl-key <path/to/key>]
[--ssl-ca <path/to/cacert>] [--insecure]
[--aggregate {name,path,ansible_version,controller}]
[--label <label>]
[--ansible_version <ansible_version>]
[--client_version <client_version>]
[--server_version <server_version>]
[--python_version <python_version>]
[--name <name>] [--controller <controller>]
[--path <path>] [--status <status>] [--long]
[--order <order>] [--limit <limit>]

```

Provides metrics about playbooks

options:

```

-h, --help          show this help message and exit
--client <client>   API client to use, defaults to ARA_API_CLIENT or
                    'offline'
--server <url>      API server endpoint if using http client, defaults to
                    ARA_API_SERVER or 'http://127.0.0.1:8000'
--timeout <seconds> Timeout for requests to API server, defaults to
                    ARA_API_TIMEOUT or 30
--username <username>
                    API server username for authentication, defaults to
                    ARA_API_USERNAME or None
--password <password>
                    API server password for authentication, defaults to
                    ARA_API_PASSWORD or None
--ssl-cert <path/to/certificate>
                    If a client certificate is required, the path to the
                    certificate to use, defaults to ARA_API_CERT or None
--ssl-key <path/to/key>
                    If a client certificate is required, the path to the
                    private key to use, defaults to ARA_API_KEY or None
--ssl-ca <path/to/cacert>
                    Path to a certificate authority for trusting the API
                    server certificate, defaults to ARA_API_CA or None
--insecure          Ignore SSL certificate validation, defaults to
                    ARA_API_INSECURE or False
--aggregate {name,path,ansible_version,controller}
                    Aggregate playbooks by path, name, ansible version or
                    controller. Defaults to path.
--label <label>    List playbooks matching the provided label
--ansible_version <ansible_version>
                    List playbooks that ran with the specified Ansible
                    version (full or partial)
--client_version <client_version>

```

(continues on next page)

(continued from previous page)

```

List playbooks that were recorded with the specified
ara client version (full or partial)
--server_version <server_version>
List playbooks that were recorded with the specified
ara server version (full or partial)
--python_version <python_version>
List playbooks that were recorded with the specified
python version (full or partial)
--name <name>
List playbooks matching the provided name (full or
partial)
--controller <controller>
List playbooks that ran from the provided controller
(full or partial)
--path <path>
List playbooks matching the provided path (full or
partial)
--status <status>
List playbooks matching a specific status
('completed', 'running', 'failed')
--long
Don't truncate paths and include additional fields:
name, plays, files, records
--order <order>
Orders playbooks by a field ('id', 'created',
'updated', 'started', 'ended', 'duration')
Defaults to '-started' descending so the most recent
playbook is at the top.
The order can be reversed by omitting the '-': ara
playbook list --order=started
--limit <limit>
Returns the first <limit> determined by the ordering.
Defaults to ARA_CLI_LIMIT or 1000.

output formatters:
output formatter options

-f, --format {csv,json,table,value,yaml}
the output format, defaults to table
-c, --column COLUMN
specify the column(s) to include, can be repeated to
show multiple columns
--sort-column SORT_COLUMN
specify the column(s) to sort the data (columns
specified first have a priority, non-existing columns
are ignored), can be repeated
--sort-ascending
sort the column(s) in ascending order
--sort-descending
sort the column(s) in descending order

CSV Formatter:
--quote {all,minimal,none,nonnumeric}
when to include quotes, defaults to nonnumeric

json formatter:
--noindent
whether to disable indenting the JSON

table formatter:
--max-width <integer>
Maximum display width, <1 to disable. You can also use

```

(continues on next page)

(continued from previous page)

	the CLIFF_MAX_TERM_WIDTH environment variable, but the parameter takes precedence.
<code>--fit-width</code>	Fit the table to the display width. Implied if <code>--max-width</code> greater than 0. Set the environment variable <code>CLIFF_FIT_WIDTH=1</code> to always enable
<code>--print-empty</code>	Print empty table if there is no data to show.

Examples:

```
# Return metrics about more than the last 1000 playbooks
ara playbook metrics --limit 10000

# Return playbook metrics in json or csv
ara playbook metrics -f json
ara playbook metrics -f csv

# Return metrics about playbooks matching a (full or partial) path
ara playbook metrics --path site.yml

# Return metrics for playbooks matching a label
ara playbook metrics --label "check:False"

# Return additional metrics without truncating paths
ara playbook metrics --long

# Aggregate metrics by playbook path (default), name, by ansible version or by controller
ara playbook metrics --aggregate name
ara playbook metrics --aggregate ansible_version
ara playbook metrics --aggregate controller
```

1.11.7 ara playbook prune

Pruning keeps the database size in check and the performance optimal by deleting older playbooks.

Unused disk space can be reclaimed after pruning depending on your database backend, for example:

- `sqlite`: `sqlite3 ~/.ara/server/ansible.sqlite vacuum`
- `mysql/mariadb`: `mysqlcheck --optimize --databases ara`
- `postgresql`: `vacuumdb --dbname=ara`

It is recommended to run this command inside a task scheduler (such as cron) since the server does not run this command automatically.

Note

This command requires write privileges. You can read more about read and write permissions [here](#).

```
$ ara playbook prune --help
usage: ara playbook prune [-h] [--client <client>] [--server <url>]
                        [--timeout <seconds>] [--username <username>]
                        [--password <password>]
```

(continues on next page)

(continued from previous page)

```

[--ssl-cert <path/to/certificate>]
[--ssl-key <path/to/key>]
[--ssl-ca <path/to/cacert>] [--insecure]
[--days DAYS] [--label <label>] [--name <name>]
[--user <user>]
[--ansible_version <ansible_version>]
[--client_version <client_version>]
[--server_version <server_version>]
[--python_version <python_version>]
[--controller <controller>] [--path <path>]
[--status <status>] [--order <order>]
[--limit <limit>] [--confirm]

```

Deletes playbooks beyond a specified age in days

options:

```

-h, --help          show this help message and exit
--client <client>   API client to use, defaults to ARA_API_CLIENT or
                    'offline'
--server <url>      API server endpoint if using http client, defaults to
                    ARA_API_SERVER or 'http://127.0.0.1:8000'
--timeout <seconds> Timeout for requests to API server, defaults to
                    ARA_API_TIMEOUT or 30
--username <username>
                    API server username for authentication, defaults to
                    ARA_API_USERNAME or None
--password <password>
                    API server password for authentication, defaults to
                    ARA_API_PASSWORD or None
--ssl-cert <path/to/certificate>
                    If a client certificate is required, the path to the
                    certificate to use, defaults to ARA_API_CERT or None
--ssl-key <path/to/key>
                    If a client certificate is required, the path to the
                    private key to use, defaults to ARA_API_KEY or None
--ssl-ca <path/to/cacert>
                    Path to a certificate authority for trusting the API
                    server certificate, defaults to ARA_API_CA or None
--insecure          Ignore SSL certificate validation, defaults to
                    ARA_API_INSECURE or False
--days DAYS       Delete playbooks started this many days ago (default:
                    31)
--label <label>    Only delete playbooks matching the provided label
--name <name>      Only delete playbooks matching the provided name (full
                    or partial)
--user <user>      Only delete playbooks that were executed by the
                    specified user (full or partial)
--ansible_version <ansible_version>
                    Only delete playbooks that ran with the specified
                    Ansible version (full or partial)
--client_version <client_version>
                    Only delete playbooks that were recorded with the

```

(continues on next page)

(continued from previous page)

```

        specified ara client version (full or partial)
--server_version <server_version>
        Only delete playbooks that were recorded with the
        specified ara server version (full or partial)
--python_version <python_version>
        Only delete playbooks that were recorded with the
        specified python version (full or partial)
--controller <controller>
        Only delete playbooks that ran from the provided
        controller (full or partial)
--path <path>
        Only delete only playbooks matching the provided path
        (full or partial)
--status <status>
        Only delete playbooks matching a specific status
        ('completed', 'running', 'failed')
--order <order>
        Orders playbooks by a field ('id', 'created',
        'updated', 'started', 'ended', 'duration')
        Defaults to 'started' descending so the oldest
        playbook would be deleted first.
        The order can be reversed by using '-': ara playbook
        list --order=-started
--limit <limit>
        Only delete the first <limit> determined by the
        ordering. Defaults to ARA_CLI_LIMIT or 200.
--confirm
        Confirm deletion of playbooks, otherwise runs without
        deleting any playbook

```

Examples:

```

# Return which playbooks would be deleted by omitting --confirm
ara playbook prune

# Different retention for completed, failed and expired playbooks
ara playbook prune --status completed --days 30 --confirm
ara playbook prune --status failed --days 90 --confirm
ara playbook prune --status expired --days 3 --confirm

# Different retention based on labels
ara playbook prune --label dev --days 7 --confirm
ara playbook prune --label prod --days 90 --confirm

# Different retention based on name or path
ara playbook prune --name demo --days 7
ara playbook prune --path /home/jenkins --days 14

# Delete more than 200 playbooks per command execution
ara playbook prune --limit 90000 --confirm

```

1.11.8 ara play list

```

$ ara play list --help
usage: ara play list [-h] [-f {csv,json,table,value,yaml}] [-c COLUMN]
                   [--quote {all,minimal,none,nonnumeric}] [--noindent]
                   [--max-width <integer>] [--fit-width] [--print-empty]

```

(continues on next page)

(continued from previous page)

```
[--sort-column SORT_COLUMN] [--sort-ascending |
--sort-descending] [--client <client>] [--server <url>]
[--timeout <seconds>] [--username <username>]
[--password <password>]
[--ssl-cert <path/to/certificate>]
[--ssl-key <path/to/key>] [--ssl-ca <path/to/cacert>]
[--insecure] [--playbook <playbook_id>] [--name <name>]
[--uuid <uuid>] [--status <status>] [--long] [--resolve]
[--order <order>] [--limit <limit>]
```

Returns a list of plays based on search queries

options:

```
-h, --help          show this help message and exit
--client <client>   API client to use, defaults to ARA_API_CLIENT or
                    'offline'
--server <url>      API server endpoint if using http client, defaults to
                    ARA_API_SERVER or 'http://127.0.0.1:8000'
--timeout <seconds> Timeout for requests to API server, defaults to
                    ARA_API_TIMEOUT or 30
--username <username>
                    API server username for authentication, defaults to
                    ARA_API_USERNAME or None
--password <password>
                    API server password for authentication, defaults to
                    ARA_API_PASSWORD or None
--ssl-cert <path/to/certificate>
                    If a client certificate is required, the path to the
                    certificate to use, defaults to ARA_API_CERT or None
--ssl-key <path/to/key>
                    If a client certificate is required, the path to the
                    private key to use, defaults to ARA_API_KEY or None
--ssl-ca <path/to/cacert>
                    Path to a certificate authority for trusting the API
                    server certificate, defaults to ARA_API_CA or None
--insecure          Ignore SSL certificate validation, defaults to
                    ARA_API_INSECURE or False
--playbook <playbook_id>
                    List plays for the specified playbook
--name <name>       List plays matching the provided name (full or
                    partial)
--uuid <uuid>       List plays matching the provided uuid (full or
                    partial)
--status <status>   List plays matching a specific status ('completed',
                    'running', 'failed')
--long             Don't truncate paths
--resolve          Resolve IDs to identifiers (such as path or names).
                    Defaults to ARA_CLI_RESOLVE or False
--order <order>    Orders plays by a field ('id', 'created', 'updated',
                    'started', 'ended', 'duration')
                    Defaults to '-started' descending so the most recent
                    playbook is at the top.
```

(continues on next page)

(continued from previous page)

```

The order can be reversed by omitting the '-': ara
play list --order=started
--limit <limit> Returns the first <limit> determined by the ordering.
Defaults to ARA_CLI_LIMIT or 50.

output formatters:
output formatter options

-f, --format {csv,json,table,value,yaml}
    the output format, defaults to table
-c, --column COLUMN specify the column(s) to include, can be repeated to
    show multiple columns
--sort-column SORT_COLUMN
    specify the column(s) to sort the data (columns
    specified first have a priority, non-existing columns
    are ignored), can be repeated
--sort-ascending sort the column(s) in ascending order
--sort-descending sort the column(s) in descending order

CSV Formatter:
--quote {all,minimal,none,nonnumeric}
    when to include quotes, defaults to nonnumeric

json formatter:
--noindent whether to disable indenting the JSON

table formatter:
--max-width <integer>
    Maximum display width, <1 to disable. You can also use
    the CLIFF_MAX_TERM_WIDTH environment variable, but the
    parameter takes precedence.
--fit-width Fit the table to the display width. Implied if --max-
    width greater than 0. Set the environment variable
    CLIFF_FIT_WIDTH=1 to always enable
--print-empty Print empty table if there is no data to show.

```

Examples:

```

# List the top 25 longest plays
ara play list --order=-duration --limit 25

# List plays matching a name (full or partial)
ara play list --name apache

# List the plays for a specific playbook and format the result in json
ara play list --playbook 1 -f json

```

1.11.9 ara play show

```

$ ara play show --help
usage: ara play show [-h] [-f {json,shell,table,value,yaml}] [-c COLUMN]
                  [--noindent] [--prefix PREFIX] [--max-width <integer>]

```

(continues on next page)

(continued from previous page)

```

[--fit-width] [--print-empty] [--client <client>]
[--server <url>] [--timeout <seconds>]
[--username <username>] [--password <password>]
[--ssl-cert <path/to/certificate>]
[--ssl-key <path/to/key>] [--ssl-ca <path/to/cacert>]
[--insecure]
<play-id>

```

Returns a detailed view of a specified play

positional arguments:

<play-id> Play to show

options:

```

-h, --help show this help message and exit
--client <client> API client to use, defaults to ARA_API_CLIENT or
'offline'
--server <url> API server endpoint if using http client, defaults to
ARA_API_SERVER or 'http://127.0.0.1:8000'
--timeout <seconds> Timeout for requests to API server, defaults to
ARA_API_TIMEOUT or 30
--username <username> API server username for authentication, defaults to
ARA_API_USERNAME or None
--password <password> API server password for authentication, defaults to
ARA_API_PASSWORD or None
--ssl-cert <path/to/certificate>
If a client certificate is required, the path to the
certificate to use, defaults to ARA_API_CERT or None
--ssl-key <path/to/key>
If a client certificate is required, the path to the
private key to use, defaults to ARA_API_KEY or None
--ssl-ca <path/to/cacert>
Path to a certificate authority for trusting the API
server certificate, defaults to ARA_API_CA or None
--insecure Ignore SSL certificate validation, defaults to
ARA_API_INSECURE or False

```

output formatters:

output formatter options

```

-f, --format {json,shell,table,value,yaml}
the output format, defaults to table
-c, --column COLUMN specify the column(s) to include, can be repeated to
show multiple columns

```

json formatter:

--noindent whether to disable indenting the JSON

shell formatter:

a format a UNIX shell can parse (variable="value")

(continues on next page)

(continued from previous page)

```

--prefix PREFIX      add a prefix to all variable names

table formatter:
--max-width <integer>
                    Maximum display width, <1 to disable. You can also use
                    the CLIFF_MAX_TERM_WIDTH environment variable, but the
                    parameter takes precedence.
--fit-width          Fit the table to the display width. Implied if --max-
                    width greater than 0. Set the environment variable
                    CLIFF_FIT_WIDTH=1 to always enable
--print-empty        Print empty table if there is no data to show.

```

Examples:

```

# Show a specific play and format the results as json
ara play show 9001 -f json

```

1.11.10 ara play delete

Note

This command requires write privileges. You can read more about read and write permissions [here](#).

```

$ ara play delete --help
usage: ara play delete [-h] [--client <client>] [--server <url>]
                    [--timeout <seconds>] [--username <username>]
                    [--password <password>]
                    [--ssl-cert <path/to/certificate>]
                    [--ssl-key <path/to/key>] [--ssl-ca <path/to/cacert>]
                    [--insecure]
                    <play-id>

Deletes the specified play and associated resources

positional arguments:
  <play-id>            Play to delete

options:
  -h, --help          show this help message and exit
  --client <client>   API client to use, defaults to ARA_API_CLIENT or
                    'offline'
  --server <url>       API server endpoint if using http client, defaults to
                    ARA_API_SERVER or 'http://127.0.0.1:8000'
  --timeout <seconds> Timeout for requests to API server, defaults to
                    ARA_API_TIMEOUT or 30
  --username <username>
                    API server username for authentication, defaults to
                    ARA_API_USERNAME or None
  --password <password>

```

(continues on next page)

(continued from previous page)

```

API server password for authentication, defaults to
ARA_API_PASSWORD or None
--ssl-cert <path/to/certificate>
    If a client certificate is required, the path to the
    certificate to use, defaults to ARA_API_CERT or None
--ssl-key <path/to/key>
    If a client certificate is required, the path to the
    private key to use, defaults to ARA_API_KEY or None
--ssl-ca <path/to/cacert>
    Path to a certificate authority for trusting the API
    server certificate, defaults to ARA_API_CA or None
--insecure
    Ignore SSL certificate validation, defaults to
    ARA_API_INSECURE or False

```

1.11.11 ara host list

```

$ ara host list --help
usage: ara host list [-h] [-f {csv,json,table,value,yaml}] [-c COLUMN]
    [--quote {all,minimal,none,nonnumeric}] [--noindent]
    [--max-width <integer>] [--fit-width] [--print-empty]
    [--sort-column SORT_COLUMN] [--sort-ascending |
    --sort-descending] [--client <client>] [--server <url>]
    [--timeout <seconds>] [--username <username>]
    [--password <password>]
    [--ssl-cert <path/to/certificate>]
    [--ssl-key <path/to/key>] [--ssl-ca <path/to/cacert>]
    [--insecure] [--name <name>] [--playbook <playbook_id>]
    [--latest] [--with-changed | --without-changed]
    [--with-failed | --without-failed] [--with-unreachable |
    --without-unreachable] [--resolve] [--long]
    [--order <order>] [--limit <limit>]

```

Returns a list of hosts based on search queries

options:

```

-h, --help          show this help message and exit
--client <client>   API client to use, defaults to ARA_API_CLIENT or
                    'offline'
--server <url>      API server endpoint if using http client, defaults to
                    ARA_API_SERVER or 'http://127.0.0.1:8000'
--timeout <seconds> Timeout for requests to API server, defaults to
                    ARA_API_TIMEOUT or 30
--username <username>
                    API server username for authentication, defaults to
                    ARA_API_USERNAME or None
--password <password>
                    API server password for authentication, defaults to
                    ARA_API_PASSWORD or None
--ssl-cert <path/to/certificate>
                    If a client certificate is required, the path to the
                    certificate to use, defaults to ARA_API_CERT or None

```

(continues on next page)

(continued from previous page)

```

--ssl-key <path/to/key>
    If a client certificate is required, the path to the
    private key to use, defaults to ARA_API_KEY or None
--ssl-ca <path/to/cacert>
    Path to a certificate authority for trusting the API
    server certificate, defaults to ARA_API_CA or None
--insecure
    Ignore SSL certificate validation, defaults to
    ARA_API_INSECURE or False
--name <name>
    List hosts matching the provided name (full or
    partial)
--playbook <playbook_id>
    List hosts for a specified playbook id
--latest
    Return only the latest playbook report for each host
--with-changed
    Return hosts with changed results
--without-changed
    Don't return hosts with changed results
--with-failed
    Return hosts with failed results
--without-failed
    Don't return hosts with failed results
--with-unreachable
    Return hosts with unreachable results
--without-unreachable
    Don't return hosts with unreachable results
--resolve
    Resolve IDs to identifiers (such as path or names).
    Defaults to ARA_CLI_RESOLVE or False
--long
    Don't truncate paths
--order <order>
    Orders hosts by a field ('id', 'created', 'updated',
    'name')
    Defaults to '-updated' descending so the most recent
    host is at the top.
    The order can be reversed by omitting the '-': ara
    host list --order=updated
--limit <limit>
    Returns the first <limit> determined by the ordering.
    Defaults to ARA_CLI_LIMIT or 50.

output formatters:
  output formatter options

-f, --format {csv,json,table,value,yaml}
    the output format, defaults to table
-c, --column COLUMN
    specify the column(s) to include, can be repeated to
    show multiple columns
--sort-column SORT_COLUMN
    specify the column(s) to sort the data (columns
    specified first have a priority, non-existing columns
    are ignored), can be repeated
--sort-ascending
    sort the column(s) in ascending order
--sort-descending
    sort the column(s) in descending order

CSV Formatter:
  --quote {all,minimal,none,nonnumeric}
    when to include quotes, defaults to nonnumeric

json formatter:
  --noindent
    whether to disable indenting the JSON

```

(continues on next page)

(continued from previous page)

```

table formatter:
  --max-width <integer>      Maximum display width, <1 to disable. You can also use
                              the CLIFF_MAX_TERM_WIDTH environment variable, but the
                              parameter takes precedence.
  --fit-width                 Fit the table to the display width. Implied if --max-
                              width greater than 0. Set the environment variable
                              CLIFF_FIT_WIDTH=1 to always enable
  --print-empty               Print empty table if there is no data to show.

```

Note

From the perspective of ARA, each host is unique to a playbook run. Their records contain the Ansible host facts as well as their stats for a particular playbook run.

Examples:

```

# List the last 25 host reports
ara host list --limit 25

# List only the latest playbook report for each host
ara host list --latest

# List host records for a specific host name
ara host list --name localhost

# List all the host results for a specific playbook and format the result in json
ara host list --playbook 1 -f json

# Only return hosts with or without unreachable task results
ara host list --with-unreachable
ara host list --without-unreachable

# Only return hosts with or without changed task results
ara host list --with-changed
ara host list --without-changed

# Only return hosts with or without failed task results
ara host list --with-failed
ara host list --without-failed

```

1.11.12 ara host show

```

$ ara host show --help
usage: ara host show [-h] [-f {json,shell,table,value,yaml}] [-c COLUMN]
                   [--noindent] [--prefix PREFIX] [--max-width <integer>]
                   [--fit-width] [--print-empty] [--client <client>]
                   [--server <url>] [--timeout <seconds>]
                   [--username <username>] [--password <password>]

```

(continues on next page)

(continued from previous page)

```

[--ssl-cert <path/to/certificate>]
[--ssl-key <path/to/key>] [--ssl-ca <path/to/cacert>]
[--insecure] [--with-facts]
<host-id>

```

Returns a detailed view of a specified host

positional arguments:

```
<host-id>      Host to show
```

options:

```

-h, --help      show this help message and exit
--client <client> API client to use, defaults to ARA_API_CLIENT or
                  'offline'
--server <url>   API server endpoint if using http client, defaults to
                  ARA_API_SERVER or 'http://127.0.0.1:8000'
--timeout <seconds> Timeout for requests to API server, defaults to
                  ARA_API_TIMEOUT or 30
--username <username>
                  API server username for authentication, defaults to
                  ARA_API_USERNAME or None
--password <password>
                  API server password for authentication, defaults to
                  ARA_API_PASSWORD or None
--ssl-cert <path/to/certificate>
                  If a client certificate is required, the path to the
                  certificate to use, defaults to ARA_API_CERT or None
--ssl-key <path/to/key>
                  If a client certificate is required, the path to the
                  private key to use, defaults to ARA_API_KEY or None
--ssl-ca <path/to/cacert>
                  Path to a certificate authority for trusting the API
                  server certificate, defaults to ARA_API_CA or None
--insecure      Ignore SSL certificate validation, defaults to
                  ARA_API_INSECURE or False
--with-facts    Also include host facts in the response (use with '-f
                  json' or '-f yaml')

```

output formatters:

output formatter options

```

-f, --format {json,shell,table,value,yaml}
                  the output format, defaults to table
-c, --column COLUMN specify the column(s) to include, can be repeated to
                  show multiple columns

```

json formatter:

```
--noindent      whether to disable indenting the JSON
```

shell formatter:

```
a format a UNIX shell can parse (variable="value")
```

(continues on next page)

(continued from previous page)

```

--prefix PREFIX      add a prefix to all variable names

table formatter:
--max-width <integer>
                    Maximum display width, <1 to disable. You can also use
                    the CLIFF_MAX_TERM_WIDTH environment variable, but the
                    parameter takes precedence.
--fit-width          Fit the table to the display width. Implied if --max-
                    width greater than 0. Set the environment variable
                    CLIFF_FIT_WIDTH=1 to always enable
--print-empty       Print empty table if there is no data to show.

```

Note

From the perspective of ARA, each host is unique to a playbook run. Their records contain the Ansible host facts as well as their stats for a particular playbook run.

Return stats for a specified host as well as a link to the playbook report it is involved in:

```
ara host show 1
```

Include host facts as well formatted in json:

```
# Facts do not render well in the default pretty table format
ara host show 1 --with-facts -f json
```

1.11.13 ara host delete

Note

This command requires write privileges. You can read more about read and write permissions [here](#).

```

$ ara host delete --help
usage: ara host delete [-h] [--client <client>] [--server <url>]
                    [--timeout <seconds>] [--username <username>]
                    [--password <password>]
                    [--ssl-cert <path/to/certificate>]
                    [--ssl-key <path/to/key>] [--ssl-ca <path/to/cacert>]
                    [--insecure]
                    <host-id>

```

Deletes the specified host and associated resources

positional arguments:

```
<host-id>          Host to delete
```

options:

```

-h, --help          show this help message and exit
--client <client>  API client to use, defaults to ARA_API_CLIENT or

```

(continues on next page)

(continued from previous page)

```

'offline'
--server <url>      API server endpoint if using http client, defaults to
                    ARA_API_SERVER or 'http://127.0.0.1:8000'
--timeout <seconds> Timeout for requests to API server, defaults to
                    ARA_API_TIMEOUT or 30
--username <username>
                    API server username for authentication, defaults to
                    ARA_API_USERNAME or None
--password <password>
                    API server password for authentication, defaults to
                    ARA_API_PASSWORD or None
--ssl-cert <path/to/certificate>
                    If a client certificate is required, the path to the
                    certificate to use, defaults to ARA_API_CERT or None
--ssl-key <path/to/key>
                    If a client certificate is required, the path to the
                    private key to use, defaults to ARA_API_KEY or None
--ssl-ca <path/to/cacert>
                    Path to a certificate authority for trusting the API
                    server certificate, defaults to ARA_API_CA or None
--insecure
                    Ignore SSL certificate validation, defaults to
                    ARA_API_INSECURE or False

```

1.11.14 ara host metrics

```

$ ara host metrics --help
usage: ara host metrics [-h] [-f {csv,json,table,value,yaml}] [-c COLUMN]
                        [--quote {all,minimal,none,nonnumeric}] [--noindent]
                        [--max-width <integer>] [--fit-width] [--print-empty]
                        [--sort-column SORT_COLUMN] [--sort-ascending |
                        --sort-descending] [--client <client>]
                        [--server <url>] [--timeout <seconds>]
                        [--username <username>] [--password <password>]
                        [--ssl-cert <path/to/certificate>]
                        [--ssl-key <path/to/key>] [--ssl-ca <path/to/cacert>]
                        [--insecure] [--name <name>]
                        [--playbook <playbook_id>] [--with-changed |
                        --without-changed] [--with-failed | --without-failed]
                        [--with-unreachable | --without-unreachable]
                        [--order <order>] [--limit <limit>]

```

Provides metrics about hosts

options:

```

-h, --help          show this help message and exit
--client <client>   API client to use, defaults to ARA_API_CLIENT or
                    'offline'
--server <url>      API server endpoint if using http client, defaults to
                    ARA_API_SERVER or 'http://127.0.0.1:8000'
--timeout <seconds> Timeout for requests to API server, defaults to
                    ARA_API_TIMEOUT or 30

```

(continues on next page)

(continued from previous page)

```

--username <username>
    API server username for authentication, defaults to
    ARA_API_USERNAME or None
--password <password>
    API server password for authentication, defaults to
    ARA_API_PASSWORD or None
--ssl-cert <path/to/certificate>
    If a client certificate is required, the path to the
    certificate to use, defaults to ARA_API_CERT or None
--ssl-key <path/to/key>
    If a client certificate is required, the path to the
    private key to use, defaults to ARA_API_KEY or None
--ssl-ca <path/to/cacert>
    Path to a certificate authority for trusting the API
    server certificate, defaults to ARA_API_CA or None
--insecure
    Ignore SSL certificate validation, defaults to
    ARA_API_INSECURE or False
--name <name>
    Filter for hosts matching the provided name (full or
    partial)
--playbook <playbook_id>
    Filter for hosts for a specified playbook id
--with-changed
    Filter for hosts with changed results
--without-changed
    Filter out hosts without changed results
--with-failed
    Filter for hosts with failed results
--without-failed
    Filter out hosts without failed results
--with-unreachable
    Filter for hosts with unreachable results
--without-unreachable
    Filter out hosts without unreachable results
--order <order>
    Orders hosts by a field ('id', 'created', 'updated',
    'name')
    Defaults to '-updated' descending so the most recent
    host is at the top.
    The order can be reversed by omitting the '-': ara
    host list --order=updated
    This influences the API request, not the ordering of
    the metrics.
--limit <limit>
    Return metrics for the first <limit> determined by the
    ordering. Defaults to ARA_CLI_LIMIT or 1000.

output formatters:
output formatter options

-f, --format {csv,json,table,value,yaml}
    the output format, defaults to table
-c, --column COLUMN
    specify the column(s) to include, can be repeated to
    show multiple columns
--sort-column SORT_COLUMN
    specify the column(s) to sort the data (columns
    specified first have a priority, non-existing columns
    are ignored), can be repeated
--sort-ascending
    sort the column(s) in ascending order
--sort-descending
    sort the column(s) in descending order

```

(continues on next page)

(continued from previous page)

```

CSV Formatter:
  --quote {all,minimal,none,nonnumeric}
                                when to include quotes, defaults to nonnumeric

json formatter:
  --noindent                     whether to disable indenting the JSON

table formatter:
  --max-width <integer>         Maximum display width, <1 to disable. You can also use
                                the CLIFF_MAX_TERM_WIDTH environment variable, but the
                                parameter takes precedence.
  --fit-width                    Fit the table to the display width. Implied if --max-
                                width greater than 0. Set the environment variable
                                CLIFF_FIT_WIDTH=1 to always enable
  --print-empty                 Print empty table if there is no data to show.

```

Examples:

```

# Return metrics about more than the last 1000 hosts
ara host metrics --limit 10000

# Return host metrics in json or csv
ara host metrics -f json
ara host metrics -f csv

# Return metrics for hosts matching a name
ara host metrics --name localhost

# Return metrics for hosts involved in a specific playbook
ara host metrics --playbook 9001

# Return metrics only for hosts with changed, failed or unreachable results
ara host metrics --with-changed
ara host metrics --with-failed
ara host metrics --with-unreachable

# Return metrics only for hosts without changed, failed or unreachable results
ara host metrics --without-changed
ara host metrics --without-failed
ara host metrics --without-unreachable

```

1.11.15 ara record list

```

$ ara record list --help
usage: ara record list [-h] [-f {csv,json,table,value,yaml}] [-c COLUMN]
                        [--quote {all,minimal,none,nonnumeric}] [--noindent]
                        [--max-width <integer>] [--fit-width] [--print-empty]
                        [--sort-column SORT_COLUMN] [--sort-ascending |
                        --sort-descending] [--client <client>] [--server <url>]
                        [--timeout <seconds>] [--username <username>]

```

(continues on next page)

(continued from previous page)

```

[--password <password>]
[--ssl-cert <path/to/certificate>]
[--ssl-key <path/to/key>] [--ssl-ca <path/to/cacert>]
[--insecure] [--playbook <playbook_id>] [--key <key>]
[--long] [--resolve] [--order <order>]
[--limit <limit>]

```

Returns a list of records based on search queries

options:

```

-h, --help          show this help message and exit
--client <client>   API client to use, defaults to ARA_API_CLIENT or
                    'offline'
--server <url>      API server endpoint if using http client, defaults to
                    ARA_API_SERVER or 'http://127.0.0.1:8000'
--timeout <seconds> Timeout for requests to API server, defaults to
                    ARA_API_TIMEOUT or 30
--username <username>
                    API server username for authentication, defaults to
                    ARA_API_USERNAME or None
--password <password>
                    API server password for authentication, defaults to
                    ARA_API_PASSWORD or None
--ssl-cert <path/to/certificate>
                    If a client certificate is required, the path to the
                    certificate to use, defaults to ARA_API_CERT or None
--ssl-key <path/to/key>
                    If a client certificate is required, the path to the
                    private key to use, defaults to ARA_API_KEY or None
--ssl-ca <path/to/cacert>
                    Path to a certificate authority for trusting the API
                    server certificate, defaults to ARA_API_CA or None
--insecure          Ignore SSL certificate validation, defaults to
                    ARA_API_INSECURE or False
--playbook <playbook_id>
                    List records for the specified playbook
--key <key>        List records matching the specified key
--long             Don't truncate paths
--resolve          Resolve IDs to identifiers (such as path or names).
                    Defaults to ARA_CLI_RESOLVE or False
--order <order>   Orders records by a field ('id', 'created', 'updated',
                    'key')
                    Defaults to '-updated' descending so the most recent
                    record is at the top.
                    The order can be reversed by omitting the '-': ara
                    record list --order=updated
--limit <limit>   Returns the first <limit> determined by the ordering.
                    Defaults to ARA_CLI_LIMIT or 50.

```

output formatters:

output formatter options

(continues on next page)

(continued from previous page)

```

-f, --format {csv,json,table,value,yaml}
    the output format, defaults to table
-c, --column COLUMN
    specify the column(s) to include, can be repeated to
    show multiple columns
--sort-column SORT_COLUMN
    specify the column(s) to sort the data (columns
    specified first have a priority, non-existing columns
    are ignored), can be repeated
--sort-ascending
    sort the column(s) in ascending order
--sort-descending
    sort the column(s) in descending order

CSV Formatter:
--quote {all,minimal,none,nonnumeric}
    when to include quotes, defaults to nonnumeric

json formatter:
--noindent
    whether to disable indenting the JSON

table formatter:
--max-width <integer>
    Maximum display width, <1 to disable. You can also use
    the CLIFF_MAX_TERM_WIDTH environment variable, but the
    parameter takes precedence.
--fit-width
    Fit the table to the display width. Implied if --max-
    width greater than 0. Set the environment variable
    CLIFF_FIT_WIDTH=1 to always enable
--print-empty
    Print empty table if there is no data to show.

```

Examples:

```

# List records for a specific key
ara record list --key log_url

# List records for a specific playbook
ara record list --playbook 9001

```

1.11.16 ara record show

```

$ ara record show --help
usage: ara record show [-h] [-f {json,shell,table,value,yaml}] [-c COLUMN]
    [--noindent] [--prefix PREFIX] [--max-width <integer>]
    [--fit-width] [--print-empty] [--client <client>]
    [--server <url>] [--timeout <seconds>]
    [--username <username>] [--password <password>]
    [--ssl-cert <path/to/certificate>]
    [--ssl-key <path/to/key>] [--ssl-ca <path/to/cacert>]
    [--insecure]
    <record-id>

```

Returns a detailed view of a specified record

positional arguments:

(continues on next page)

(continued from previous page)

```

<record-id>          Record to show

options:
-h, --help           show this help message and exit
--client <client>    API client to use, defaults to ARA_API_CLIENT or
                    'offline'
--server <url>       API server endpoint if using http client, defaults to
                    ARA_API_SERVER or 'http://127.0.0.1:8000'
--timeout <seconds> Timeout for requests to API server, defaults to
                    ARA_API_TIMEOUT or 30
--username <username>
                    API server username for authentication, defaults to
                    ARA_API_USERNAME or None
--password <password>
                    API server password for authentication, defaults to
                    ARA_API_PASSWORD or None
--ssl-cert <path/to/certificate>
                    If a client certificate is required, the path to the
                    certificate to use, defaults to ARA_API_CERT or None
--ssl-key <path/to/key>
                    If a client certificate is required, the path to the
                    private key to use, defaults to ARA_API_KEY or None
--ssl-ca <path/to/cacert>
                    Path to a certificate authority for trusting the API
                    server certificate, defaults to ARA_API_CA or None
--insecure           Ignore SSL certificate validation, defaults to
                    ARA_API_INSECURE or False

output formatters:
output formatter options

-f, --format {json,shell,table,value,yaml}
                    the output format, defaults to table
-c, --column COLUMN specify the column(s) to include, can be repeated to
                    show multiple columns

json formatter:
--noindent          whether to disable indenting the JSON

shell formatter:
a format a UNIX shell can parse (variable="value")

--prefix PREFIX     add a prefix to all variable names

table formatter:
--max-width <integer>
                    Maximum display width, <1 to disable. You can also use
                    the CLIFF_MAX_TERM_WIDTH environment variable, but the
                    parameter takes precedence.
--fit-width         Fit the table to the display width. Implied if --max-
                    width greater than 0. Set the environment variable
                    CLIFF_FIT_WIDTH=1 to always enable

```

(continues on next page)

(continued from previous page)

```
--print-empty      Print empty table if there is no data to show.
```

Examples:

```
# Show a specific record and format the results as json
ara record show 9001 -f json
```

1.11.17 ara record delete

```
$ ara record delete --help
usage: ara record delete [-h] [--client <client>] [--server <url>]
                        [--timeout <seconds>] [--username <username>]
                        [--password <password>]
                        [--ssl-cert <path/to/certificate>]
                        [--ssl-key <path/to/key>] [--ssl-ca <path/to/cacert>]
                        [--insecure]
                        <record-id>
```

Deletes the specified record and associated resources

positional arguments:

```
<record-id>      Record to delete
```

options:

```
-h, --help      show this help message and exit
--client <client> API client to use, defaults to ARA_API_CLIENT or
                 'offline'
--server <url>   API server endpoint if using http client, defaults to
                 ARA_API_SERVER or 'http://127.0.0.1:8000'
--timeout <seconds> Timeout for requests to API server, defaults to
                 ARA_API_TIMEOUT or 30
--username <username>
                 API server username for authentication, defaults to
                 ARA_API_USERNAME or None
--password <password>
                 API server password for authentication, defaults to
                 ARA_API_PASSWORD or None
--ssl-cert <path/to/certificate>
                 If a client certificate is required, the path to the
                 certificate to use, defaults to ARA_API_CERT or None
--ssl-key <path/to/key>
                 If a client certificate is required, the path to the
                 private key to use, defaults to ARA_API_KEY or None
--ssl-ca <path/to/cacert>
                 Path to a certificate authority for trusting the API
                 server certificate, defaults to ARA_API_CA or None
--insecure      Ignore SSL certificate validation, defaults to
                 ARA_API_INSECURE or False
```

1.11.18 ara result list

```
$ ara result list --help
usage: ara result list [-h] [-f {csv,json,table,value,yaml}] [-c COLUMN]
                        [--quote {all,minimal,none,nonnumeric}] [--noindent]
                        [--max-width <integer>] [--fit-width] [--print-empty]
                        [--sort-column SORT_COLUMN] [--sort-ascending |
--sort-descending] [--client <client>] [--server <url>]
                        [--timeout <seconds>] [--username <username>]
                        [--password <password>]
                        [--ssl-cert <path/to/certificate>]
                        [--ssl-key <path/to/key>] [--ssl-ca <path/to/cacert>]
                        [--insecure] [--playbook <playbook_id>]
                        [--play <play_id>] [--task <task_id>]
                        [--host <host_id>] [--status <status>]
                        [--ignore-errors] [--changed] [--long] [--resolve]
                        [--order <order>] [--limit <limit>]
```

Returns a list of results based on search queries

options:

-h, --help	show this help message and exit
--client <client>	API client to use, defaults to ARA_API_CLIENT or 'offline'
--server <url>	API server endpoint if using http client, defaults to ARA_API_SERVER or 'http://127.0.0.1:8000'
--timeout <seconds>	Timeout for requests to API server, defaults to ARA_API_TIMEOUT or 30
--username <username>	API server username for authentication, defaults to ARA_API_USERNAME or None
--password <password>	API server password for authentication, defaults to ARA_API_PASSWORD or None
--ssl-cert <path/to/certificate>	If a client certificate is required, the path to the certificate to use, defaults to ARA_API_CERT or None
--ssl-key <path/to/key>	If a client certificate is required, the path to the private key to use, defaults to ARA_API_KEY or None
--ssl-ca <path/to/cacert>	Path to a certificate authority for trusting the API server certificate, defaults to ARA_API_CA or None
--insecure	Ignore SSL certificate validation, defaults to ARA_API_INSECURE or False
--playbook <playbook_id>	List results for the specified playbook
--play <play_id>	List results for the specified play
--task <task_id>	List results for the specified task
--host <host_id>	List results for the specified host
--status <status>	List results matching a specific status: ok, failed, skipped, unreachable, changed, ignored, unknown

(continues on next page)

(continued from previous page)

<code>--ignore-errors</code>	Return only results with 'ignore_errors: true', defaults to false
<code>--changed</code>	Return only changed results, defaults to false
<code>--long</code>	Don't truncate paths and include additional fields: changed, ignore_errors, play
<code>--resolve</code>	Resolve IDs to identifiers (such as path or names). Defaults to ARA_CLI_RESOLVE or False
<code>--order <order></code>	Orders results by a field ('id', 'started', 'updated', 'ended', 'duration') Defaults to '-started' descending so the most recent result is at the top. The order can be reversed by omitting the '-': ara result list --order=started
<code>--limit <limit></code>	Returns the first <limit> determined by the ordering. Defaults to ARA_CLI_LIMIT or 50.
output formatters:	
output formatter options	
<code>-f, --format {csv,json,table,value,yaml}</code>	the output format, defaults to table
<code>-c, --column COLUMN</code>	specify the column(s) to include, can be repeated to show multiple columns
<code>--sort-column SORT_COLUMN</code>	specify the column(s) to sort the data (columns specified first have a priority, non-existing columns are ignored), can be repeated
<code>--sort-ascending</code>	sort the column(s) in ascending order
<code>--sort-descending</code>	sort the column(s) in descending order
CSV Formatter:	
<code>--quote {all,minimal,none,nonnumeric}</code>	when to include quotes, defaults to nonnumeric
json formatter:	
<code>--noindent</code>	whether to disable indenting the JSON
table formatter:	
<code>--max-width <integer></code>	Maximum display width, <1 to disable. You can also use the CLIFF_MAX_TERM_WIDTH environment variable, but the parameter takes precedence.
<code>--fit-width</code>	Fit the table to the display width. Implied if --max-width greater than 0. Set the environment variable CLIFF_FIT_WIDTH=1 to always enable
<code>--print-empty</code>	Print empty table if there is no data to show.

Return the 10 most recent failed results:

```
ara result list --status failed --limit 10
```

Return the 15 results with the highest duration for a specific playbook:

```
ara result list --playbook 389 --order--duration --limit 15
```

1.11.19 ara result show

```
$ ara result show --help
usage: ara result show [-h] [-f {json,shell,table,value,yaml}] [-c COLUMN]
                        [--noindent] [--prefix PREFIX] [--max-width <integer>]
                        [--fit-width] [--print-empty] [--client <client>]
                        [--server <url>] [--timeout <seconds>]
                        [--username <username>] [--password <password>]
                        [--ssl-cert <path/to/certificate>]
                        [--ssl-key <path/to/key>] [--ssl-ca <path/to/cacert>]
                        [--insecure] [--with-content]
                        <result-id>
```

Returns a detailed view of a specified result

positional arguments:

<result-id> Result to show

options:

-h, --help show this help message and exit

--client <client> API client to use, defaults to ARA_API_CLIENT or 'offline'

--server <url> API server endpoint if using http client, defaults to ARA_API_SERVER or 'http://127.0.0.1:8000'

--timeout <seconds> Timeout for requests to API server, defaults to ARA_API_TIMEOUT or 30

--username <username> API server username for authentication, defaults to ARA_API_USERNAME or None

--password <password> API server password for authentication, defaults to ARA_API_PASSWORD or None

--ssl-cert <path/to/certificate> If a client certificate is required, the path to the certificate to use, defaults to ARA_API_CERT or None

--ssl-key <path/to/key> If a client certificate is required, the path to the private key to use, defaults to ARA_API_KEY or None

--ssl-ca <path/to/cacert> Path to a certificate authority for trusting the API server certificate, defaults to ARA_API_CA or None

--insecure Ignore SSL certificate validation, defaults to ARA_API_INSECURE or False

--with-content Also include the result content in the response (use with '-f json' or '-f yaml')

output formatters:

output formatter options

-f, --format {json,shell,table,value,yaml}

(continues on next page)

(continued from previous page)

```

-c, --column COLUMN      the output format, defaults to table
                        specify the column(s) to include, can be repeated to
                        show multiple columns

json formatter:
  --noindent              whether to disable indenting the JSON

shell formatter:
  a format a UNIX shell can parse (variable="value")

  --prefix PREFIX        add a prefix to all variable names

table formatter:
  --max-width <integer>  Maximum display width, <1 to disable. You can also use
                        the CLIFF_MAX_TERM_WIDTH environment variable, but the
                        parameter takes precedence.

  --fit-width             Fit the table to the display width. Implied if --max-
                        width greater than 0. Set the environment variable
                        CLIFF_FIT_WIDTH=1 to always enable

  --print-empty          Print empty table if there is no data to show.

```

Return detailed information about a specific result:

```
ara result show 9001
```

Return detailed information about a specific result, including formatted content:

```
ara result show 9001 --with-content -f json
```

1.11.20 ara result delete

Note

This command requires write privileges. You can read more about read and write permissions [here](#).

```

$ ara result delete --help
usage: ara result delete [-h] [--client <client>] [--server <url>]
                        [--timeout <seconds>] [--username <username>]
                        [--password <password>]
                        [--ssl-cert <path/to/certificate>]
                        [--ssl-key <path/to/key>] [--ssl-ca <path/to/cacert>]
                        [--insecure]
                        <result-id>

```

Deletes the specified result and associated resources

```

positional arguments:
  <result-id>          Result to delete

```

(continues on next page)

(continued from previous page)

```
options:
-h, --help          show this help message and exit
--client <client>  API client to use, defaults to ARA_API_CLIENT or
                   'offline'
--server <url>     API server endpoint if using http client, defaults to
                   ARA_API_SERVER or 'http://127.0.0.1:8000'
--timeout <seconds> Timeout for requests to API server, defaults to
                   ARA_API_TIMEOUT or 30
--username <username> API server username for authentication, defaults to
                   ARA_API_USERNAME or None
--password <password> API server password for authentication, defaults to
                   ARA_API_PASSWORD or None
--ssl-cert <path/to/certificate>
                   If a client certificate is required, the path to the
                   certificate to use, defaults to ARA_API_CERT or None
--ssl-key <path/to/key>
                   If a client certificate is required, the path to the
                   private key to use, defaults to ARA_API_KEY or None
--ssl-ca <path/to/cacert>
                   Path to a certificate authority for trusting the API
                   server certificate, defaults to ARA_API_CA or None
--insecure          Ignore SSL certificate validation, defaults to
                   ARA_API_INSECURE or False
```

1.11.21 ara task list

```
$ ara task list --help
usage: ara task list [-h] [-f {csv,json,table,value,yaml}] [-c COLUMN]
                   [--quote {all,minimal,none,nonnumeric}] [--noindent]
                   [--max-width <integer>] [--fit-width] [--print-empty]
                   [--sort-column SORT_COLUMN] [--sort-ascending |
                   --sort-descending] [--client <client>] [--server <url>]
                   [--timeout <seconds>] [--username <username>]
                   [--password <password>]
                   [--ssl-cert <path/to/certificate>]
                   [--ssl-key <path/to/key>] [--ssl-ca <path/to/cacert>]
                   [--insecure] [--playbook <playbook_id>]
                   [--status <status>] [--name <name>] [--uuid <uuid>]
                   [--path <path>] [--action <action>]
                   [--with-deprecations | --without-deprecations]
                   [--with-exceptions | --without-exceptions]
                   [--with-warnings | --without-warnings] [--long]
                   [--resolve] [--order <order>] [--limit <limit>]
```

Returns a list of tasks based on search queries

```
options:
-h, --help          show this help message and exit
--client <client>  API client to use, defaults to ARA_API_CLIENT or
```

(continues on next page)

(continued from previous page)

```

'offline'
--server <url>           API server endpoint if using http client, defaults to
                        ARA_API_SERVER or 'http://127.0.0.1:8000'
--timeout <seconds>     Timeout for requests to API server, defaults to
                        ARA_API_TIMEOUT or 30
--username <username>   API server username for authentication, defaults to
                        ARA_API_USERNAME or None
--password <password>   API server password for authentication, defaults to
                        ARA_API_PASSWORD or None
--ssl-cert <path/to/certificate>
                        If a client certificate is required, the path to the
                        certificate to use, defaults to ARA_API_CERT or None
--ssl-key <path/to/key>
                        If a client certificate is required, the path to the
                        private key to use, defaults to ARA_API_KEY or None
--ssl-ca <path/to/cacert>
                        Path to a certificate authority for trusting the API
                        server certificate, defaults to ARA_API_CA or None
--insecure              Ignore SSL certificate validation, defaults to
                        ARA_API_INSECURE or False
--playbook <playbook_id>
                        List tasks for a specified playbook id
--status <status>      List tasks matching a specific status ('completed',
                        'expired', 'failed', 'running' or 'unknown')
--name <name>          List tasks matching the provided name (full or
                        partial)
--uuid <uuid>          List tasks matching the provided uuid (full or
                        partial)
--path <path>          List tasks matching the provided path (full or
                        partial)
--action <action>      List tasks matching a specific action/ansible module
                        (ex: 'debug', 'package', 'set_fact')
--with-deprecations     Return tasks with deprecations
--without-deprecations
                        Don't return tasks with deprecations
--with-exceptions       Return tasks with exceptions
--without-exceptions    Don't return tasks with exceptions
--with-warnings         Return tasks with warnings
--without-warnings      Don't return tasks with warnings
--long                 Don't truncate paths and include additional fields:
                        path, lineno, handler, play
--resolve              Resolve IDs to identifiers (such as path or names).
                        Defaults to ARA_CLI_RESOLVE or False
--order <order>        Orders tasks by a field ('id', 'created', 'updated',
                        'started', 'ended', 'duration')
                        Defaults to '-started' descending so the most recent
                        task is at the top.
                        The order can be reversed by omitting the '-': ara
                        task list --order=started
--limit <limit>        Returns the first <limit> determined by the ordering.

```

(continues on next page)

(continued from previous page)

```

Defaults to ARA_CLI_LIMIT or 50.

output formatters:
  output formatter options

  -f, --format {csv,json,table,value,yaml}
                        the output format, defaults to table
  -c, --column COLUMN  specify the column(s) to include, can be repeated to
                        show multiple columns
  --sort-column SORT_COLUMN
                        specify the column(s) to sort the data (columns
                        specified first have a priority, non-existing columns
                        are ignored), can be repeated
  --sort-ascending     sort the column(s) in ascending order
  --sort-descending    sort the column(s) in descending order

CSV Formatter:
  --quote {all,minimal,none,nonnumeric}
                        when to include quotes, defaults to nonnumeric

json formatter:
  --noindent           whether to disable indenting the JSON

table formatter:
  --max-width <integer>
                        Maximum display width, <1 to disable. You can also use
                        the CLIFF_MAX_TERM_WIDTH environment variable, but the
                        parameter takes precedence.
  --fit-width          Fit the table to the display width. Implied if --max-
                        width greater than 0. Set the environment variable
                        CLIFF_FIT_WIDTH=1 to always enable
  --print-empty        Print empty table if there is no data to show.

```

Note

ara doesn't have the concept of roles but it is possible to search for them by path, for example: `ara task list --path "roles/install_apache"`

Role names are included in the task names and it is possible to search for role-specific tasks there as well: `ara task list --name install_apache`.

Examples:

```

# Return the top 25 longest running tasks
ara task list --order=-duration --limit 25

# Return tasks from a specific playbook
ara task list --playbook 9001

# Return tasks for the package action
ara task list --action package

```

(continues on next page)

(continued from previous page)

```
# Return tasks matching a path (partial or full)
ara task list --path="roles/install_apache"
```

```
# Return tasks matching a name (partial or full)
ara task list --name install_apache
```

1.11.22 ara task show

```
$ ara task show --help
usage: ara task show [-h] [-f {json,shell,table,value,yaml}] [-c COLUMN]
                  [--noindent] [--prefix PREFIX] [--max-width <integer>]
                  [--fit-width] [--print-empty] [--client <client>]
                  [--server <url>] [--timeout <seconds>]
                  [--username <username>] [--password <password>]
                  [--ssl-cert <path/to/certificate>]
                  [--ssl-key <path/to/key>] [--ssl-ca <path/to/cacert>]
                  [--insecure]
                  <task-id>
```

Returns a detailed view of a specified task

positional arguments:

<task-id> Task to show

options:

-h, --help show this help message and exit

--client <client> API client to use, defaults to ARA_API_CLIENT or 'offline'

--server <url> API server endpoint if using http client, defaults to ARA_API_SERVER or 'http://127.0.0.1:8000'

--timeout <seconds> Timeout for requests to API server, defaults to ARA_API_TIMEOUT or 30

--username <username> API server username for authentication, defaults to ARA_API_USERNAME or None

--password <password> API server password for authentication, defaults to ARA_API_PASSWORD or None

--ssl-cert <path/to/certificate> If a client certificate is required, the path to the certificate to use, defaults to ARA_API_CERT or None

--ssl-key <path/to/key> If a client certificate is required, the path to the private key to use, defaults to ARA_API_KEY or None

--ssl-ca <path/to/cacert> Path to a certificate authority for trusting the API server certificate, defaults to ARA_API_CA or None

--insecure Ignore SSL certificate validation, defaults to ARA_API_INSECURE or False

(continues on next page)

(continued from previous page)

```

output formatters:
  output formatter options

  -f, --format {json,shell,table,value,yaml}
                                the output format, defaults to table
  -c, --column COLUMN          specify the column(s) to include, can be repeated to
                                show multiple columns

json formatter:
  --noindent                    whether to disable indenting the JSON

shell formatter:
  a format a UNIX shell can parse (variable="value")

  --prefix PREFIX              add a prefix to all variable names

table formatter:
  --max-width <integer>        Maximum display width, <1 to disable. You can also use
                                the CLIFF_MAX_TERM_WIDTH environment variable, but the
                                parameter takes precedence.
  --fit-width                   Fit the table to the display width. Implied if --max-
                                width greater than 0. Set the environment variable
                                CLIFF_FIT_WIDTH=1 to always enable
  --print-empty                Print empty table if there is no data to show.
  
```

Return detailed information about a specific task:

```
ara task show 9001
```

1.11.23 ara task delete

Note

This command requires write privileges. You can read more about read and write permissions [here](#).

```

$ ara task delete --help
usage: ara task delete [-h] [--client <client>] [--server <url>]
                    [--timeout <seconds>] [--username <username>]
                    [--password <password>]
                    [--ssl-cert <path/to/certificate>]
                    [--ssl-key <path/to/key>] [--ssl-ca <path/to/cacert>]
                    [--insecure]
                    <task-id>

Deletes the specified task and associated resources

positional arguments:
  <task-id>            Task to delete
  
```

(continues on next page)

(continued from previous page)

```

options:
-h, --help                show this help message and exit
--client <client>        API client to use, defaults to ARA_API_CLIENT or
                          'offline'
--server <url>           API server endpoint if using http client, defaults to
                          ARA_API_SERVER or 'http://127.0.0.1:8000'
--timeout <seconds>     Timeout for requests to API server, defaults to
                          ARA_API_TIMEOUT or 30
--username <username>   API server username for authentication, defaults to
                          ARA_API_USERNAME or None
--password <password>   API server password for authentication, defaults to
                          ARA_API_PASSWORD or None
--ssl-cert <path/to/certificate>
                          If a client certificate is required, the path to the
                          certificate to use, defaults to ARA_API_CERT or None
--ssl-key <path/to/key>
                          If a client certificate is required, the path to the
                          private key to use, defaults to ARA_API_KEY or None
--ssl-ca <path/to/cacert>
                          Path to a certificate authority for trusting the API
                          server certificate, defaults to ARA_API_CA or None
--insecure                Ignore SSL certificate validation, defaults to
                          ARA_API_INSECURE or False

```

1.11.24 ara task metrics

```

$ ara task metrics --help
usage: ara task metrics [-h] [-f {csv,json,table,value,yaml}] [-c COLUMN]
                        [--quote {all,minimal,none,nonnumeric}] [--noindent]
                        [--max-width <integer>] [--fit-width] [--print-empty]
                        [--sort-column SORT_COLUMN] [--sort-ascending |
                        --sort-descending] [--client <client>]
                        [--server <url>] [--timeout <seconds>]
                        [--username <username>] [--password <password>]
                        [--ssl-cert <path/to/certificate>]
                        [--ssl-key <path/to/key>] [--ssl-ca <path/to/cacert>]
                        [--insecure] [--aggregate {action,name,path}]
                        [--playbook <playbook_id>] [--status <status>]
                        [--name <name>] [--uuid <name>] [--path <path>]
                        [--action <action>] [--long] [--order <order>]
                        [--limit <limit>]

```

Provides metrics about actions in tasks

```

options:
-h, --help                show this help message and exit
--client <client>        API client to use, defaults to ARA_API_CLIENT or
                          'offline'
--server <url>           API server endpoint if using http client, defaults to

```

(continues on next page)

(continued from previous page)

```

ARA_API_SERVER or 'http://127.0.0.1:8000'
--timeout <seconds> Timeout for requests to API server, defaults to
ARA_API_TIMEOUT or 30
--username <username> API server username for authentication, defaults to
ARA_API_USERNAME or None
--password <password> API server password for authentication, defaults to
ARA_API_PASSWORD or None
--ssl-cert <path/to/certificate>
If a client certificate is required, the path to the
certificate to use, defaults to ARA_API_CERT or None
--ssl-key <path/to/key>
If a client certificate is required, the path to the
private key to use, defaults to ARA_API_KEY or None
--ssl-ca <path/to/cacert>
Path to a certificate authority for trusting the API
server certificate, defaults to ARA_API_CA or None
--insecure Ignore SSL certificate validation, defaults to
ARA_API_INSECURE or False
--aggregate {action,name,path}
Aggregate tasks by action, name or path. Defaults to
action.
--playbook <playbook_id>
Filter for tasks for a specified playbook id
--status <status> Filter for tasks matching a specific status
('completed', 'expired', 'failed', 'running', or
'unknown')
--name <name> Filter for tasks matching the provided name (full or
partial)
--uuid <name> Filter for tasks matching the provided uuid (full or
partial)
--path <path> Filter for tasks matching the provided path (full or
partial)
--action <action> Filter for tasks matching a specific action/ansible
module (ex: 'debug', 'package', 'set_fact')
--long Don't truncate paths and include additional status
fields: completed, expired, failed, running & unknown
--order <order> Orders tasks by a field ('id', 'created', 'updated',
'started', 'ended', 'duration')
Defaults to '-started' descending so the most recent
task is at the top.
The order can be reversed by omitting the '-': ara
task metrics --order=started
This influences the API request, not the ordering of
the metrics.
--limit <limit> Return metrics for the first <limit> determined by the
ordering. Defaults to ARA_CLI_LIMIT or 1000.

output formatters:
output formatter options

```

(continues on next page)

(continued from previous page)

```

-f, --format {csv,json,table,value,yaml}
    the output format, defaults to table
-c, --column COLUMN specify the column(s) to include, can be repeated to
    show multiple columns
--sort-column SORT_COLUMN
    specify the column(s) to sort the data (columns
    specified first have a priority, non-existing columns
    are ignored), can be repeated
--sort-ascending sort the column(s) in ascending order
--sort-descending sort the column(s) in descending order

CSV Formatter:
--quote {all,minimal,none,nonnumeric}
    when to include quotes, defaults to nonnumeric

json formatter:
--noindent whether to disable indenting the JSON

table formatter:
--max-width <integer>
    Maximum display width, <1 to disable. You can also use
    the CLIFF_MAX_TERM_WIDTH environment variable, but the
    parameter takes precedence.
--fit-width Fit the table to the display width. Implied if --max-
    width greater than 0. Set the environment variable
    CLIFF_FIT_WIDTH=1 to always enable
--print-empty Print empty table if there is no data to show.

```

Examples:

```

# Return metrics about more than the last 1000 tasks
ara task metrics --limit 10000

# Return task metrics in json or csv
ara task metrics -f json
ara task metrics -f csv

# Don't truncate paths and include additional task status fields
ara task metrics --long

# Return metrics about tasks from a specific playbook
ara task metrics --playbook 9001

# Return metrics for tasks matching a (full or partial) path
ara task metrics --path ansible-role-foo

# Only return metrics about a specific action
ara task metrics --action package

# Return metrics for tasks matching a name
ara task metrics --name apache

```

(continues on next page)

(continued from previous page)

```
# Return metrics about the longest tasks and then sort them by total duration
ara task metrics --order=-duration --sort-column duration_total

# Aggregate metrics by task name rather than action
ara task metrics --aggregate name

# Aggregate metrics by task file rather than action
ara task metrics --aggregate path
```

1.12 CLI: ara-manage (django API server)

ara-manage is a command provided by ARA when the API server dependencies are installed.

It is an alias to the python manage.py command interface provided by Django and they can be used interchangeably if you are running ARA from source.

Note

Django comes with a lot of built-in commands and they are not all used or relevant in the context of ARA so they might not be exposed, tested or documented.

This documentation provides information about commands which we think are relevant.

If you do not find a command documented here, you can find more information about it in the [Django documentation](#).

Please feel free to send a patch if we're missing anything !

1.12.1 ara-manage

```
$ ara-manage --help
[ara] No setting found for SECRET_KEY. Generating a random key...
[ara] Creating data & configuration directory: /home/docs/.ara/server
[ara] Writing default settings to /home/docs/.ara/server/settings.yaml
[ara] Using settings file: /home/docs/.ara/server/settings.yaml
```

Type 'ara-manage help <subcommand>' for help on a specific subcommand.

Available subcommands:

```
[api]
  prune
```

```
[auth]
  changepassword
  createsuperuser
```

```
[contenttypes]
  remove_stale_contenttypes
```

```
[django]
  check
  compilemessages
```

(continues on next page)

(continued from previous page)

```
createcachetable
dbshell
diffsettings
dumpdata
flush
inspectdb
loaddata
makemessages
makemigrations
migrate
optimizemigration
sendtestemail
shell
showmigrations
sqlflush
sqlmigrate
sqlsequencereset
squashmigrations
startapp
startproject
test
testserver

[health_check]
    health_check

[rest_framework]
    generateschema

[sessions]
    clearsessions

[staticfiles]
    collectstatic
    findstatic
    runserver

[ui]
    generate
```

1.12.2 ara-manage prune

Warning

ara-manage prune has been replaced by *ara playbook prune* in ara 1.5. It will be removed in ara 1.6.

Used to delete playbooks that are older than a specified amount of days.

```
$ ara-manage prune --help
[ara] Using settings file: /home/docs/.ara/server/settings.yaml
```

(continues on next page)

(continued from previous page)

```
usage: ara-manage prune [-h] [--client CLIENT] [--endpoint ENDPOINT]
                        [--username USERNAME] [--password PASSWORD]
                        [--insecure] [--timeout TIMEOUT] [--days DAYS]
                        [--confirm] [--version] [-v {0,1,2,3}]
                        [--settings SETTINGS] [--pythonpath PYTHONPATH]
                        [--traceback] [--no-color] [--force-color]
                        [--skip-checks]
```

Deletes playbooks from the database based on their age

options:

```
-h, --help                show this help message and exit
--client CLIENT           API client to use for the query: 'offline' or 'http'
                        (default: 'offline')
--endpoint ENDPOINT      API endpoint to use for the query (default:
                        'http://127.0.0.1:8000')
--username USERNAME      API username to use for the query (default: None)
--password PASSWORD      API password to use for the query (default: None)
--insecure               Disables SSL certificate validation
--timeout TIMEOUT        Timeout for API queries (default: 10)
--days DAYS             Delete playbooks started this many days ago (default:
                        31)
--confirm               Confirm deletion of playbooks, otherwise runs without
                        deleting any playbook
--version               Show program's version number and exit.
-v, --verbosity {0,1,2,3}
                        Verbosity level; 0=minimal output, 1=normal output,
                        2=verbose output, 3=very verbose output
--settings SETTINGS     The Python path to a settings module, e.g.
                        "myproject.settings.main". If this isn't provided, the
                        DJANGO_SETTINGS_MODULE environment variable will be
                        used.
--pythonpath PYTHONPATH
                        A directory to add to the Python path, e.g.
                        "/home/djangoprojects/myproject".
--traceback             Display a full stack trace on CommandError exceptions.
--no-color              Don't colorize the command output.
--force-color           Force colorization of the command output.
--skip-checks           Skip system checks.
```

1.12.3 ara-manage changepassword

Change the password for a user.

Relevant when working with *authentication*.

```
$ ara-manage changepassword --help
[ara] Using settings file: /home/docs/.ara/server/settings.yaml
usage: ara-manage changepassword [-h] [--database {default}] [--version]
                                  [-v {0,1,2,3}] [--settings SETTINGS]
                                  [--pythonpath PYTHONPATH] [--traceback]
                                  [--no-color] [--force-color]
```

(continues on next page)

(continued from previous page)

[username]

Change a user's password for django.contrib.auth.

positional arguments:

username Username to change password for; by default, it's the current username.

options:

-h, --help show this help message and exit
 --database {default} Specifies the database to use. Default is "default".
 --version Show program's version number and exit.
 -v, --verbosity {0,1,2,3} Verbosity level; 0=minimal output, 1=normal output, 2=verbose output, 3=very verbose output
 --settings SETTINGS The Python path to a settings module, e.g. "myproject.settings.main". If this isn't provided, the DJANGO_SETTINGS_MODULE environment variable will be used.
 --pythonpath PYTHONPATH A directory to add to the Python path, e.g. "/home/djangoprojects/myproject".
 --traceback Display a full stack trace on CommandError exceptions.
 --no-color Don't colorize the command output.
 --force-color Force colorization of the command output.

1.12.4 ara-manage createsuperuser

Superusers are relevant when setting up *authentication*.

```
$ ara-manage createsuperuser --help
[ara] Using settings file: /home/docs/.ara/server/settings.yaml
usage: ara-manage createsuperuser [-h] [--username USERNAME] [--noinput]
                                   [--database {default}] [--email EMAIL]
                                   [--version] [-v {0,1,2,3}]
                                   [--settings SETTINGS]
                                   [--pythonpath PYTHONPATH] [--traceback]
                                   [--no-color] [--force-color] [--skip-checks]
```

Used to create a superuser.

options:

-h, --help show this help message and exit
 --username USERNAME Specifies the login for the superuser.
 --noinput, --no-input Tells Django to NOT prompt the user for input of any kind. You must use --username with --noinput, along with an option for any other required field. Superusers created with --noinput will not be able to log in until they're given a valid password.
 --database {default} Specifies the database to use. Default is "default".
 --email EMAIL Specifies the email for the superuser.

(continues on next page)

(continued from previous page)

```

--version          Show program's version number and exit.
-v, --verbosity {0,1,2,3}
                   Verbosity level; 0=minimal output, 1=normal output,
                   2=verbose output, 3=very verbose output
--settings SETTINGS
                   The Python path to a settings module, e.g.
                   "myproject.settings.main". If this isn't provided, the
                   DJANGO_SETTINGS_MODULE environment variable will be
                   used.
--pythonpath PYTHONPATH
                   A directory to add to the Python path, e.g.
                   "/home/djangoprojects/myproject".
--traceback        Display a full stack trace on CommandError exceptions.
--no-color         Don't colorize the command output.
--force-color      Force colorization of the command output.
--skip-checks     Skip system checks.

```

1.12.5 ara-manage makemigrations

Generally used to generate new SQL migrations after modifying the database model files.

```

$ ara-manage makemigrations --help
[ara] Using settings file: /home/docs/.ara/server/settings.yaml
usage: ara-manage makemigrations [-h] [--dry-run] [--merge] [--empty]
                                [--noinput] [-n NAME] [--no-header] [--check]
                                [--scriptable] [--update] [--version]
                                [-v {0,1,2,3}] [--settings SETTINGS]
                                [--pythonpath PYTHONPATH] [--traceback]
                                [--no-color] [--force-color] [--skip-checks]
                                [app_label ...]

```

Creates new migration(s) for apps.

positional arguments:

app_label Specify the app label(s) to create migrations for.

options:

```

-h, --help          show this help message and exit
--dry-run           Just show what migrations would be made; don't
                   actually write them.
--merge            Enable fixing of migration conflicts.
--empty           Create an empty migration.
--noinput, --no-input
                   Tells Django to NOT prompt the user for input of any
                   kind.
-n, --name NAME    Use this name for migration file(s).
--no-header        Do not add header comments to new migration file(s).
--check           Exit with a non-zero status if model changes are
                   missing migrations and don't actually write them.
                   Implies --dry-run.
--scriptable       Divert log output and input prompts to stderr, writing
                   only paths of generated migration files to stdout.
--update          Merge model changes into the latest migration and

```

(continues on next page)

(continued from previous page)

```

optimize the resulting operations.
--version          Show program's version number and exit.
-v, --verbosity {0,1,2,3}
                   Verbosity level; 0=minimal output, 1=normal output,
                   2=verbose output, 3=very verbose output
--settings SETTINGS
                   The Python path to a settings module, e.g.
                   "myproject.settings.main". If this isn't provided, the
                   DJANGO_SETTINGS_MODULE environment variable will be
                   used.
--pythonpath PYTHONPATH
                   A directory to add to the Python path, e.g.
                   "/home/djangoprojects/myproject".
--traceback        Display a full stack trace on CommandError exceptions.
--no-color         Don't colorize the command output.
--force-color      Force colorization of the command output.
--skip-checks     Skip system checks.

```

1.12.6 ara-manage migrate

Runs SQL migrations.

They need to be run at least once before the API server can start.

```

$ ara-manage migrate --help
[ara] Using settings file: /home/docs/.ara/server/settings.yaml
usage: ara-manage migrate [-h] [--noinput] [--database {default}] [--fake]
                        [--fake-initial] [--plan] [--run-syncdb] [--check]
                        [--prune] [--version] [-v {0,1,2,3}]
                        [--settings SETTINGS] [--pythonpath PYTHONPATH]
                        [--traceback] [--no-color] [--force-color]
                        [--skip-checks]
                        [app_label] [migration_name]

```

Updates database schema. Manages both apps with migrations and those without.

positional arguments:

```

  app_label          App label of an application to synchronize the state.
  migration_name     Database state will be brought to the state after that
                    migration. Use the name "zero" to unapply all
                    migrations.

```

options:

```

  -h, --help          show this help message and exit
  --noinput, --no-input
                    Tells Django to NOT prompt the user for input of any
                    kind.
  --database {default}
                    Nominates a database to synchronize. Defaults to the
                    "default" database.
  --fake              Mark migrations as run without actually running them.
  --fake-initial      Detect if tables already exist and fake-apply initial
                    migrations if so. Make sure that the current database
                    schema matches your initial migration before using

```

(continues on next page)

(continued from previous page)

```

this flag. Django will only check for an existing
table name.
--plan          Shows a list of the migration actions that will be
                performed.
--run-syncdb    Creates tables for apps without migrations.
--check        Exits with a non-zero status if unapplied migrations
                exist and does not actually apply migrations.
--prune        Delete nonexistent migrations from the
                django_migrations table.
--version      Show program's version number and exit.
-v, --verbosity {0,1,2,3}
                Verbosity level; 0=minimal output, 1=normal output,
                2=verbose output, 3=very verbose output
--settings SETTINGS
                The Python path to a settings module, e.g.
                "myproject.settings.main". If this isn't provided, the
                DJANGO_SETTINGS_MODULE environment variable will be
                used.
--pythonpath PYTHONPATH
                A directory to add to the Python path, e.g.
                "/home/djangoprojects/myproject".
--traceback    Display a full stack trace on CommandError exceptions.
--no-color     Don't colorize the command output.
--force-color  Force colorization of the command output.
--skip-checks  Skip system checks.

```

1.12.7 ara-manage runserver

Runs the embedded development server.

Note

Good for small scale usage.

Consider deploying with a WSGI application server and a web server for production use.

```

$ ara-manage runserver --help
[ara] Using settings file: /home/docs/.ara/server/settings.yaml
usage: ara-manage runserver [-h] [--ipv6] [--nothreading] [--noreload]
                             [--nostatic] [--insecure] [--version]
                             [--settings SETTINGS] [--pythonpath PYTHONPATH]
                             [--no-color] [--force-color] [--skip-checks]
                             [addrport]

```

Starts a lightweight web server for development and also serves static files.

positional arguments:

addrport Optional port number, or ipaddr:port

options:

-h, --help show this help message and exit
--ipv6, -6 Tells Django to use an IPv6 address.

(continues on next page)

(continued from previous page)

```

--nothreading    Tells Django to NOT use threading.
--noreload      Tells Django to NOT use the auto-reloader.
--nostatic      Tells Django to NOT automatically serve static files
                at STATIC_URL.
--insecure      Allows serving static files even if DEBUG is False.
--version       Show program's version number and exit.
--settings SETTINGS  The Python path to a settings module, e.g.
                "myproject.settings.main". If this isn't provided, the
                DJANGO_SETTINGS_MODULE environment variable will be
                used.
--pythonpath PYTHONPATH
                A directory to add to the Python path, e.g.
                "/home/djangoprojects/myproject".
--no-color      Don't colorize the command output.
--force-color   Force colorization of the command output.
--skip-checks   Skip system checks.

```

1.12.8 ara-manage generate

Generates a static version of the built-in reporting web interface.

i Note

Good for small scale usage but inefficient and contains a lot of small files at a large scale.

```

$ ara-manage generate --help
[ara] Using settings file: /home/docs/.ara/server/settings.yaml
usage: ara-manage generate [-h] [--version] [-v {0,1,2,3}]
                        [--settings SETTINGS] [--pythonpath PYTHONPATH]
                        [--traceback] [--no-color] [--force-color]
                        [--skip-checks]
                        path

```

Generates a static tree of the web application

positional arguments:

path Path where the static files will be built in

options:

```

-h, --help          show this help message and exit
--version          Show program's version number and exit.
-v, --verbosity {0,1,2,3}
                  Verbosity level; 0=minimal output, 1=normal output,
                  2=verbose output, 3=very verbose output
--settings SETTINGS  The Python path to a settings module, e.g.
                  "myproject.settings.main". If this isn't provided, the
                  DJANGO_SETTINGS_MODULE environment variable will be
                  used.
--pythonpath PYTHONPATH
                  A directory to add to the Python path, e.g.

```

(continues on next page)

(continued from previous page)

```

--traceback      "/home/djangoprojects/myproject".
                  Display a full stack trace on CommandError exceptions.
--no-color       Don't colorize the command output.
--force-color    Force colorization of the command output.
--skip-checks   Skip system checks.

```

1.13 Contributing to ARA

ARA Records Ansible is a free and open source community project that welcomes and appreciates contributions.

While this page focuses around development of the project itself, contributions aren't only about pull requests, code or code reviews.

They can be in the form of documentation, feedback and comments, suggestions and ideas, issues and bug reports, or just helping out other users in the [chat rooms](#).

1.13.1 Code contributions

Pull requests welcome

ara is hosted at <https://codeberg.org/ansible-community/ara> thanks to codeberg.org, a community deployment of Forgejo.

ara has a number of other repositories as well, including:

- <https://codeberg.org/ansible-community/ara-infra> (for things like the website and the live demo)
- <https://codeberg.org/ansible-community/ara-collection> (for the ara Ansible collection)

Opening a pull request on Codeberg is similar to GitHub and GitLab. Documentation is available to get started: <https://docs.codeberg.org/collaborating/pull-requests-and-git-flow/>

At a high level the process looks like this:

- Fork the [ara repository on Codeberg](#)
- Run `git clone` on your fork
- Create a new branch: `git checkout -b cool_feature`
- Do your changes and test or preview them locally, as appropriate
- Commit your changes with `git commit`
- Push your commit to your fork with `git push origin cool_feature`
- Open a pull request using the proposed link returned by the `git push` command

Every every pull request is automatically tested with linters, unit tests as well as a variety of integration test scenarios.

This results in higher standards, better code, improved testing coverage, less regressions and increased stability.

Testing changes locally

It is encouraged to test changes in a local environment before sending them for review.

Most of the tests that are run against a pull request are fast and can be run from your development environment without any changes to the system.

Tox handles the creation of a python virtual environment in which the tests are run from and must be installed:

- `tox -e py3` for unit tests
- `tox -e linters` for pep8/flake8/bandit/bashate/black/isort/etc
- `tox -e docs` for testing and building documentation to docs/build/html
- `tox -e ansible-integration` installs ansible and runs integration tests

Changes to the server, API, Ansible plugins or web interface can generally be manually tested and previewed from within a tox virtual environment like this:

```
tox -e ansible-integration --notest
source .tox/ansible-integration/bin/activate
export ANSIBLE_CALLBACK_PLUGINS=$(python3 -m ara.setup.callback_plugins)
export ANSIBLE_ACTION_PLUGINS=$(python3 -m ara.setup.action_plugins)
export ANSIBLE_LOOKUP_PLUGINS=$(python3 -m ara.setup.lookup_plugins)
ansible-playbook tests/integration/smoke.yaml
ara-manage runserver
# Browse to http://127.0.0.1:8000
```

CI jobs and how they work

A `forgejo-runner` is set up to run Forgejo actions on each pull request.

The code for the Forgejo workflows and Ansible playbooks is in the git repository: <https://codeberg.org/ansible-community/ara/src/branch/master/.forgejo>

For the ara repository there are currently five jobs that run on pull requests:

- tests/unit-tests (runs `tox -e py3`)
- tests/linters (runs `tox -e linters`)
- tests/docs (runs `tox -e docs`)
- tests/ansible-integration (runs `tox -e ansible-integration`)
- tests/container-images (builds and tests [container images](#))

These jobs run from a fedora-42 based container image spun up by the forgejo runner in podman. The script to build this image is available here: <https://codeberg.org/ansible-community/ara/src/branch/master/contrib/container-images/fedora-ci-image.sh>.

It is built periodically and published on Codeberg: <https://codeberg.org/ansible-community/-/packages/container/ara%2Ffedora-ci-image/latest>

For `tests/container-images`, we go a step further: we create an OpenStack VM with Ansible, synchronize the git repo on it and then run the job there instead. This prevents relying on “docker in docker” and paves the way to test different scenarios against multiple distributions with ara-collection.

Finally, where relevant and possible, jobs that run Ansible integration tests use ara to record playbook results to <https://demo.recordsansible.org>.

This provides simple reporting with labels for pull requests or git commits, for example:

- <https://demo.recordsansible.org/?label=sha:e6b30062c68847eb0a4b6a6617ab01078fe176c1>
- <https://demo.recordsansible.org/?label=ref:refs/pull/604/head>

1.14 FAQ

1.14.1 Where is the source code ?

ARA is currently composed of three different free and open source projects:

- <https://codeberg.org/ansible-community/ara> for the REST API server and Ansible plugins
- <https://codeberg.org/ansible-community/ara-infra> for project-specific infrastructure needs (such as the ara.recordsansible.org website)
- <https://codeberg.org/ansible-community/ara-collection> for the Ansible collection of ara

1.14.2 What's an Ansible callback ?

Ansible Callbacks are essentially hooks provided by Ansible. Ansible will send an event and you can react to it with a callback. You could use a callback to do things like print additional details or, in the case of ARA, record the playbook run data in a database.

1.14.3 What versions of Ansible are supported ?

The upstream Ansible community and maintainers provide support for the latest three major stable releases and ARA follows the same support cycle.

For example, if the latest version of Ansible is 2.9, then the latest release of ARA will support 2.9 as well as 2.8 and 2.7.

For more information on Ansible's release and maintenance cycle, you can refer to the [Ansible documentation](#).

If you are using a release of Ansible that is no longer supported, it doesn't mean that ARA won't work but it will no longer be tested. We strongly encourage you to upgrade as soon as possible in order to benefit from the latest features and security fixes not just in ARA but in Ansible as well.

Older unsupported versions of Ansible can contain unfixed security vulnerabilities (*CVE*).

1.14.4 Why ARA instead of <X> ?

Ansible is an awesome tool. It can be used for a lot of things.

Reading and interpreting the output of an `ansible-playbook` run, especially one that is either long running, involves a lot of hosts or prints a lot of output can be hard to understand and troubleshoot.

This is especially true when you happen to be running Ansible hundreds of times during the day, through automated means – for example when doing continuous integration or continuous delivery.

ARA aims to do one thing and do it well: Record Ansible playbooks and provide you with the tools you need to make your playbook results intuitive for you and for your systems.

The great thing about ARA is that it is not mutually exclusive with other software and systems you might already be using Ansible with today.

There is nothing preventing you from using ARA with other tools such as [Ansible Tower](#) (or [AWX](#)), [Zuul](#), [Jenkins](#) or [Rundeck](#) since all you need to get started is to install and enable the ARA Ansible callback plugin.

1.14.5 Can I set up the different components of ARA on different servers ?

Yes.

By default ara operates “offline” on localhost, recording Ansible playbook results to a local sqlite database without requiring users to start a server.

According to preference or use case, the data can be saved to local (or remote) MySQL or PostgreSQL databases instead.

The ara server (based on django & django-rest-framework) provides the reporting interface as well as the API used by the ara Ansible plugins.

The server's state is stored in the database and it can be self hosted anywhere. Running multiple servers allows for load balancing, scalability and high availability.

To make use of a persistent server, configure the ara Ansible plugins with:

- `export ARA_API_CLIENT=http`
- `export ARA_API_SERVER=http://ara.example.org`

1.15 Troubleshooting

This page documents issues that are commonly encountered and provides advice on how to troubleshoot them.

1.15.1 Increasing verbosity and obtaining debug logging

When there is an exception, an error or something doesn't work, it is likely that increasing verbosity or looking at the debug logs can point us in the right direction.

The `ansible` and `ansible-playbook` commands do not run with enough verbosity by default to display tracebacks from Ansible plugins.

In order to retrieve the tracebacks, run these commands with increased verbosity (`-vvv`):

```
> ansible-playbook playbook.yml
# ...
TASK [Gathering Facts] *****
[WARNING]: Failure using method (v2_playbook_on_task_start) in callback plugin (<ansible.
↳plugins.callback.ara_default.CallbackModule object at 0x7f6d4abcf50>):
# ...

> ansible-playbook -vvv playbook.yml
# ...
TASK [Gathering Facts] *****
[WARNING]: Failure using method (v2_playbook_on_task_start) in callback plugin (<ansible.
↳plugins.callback.ara_default.CallbackModule object at 0x7f1e7fd5ce50>):
Callback Exception:
  File "/usr/lib/python3.9/site-packages/ansible/executor/task_queue_manager.py", line
  ↳389, in send_callback
    method(*new_args, **kwargs)
  File "/usr/lib/python3.9/site-packages/ara/plugins/callback/ara_default.py", line 354,
  ↳in v2_playbook_on_task_start
    raise Exception
# ...
```

Additional debug logging from ara's perspective can be added by setting `ARA_DEBUG` to `true` and `ARA_LOG_LEVEL` to `DEBUG`:

```
> export ARA_DEBUG=true
> export ARA_LOG_LEVEL=DEBUG
> export ANSIBLE_CALLBACK_PLUGINS=$(python3 -m ara.setup.callback_plugins)
> ansible-playbook tests/integration/hosts.yaml
```

(continues on next page)

(continued from previous page)

```

[WARNING]: No inventory was parsed, only implicit localhost is available
[WARNING]: provided hosts list is empty, only localhost is available. Note that the
↳implicit localhost does not match 'all'
Operations to perform:
Apply all migrations: admin, api, auth, contenttypes, db, sessions
Running migrations:
No migrations to apply.
2021-04-20 09:56:14,678 DEBUG ara.plugins.callback.default: v2_playbook_on_start
2021-04-20 09:56:14,679 DEBUG ara.plugins.callback.default: Ignoring argument: extra_vars
2021-04-20 09:56:14,680 DEBUG urllib3.connectionpool: Starting new HTTP connection (1):
↳localhost:35697
2021-04-20 09:56:14,708 DEBUG urllib3.connectionpool: http://localhost:35697 "POST /api/
↳v1/playbooks HTTP/1.1" 201 1116
2021-04-20 09:56:14,708 DEBUG ara.clients.http: HTTP 201: post on /api/v1/playbooks
2021-04-20 09:56:14,708 DEBUG ara.plugins.callback.default: File not in cache, getting
↳or creating: /home/dmsimard/dev/git/ansible-community/ara/tests/integration/hosts.yaml
2021-04-20 09:56:14,723 DEBUG urllib3.connectionpool: http://localhost:35697 "POST /api/
↳v1/files HTTP/1.1" 201 1784
2021-04-20 09:56:14,724 DEBUG ara.clients.http: HTTP 201: post on /api/v1/files

PLAY [Create fake hosts for host tests]
↳*****
2021-04-20 09:56:14,726 DEBUG ara.plugins.callback.default: v2_playbook_on_play_start
2021-04-20 09:56:14,726 DEBUG ara.plugins.callback.default: Updating playbook labels to
↳match: check:False,tags:all
2021-04-20 09:56:14,750 DEBUG urllib3.connectionpool: http://localhost:35697 "PATCH /api/
↳v1/playbooks/13 HTTP/1.1" 200 1172
2021-04-20 09:56:14,751 DEBUG ara.clients.http: HTTP 200: patch on /api/v1/playbooks/13
2021-04-20 09:56:14,806 DEBUG urllib3.connectionpool: http://localhost:35697 "POST /api/
↳v1/plays HTTP/1.1" 201 294
2021-04-20 09:56:14,807 DEBUG ara.clients.http: HTTP 201: post on /api/v1/plays

# [...]

```

1.15.2 Playbooks are not recorded

If it is expected that playbooks should be recorded but they are not, there are a few things to double check:

- 1) Are both ara and ansible installed and running under python >=3.5 ?
- 2) Are the ara and ansible packages installed for the same python interpreter ? Mixing packages from distributions (such as rpm or deb) and PyPi tends to be problematic.
- 3) Is the ara callback enabled ? This can be done with `export ANSIBLE_CALLBACK_PLUGINS=$(python3 -m ara.setup.callback_plugins)` prior to running playbooks.
- 4) By default, playbooks are saved in a sqlite database at `~/.ara/server/ansible.sqlite`. Are playbooks running under a different user or location than the server ?

1.15.3 Database exceptions

By default, ara's Ansible callback plugin takes care of creating a sqlite database and runs SQL migrations automatically.

Attempting to start the server process or run CLI commands (such as `ara playbook list`) before running these SQL migrations can result in exceptions such as:

```
> ara playbook list
2021-04-15 20:01:23,224 ERROR django.request: Internal Server Error: /api/v1/playbooks
Traceback (most recent call last):
File "/usr/local/lib/python3.6/site-packages/django/db/backends/utils.py", line 84, in _
  ↪ execute
    return self.cursor.execute(sql, params)
File "/usr/local/lib/python3.6/site-packages/django/db/backends/sqlite3/base.py", line 383, in execute
    return Database.Cursor.execute(self, query, params)
sqlite3.OperationalError: no such table: playbooks
```

SQL migrations can be run manually by executing `ara-manage migrate`.

For MySQL and PostgreSQL, the database must have already been created before attempting to run migrations.

1.15.4 Bad Request (400) and ALLOWED_HOSTS

Attempting to browse the API server or its built-in reporting UI can result in a HTTP 400 (Bad Request) error if the hostname is not included in the `ARA_ALLOWED_HOSTS` of `~/.ara/server/settings.yaml`.

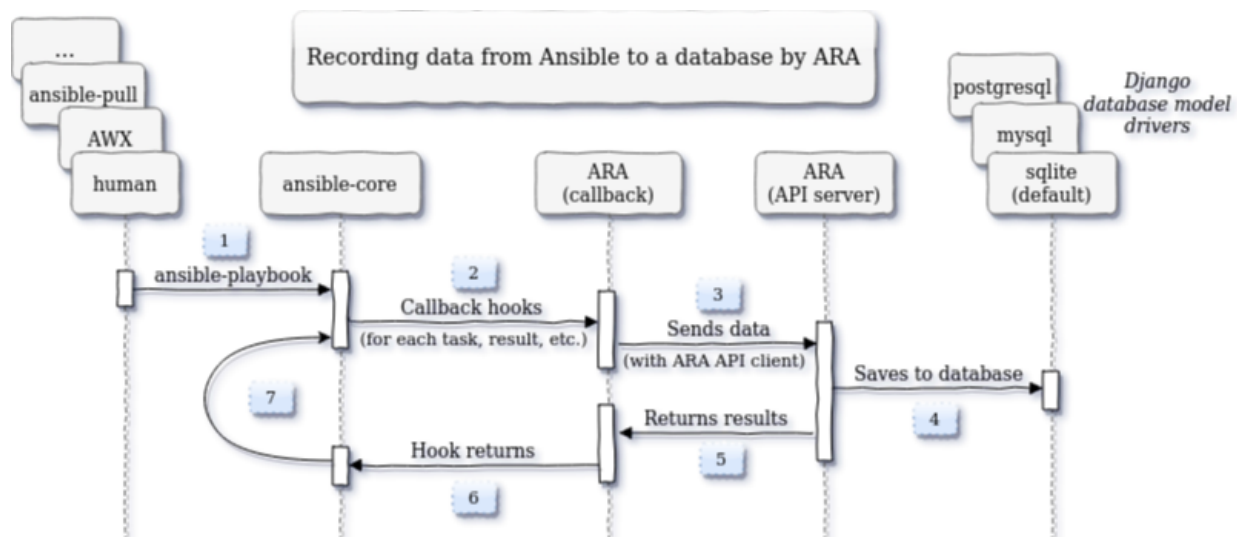
This error is also manifested in the server's logs as such:

```
2021-04-20 10:32:45,219 ERROR django.security.DisallowedHost: Invalid HTTP_HOST header:
  ↪ 'ara.example.org:8000'. You may need to add 'ara.example.org' to ALLOWED_HOSTS.
2021-04-20 10:32:45,250 WARNING django.request: Bad Request: /
```

Adding the hostname to your `settings.yaml` configuration file and restarting the server should resolve the issue.

1.15.5 Improving playbook recording performance

Recording playbooks with ara introduces a *performance overhead* because instead of just printing to the console there's now an additional Ansible callback plugin, an API server and a database involved:



In no particular order, here's high-level advice that have proven to be useful in order to minimize the overhead and improve performance:

- The built-in Django development server provided by the default offline API client and `ara-manage runserver` is simple and convenient but it isn't meant to provide the best scalability and performance
- The API server should be run as a service with a WSGI application server like gunicorn, uwsgi or mod_wsgi with apache2/httpd
- There should be a frontend, reverse-proxy or load balancer such as apache, nginx, haproxy or traefik in front of the API server in order to handle TLS termination, caching and authentication
- When *enabling authentication*, consider using `EXTERNAL_AUTH` instead of the Django built-in user management. This will avoid a significant performance hit hashing the password when authentication must be validated against the database backend. (See issue #283)
- While SQLite is good and fast enough at a small scale, it has been reported to run into concurrency and locking issues that can make MySQL or PostgreSQL a better option at a larger scale
- When using MySQL or PostgreSQL, performance can be significantly improved by enabling callback multi-threading by setting `ARA_API_CLIENT=http` and `ARA_CALLBACK_THREADS=4`
- When using MySQL or PostgreSQL, set `ARA_DATABASE_CONN_MAX_AGE` to a value ≥ 60 to allow database connections to be re-used until the specified timeout, avoiding the overhead of closing and opening connections for every query
- The latency between the Ansible control node, the API server and the database server should be kept as small as possible because it adds up multiplicatively (tasks * hosts) over the course of a playbook
- While not specific to ara, consider tuning Ansible's [SSH pipelining](#), [forks](#) and [other parameters](#) to yield significant performance improvements

1.16 Changelog and release notes

1.16.1 1.7.5 (2026-02-23)

<https://codeberg.org/ansible-community/ara/releases/tag/1.7.5>

```
1.7.5 fixes an issue with database migrations, modernizes its python
installation and includes native support for Ansible deprecations,
warnings and exceptions.
```

```
Changes since 1.7.4:
```

```
https://codeberg.org/ansible-community/ara/compare/1.7.4...1.7.5
```

```
Ansible deprecations, warnings, exceptions
-----
```

```
ansible-core 2.19 introduced deprecations, warnings and exceptions directly
in the task results recorded by ara.
```

```
When recording new playbooks, ara 1.7.5 extracts them from the task results
and attaches them to the tasks directly.
```

```
Exposed under /api/v1/tasks, they are also available in the UI under a new
column called "notes" when browsing playbook results.
```

```
Database
```

(continues on next page)

(continued from previous page)

 ara 1.7.4 introduced database migrations to address Django 5.2 support with MySQL/MariaDB.

The migration wasn't scoped explicitly to the MySQL backend and caused issues with PostgreSQL.

This is now fixed.

Packaging

ara historically used OpenStack's pbr with a setup.py and setup.cfg for packaging, installation and versioning.

Since then, pyproject.toml has emerged as the modern way to package python software.

With special thanks to Adrien Banlin (sohorx), ara has completed migration to pyproject.toml.

Upgrade notes

The version of ara used to record playbooks should be the same one as the server. Update the version of ara and restart the server if one is running.

Then, SQL migrations must be run to fix an issue introduced in 1.7.4 and in order to add support for recording deprecations, warnings and exceptions.

As always, take a backup of the database and run ``ara-manage migrate`` after updating ara where the server runs from.

ara 1.7.5 is expected to be the last version to support python3.8.

1.16.2 1.7.4 (2025-12-01)

<https://codeberg.org/ansible-community/ara/releases/tag/1.7.4>

1.7.4 is a feature release for ara's web UI and includes a fix for using Django 5.2.x ↪ with MariaDB.

Changes since 1.7.3: <https://codeberg.org/ansible-community/ara/compare/1.7.3...1.7.4>

Server

Django 5.0 changed how uuid fields (for plays and tasks) are managed with MariaDB. The models have been updated and a new migration was added accordingly. See upgrade ↪ notes.

UI

(continues on next page)

(continued from previous page)

-
- Loading or refreshing a page using the light theme should no longer flicker
- The playbook header at the top of a playbook report has been redesigned for clarity,
↳ and mobile responsiveness
- The hosts, files and records sections have received similar treatment
- The recorded files are now displayed inside a file hierarchy browser
- When ``gather_facts: true``, ara will now display a dashboard including (but not,
↳ limited to):
 - load average, memory and disk usage
 - uptime, OS, kernel and python version
 - network interfaces
- It is still possible to access the raw host facts and a search box has been added

Client

-
- Include the HTTP error code when logging about an API error

Container images

-
- Bumped fedora images to 43

Tests

-
- Maintenance for ansible-core 2.19/2.10 compatibility
For ara's own tests, written in ansible. ara already worked with 2.19 and 2.20.
- Bumped tests up to fedora-43, debian-13 and ansible-core 2.20
- Improved how codeberg CI results are sent to demo.recordsansible.org

Upgrade notes

Update the version of ara and restart the server if one is running.

Then, a new SQL migration takes care of the compatibility for Django 5.2 with MariaDB.
As always, take a backup of the database and run ``ara-manage migrate`` after updating,
↳ ara where the server runs from.

It is largely no-op and runs quickly, even on large databases.

ara 1.7.4 is expected to be the last version to support python3.8.

1.16.3 1.7.3 (2025-08-21)

<https://codeberg.org/ansible-community/ara/releases/tag/1.7.3>

1.7.3 is a maintenance release which adds a few new features.

It includes minor changes as a result of the project migration from GitHub to Codeberg.

The source repository now lives at:
<https://codeberg.org/ansible-community/ara>

(continues on next page)

(continued from previous page)

The repository on GitHub remains as a mirror for now.

Changes since 1.7.2:

Server

- Added tzdata/zoneinfo to server requirements for compatibility across versions of ↵
↵python and django
- Bumped the minimum version of django LTS from 3.2 to 4.2 (up to 5.2)

UI

--

- Added an auto refresh arrow at the top right, allowing automatic refreshes of the ↵
↵pages at the selected duration
- Clicking on the number of hosts for a playbook on the playbooks page should now ↵
↵correctly display the results
for each host of that playbook

API client

- Avoid using ARA_API_USERNAME and ARA_API_PASSWORD if they are set to
empty values

Callback

- Added support for specifying 'all' to ARA_IGNORED_FACTS to prevent ara from recording ↵
↵any host facts

New action plugin: ara_label

This new module provides the ability to manipulate ara's labels on playbooks.
Excerpt from the documentation:

...

- name: Add a static label to this playbook (the one that is running)
Note: By default Ansible will run this task on every host.
Consider the use case and declare 'run_once: true' when there is no need to
run this task more than once.
This might sound obvious but it avoids updating the same labels 100 times
if there are 100 hosts, incurring a performance penalty needlessly.
run_once: true
ara_label:
 state: present
 labels:
 - state:running
- name: Add dynamically templated labels to this playbook

(continues on next page)

(continued from previous page)

```

ara_label:
  state: present
  labels:
    - "git:{{ lookup('git -C {{ playbook_dir }} rev-parse HEAD') }}"
    - "os:{{ ansible_distribution }}-{{ ansible_distribution_version }}"

- name: Add labels to a specific playbook
  ara_label:
    state: present
    playbook_id: 1
    labels:
      - state:deployed

- name: Remove labels from the running playbook (if they exist)
  ara_label:
    state: absent
    labels:
      - state:running
...

Maintenance
-----

- Completed migration from GitHub to Codeberg (links, CI jobs, etc.)
- Bumped CI and container images to Fedora 41
- Bumped CI to the latest versions of ansible (11) and ansible-core (2.18)

Docs
----

- Stop using sphinx's get_html_theme_path since it's been deprecated
- Updated contributor documentation to mention Codeberg
- Included a high level overview of how CI jobs work and what they do

Upgrade Notes
-----

- There are no known migrations, deprecations or backwards-incompatible changes in this
  ↪ release.
- ara 1.7.3 is expected to be the last release supporting python3.8.

```

1.16.4 1.7.2 (2024-08-29)

<https://codeberg.org/ansible-community/ara/releases/tag/1.7.2>

```

This is the 1.7.2 stable release of ara.

1.7.2 is a maintenance and bugfix release that includes a few new features.

Changes since 1.7.1:

UI

```

(continues on next page)

(continued from previous page)

```
--
- When recording diffs, properly format and display the "prepared" key
  for the modules that use it (apt, git, cli_config and others)
- Sorting task results by duration when browsing playbook results works once again
- Updated bootstrap css from 5.3.0 to 5.3.3

Callback plugin
-----

- Catch SIGINT and SIGTERM signals resulting in the interruption of playbooks to
  set the status of the playbook to "expired" instead of keeping it running forever
  unless expired with `ara playbook expire` from the CLI.

API Client
-----

- Add support for UTF-8 encoded usernames and passwords

Docs
----

- Add .readthedocs.yaml to fix broken documentation builds
- Formally include ara as a dependency in order to include --help commands in the docs
- Added an introduction page

Maintenance and packaging
-----

- Made dependency on ruamel.yaml explicit rather than implicit
- Update usage of logging.warn to logging.warning for
  python 3.13
- Updated versions of Ansible tested in CI to Ansible 10 and ansible-core 2.17

Upgrade notes
-----

There are no API changes or SQL migrations in this release.
```

1.16.5 1.7.1 (2024-02-06)

<https://codeberg.org/ansible-community/ara/releases/tag/1.7.1>

This is the 1.7.1 stable release of ara.

1.7.1 is a maintenance release that features minor bug fixes.

Changes since 1.7.0:

- Address deprecation of `yaml.dump` in `ruamel.yaml` when generating the default server settings.yaml file (#524)
- Don't use `setuptools/pkg_resources` to retrieve the version of ara

(continues on next page)

(continued from previous page)

since it is not always installed by default.

- Bumped the version of ansible, ansible-core and fedora used in Zuul CI jobs.

1.16.6 1.7.0 (2023-09-10)

<https://codeberg.org/ansible-community/ara/releases/tag/1.7.0>

This is the 1.7.0 stable release of ara.

It features a refresh of the built-in web interface with the upgrade from bootstrap 4.6.0 to 5.3.0.

It lifts the supported version of django up to the latest LTS, 4.2, and raises the minimum version of python to >=3.8 as a result.

There's also bug fixes and new features.

Changes since 1.6.1:

UI

--

Bootstrap and CSS:

- Update bootstrap CSS from 4.6.0 to 5.3.0 and fix broken layout and components as a result of the update
- Removed separate light/dark themes via bootstrap-darkly and bootstrap-flatly: bootstrap 5.3 features a new built-in dark theme
- Re-worked the dark/light theme selection to match the new bootstrap built-in dark theme including pygments highlighting for pretty-printed output
- Removed jquery, it is no longer required with bootstrap
- Re-worked implementation of file line highlighting since it relied on jquery
- Fixed tooltip implementation (i.e, for task tags) since the implementation in bootstrap had changed

Site-wide minor cleanups and improvements:

- Headers and font size made generally larger and more consistent
- Improved the about and CLI argument modals
- Improved display for the report and CLI argument buttons
- Improved the playbook report header card
- Adjusted search accordions to match new bootstrap theme
- Improvements to responsiveness of layout at smaller (e.g, mobile) resolutions
- Truncate excessively long controller hostnames such that they do not needlessly take up all the table's available width
- Added support for colored diff when viewing task results
- Fixed the API link when viewing tasks to properly direct to /api/v1/tasks

(continues on next page)

(continued from previous page)

Django templating:

- Large chunks of templating were moved out to partials/tables and partials/search in order to improve readability.
- Round of template cleanups and fixes as reported by djlint
- Will continue to be a work in progress to simplify and standardize templates.

API Server

- Raised the requirement on django from `>=3.2,<3.3` to `>=3.2,<4.3` to allow installation with the latest LTS release of django.
- Raised the requirement on python from `>=3.6` to `>=3.8` to accomodate django 4.2.
- Ignored Django warning about the lack of a `STATIC_ROOT` directory. ara uses whitenoise for serving static files which makes the warning superfluous. (#492)

Ansible callback plugin

- Added `ARA_RECORD_CONTROLLER_NAME` and `ARA_RECORD_USER_NAME` settings to override the automatic detection of the controller hostname and user name for the specified values.
- Added `ARA_RECORD_TASK_CONTENT` which defaults to true but can be set to false to prevent ara from recording the task content for use cases where it is not important or to avoid leaking sensitive information.

Maintenance

Update versions, CI test jobs and container images:

- containers: updated fedora base image from 36 to 38
- containers: updated centos-pypi image from stream8 to stream9
- zuul: Update fedora base image from 36 to 38
- zuul: Update ansible version tested from 6.4.0 to 8.3.0
- zuul: Update versions of ansible-core tested (2.14, 2.15)
- Dropped testing for Ansible 2.9 which has been EOL for over a year.

Upgrade notes

There are no API changes or SQL migrations in this release.

1.16.7 1.6.1 (2022-12-12)

<https://codeberg.org/ansible-community/ara/releases/tag/1.6.1>

This is the 1.6.1 stable release of ara.

(continues on next page)

(continued from previous page)

This is a minor release with two changes:

- callback: Changed how ANSIBLE_TMP is found to work around a behavior change in ansible-core 2.14 that ended up creating a directory named `{{ ANSIBLE_HOME ~ "`
For more information: <https://github.com/ansible-community/ara/issues/469>
- Added a mysql extra to the python packaging for installing the mysqlclient library. This is in addition to the existing server and postgresql extra. They are used like this:
`pip install ara[server,mysql,postgresql]`

1.16.8 1.6.0 (2022-12-01)

<https://codeberg.org/ansible-community/ara/releases/tag/1.6.0>

This is the 1.6.0 stable release of ara.

It features a new "tasks" page to browse and search for tasks across playbook runs as well as many updates, fixes and improvements.

Instructions for upgrading are included in the upgrade notes.

Changes since 1.5.8:

UI

--

- Added a new "Tasks" page similar to the existing pages for Playbooks and Hosts. It provides a browseable and searchable overview of tasks across playbook runs.
- Refreshed the host index page:
 - Added a column as well as search arguments for playbook name (or path)
 - Replaced the playbook status by a concise summary of task status for the host
- Updated the playbook summary card to include the playbook id, the version of ara as well as the version of python.
- Re-ordered and resized columns in tables to optimize width and improve consistency
- Resized and aligned fields in search forms to use the full width available
- Improved how task tags are displayed
- Updated HTML page titles to be consistent across pages
- Replaced fields for searching by task ID and host ID by task name and host name
- Truncate name fields to prevent exceedingly large names to distort entire tables
- Corrected card header font sizes in the host report page

callback plugin

- Added support for recording the user who ran the playbook
- Added support for recording the version of ara as well as the version of python used when running the playbook
- Added options `ARA_RECORD_USER` and `ARA_RECORD_CONTROLLER` that can be set to false to avoid recording the user and controller hostname

(continues on next page)

(continued from previous page)

- Added support for specifying a SSL key, certificate and certificate authority for authenticating with a remote ara API server using `ARA_API_KEY`, `ARA_API_CERT` and `ARA_API_CA` respectively.
- Fixed host fact recording to ensure it works when using FQCN-style tasks (ex: `setup & ansible.builtin.setup`)
- Increased reliability and accuracy when recording results that can arrive out of order when using multi-threading or the free strategy by using the task uuid provided by Ansible
- Truncate playbook, play, host and label names in circumstances where their length exceeds 255 characters
- Ignore and don't record files in `~/.ansible/tmp` by default

API Server

- Bumped django requirement from 2.2 LTS to 3.2 LTS and removed the pin on the version of `psycopg2` accordingly
- Added a new configuration option, `ARA_BASE_PATH`, to let the server listen on an alternate path. It will continue to default to `"/` but it could, for example, be set to `"/ara/`.
- Lifted requirement on `tzlocal`, improve timezone detection and mitigate when the timezone can't be found by defaulting to UTC
- Several new database model and API fields:
 - Added `client_version` and `server_version` fields to playbooks, meant to represent the version of the ara callback and server used in recording the playbook
 - Added `python_version` field to playbooks to save the version of python used by Ansible and the callback plugin when recording a playbook
 - Added a new "failed" status for tasks that is used by the callback plugin when there is at least one failed result for a given task
 - Added a new "uuid" field for tasks which is the uuid provided by Ansible for a task. It is used by the callback plugin to increase the reliability and accuracy when recording results even if they arrive out of order.
- Several fixes and improvements for the distributed sqlite database backend:
 - Added a new index page for listing and linking to available databases. This is a work in progress that is intended to be improved in the future.
 - Return a HTTP 405 error when trying to write to read-only endpoints
 - Fixed the `/healthcheck/` endpoint to make sure it is routed properly
 - Improved database engine settings and WSGI application configuration. The WSGI application should now always be `"ara.server.wsgi"` instead of needing to specify `"ara.server.wsgi.distributed_sqlite"`

API client

- Added support for specifying a SSL key, certificate and certificate authority for authenticating with a remote ara API server
- Remove `InsecureRequestWarning` for insecure requests when SSL verification is not enabled.

(continues on next page)

(continued from previous page)

CLI

- Fixed wrong parsing of durations longer than 24 hours
- Added support for searching playbooks by user
- Added support for specifying a SSL key, certificate and certificate authority for authenticating with a remote ara API server using ARA_API_KEY, ARA_API_CERT and ARA_API_CA respectively.

Docs

- Refreshed and improved the README, reformatted it from rst to markdown
- Added a CONTRIBUTING.md file and refreshed contribution documentation
- Explicitly call out and recommend setting up authentication for production use in order to prevent leaking sensitive information
- Improved troubleshooting documentation and tips to improve playbook recording performance

Tests and miscellaneous

- Bumped the black linter to the latest version and reformatted bits of code accordingly
- Updated isort to version 5 and reformatted bits of code accordingly
- Reformatted bits of code using pyupgrade in consideration of dropping support for python3.5
- Updated versions of ansible(-core) we run integration tests with to include 2.9, 2.11, 2.12, 2.13, 2.14 and 6.4.0.
Although 2.9 is EOL, we will keep it for a while longer.

container-images (contrib)

- The 'latest' tag of container images are now tagged from the latest PyPI release instead of the latest git source
- Container images have been updated to the latest distribution images: CentOS 8 to CentOS 9 and Fedora 35 to Fedora 36
- Add a centos-source.sh script so we can test from source in addition to PyPI
- Install everything from PyPI (except ara when from source) in order to avoid mixing distribution packages with PyPI packages

Upgrade notes

- ara 1.5.8 was the last version to support python3.5.
Starting with ara 1.6.0, python3.6 or later is required.
- ara 1.6.0 includes several database migrations and it is highly recommended to take a backup of the server database before updating.
Database migrations are run automatically in many circumstances and can be run

(continues on next page)

(continued from previous page)

manually using "ara-manage migrate".

- There are a few backwards incompatible changes introduced in ara 1.6.0 which makes it important to run the same version of ara everywhere to avoid running into problems if the version of the callback plugin and server do not match.
- There is a database migration which grows the maximum length of the name fields for plays and labels which was later reverted due to potential issues when using the MySQL database backend.

1.16.9 1.5.8 (2022-03-24)

<https://codeberg.org/ansible-community/ara/releases/tag/1.5.8>

This is the 1.5.8 stable release of ara.

It features new callback and server settings as well as fixes and maintenance.

Instructions for upgrading are included in the upgrade notes.

Callback plugin

- Improved debug logging to include some hooks that were missing (#374)
- Added a localhost_to_hostname toggle in the callback (#336)
This adds two configuration parameters to the callback:
 - ARA_LOCALHOST_AS_HOSTNAME
 - ARA_LOCALHOST_AS_HOSTNAME_FORMAT

These are useful in use cases where playbooks are run against localhost, whether directly (with ansible-playbook) or indirectly (via ansible-pull).

When enabled, ara will save results under the hostname (or fqdn) of 'localhost' instead of associating every result to localhost. This is meant to make it easier to distinguish results between different hosts even though the playbooks may have all run against 'localhost'.

Server

- Added a setting for CSRF_TRUSTED_ORIGINS (#345)
- Fixed logging configuration to avoid conflicting with ansible (#367)
See upgrade notes for changes to the server's settings.yaml.

UI

--

- API browser: disable forms to improve performance (#323)
- Include the version of ara when generating static reports (#318)
- Add a column in task results for displaying the task's tags (#281,#375)

(continues on next page)

CLI

- Added "--latest" to "ara host list" to show only the latest playbook (#327)

Docs

- Refreshed authentication docs and recommend using EXTERNAL_AUTH with nginx or apache in front (#319)
- Add database and authentication tips to troubleshooting (#355)

Packaging and dependencies

- API Server container images have been bumped to fedora35 and centos8-stream
- Updated setup.cfg to fix a deprecation warning for python 3.10 (#371)
- Fixed distutils.sysconfig deprecation warning on python 3.10 (#369)
- Fixed dynaconf deprecation warning when loading settings (#369)
- psycopg2 has been pinned to <2.9 due to incompatibility with django 2.2 (#321,#326)
- dynaconf has been pinned to <3.0 when using python3.5 (#372)
- dynaconf>=3.0 supports python>=3.6.

Misc

- General CI maintenance
- Updated Zuul to test the latest versions of ansible and ansible-core
- Re-enabled container image updates on DockerHub and Quay.io
- Added an example script with ansible-runner (#343)

Upgrade notes

- There have been fixes to logging which requires changes to the server's settings.yaml or LOGGING configuration. (#367)
A warning will be printed if the configuration file must be updated and it can be updated manually or by generating a new configuration file.
- ara 1.5.8 is the last release that will support python3.5.
Python 3.5 reached the end of its life on September 13th, 2020.
An upcoming release will update the version of django to the next LTS (2.2 to 3.2) which will bump the requirement to python>=3.6.

1.16.10 1.5.7 (2021-07-31)

<https://codeberg.org/ansible-community/ara/releases/tag/1.5.7>

This is the 1.5.7 stable release of ara.

It features a new "hosts" page to browse and search playbook reports by host

(continues on next page)

(continued from previous page)

as well as fixes and improvements.

Instructions for upgrading are included in the upgrade notes.

Changes since 1.5.6:

UI

--

- Added a new "hosts" page to browse and search reports by host name
- Improved page HTML titles to be dynamic based on the context
- Added a note highlighting if a task has been delegated to another host (<https://github.com/ansible-community/ara/issues/282>)
- Improved how long file paths or playbook names are truncated and displayed

API

- Added a new read-only API endpoint: `/api/v1/latesthosts`
It provides the latest playbook result for each host name.
Under the hood, it implements the machinery for updating the latest host every time a host is created or deleted and includes a SQL migration to initially populate a new database table with the latest hosts.
- Added a ``delegated_to`` field to results in order to record a host id to which a task has been delegated.
- Added support for finding results delegated to a specific host:
`/api/v1/results?delegated_to=<host_id>`

Callback plugin

- Fixed tasks and results being recorded out of order when using "strategy: free" (<https://github.com/ansible-community/ara/issues/260>)
- Added support for recording 'delegate_to' on tasks

Documentation

- Removed an unused sphinx lexer to allow recent versions of sphinx>=4
- Created a new troubleshooting guide with common issues:
<https://ara.readthedocs.io/en/latest/troubleshooting.html>
- Added a database relationship graph to the endpoint documentation:
<https://ara.readthedocs.io/en/latest/api-documentation.html#relationship-between-objects>

Upgrade notes

It is always recommended to take a backup of your database before upgrading.

This release includes two database migrations that must be run:

- One for populating the data for the new `/api/v1/latesthosts` endpoint as well

(continues on next page)

(continued from previous page)

```
as the new 'hosts' page
- One for adding a `delegated_to` field in the results.
  Note that delegated tasks will only be recorded as such from 1.5.7 on.

After upgrading to 1.5.7, database migrations can be run manually with the
`ara-manage migrate` command if they are not taken care of automatically by the
callback plugin.

Known issues
-----

ara will not record task delegation for tasks that are skipped or for
items in a loop that are skipped because Ansible doesn't provide the
necessary information in those cases.
```

1.16.11 1.5.6 (2021-04-14)

<https://codeberg.org/ansible-community/ara/releases/tag/1.5.6>

```
This is the 1.5.6 stable release of ara.

It features a refresh of the playbook reporting interface included with the API server.
↳as well as fixes and improvements.

Changes since 1.5.5:

UI
--

- Refactored the built-in reporting UI with the bootstrap CSS framework using themes.
↳from bootswatch
- Added a dark theme in addition to the default light theme (toggle at the top right)
- Improved the mobile version of the reporting interface
- Improved the playbook and task result tables
- Revamped search forms for playbook and playbook results
- Revamped hosts table in playbook reports
- Added task results to the host details page that includes host facts
- Moved ansible-playbook CLI arguments to a modal
- Added an "about" modal with the version of ara and links to resources
- Moved the link to the documentation to the "about" modal
- Clicking on a host or task name in a playbook report will now filter results for that.
↳host or task
- bugfix: Links to files including a lineno will now highlight that line (https://github.
↳com/ansible-community/ara/issues/154)
- bugfix: Fixed broken documentation link to ara_record (https://github.com/ansible-
↳community/ara/issues/219)

API
---

- Playbook references will now always include CLI arguments, for example:
  /api/v1/tasks/1 ->
```

(continues on next page)

(continued from previous page)

```
{
  "id": 1,
  "playbook": {
    "id": 1,
    "arguments": {
      #...
    }
  }
}
```

Callback plugin

- bugfix: Truncate play UUIDs given back by ansible-runner when running in serial. ↪
↪(<https://github.com/ansible-community/ara/issues/211>)

1.16.12 1.5.5 (2021-01-29)

<https://codeberg.org/ansible-community/ara/releases/tag/1.5.5>

This is the 1.5.5 stable release of ara.

Changes since 1.5.4:

API

- Added support for searching playbooks by `ansible_version`, for example:
`/api/v1/playbooks?ansible_version=2.10`

UI

--

- Added syntax highlighting to task results
- Added support for rendering nested results for tasks with loops
- Added support for rendering diffs provided by "ansible-playbook --diff"
- Added support for searching playbooks by `ansible_version`
- The playbook links in the index no longer filter to changed results
- Ordering by date or duration no longer discards existing search arguments
- Clicking on the logo or the "playbooks" link now discards existing search arguments

CLI

- Added support for searching playbooks by `ansible_version`
- Added missing argument for `--controller` to "ara playbook metrics"

1.16.13 1.5.4 (2020-12-18)

<https://codeberg.org/ansible-community/ara/releases/tag/1.5.4>

This is the 1.5.4 stable release of ara.

Changes since 1.5.3:

CLI

New commands were added to the 'ara' CLI:

- ara playbook metrics: provides stats aggregated by name, path, ansible version or ↵
↵controller
- ara host metrics: provides task result stats for hosts across playbooks
- ara task metrics: provides duration stats aggregated by task name, action/module or ↵
↵path

Refer to the documentation for examples and more information on these commands:
<https://ara.readthedocs.io/en/latest/cli.html>

Callback plugin

- Threading is now disabled by default to avoid running into sqlite locking contention
For details, see: <https://github.com/ansible-community/ara/issues/195>
- The callback didn't provide a timezone for timestamps which could result in a wrong
interpretation by the API server. Timestamps are now provided as UTC.

Controller hostname

The hostname of the controller that ran the playbook is now recorded by ara.

Playbooks can be filtered by controller in the UI as well as the API:

```
/api/v1/playbooks?controller=localhost
```

As well as with the CLI, for example:

```
ara playbook list --controller=localhost  
ara playbook metrics --controller=localhost
```

Container images

- ARA API server container images are now published to quay.io/recordsansible/ara-api
in addition to hub.docker.com/r/recordsansible/ara-api.
- Fedora 32 images were replaced by images based on Fedora 33
- The 'which' package is now installed as a dependency
- Removed a temporary workaround for dynaconf switching from PyYAML to ruamel.yaml

UI

--

- Added missing information about the play when browsing details for a task result

(continues on next page)

(continued from previous page)

Upgrade notes

The new controller hostname feature introduces a SQL migration to update the database.

↪ schema.

After upgrading, database migrations will need to be run at least once using 'ara-manage.

↪ migrate'.

Because the hostname was not previously saved and can't be recovered retroactively, playbooks that were recorded before the upgrade will have the controller set to

↪ 'localhost'.

1.16.14 1.5.3 (2020-10-23)

<https://codeberg.org/ansible-community/ara/releases/tag/1.5.3>

This is the 1.5.3 stable release of ARA.

This release works around a bug introduced in 1.5.2 which could sometimes cause the Ansible playbook execution to lock up when using the default offline API client.

For details, see <https://github.com/ansible-community/ara/issues/183>

1.16.15 1.5.2 (2020-10-16)

<https://codeberg.org/ansible-community/ara/releases/tag/1.5.2>

This is the 1.5.2 stable release of ARA.

Changes since 1.5.1:

Ansible callback plugin

- Significant performance improvement by running non-blocking API calls in threads
<https://github.com/ansible-community/ara/issues/171>
- Handler tasks are now also recorded in addition to regular tasks
<https://github.com/ansible-community/ara/issues/178>

API

- Add support for searching handler tasks (ex: /api/v1/tasks?handler=true)

UI

--

- Hosts in the playbook report are now sorted alphabetically by hostname
- Added a column to display the number of tasks in the playbook summary

1.16.16 1.5.1 (2020-09-23)

<https://codeberg.org/ansible-community/ara/releases/tag/1.5.1>

This is a re-release of the 1.5.0 stable version of ara in order to fix a release issue to PyPi.

1.16.17 1.5.0.1 (2020-09-23)

<https://codeberg.org/ansible-community/ara/releases/tag/1.5.0.1>

This is a re-release of the 1.5.0 stable version of ara in order to fix a release issue to PyPi.

1.16.18 1.5.0 (2020-09-23)

<https://codeberg.org/ansible-community/ara/releases/tag/1.5.0>

This is the 1.5.0 stable release of ARA.

Changes since 1.4.3:

CLI

A new 'ara' CLI API client is now available with the following commands:

- expire Expires objects that have been in the running state for too long
- host delete Deletes the specified host and associated resources
- host list Returns a list of hosts based on search queries
- host show Returns a detailed view of a specified host
- play delete Deletes the specified play and associated resources
- play list Returns a list of plays based on search queries
- play show Returns a detailed view of a specified play
- playbook delete Deletes the specified playbook and associated resources
- playbook list Returns a list of playbooks based on search queries
- playbook prune Deletes playbooks beyond a specified age in days
- playbook show Returns a detailed view of a specified playbook
- record delete Deletes the specified record and associated resources
- record list Returns a list of records based on search queries
- record show Returns a detailed view of a specified record
- result delete Deletes the specified result and associated resources
- result list Returns a list of results based on search queries
- result show Returns a detailed view of a specified result
- task delete Deletes the specified task and associated resources
- task list Returns a list of tasks based on search queries
- task show Returns a detailed view of a specified task

More information on the CLI commands is available in the docs:

<https://ara.readthedocs.io/en/latest/cli.html>

API server

(continues on next page)

(continued from previous page)

New settings have been added:

- ARA_EXTERNAL_AUTH for enabling Django's external authentication
- ARA_DATABASE_OPTIONS for passing options to the Django database backend such as SSL.

More information on the API server settings are available in the docs:
<https://ara.readthedocs.io/en/latest/api-configuration.html>

API

- Added created/updated fields to list views (ex: /api/v1/playbooks, /api/v1/results)
- Added support for filtering hosts based on their results, for example:
 - return hosts with no changes: /api/v1/hosts?changed__lt=1
 - return hosts with failures: /api/v1/hosts?failed__gt=0
 - return hosts with unreachable tasks: /api/v1/hosts?unreachable__gt=0
- Added support for searching results by changed (ex: /api/v1/results?changed=true)
- Added support for searching results by play, task or host (ex: /api/v1/results?task=<id>)
- Nested children resources are no longer returned, improving performance considerably for larger playbooks. For example, querying a single playbook's details no longer returns it's entire hierarchy of plays, tasks, results and hosts. These must now instead be queried individually, ex: /api/v1/results?playbook=<id> See <https://github.com/ansible-community/ara/issues/158> for details.
- The result statuses "changed" and "ignored" have been removed. These weren't actually used anywhere, it was instead inferred by a combination of the status as well as the "changed" and "ignore_error" fields. See <https://github.com/ansible-community/ara/issues/150> for details.
- A new status was added for playbooks, plays and tasks: "expired". This status is meant to be used to identify resources that have been in the "running" state for too long and will never complete. Use the new "ara expire" CLI command for expiring resources. See <https://github.com/ansible-community/ara/issues/26> for details.

UI

--

- URLs have been pluralized to match the endpoints provided by the API. For example:
 - /playbook/1.html -> /playbooks/1.html
 - /result/1.html -> /results/1.html
- Links to playbooks from the index will now filter results by default based on their status. For example, a failed playbook will link to results that are failed or unreachable while a successful playbook will link to results that are changed.

When browsing a playbook's details:

- Links to files from task actions have been fixed to use the correct anchor when linking to a specific line
- Task results are now paginated
- A search form has been added to the task results pane, allowing search by host id, task id, status and changed
- The hosts table has been updated to leverage the new search

(continues on next page)

(continued from previous page)

capabilities. Clicking on the host will search tasks for this host and clicking on the number in status column for a host (i.e, "20" changed) will search for that host and that status. As a result, host facts have been moved to it's own column.

Ansible plugins

- New feature: argument labels.
Based on the configuration, the callback will now automatically label playbooks after specified CLI arguments. For example, when "--check" is used, it will label the playbook with "check:True" -- or "check:False" when it isn't used.
- Starting with Ansible 2.8, the callback leverages a new hook in order to improve the accuracy of task result durations.
See <https://github.com/ansible-community/ara/issues/173> for details.

Documentation

- Refreshed installation docs into a "getting started" guide
- Added notes about installation on CentOS 7 / RHEL 7 as well as Mac OS
- Refreshed and merged Ansible plugin configuration and use case docs
- Changelogs and release notes have been incorporated in the docs

Upgrade notes

- The introduction of the new CLI adds a requirement on the cliff python library.
- ara 1.5.0 introduces significant API changes, some of which aren't backwards compatible such as no longer returning nested resources.
- Two small SQL migrations have been added to remove result statuses and add the expired status for playbooks, plays and tasks. Run them with "ara-manage migrate".
- "ara-manage prune" has been deprecated and is replaced by "ara playbook prune".
The new prune command provides additional filters in order to only delete playbooks matching certain criteria such as label, name, path or status.

1.16.19 1.4.3 (2020-08-11)

<https://codeberg.org/ansible-community/ara/releases/tag/1.4.3>

This is the 1.4.3 stable release of ARA.

The only change since 1.4.2 is an additional regression fix with the latest version of dynaconf. For more information, see the issue: <https://github.com/ansible-community/ara/issues/149>

1.16.20 1.4.2 (2020-07-02)

<https://codeberg.org/ansible-community/ara/releases/tag/1.4.2>

This is the 1.4.2 stable release of ARA.

(continues on next page)

(continued from previous page)

This release comes sooner than expected in order to fix a regression when installing ara with the latest version of dynaconf (3.0.0) due to a change in the preferred yaml package.

For more information about this issue, see <https://github.com/ansible-community/ara/issues/146>

Built-in reporting interface

- Improvements to the interface scaling and rendering for mobile devices
- The playbook index has been refactored from a list of cards to a table view and searching/filtering controls are no longer hidden in a submenu
- Sorting by playbook date and duration is now built into the table headers
- The Ansible CLI arguments are now available from the playbook index
- The host stats summary now displays colors and icons for the different statuses
- Task result columns were re-ordered and statuses now have colors and icons
- Long task results or host facts should no longer render off-screen

1.16.21 1.4.1 (2020-05-26)

<https://codeberg.org/ansible-community/ara/releases/tag/1.4.1>

This is the 1.4.1 stable release of ARA.

Changes since 1.4.0:

Ansible Adhoc command recording

It is now possible to record "ansible" commands in addition to the existing support for "ansible-playbook" commands starting with Ansible 2.9.7 and above.

To record Ansible adhoc commands, set 'bin_ansible_callbacks' to true in your ansible.cfg or run: `export ANSIBLE_LOAD_CALLBACK_PLUGINS=true`

API

- Added search for ignore_errors in results:
 - `/api/v1/results?status=failed # includes "ignore_errors: true"`
 - `/api/v1/results?status=failed&ignore_errors=false`
- Added search for task by action:
 - `/api/v1/tasks?action=package`
 - `/api/v1/tasks?action=command`
- Adjusted search for file paths to be partial:
 - `/api/v1/files?path=/home/user/ansible/roles/foo/tasks/main.yaml`
 - `/api/v1/files?path=foo`

(continues on next page)

(continued from previous page)

```
- Added search for task by path:
  /api/v1/tasks?path=/home/user/ansible/roles/foo/tasks/main.yaml
  /api/v1/tasks?path=foo

- Fixed an error 500 when querying playbooks with labels

Built-in UI
-----

- The path to the playbooks that are displayed when no names are given
  by "ara_playbook_name" are now truncated from the left rather than
  from the right. For example, given:
  /home/user/git/source/organization/repo/playbooks/prod/restart-everything.yaml

  Before:
  /home/user/git/source/organization/repo/playbooks/...
  After:
  ...zation/repo/playbooks/prod/restart-everything.yaml

Container images
-----

The project now publishes simple container images suitable for use with sqlite,
mysql and postgresql database backends out of the box.

The images are currently available on Docker Hub:
https://hub.docker.com/r/recordsansible/ara-api

You can learn about how the images are built, how you can build
your own and how you can run them in the documentation:
https://ara.readthedocs.io/en/latest/container-images.html
```

1.16.22 1.4.0 (2020-04-16)

<https://codeberg.org/ansible-community/ara/releases/tag/1.4.0>

This is the 1.4.0 stable release of ARA.

Changes since 1.3.2:

API

- Added support for searching plays, tasks and hosts by name
- Added support for searching playbooks by label
- Fixed label representation to be consistent through different calls
- Reversed the default sort order for playbooks, plays, tasks and results

API server

- Validate that settings.yaml (or ARA_SETTINGS) exists before launching (thank you_

(continues on next page)

(continued from previous page)

`↪@zswanson!)`

- Template the default settings file without objects generated by python-box

Bundled reporting interface

- Added a default robots.txt to prevent crawling
- Added support for searching by label
- Improved the display of labels in the playbook list
- Added pagination support when browsing the playbook report list
- Use relative links for pagination (thank you @flowerysong !)
- Bumped included patternfly CSS from 2.21.5 to 2.56.3

ara_api Ansible role

- Provide sensible PATH defaults when virtualenvs are not used
- Added support for installing from Fedora packages
- Only run SQL migrations once when necessary
- Allow retries when attempting to run SQL migrations
- Ensure settings.yaml permissions are 0640
- Added "ara_api_secure_logging" variable to control behavior of sensitive tasks with `no_↪log`
- Properly default to IPv6 when no IPv4 is available
- Default gunicorn worker count based on number of available CPU cores
- Added support for deploying on EL8

Ansible plugins

- New Ansible plugins: ara_playbook and ara_api
- Improved consistency of stored task results (thank you @flowerysong!)
- Fix bad logic when determining if labels should be updated
- Added support for not saving files based on patterns (thank you @LaurentDumont!)
- Added support for specifying default playbook labels

Integration tests

- Refactored integration tests to simplify and improve coverage across different database backends, linux distributions and versions of Ansible

Upgrade notes

- 1.4 introduces a new SQL migration to ensure labels are unique. If upgrading from a previous version, you will need to run SQL migrations with `↪`ara-manage_↪migrate```.

1.16.23 0.16.7 (2020-04-14)

<https://codeberg.org/ansible-community/ara/releases/tag/0.16.7>

0.16.7 is a maintenance release for ARA 0.x.

Changes since 0.16.6:

- Fix typo in ara.setup.env for ANSIBLE_ACTION_PLUGINS [1]
- Pin pyfakefs to <4 in order to avoid breaking python2 usage [2]
- Pin junit-xml to <=1.8 in order to avoid deprecation warnings in unit tests

ARA 0.x end of life

The code base for ARA 0.x has not been actively maintained and developed since 2018 and will officially reach end of life June 4th, 2019, one year after the release of ARA 1.0.

Unless critical bugs are found between this release and June 4th, 0.16.7 will be the last supported release of the 0.x branch.

Please use the latest version of ARA to benefit from the new features and fixes.

[1]: <https://github.com/ansible-community/ara/pull/97>

[2]: <https://github.com/ansible-community/ara/issues/118>

1.16.24 1.3.2 (2019-12-12)

<https://codeberg.org/ansible-community/ara/releases/tag/1.3.2>

This is the 1.3.2 stable release of ARA.

Changes since 1.3.1:

- Fix compatibility with the new version of django-rest-framework, 3.11 [1]

[1]: <https://github.com/ansible-community/ara/issues/102>

1.16.25 1.3.1 (2019-12-06)

<https://codeberg.org/ansible-community/ara/releases/tag/1.3.1>

This is the 1.3.1 stable release of ARA.

Changes since 1.3.0:

- bugfix: the callback plugin now properly retrieves host facts for both setup and gather_fact tasks
- bugfix: fixed a typo in ara.setup.env which set the ANSIBLE_ACTION_PLUGINS to the callback directory instead of the action module directory.

(continues on next page)

(continued from previous page)

- unit tests: use assertLogs instead of patch_logger since patch_logger was removed from django 3.
- misc: bumped versions of Ansible used in integration tests

1.16.26 1.3.0 (2019-12-03)

<https://codeberg.org/ansible-community/ara/releases/tag/1.3.0>

This is the 1.3.0 stable release of ARA.

Changes since 1.2.0:

General

- Removed hard requirement on python 3.6 due to the usage of f-strings. ARA should also work on python 3.5 now.

Web user interface

- Added a tab at the top of the playbook list to search, sort and filter by date
 - Search can be based on the playbook's name, path, or status
 - Sort can be ascending or descending for start date, end date or duration
 - Filter can show playbooks in the last 60 minutes, 24 hours, 7 days or 30 days
- Fixed a bad link to the task file in the detailed result view

API

- Added support for searching date fields for playbooks, plays, tasks and results [1]
For example:

```
/api/v1/playbooks?started_before=2019-10-01T09:57:36.489016
/api/v1/results?created_after=2019-10-01T09:57:36.489016
```

- The duration of items is now calculated and stored in the database model instead of being calculated on demand by the API. This provides the ability to easily sort objects based on their duration.
A SQL migration has been added as a result of this change.

- Added support for ordering objects by most fields [2]
For example:

```
/api/v1/playbooks?order=id (ascending, oldest first)
/api/v1/playbooks?order=-id (descending, most recent first)
```

The currently supported fields available for sorting are:

- created
- updated
- started (for playbooks, plays, tasks, results)
- ended (for playbooks plays, tasks, results)

(continues on next page)

(continued from previous page)

- duration (for playbooks, plays, tasks, results)
 - path (for files)
 - key (for records)
 - ok, skipped, changed, failed and unreachable (for hosts)
- Added support for searching playbooks by their full path or only part of it. For example, a playbook with the path `~/home/user/ansible/playbook.yml` can be found by searching for either `user` or the full path.
 - Searching for playbook names now also supports partial search.
 - Improved handling of non-ascii/binary output to prevent `UnicodeEncodeError` exceptions [3]
 - Standardized the search by status for playbooks, plays, tasks and results
 - The built-in development server now checks if `psycpg2` or `mysqlclient` are installed before launching when using the `postgresql` or `mysql` database backend. [4]

API client

- Added support for ignoring SSL verification [5]

Plugins

- Added the `ARA_API_INSECURE` setting to the callback plugin to ignore SSL verification.

CLI

- Added an `ara-manage prune` command to delete playbooks older than a specified amount of days. [6]

Documentation

- Refreshed docs on installation
- First iteration of documentation for the `ara-manage` commands
- Docs now require the API server dependencies to be installed so CLI snippets can be included automatically with `sphinxcontrib-programoutput`.

Upgrade notes

- 1.3.0 introduces a new SQL migration to move durations from the API to the database model. If upgrading from a previous version, you will need to run SQL migrations with `ara-manage migrate`.

Referenced or fixed issues

(continues on next page)

(continued from previous page)

```

-----
[1]: https://github.com/ansible-community/ara/issues/30
[2]: https://github.com/ansible-community/ara/issues/68
[3]: https://github.com/ansible-community/ara/issues/48
[4]: https://github.com/ansible-community/ara/issues/63
[5]: https://github.com/ansible-community/ara/issues/90
[6]: https://github.com/ansible-community/ara/issues/31

```

1.16.27 0.16.6 (2019-11-18)

<https://codeberg.org/ansible-community/ara/releases/tag/0.16.6>

0.16.6 is a maintenance release for ARA 0.x.

Changes since 0.16.5:

- Fixed web application crash due to encoding/decoding of binary non-ascii content in task results
- The sqlite middleware was adapted to support running under gunicorn.
- ``python -m ara.setup.env`` now returns commands that use bash expansion to take into account existing environment variables

Eventual end of life for ARA 0.x

All new feature and development effort for more than a year has been spent on the master branch of ARA which is the basis of version 1.x releases.

Users are encouraged to try the latest release of ARA and create an issue on GitHub if they encounter any issues or missing features.

ARA 0.16.6 could be the last release of ARA 0.x if no major issues are found.

1.16.28 1.2.0 (2019-10-25)

<https://codeberg.org/ansible-community/ara/releases/tag/1.2.0>

This is the 1.2.0 stable release of ARA.

Changes since 1.1.0:

New bundled reporting interface

- ```

- A new simple built-in web reporting interface is now bundled with the API server
- The simple web reporting interface can be exported to static html with ``ara-manage_
↳generate <path>``

```

API

---

(continues on next page)

(continued from previous page)

- An `items` field was added to playbook, plays and task objects to display the number of child references
- The task file path is now available as `task.path`
- Playbook labels as well as `ansible_version` are now always provided for playbook objects
- The "created" and "updated" fields are now provided when querying a host list

#### Settings

-----

- New setting to control the timezone used for storing and displaying data: `ARA_TIME_ZONE`
- New setting to provide a list of regex patterns for whitelisting CORS: `ARA_CORS_ORIGIN_REGEX_WHITELIST`
- The default for `ARA_DISTRIBUTED_SQLITE_PREFIX` was changed from `/ara-api` to `/ara-report`

#### Other changes

-----

- Significant performance improvements by reducing the amount of API calls to host and file endpoints by the callback plugin during playbook execution
- A basic healthcheck has been implemented at `/healthcheck/` to allow simple monitoring of the interface and database connection
- `python -m ara.setup.env` now returns commands that use bash expansion to take into account existing environment variables
- The API clients will strip trailing slashes if they are provided in the endpoints
- Removed a needless newline when generating the default settings.yaml file

#### Upgrade notes

-----

The new healthcheck feature adds a dependency on the `django-health-check` library and includes a SQL migration that needs to be run before it can be used. SQL migrations can be executed by running `ara-manage migrate`.

### 1.16.29 1.1.0 (2019-07-02)

<https://codeberg.org/ansible-community/ara/releases/tag/1.1.0>

#### Changes since 1.0.1:

- Added support for dynamically serving multiple sqlite databases dynamically from a single API server instance [1]
- `ara_record` no longer instantiates it's own API client and will instead retrieve the client instance used by the callback.
- Django's `CONN_MAX_AGE` database setting for configuring the duration of a database connection is now exposed [2]
- The ARA API client timeout as configured by Ansible through the callback plugin is now always an integer.
- The offline API client now has an argument to prevent SQL migrations from running automatically [3]

For the `ara_api` Ansible role [4]:

(continues on next page)

(continued from previous page)

- The role no longer attempts to set up and manage a PID file when setting up a persistent service running with gunicorn.
- The bundled selinux policy file for running out of a user's home directory has been updated and is now integration tested.
- Added support and integration tests for deploying Django with the MySQL backend

[1]: <https://ara.readthedocs.io/en/latest/distributed-sqlite-backend.html>

[2]: <https://ara.readthedocs.io/en/latest/api-configuration.html#ara-database-conn-max-age>

[3]: <https://ara.readthedocs.io/en/latest/api-usage.html#ara-offline-api-client>

[4]: <https://ara.readthedocs.io/en/latest/ansible-role-ara-api.html>

### 1.16.30 0.16.5 (2019-06-04)

<https://codeberg.org/ansible-community/ara/releases/tag/0.16.5>

Changes since 0.16.4:

- Updated references to the master git branch or documentation now that 0.x development work has been moved to stable/0.x

### 1.16.31 1.0.1 (2019-06-05)

<https://codeberg.org/ansible-community/ara/releases/tag/1.0.1>

Changes since 1.0.0:

- Updated references to the feature/1.0 git branch or documentation now that 1.0 development work has been moved to master
- Fixed an issue preventing the HTTP API client from being used unless the server dependencies had been installed.
- Added support for customizing the amount of results per page returned by the API with ARA\_PAGE\_SIZE [1]
- The ara\_api role now sets up a basic selinux policy when running gunicorn out of a home directory on Red Hat based systems.

[1]: <https://ara.readthedocs.io/en/latest/api-configuration.html#ara-page-size>

### 1.16.32 1.0.0 (2019-06-03)

<https://codeberg.org/ansible-community/ara/releases/tag/1.0.0>

This is the first release of ARA on top of a new framework and API, dubbed version 1.0.

This new release marks the deprecation of ARA 0.x and while full feature parity has not yet been achieved, we are moving forward and we will iterate to add missing features in future releases.

Main changes from ARA 0.x:

(continues on next page)

(continued from previous page)

- The backend has been re-written from Flask to Django/Django-rest-framework
- A new API as well as built-in API clients are available to record and query playbook results
- The project's dependencies have been decoupled: the Ansible plugins, API backend and web interface can be installed independently from one another
- The web interface has been re-written as a standalone project -- ara-web: <https://github.com/ansible-community/ara-web>

In summary, all the different components before 1.0, including the web interface, would communicate directly with the database model.

After 1.0, these components communicate with the new REST API which results in easier development, maintenance and integration.

### 1.16.33 0.16.4 (2019-05-22)

<https://codeberg.org/ansible-community/ara/releases/tag/0.16.4>

This is a stable release of ARA, 0.16.4.

\*\*\*

WARNING: Please note that the next major version of ARA, 1.0, is currently in beta and is not backwards compatible with ARA 0.x. In order to avoid upgrading unexpectedly when 1.0 is released, we recommend pinning ara to <1.0.0 in your scripts and requirements.

\*\*\*

Changelog since 0.16.3:

- Fixed a regression when saving tasks with Ansible 2.8 [1]

[1]: <https://github.com/ansible-community/ara/issues/46>

### 1.16.34 0.16.3 (2019-01-21)

<https://codeberg.org/ansible-community/ara/releases/tag/0.16.3>

This is a stable release of ARA, 0.16.3.

\*\*\*

WARNING: Please note that the next major version of ARA, 1.0, will contain backwards incompatible changes due to significant refactor work involving core back end code as well as the SQL database schema.

\*\*\*

Changelog:

- Update integration tests to target latest versions of Ansible (2.7.6, 2.6.12 and 2.5.14)
- Adjust how CLI options are saved to support the upcoming release of Ansible, 2.8.

### 1.16.35 0.16.2 (2019-01-02)

<https://codeberg.org/ansible-community/ara/releases/tag/0.16.2>

This is the newest stable release of ARA, 0.16.2.

\*\*\*

WARNING: Please note that the next major version of ARA, 1.0, will contain backwards incompatible changes due to significant refactor work involving core back end code as well as the SQL database schema.

\*\*\*

This release comes thanks to bug fixes contributed by the community:

- Jonathan Herlin fixed the deprecation notice "Call to deprecated function CreateFile. Use create\_file instead." when generating HTML reports.
- Sorin Sbarnea addressed testing warnings and made it so future warnings would be considered as errors
- Sorin Sbarnea removed integration testing for the "static: no" argument from Ansible includes since this parameter has been removed from Ansible after being deprecated.

### 1.16.36 0.16.1 (2018-09-04)

<https://codeberg.org/ansible-community/ara/releases/tag/0.16.1>

This is the newest stable release of ARA, 0.16.1.

\*\*\*

WARNING: Please note that the next major version of ARA, 1.0, will contain backwards incompatible changes due to significant refactor work involving core back end code as well as the SQL database schema.

\*\*\*

This is a hotfix release to address a bug in host facts sanitization with the introduction of the "ARA\_IGNORE\_FACTS" feature in 0.16.0. While task results were properly sanitized, host facts were not.

0.16.1 addresses the issue by sanitizing both host facts and task results.

### 1.16.37 0.16.0 (2018-08-27)

<https://codeberg.org/ansible-community/ara/releases/tag/0.16.0>

This is the newest stable release of ARA, 0.16.0.

\*\*\*

WARNING: Please note that the next major version of ARA, 1.0, will contain backwards incompatible changes due to significant refactor work involving core back end code as well as the SQL database schema.

\*\*\*

(continues on next page)

(continued from previous page)

This release of ARA is made possible thanks to the following contributions:

- Tristan de Cacqueray from Red Hat resolved an issue where under certain circumstances, an empty `ARA_LOG_FILE` configuration could raise an exception.
- Artem Goncharov from Open Telekom Cloud resolved an issue where configuration parameters through environment variables could not be taken into account properly when using the `ara-wsgi` and `ara-wsgi-sqlite` scripts.
- Joshua Harlow from GoDaddy submitted several improvements to performance and RAM usage when browsing large reports.
- Sorin Sbarnea from Red Hat contributed documentation on serving static ARA reports with `nginx` and improved the `junit` export to allow for overrides
- Haikel Guemar from Red Hat identified and fixed usage of reserved key words in Python 3.7
- Robert de Bock for suggesting a security improvement around host facts and the `ansible_env` fact.

Other improvements include:

- Improve self-healing when running into a race condition where the playbook run is interrupted early enough for the playbook to be created in the database but before its file was saved.
- Prevent ARA's logging configuration from "leaking" into the configuration of other python modules at runtime.
- Add a trailing slash to file links in the file tab, resolving an issue where reverse proxies might get confused when doing SSL termination.

Security:

Robert de Bock from ING Bank reported that sensitive information might be stored in environment variables from the Ansible control node and that as such, there should be a way to prevent the `'ansible_env'` host fact from being recorded by ARA.

As such, we have added a new configuration parameter: `ARA_IGNORE_FACTS [1]`. `ARA_IGNORE_FACTS` is a comma-separated list of host facts that ARA will not record in its database.

ARA will also sanitize the output of `gather_facts` and `setup` tasks to prevent these facts from displaying in the task results.

By default, only the `"ansible_env"` fact is ignored due to the high likelihood of it containing sensitive information.

Maintenance:

- Dropped backwards compatibility layer for supporting Ansible 2.3
- Updated integration jobs to test against the latest versions of Ansible 2.4, 2.5 and 2.6

[1]: <https://ara.readthedocs.io/en/latest/configuration.html#ara-ignore-facts>

### 1.16.38 0.15.0 (2018-05-01)

<https://codeberg.org/ansible-community/ara/releases/tag/0.15.0>

This is the newest stable release of ARA, 0.15.0.

\*\*\*

WARNING: Please note that the next major version of ARA, 1.0, will contain backwards incompatible changes due to significant refactor work involving core back end code as well as the SQL database schema.

\*\*\*

#### Changelog:

- ARA: Ansible Run Analysis has been "rebranded" to ARA Records Ansible (Another Recursive Acronym)
- Significant improvements to memory usage and performance when running ARA as a WSGI application with 'ara-wsgi' or 'ara-wsgi-sqlite'.
- Resolved an issue where the 'ara-wsgi-sqlite' middleware could serve a cached report instead of the requested one
- Added support for configuring the 'SQLALCHEMY\_POOL\_SIZE', 'SQLALCHEMY\_POOL\_TIMEOUT' and 'SQLALCHEMY\_POOL\_RECYCLE' parameters. See the configuration documentation [1] for more details.
- Logging was fixed and improved to provide better insight when in DEBUG level.
- Vastly improved the default logging configuration. ARA will create a default logging configuration file in '~/.ara/logging.yml' that you can customize, if need be. Deleting this file will make ARA create a new one with updated defaults.
- Added python modules to help configure Ansible to use ARA, for example, 'python -m ara.setup.callback\_plugins' will print the path to ARA's callback plugins. You can find more examples in the configuration documentation. [1]
- Implemented a workaround for fixing a race condition where an 'ansible-playbook' command may be interrupted after the playbook was recorded in the database but before playbook file was saved.
- Flask 0.12.3 was blacklisted from ARA's requirements [2], this was a broken release.
- The ARA CLI can now be called with "python -m ara" if you need to specify a specific python interpreter, for example.
- Updated and improved integration tests across different operating systems, python2 and python3 with different versions of Ansible. The full test matrix is available in the README. [3].

[1]: <https://ara.readthedocs.io/en/stable/configuration.html>

[2]: <https://github.com/openstack/ara/commit/87272840bfc8b4c5db10593e47884e33a0f4af40>

[3]: <https://github.com/openstack/ara#contributing-testing-issues-and-bugs>

### 1.16.39 0.14.6 (2018-02-05)

<https://codeberg.org/ansible-community/ara/releases/tag/0.14.6>

This is a maintenance release for the stable version of ARA.

\*\*\*

(continues on next page)

(continued from previous page)

```
WARNING: Please note that the next major version of ARA, 1.0, will contain
backwards incompatible changes due to significant refactor work
involving core back end code as well as the SQL schema.
Please see this blog post [1] for details.
```

```

```

Changelog:

- Unit and integration changes improvements
- Workaround an issue where Ansible could sometimes return a non-boolean value for the "ignore\_errors" field.

[1]: <https://dmsimard.com/2017/11/22/status-update-ara-1.0/>

### 1.16.40 0.14.5 (2017-10-26)

<https://codeberg.org/ansible-community/ara/releases/tag/0.14.5>

```
This is a release for the version 0.14.5 of ARA.
```

```

```

```
WARNING: Please note that the next major version of ARA, 1.0, will contain
backwards incompatible changes due to significant refactor work
involving core back end code as well as the SQL schema.
Please see this blog post [1] for details.
```

```

```

```
This version notably fixes an issue when using ansible.cfg to
configure ARA when using Ansible 2.4.0.
```

```
0.14.5 is meant to be used with Ansible 2.4.1 and using it with Ansible
2.4.0 is not recommended because it does not contain a necessary bugfix [2].
```

Changelog:

- ARA can be configured through an ansible.cfg file with Ansible 2.4.1.
- Ansible 2.4.0 is blacklisted in requirements.txt
- Added a WSGI middleware to load sqlite databases at variable locations for advanced large-scale usage. See documentation [1] for details.
- Resolved an issue when clicking on permalink icons (blue chain links) on Firefox. (Thanks Mohammed Naser)

[1]: <http://ara.readthedocs.io/en/latest/advanced.html#serving-ara-sqlite-databases-over-http>

[2]: <https://github.com/ansible/ansible/pull/31200>

### 1.16.41 0.14.4 (2017-09-20)

<https://codeberg.org/ansible-community/ara/releases/tag/0.14.4>

```
0.14.4 adds Ansible 2.4 support for ARA.
```

```

```

```
WARNING: Please note that the next major version of ARA, 1.0, will contain
backwards incompatible changes due to significant refactor work
```

(continues on next page)

(continued from previous page)

involving core back end code as well as the SQL schema.  
Please see this blog post [1] for details.

\*\*\*

**Changelog:**

- Add support for Ansible 2.4

**1.16.42 0.14.3 (2017-09-17)**

<https://codeberg.org/ansible-community/ara/releases/tag/0.14.3>

0.14.3 is a minor bugfix release for ARA.  
Note that ARA does not yet support Ansible 2.4.

\*\*\*

**WARNING:** Please note that the next major version of ARA, 1.0, will contain backwards incompatible changes due to significant refactor work involving core back end code as well as the SQL schema.  
Please see this blog post [1] for details.

\*\*\*

**Changelog:**

- Bugfix: 'include\_role' tasks with 'static: no' are now handled properly (See Ansible issue: <https://github.com/ansible/ansible/issues/30385> )
- Backport from 1.0: 404 not found errors when generating static reports will now be ignored as they are non-fatal.
- Ansible was pinned to <2.4, ARA does not yet support Ansible 2.4.
- Pygments was pinned to >=1.6, prior versions did not have the required JSONLexer methods.
- Flask was pinned to >=0.11, prior versions did not provide the flask\_logging.DEBUG\_LOG\_OUTPUT variable. The version prior to 0.11 was released in 2013.

**1.16.43 0.14.2 (2017-08-29)**

<https://codeberg.org/ansible-community/ara/releases/tag/0.14.2>

Bugfix: "logging.config" also needed to be imported for the new file configuration option to work properly.

**1.16.44 0.14.1 (2017-08-27)**

<https://codeberg.org/ansible-community/ara/releases/tag/0.14.1>

0.14.1 is a minor bugfix release for ARA.

\*\*\*

**WARNING:** Please note that the next major version of ARA, 1.0, will contain backwards incompatible changes due to significant refactor work involving core back end code as well as the SQL schema.  
Please see this blog post [1] for details.

\*\*\*

(continues on next page)

(continued from previous page)

## Changelog:

- Bugfix: Implicit tasks with no specific file and task information provided by Ansible (such as "gather\_facts") now resolve back to the playbook file by default. See upstream Ansible bug [2] for details.
- Feature: Logging for ARA and it's components can now be done through a logging configuration file [3].
- Integration tests on Fedora 26 with python3.6 were added to the existing tests under CentOS 7 and Ubuntu 16.04.

[1]: <https://dmsimard.com/2017/08/16/whats-coming-in-ara-1.0/>[2]: <https://github.com/ansible/ansible/issues/28451>[3]: <https://ara.readthedocs.io/en/latest/configuration.html#ara-log-config>**1.16.45 0.14.0 (2017-07-31)**<https://codeberg.org/ansible-community/ara/releases/tag/0.14.0>

0.14.0 is a major release for ARA which brings significant changes and introduces full Python 3 support with Ansible 2.3.x.

\*\*\*

WARNING: Please note that the next major version of ARA, 1.0, will contain backwards incompatible changes due to significant refactor work involving core back end code as well as the SQL schema.

\*\*\*

Changelog for 0.14.0 (up from 0.13.3):

## New features:

- Python 3 now works and is supported
  - All unit and integration tests are passing on python 3
  - New code contributions to ARA are simultaneously gated against py2 and py3 tests to avoid regressions
- Added the 'ara generate subunit' [1] command in order to export playbook run data to the subunit format

## Improvements:

- Host facts, task results and records display has been improved with highlighting where appropriate
- Addressed a backwards database schema relationship between files and tasks (no migration required)

## Updates and deprecations:

- Flask has been unpinned from 0.11.1 (latest release is currently 0.12.2)
- Ansible 2.1.x is no longer supported (end of life and out of support upstream as well)
- A regression in unit tests was fixed in order to allow us to unpin Pytest

(continues on next page)

(continued from previous page)

## Docs:

- Improve FAQ on what versions of Ansible are supported [2]
- Added a FAQ on the status of Python 3 support [3]

## Misc:

- Preliminary work in order to support the upcoming release of Ansible (2.4)
- ARA has been relicensed from Apache 2.0 to GPLv3 to simplify it's relationship with Ansible which is itself GPLv3. Rationale behind the change is available in the commit [4]

## Special thanks

- Lars Kellogg-Stedman for help on python 3 and database schema troubleshooting
- Jesse Pretorius for contributing support for Subunit generation

[1]: <https://ara.readthedocs.io/en/latest/usage.html#generating-a-static-subunit-version-of-the-task-results>

[2]: <https://ara.readthedocs.io/en/latest/faq.html#what-versions-of-ansible-are-supported>

[3]: <https://ara.readthedocs.io/en/latest/faq.html#does-ara-support-running-on-python-3>

[4]: <https://review.openstack.org/#/c/486733/>

**1.16.46 0.13.3 (2017-06-30)**

<https://codeberg.org/ansible-community/ara/releases/tag/0.13.3>

This release addresses a regression introduced in 0.13.2 where files would no longer be displayed correctly and would instead show raw HTML.

**1.16.47 0.13.2 (2017-06-22)**

<https://codeberg.org/ansible-community/ara/releases/tag/0.13.2>

This is a minor feature/bugfix release for ARA.

## Changelog:

- Security: Use the 'escape' jinja2 filter instead of the 'safe' filter to escape potentially problematic HTML characters and prevent them from being interpreted.
- `ara_record` can now be used as a standalone task outside the context of a playbook run to, for example, record data on a playbook run that has already been completed. An example use case is to attach the `ansible-playbook run stdout` as a record of the playbook [1][2]. More details is available in the documentation [3].
- `ara_record` now returns the equivalent of `ara_read` when registering the task where `ara_record` runs. This avoids needing to run `ara_read` if you don't need to.

## Misc:

- Unit test fixes after the release of Ansible 2.3.1

(continues on next page)

(continued from previous page)

```
- Work and testing against Ansible Devel (unreleased 2.4) has started

[1]: https://github.com/openstack/ara/blob/a72ece2e7ab69cd4e2882ba207152703b2bc0a90/run_
↳ tests.sh#L95-L96
[2]: https://github.com/openstack/ara/blob/a72ece2e7ab69cd4e2882ba207152703b2bc0a90/run_
↳ tests.sh#L130
[3]: http://ara.readthedocs.io/en/latest/usage.html#using-the-ara-record-module
```

### 1.16.48 0.13.1 (2017-05-21)

<https://codeberg.org/ansible-community/ara/releases/tag/0.13.1>

This is a minor release to fix the warning that Alembic 0.9.2 started introducing during SQL migrations.

The "About" page has also been improved.

### 1.16.49 0.13.0 (2017-05-04)

<https://codeberg.org/ansible-community/ara/releases/tag/0.13.0>

ARA 0.13.0 marks a new major release for ARA, dropping deprecations and modifying your database schema with automated migrations.

Please read the release notes and back up your database just in case before upgrading.

General / UI  
=====

- The home page has been relocated to "about" and the default home page is now the report list.
- Playbooks reports now have permanent links.  
Use the blue chain icon on the left hand side of the report list.
- Host facts, files and task results now have permanent links.  
Use the blue chain icon on the top right of the popups.
- Note: Permanent links have slightly grown the weight and amount of files generated in a static report but has no significant impact on generation time.
- Browsing tips have been improved and folded into "?" tooltips inside each panel.
- The file panel was improved to show a file browser interface instead of a file list.
- There is a new panel, "Parameters", which contains all parameters used as part of your ansible-playbook commands.
- Role names are now included when recording task results, this means you can now search for the role name in your task result list.
- Task tags are now included when recording task results, this means you can now search for the tag name in your task result list.
- Task results that are provided from a loop (ex: with\_items) are now properly saved and displayed.  
Note that an upstream Ansible issue can make it so the last item in a loop is sometimes not saved (Ansible issue #24207)

(continues on next page)

(continued from previous page)

- There has been some level of performance improvements which may be more noticeable on larger deployments.
- Fixed an issue where tooltips would sometime not display properly in the hosts table.
- Fixed an issue that would cause "include" tasks to be recorded and displayed twice by ARA on Ansible >= 2.2.
- External CSS and JS libraries are no longer bundled with ARA and we now used packaged versions with python-XStatic.
- The UI has been resized a bit in general to be less of a problem on larger resolutions (>=1920px wide)

#### Configuration

=====

- New parameter: ARA\_HOST to select the host to bind on default with the embedded development web server. (Defaults to '127.0.0.1')
- New parameter: ARA\_PORT to select the port on which the embedded development web server will listen on. (Defaults to '9191')
- The embedded development web server will now use threads by default, improving performance significantly.
- New parameter: ARA\_IGNORE\_PARAMETERS to avoid saving potentially sensitive data when recording ansible-playbook command line parameters. (Defaults to 'extra\_vars')

#### Database

=====

- There is a new SQL migration to provide the necessary schema for ansible metadata (ansible-playbook parameters) as well as task tags.
- Fixed a bad migration statement for a column in the table 'data'

#### Deprecations and removals

=====

- The command "ara generate" has been removed, it was deprecated and replaced by "ara generate html" in ARA 0.11.
- The URLs under /playbook/ have been removed, they were deprecated and redirected to the new playbook reports page in ARA 0.12.

#### Distribution packaging and unbundling

=====

ARA no longer carries in-tree external CSS and JS libraries (jquery, jquery-datatables, patternfly, patternfly-bootstrap-treeview, bootstrap).

For that effort:

- We've packaged and created new packages on PyPi for missing python-XStatic libraries: patternfly, patternfly-bootstrap-treeview
- We've updated the python-XStatic package for jquery-datatables on PyPi

ARA 0.13 will be the first version to be packaged for RHEL-derivative distributions. For that effort we've packaged new packages for Fedora and EPEL:

- python-xstatic-patternfly
- python-xstatic-patternfly-bootstrap-treeview
- python-xstatic-datatables

(continues on next page)

- python-pyfakefs

### 1.16.50 0.12.5 (2017-04-19)

<https://codeberg.org/ansible-community/ara/releases/tag/0.12.5>

0.12.5 is a small maintenance release.

#### Changelog:

- Fix encoding/decoding issues when using non-ascii characters in playbooks and improve integration testing for this kind of problem.
- The full playbook path is no longer printed in the table. The playbook path turned out to be too long and truncated most of the time. Only the file name is shown now. The full path is still available in the tooltip when hovering over the playbook file name.
- Improved performance for the reports page, especially when viewing playbook runs with a larger amount of data.
- Considerably reduced package/module size on disk

### 1.16.51 0.12.4 (2017-04-01)

<https://codeberg.org/ansible-community/ara/releases/tag/0.12.4>

0.12.4 is primarily a maintenance/bugfix release.

#### Callback changes:

- Task results as recorded by ARA are now "filtered" by Ansible's `_dump_results` method [1]. This will only be effective on task recording moving forward, it will not edit previously recorded playbooks. The `_dump_results` method strips Ansible 'internal' keys (`_ansible_*`) from the task results and also respects the 'no\_log: yes' task directive. Prior to this change, ARA did not respect the `no_log` directive and recorded the raw task results as well as all the Ansible internal keys. Task results should be cleaner now and be properly censored when using 'no\_log'. This ultimately results in what is hopefully less unnecessary things in the task results and the net effect should be positive.

#### Internal changes:

- Refactor of ARA's configuration module to fix issues in order to properly detect configuration parameters like booleans or lists. This refactor also brings cleaner backwards and forwards compatibility from Ansible 2.1 through 2.3.
- Fixed issue to prevent PBR from throwing exceptions when overriding the version
- Different changes in both the CLI and the testing framework in order to bootstrap and teardown the application properly to prevent context from leaking where it shouldn't be

#### UI changes:

- Javascript datatables in the UI where most of the content is displayed

(continues on next page)

(continued from previous page)

will now throw warnings in the background (javascript console) rather than in the foreground (javascript alert). These warnings are fairly expected, especially in the case of incomplete or interrupted playbooks.

- Adjust wording when notifying users about a playbook that is incomplete or was interrupted to make it more straightforward
- Performance improvements on the home and reports page, more optimization will follow in the future.
- Fixed an odd problem where certain webserver (ex: nginx) would not behave well for the statically generated version of the reports.

CLI changes:

- The "ara generate html" command will now suppress "MissingURLGeneratorWarning" warnings by default. A new configuration parameter 'ignore\_empty\_generation' was introduced to revert back to the previous behavior. For context on this change, see the commit [2].
- Alembic messages that are not related to migrations are now sent to the background.

Database:

- Fix PostgreSQL support, add documentation for using it and provide instructions for integration testing it

Documentation:

- The project now has a manifesto [3] to express in writing the project's core values and philosophy
- Improved contributor documentation
- Added a FAQ on running the ARA callback and the web application on different machines

[1]: [https://github.com/ansible/ansible/blob/b3251c9585b0b0180fcdf09748e9a0dc439bc1aa/lib/ansible/plugins/callback/\\_\\_init\\_\\_.py](https://github.com/ansible/ansible/blob/b3251c9585b0b0180fcdf09748e9a0dc439bc1aa/lib/ansible/plugins/callback/__init__.py)

[2]: <http://git.openstack.org/cgit/openstack/ara/commit/?id=440dac3789ca12c50f63a89850a7e65c1ac93789>

[3]: <http://ara.readthedocs.io/en/latest/manifesto.html>

### 1.16.52 0.12.3 (2017-03-09)

<https://codeberg.org/ansible-community/ara/releases/tag/0.12.3>

This is a bugfix release for the 0.12 series.  
It includes two fixes for the data and tooltips in the host panel to display properly.

### 1.16.53 0.12.2 (2017-03-07)

<https://codeberg.org/ansible-community/ara/releases/tag/0.12.2>

This is a minor release that aims to significantly improve web application performance on large scale deployments of ARA, tested against hundreds of playbooks composed of hundreds of thousands of tasks, task results and files.

(continues on next page)

(continued from previous page)

This is achieved by deferring the bulk of the data loading and processing to AJAX calls in the background.

### 1.16.54 0.12.1 (2017-03-03)

<https://codeberg.org/ansible-community/ara/releases/tag/0.12.1>

This is a small bugfix release to ensure pages from pagination can be detected as html mimetype.

### 1.16.55 0.12.0 (2017-03-01)

<https://codeberg.org/ansible-community/ara/releases/tag/0.12.0>

This is a major release which features a complete rewrite of the web application interface.

The home page now highlights the data recorded by ARA and the core of the UI now revolves around the one and single playbook reports page.

There were three main objectives with this UI work:

- Improve UX (ex: being able to search, find & sort things easily)
    - \* Everything is now searchable and sortable
    - \* Browsing tips have been added to help users get the most out of the interface features
  - Improve scalability and performance: the interface should be fast and easy to browse whether you have dozens or thousands of hosts and tasks
    - \* Every result list or table are now paginated
    - \* You can customize pagination preferences with the ARA\_PLAYBOOK\_PER\_PAGE and ARA\_RESULT\_PER\_PAGE configuration parameters.
  - Improve static generation time and weight
- Examples of the same data sets before and after:
- \* ARA integration tests (5 playbooks, 59 tasks, 69 results):
    - \* Before: 5.4 seconds, 1.6MB (gzipped), 217 files
    - \* After: 2 seconds, 1.2MB (gzipped), 119 files
  - \* OpenStack-Ansible (1 playbook, 1547 tasks, 1667 results):
    - \* Before: 6m21 seconds, 31MB (gzipped), 3710 files
    - \* After: 20 seconds, 8.9MB (gzipped), 1916 files

Other features and fixes include:

- First party WSGI support [1]
- Fixed syntax highlighting support when viewing files
- Preparations for supporting the upcoming Ansible 2.3 release
- Preparations for full python 3 support
- Various performance improvements

Misc:

(continues on next page)

(continued from previous page)

- Jinja HTML templates are now fully indented with no regards to line length or PEP8 to privilege readability over long and nested content.
- Added some missing web application unit tests
- Various javascript and css optimizations
- The web application backend in itself was significantly simplified: less routes, less templates, less code
- Added a configuration parameter `ARA_PLAYBOOK_PER_PAGE` which controls the amount of playbooks per page in the playbook report list.
- Added a configuration parameter `ARA_RESULT_PER_PAGE` which controls the amount of results per page in the data results table (such as hosts, plays and tasks).

**Known issues:**

- The file list table in the file panel will eventually be replaced by a folder/file hierarchy tree

[1]: <http://ara.readthedocs.io/en/latest/webserver.html>

**1.16.56 0.11.0 (2017-02-13)**

<https://codeberg.org/ansible-community/ara/releases/tag/0.11.0>

- New feature: ARA UI and Ansible version (ARA UI is running with) are now shown at the top right
- New feature: The Ansible version a playbook was run is now stored and displayed in the playbook reports
- New feature: New command: "ara generate junit": generates a junit xml stream of all task results
- New feature: `ara_record` now supports two new types: "list" and "dict", each rendered appropriately in the UI
- UI: Add ARA logo and favicon
- UI: Left navigation bar was removed (top navigation bar will be further improved in future versions)
- Bugfix: CLI commands could sometimes fail when trying to format as JSON or YAML
- Bugfix: Database and logs now properly default to `ARA_DIR` if `ARA_DIR` is changed
- Bugfix: When using non-ascii characters (ex: äëö) in playbook files, web application or static generation could fail
- Bugfix: Trying to use `ara_record` to record non strings (ex: lists or dicts) could fail
- Bugfix: Ansible config: 'tmppath' is now a 'type\_value' instead of a boolean
- Deprecation: The "ara generate" command was deprecated and moved to "ara generate html"
- Deprecation: The deprecated callback location, `ara/callback` has been removed. Use `ara/plugins/callbacks`.
- Misc: Various unit and integration testing coverage improvements and optimization
- Misc: Slowly started working on full python 3 compatibility

### 1.16.57 0.10.5 (2017-01-16)

<https://codeberg.org/ansible-community/ara/releases/tag/0.10.5>

Ansible 2.2.1.0 shipped with a hard dependency on Jinja2 < 2.9 [1]. Since Flask has a requirement on Jinja2 >= 2.4, it would pick up 2.9.4 first and then disregard Ansible's requirement.

[1]: <https://github.com/ansible/ansible/commit/6c6570583f6e74521e3a4f95fe42ffddb69634fe>

### 1.16.58 0.10.4 (2017-01-15)

<https://codeberg.org/ansible-community/ara/releases/tag/0.10.4>

New feature:

- Playbook lists now have an icon to display their status, whether it has been completed or not and if it has been successful or not.

Bug fixes/maintenance:

- Fix SyntaxError when creating ARA directory under Python3
- Update static patternfly assets to 3.17.0
- Fixed some bad logic in integration tests in order to properly test different versions of Ansible

### 1.16.59 0.10.3 (2016-12-12)

<https://codeberg.org/ansible-community/ara/releases/tag/0.10.3>

This is a minor release that continues ongoing efforts to streamline some things in order to package ARA for linux distributions.

Flask-Testing is no longer a dependency and tests have been rewritten accordingly.

### 1.16.60 0.10.2 (2016-12-10)

<https://codeberg.org/ansible-community/ara/releases/tag/0.10.2>

This is a minor release to streamline some things in order to package ARA for linux distributions.

- pymysql is no longer installed by default
- tests are now shipped inside the module
- misc fixes (pep8, bandit)

### 1.16.61 0.10.1 (2016-12-05)

<https://codeberg.org/ansible-community/ara/releases/tag/0.10.1>

This is a bugfix release that resolves an issue that made it impossible to use MySQL (and potentially other RDBMS).

For more details, see commit [1].

[1]: <https://git.openstack.org/cgit/openstack/ara/commit/?id=dd159df4f0c152d28455fedf6c6f1e0b56cd7350>

### 1.16.62 0.10.0 (2016-12-01)

<https://codeberg.org/ansible-community/ara/releases/tag/0.10.0>

This is a major release.

For the full list of changes between 0.9.3 and 0.10.0, please view the list of commits on GitHub [1].

Summary:

- Database schema is now stable and automatically migrated. Databases created on >= 0.9.0 are supported.
- Significant web interface improvements
- New built-in Ansible modules: ara\_record and ara\_read for recording arbitrary data with ARA
- Improved unit and integration testing coverage

[1]: <https://github.com/openstack/ara/compare/0.9.3...0.10.0>

### 1.16.63 0.9.3 (2016-11-14)

<https://codeberg.org/ansible-community/ara/releases/tag/0.9.3>

### 1.16.64 0.9.2 (2016-10-22)

<https://codeberg.org/ansible-community/ara/releases/tag/0.9.2>

This is a maintenance release.

- Update static assets to their latest versions (Patternfly, Flask, etc.)
- The location of the callback has been changed from ara/callback to ara/plugins/callbacks/. The previous location has been deprecated and will be removed in a future version.
- Bugfix: The home link in the navigation now behaves more as expected and redirect to the root of the web application rather than the root of the domain or filesystem.
- Misc: Integration test coverage improvements

### 1.16.65 0.9.1 (2016-09-15)

<https://codeberg.org/ansible-community/ara/releases/tag/0.9.1>

- Introduced a parameter (defaulting to true) to hide warnings introduced in 0.9.0 that are safe to ignore.

### 1.16.66 0.9.0 (2016-09-13)

<https://codeberg.org/ansible-community/ara/releases/tag/0.9.0>

- ARA is now hosted by the OpenStack project community infrastructure.
  - ARA's source code is now available at:  
<https://git.openstack.org/cgit/openstack/ara>  
or mirrored at  
<https://github.com/openstack/ara>
  - Submitting patches is now done through OpenStack's Gerrit system.  
Documentation on how to contribute is available at  
<http://ara.readthedocs.io/en/latest/contributing.html>
  - Unit and integration testing is no longer done through Travis but instead by OpenStack Zuul testing infrastructure.
- UI Revamp: First implementation  
This is the first release in which lands a first implementation of a large UI revamp with the Patternfly [1] CSS framework. There are some small issues and quirks but we will iterate in order to fix them.
- Playbook file storage  
ARA now stores a unique, zipped copy of playbook files allowing you to see the content of your task files as they ran in a particular ansible-playbook run. The UI leverages that feature and also provides a direct link with line highlight to show where a particular action took place.

[1]: <https://www.patternfly.org/>

### 1.16.67 0.8.1 (2016-06-03)

<https://codeberg.org/ansible-community/ara/releases/tag/0.8.1>

This reverts commit 00673c1cf231dbd3058ca187295e67e39f6c9fff. 2.1 has a regression [1] that breaks ARA and 2.0.2.0 had other regressions we are not interested in.

[1]: <https://github.com/ansible/ansible/issues/16125>

### 1.16.68 0.8.0 (2016-06-02)

<https://codeberg.org/ansible-community/ara/releases/tag/0.8.0>

stop catching bare Exceptions

**1.16.69 0.7.1 (2016-05-30)**

<https://codeberg.org/ansible-community/ara/releases/tag/0.7.1>

Temporarily pin flask

**1.16.70 0.7.0 (2016-05-27)**

<https://codeberg.org/ansible-community/ara/releases/tag/0.7.0>

Try really hard to pretty print json-looking results

**1.16.71 0.6.0 (2016-05-21)**

<https://codeberg.org/ansible-community/ara/releases/tag/0.6.0>

**1.16.72 0.5.2 (2016-05-18)**

<https://codeberg.org/ansible-community/ara/releases/tag/0.5.2>

**1.16.73 0.5.1 (2016-05-17)**

<https://codeberg.org/ansible-community/ara/releases/tag/0.5.1>

iterate over results containing multiple items

**1.16.74 0.5.0 (2016-05-14)**

<https://codeberg.org/ansible-community/ara/releases/tag/0.5.0>

Merge development work

**1.16.75 0.4.0 (2016-05-10)**

<https://codeberg.org/ansible-community/ara/releases/tag/0.4.0>

**1.16.76 0.3.1 (2016-05-09)**

<https://codeberg.org/ansible-community/ara/releases/tag/0.3.1>

This isn't a proper configuration file yet but will allow to transition toward that goal while improving configurability with very low effort.

**1.16.77 0.3 (2016-05-09)**

<https://codeberg.org/ansible-community/ara/releases/tag/0.3>

- Properly support browsing multiple playbook runs in /playbook
- Add run info at the top
- Minor tweaks to models, effectively just add foreign keys on playbook\_uuid for sanity

### 1.16.78 0.2 (2016-05-09)

<https://codeberg.org/ansible-community/ara/releases/tag/0.2>

### 1.16.79 0.1 (2016-05-08)

<https://codeberg.org/ansible-community/ara/releases/tag/0.1>

## 1.17 Distribution packages

There are some Linux distributions with packages for ara with a varying degree of support and maintenance.

Please feel free to help complete this documentation and contribute to the packaging of ara.

Due to limited time and resources, official project support is only provided for PyPI and limited container images:

- <https://pypi.org/project/ara>
- <https://quay.io/repository/recordsansible/ara-api>
- <https://hub.docker.com/r/recordsansible/ara-api>

### 1.17.1 Fedora

There is a package for ara on Fedora:

- <https://src.fedoraproject.org/rpms/ara>
- <https://koji.fedoraproject.org/koji/packageinfo?packageID=24394>
- <https://bodhi.fedoraproject.org/updates/?packages=ara>

### Updating and building the package

At a high level:

```
$ git clone https://src.fedoraproject.org/rpms/ara; cd ara
< update ara.spec, bump version, update requirements, changelog, etc >

download new source tarball from pypi
$ spectool -R -g ara.spec

produce a source rpm
$ rpmbuild -bs ara.spec

maybe do a scratch build to make sure it works
$ kinit login@FEDORAPROJECT.ORG

$ koji build --scratch rawhide /home/user/rpmbuild/SRPMS/ara-1.7.4-1.fc42.src.rpm
Uploading srpm: /home/user/rpmbuild/SRPMS/ara-1.7.4-1.fc42.src.rpm
[=====] 100% 00:00:03 12.52 MiB 3.56 MiB/sec
Created task: 140842494
Task info: https://koji.fedoraproject.org/koji/taskinfo?taskID=140842494
Watching tasks (this may be safely interrupted)...
140842494 build (rawhide, ara-1.7.4-1.fc42.src.rpm): free
140842494 build (rawhide, ara-1.7.4-1.fc42.src.rpm): free -> assigned (buildvm-x86-05.
↳ rdu3.fedoraproject.org)
140842494 build (rawhide, ara-1.7.4-1.fc42.src.rpm): assigned (buildvm-x86-05.rdu3.
```

(continues on next page)

(continued from previous page)

```

↪ fedoraproject.org) -> open (buildvm-x86-05.rdu3.fedoraproject.org)
140842497 rebuildSRPM (x86_64): free
140842497 rebuildSRPM (x86_64): free -> assigned (buildhw-x86-03.rdu3.fedoraproject.
↪ org)
140842497 rebuildSRPM (x86_64): assigned (buildhw-x86-03.rdu3.fedoraproject.org) ->
↪ open (buildhw-x86-03.rdu3.fedoraproject.org)
140842497 rebuildSRPM (x86_64): open (buildhw-x86-03.rdu3.fedoraproject.org) -> closed
0 free 1 open 1 done 0 failed
140842503 buildArch (ara-1.7.4-1.fc44.src.rpm, noarch): free
140842503 buildArch (ara-1.7.4-1.fc44.src.rpm, noarch): free -> assigned (buildhw-a64-
↪ 03.rdu3.fedoraproject.org)
140842503 buildArch (ara-1.7.4-1.fc44.src.rpm, noarch): assigned (buildhw-a64-03.rdu3.
↪ fedoraproject.org) -> open (buildhw-a64-03.rdu3.fedoraproject.org)
140842503 buildArch (ara-1.7.4-1.fc44.src.rpm, noarch): open (buildhw-a64-03.rdu3.
↪ fedoraproject.org) -> closed
0 free 1 open 2 done 0 failed
140842494 build (rawhide, ara-1.7.4-1.fc42.src.rpm): open (buildvm-x86-05.rdu3.
↪ fedoraproject.org) -> closed
0 free 0 open 3 done 0 failed
140842494 build (rawhide, ara-1.7.4-1.fc42.src.rpm) completed successfully

upload the new source tarball
fedpkg new-sources /home/user/rpmbuild/SOURCES/ara-1.7.4.tar.gz

commit, check out to a fork/branch

```

Once a PR is opened (like [this one](#)) it will run various tests like building and rpmlint. After successful jobs and review, the PR will be merged and now a build is necessary for the new version to land in repositories.

We must do this for rawhide and supported fedora versions like 42 and 43.

First, check out the desired branch and then `fedpkg build`.

For rawhide, a successful build will automatically end up in repositories. For stable releases we must open a bodhi update with `fedpkg update`.

This will propose the new versions for stable release, pending votes from testers or a certain duration. Some time after either condition is met, the new package will eventually make its way to fedora mirrors.

## 1.17.2 Debian

There are outdated (1.5.8 at time of writing) packages available for Debian bookworm:

- <https://packages.debian.org/bookworm/ara-client>
- <https://packages.debian.org/bookworm/ara-server>

## 1.17.3 Ubuntu

There are outdated (1.5.8 at time of writing) packages available for Ubuntu 22.04 and 24.04:

- <https://packages.ubuntu.com/noble/ara-client>
- <https://packages.ubuntu.com/noble/ara-server>

They are probably inherited from Debian.

### 1.17.4 Arch

There is an outdated (1.7.0 at time of writing) package available for Arch:

- <https://aur.archlinux.org/packages/python-ara>

## 1.18 MCP Server for ARA Records Ansible

ARA Records Ansible playbooks and makes them easier to understand and troubleshoot.

This MCP (Model Context Protocol) server gives LLMs read-only access to the data recorded by ARA: playbooks, tasks, hosts, results and files.

Models can reason about playbooks to make infrastructure even easier to understand and troubleshoot.

Instructions for agents can be found in [AGENTS.md](#).

### Table of Contents

- *Why*
- *Requirements*
- *Installation*
- *Configuration*
- *Tool Catalog*
  - *Foundation Tools*
  - *Wrapper Tools*
- *Compatibility*
- *See also*

### 1.18.1 Why

LLMs are competent with Ansible, Python, Jinja and YAML. They even know about development, system administration and configuration management.

When given the right context, they can analyze playbook runs and provide plausible troubleshooting steps or optimization suggestions:

- Why did this playbook fail ?
- Is there anything wrong with this host ?
- How can we make this playbook faster ?
- Am I leaking secrets or sensitive information ?
- Can you compare these two playbooks ?

Pasting `ansible-playbook` console output into a chat window works, but it's slow and wasteful: an example failed CI job can easily consume 60 000+ tokens of context just from the terminal log.

The ARA MCP server returns the same information and much more. This same example playbook comes back structured, filtered and on demand in under 2 000 tokens. The model asks for exactly what it needs and nothing more.

## 1.18.2 Requirements

- A running ARA API server (see [Getting Started](#))
- Python  $\geq$  3.8
- The `httpx` and `mcp` packages

## 1.18.3 Installation

The MCP server is an optional, standalone and self-contained script included in the ARA source repository. It is not shipped as part of the `ara` package and has its own minimal dependencies.

```
Clone the repository (or use an existing checkout)
git clone https://codeberg.org/ansible-community/ara ~/.ara/git/ara
cd ~/.ara/git/ara

Create a dedicated virtualenv
python3 -m venv .venv
.venv/bin/pip install httpx mcp
```

## 1.18.4 Configuration

The MCP server is started and managed by MCP clients like `llama.cpp`, `LM Studio`, `ollama`, `Claude`, etc.

Add an entry to the client's MCP configuration, typically a JSON file:

```
{
 "mcpServers": {
 "ara": {
 "command": "/home/user/.ara/git/ara/.venv/bin/python",
 "args": [
 "/home/user/.ara/git/ara/contrib/mcp/ara_mcp.py"
],
 "env": {
 "ARA_API_SERVER": "http://127.0.0.1:8000"
 }
 }
 }
}
```

Adjust the configuration to match the `ara` deployment. When the ARA API server requires authentication, add the optional environment variables:

```
{
 "env": {
 "ARA_API_SERVER": "http://127.0.0.1:8000",
 "ARA_API_USERNAME": "your-username",
 "ARA_API_PASSWORD": "your-password"
 }
}
```

### 1.18.5 Tool Catalog

The server advertises 13 tools through the MCP `list_tools` call. They fall into two categories:

#### Foundation Tools

These map directly to ARA API resources. They accept filters and return structured text summaries.

| Tool                        | Description                                                                                |
|-----------------------------|--------------------------------------------------------------------------------------------|
| <code>get_playbook</code>   | Detailed metadata for a playbook (status, duration, stats, labels).                        |
| <code>list_playbooks</code> | Paginated list with filters: status, name, path, label, controller, Ansible version.       |
| <code>get_task</code>       | Single task detail plus optional source code snippet from the file.                        |
| <code>list_tasks</code>     | List tasks filtered by playbook, status, name or module (action).                          |
| <code>get_host</code>       | Host summary (result counts) and key facts (OS, kernel, Python, package manager, SELinux). |
| <code>list_hosts</code>     | Hosts list with optional playbook filter.                                                  |
| <code>get_result</code>     | Full result payload: stdout/stderr, return code, error message, source code snippet.       |
| <code>list_results</code>   | Filterable by playbook, task, host and status (ok/failed/skipped/unreachable).             |
| <code>get_file</code>       | Raw file content or a snippet around a specific line with configurable context.            |
| <code>list_files</code>     | List of files recorded for a playbook.                                                     |

#### Wrapper Tools

These aggregate multiple API calls into a single, higher-level response tailored for common workflows.

| Tool                               | Description                                                                                |
|------------------------------------|--------------------------------------------------------------------------------------------|
| <code>troubleshoot_playbook</code> | Aggregates failures, code context, host facts and a summary for LLM-driven debugging.      |
| <code>troubleshoot_host</code>     | Host-centric failure view (failed + unreachable results) with brief error excerpts.        |
| <code>analyze_performance</code>   | Cross-run timing analysis, slowest tasks, variance detection and optimization suggestions. |

All tools return plain text designed to be understood by LLMs. While ARA's API returns JSON, these responses are formatted as human and model-readable text to minimize token usage.

### 1.18.6 Compatibility

The MCP server is designed to work with any MCP-compatible client, whether local or cloud-hosted:

- **Local runtimes:** llama.cpp, Ollama, LM Studio
- **Cloud services:** Claude, ChatGPT, Gemini, Copilot
- **Development tools:** Claude Code, VS Code with MCP extensions, Cursor

It also works with any model that supports tool use, including open-weight models like Qwen3, Devstral, GLM and GPT-OSS.

### 1.18.7 See also

- [AGENTS.md](#) — guidance for AI agents on how to best use these tools
- [ARA documentation](#)
- [ARA API reference](#)

- MCP specification

