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A guide to automated Ads Workflows in Google Cloud using StarThinker.

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Why Data Orchestration Matters

The path to scalable ads data automation

With the modern complexity and scale of advertising data, programmatic automation is a necessity. Ad Operations is increasingly struggling to deliver timely and reliable reporting for clients and the pace and scale is only increasing. Ad Operations is having to rely more heavily on automation teams.

These emerging automation teams face the engineering challenge of delivering quality and speed for their operational teams and downstream clients. Google Cloud is making this process more accessible through hundreds of new data manipulation and security tools. Realistically, however, translating these tools for operations teams is a significant usability challenge.

At Google Ads Professional Services Org, we've experienced the same changes through years of Ad Operations support to Fortune 500 companies and partners. Being immersed in both advertising and cloud at Google, put us in a unique position to solve this problem for Ad Operations and automation teams.

The result is StarThinker, an open source orchestration framework. It allows rapid prototyping of data pipelines specifically integrated with Google's Campaign Manager and Display and Video 360 platforms. Teams can develop scaled solution prototypes in hours, not weeks, and have access to a secure UI that solves key usability challenges of solution discoverability and low-to-no code deployment.

StarThinker is open source, created by Google engineers, runs at Google scale, and powers our top accounts. Imagine what it can do for your Ad Operations.

The largest obstacle for Ad Operations is reducing turnaround time for client reporting.

This would free up talented analysts to tune and optimize campaigns based on the data they are currently struggling to retrieve.

Unlocking data flow is key to scaling clients, revenue, and impact.

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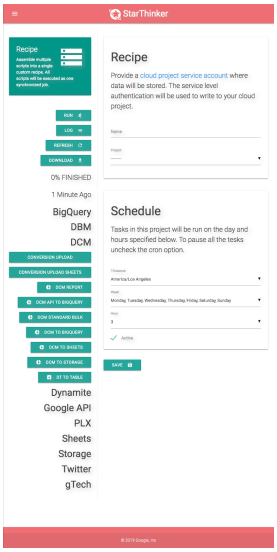
StarThinker For Ad Operations

Removing Client Solution Speed Bumps

StarThinker provides an open source UI for building reporting pipelines designed specifically for Ad Operations. This allows your Ad Operations to build rapid workflows without coding. Simply arrange tasks in a sequence and they run on a schedule.

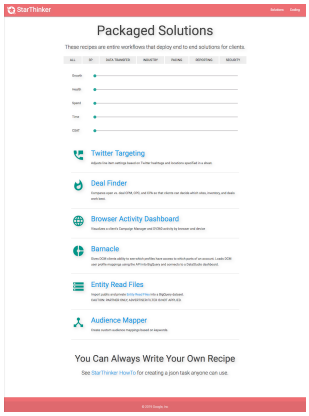
Need a new task? Ask the automation to create a new recipe and plug it into the UI. It now becomes a building block so the Ad Operations can rapidly integrate new data sources into custom reporting for clients.

Workflow UI



Custom Workflow

Workflow Gallery



Benefits Include

- ➢ The UI can be stood up on Google cloud in minutes.
- ➢ Ad Operations can source solutions from automation team.
- ➢ Ad Operations can source solutions that Google gTech creates.
- ➢ Ad Operations can develop data workflows in UI without coding.

Solution Gallery

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30 sec

To set up scheduled copy of a CM, DV360, or GA report to BigQuery for analysis for any client.

100%

Scaled across clients using Google Cloud infrastructure.

1:1

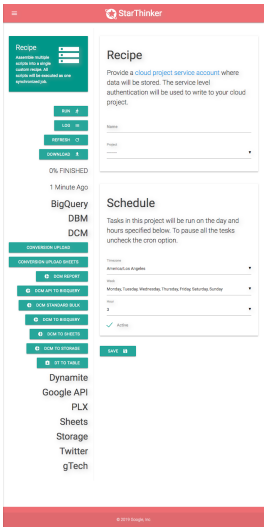
User permissions automatically inherited from products analyst has access to.

Use Cases For Ad Operations

Sourcing Solutions For Clients

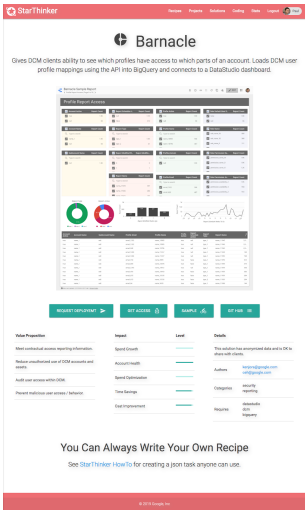
When the Ad Operations can source solutions from several sources for clients, they get faster and better at meeting both simple and complex client needs.

Analysts Creates Workflow Without Coding



1. Ad Operations analyst creates a DV360 report and wants to add an analysis for a client in Google Sheets.
2. The analyst logs into the StarThinker UI and schedules the report transfer to Google Sheets.
3. The analyst can add pivot tables, and share the sheet with a client. StarThinker will handle copying the data at the desired refresh rate.
4. **The client now has a Google Sheets report following the analysts chosen update schedule.**

Analyst Uses Workflow Built By Automation Team or Google gTech



1. A client wants an audit of their CM user access.
2. The analyst logs into StarThinker UI, selects Barnacle as a task, and enters the Campaign Manager Account ID for the client to be audited, and clicks save. The workflow recipe starts running and fetches the data.
3. The analyst connects the Data Studio dashboard template to the newly created BigQuery data per provided user guide instructions and shares with the client.
4. **The client now has a real time Data Studio report following the analysts chosen update schedule.**

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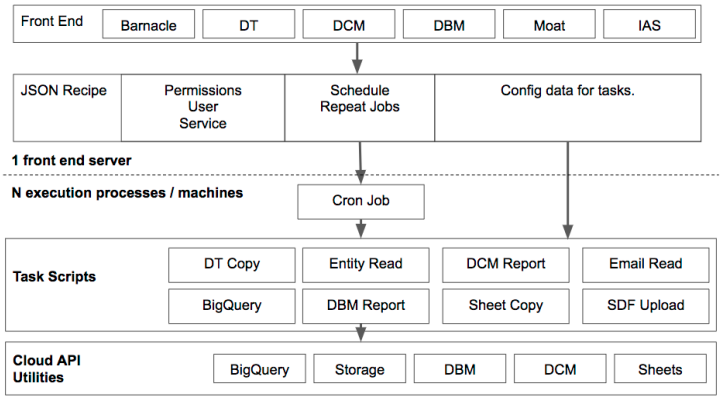
StarThinker For Automation Team

Building Minimal Viable Projects Fast

Automation teams have to combine speed with quality because marketers often need custom insights and the ability to access them quickly. StarThinker is designed to enable rapid development of custom solutions for Automation teams working with the Google Marketing Platform

Architecture

StarThinker delivers an open source UI for solution deployment to Operations teams, a cloud back end to run those jobs, and a simple, python command line to test and debug new workflows. StarThinker is deployable from Github in 10 minutes. Architecture is as follows:



Benefits Include

- Built with Python and Django, popular and well-documented language and framework for easy customization.
- UI code is a complete application that can be modified.
- Back end code is a complete, scaled job runner.
- Command line interface allows quick debugging of workflows.
- Create new workflows for the Ad Operations UI in minutes.

Recipe Gallery

75+

Built, tested, and scaled data integration functions that can be used in any recipe.

100%

Tested, customizable, and deployable at scale on Google Cloud infrastructure.

100x

Faster to use StarThinker to build and deploy custom ads recipes than building them from the ground up.

Use Cases For Automation Team

Creating Solutions For Clients

Using StarThinker will obviate the repetitive tasks like authentication, packaging, documentation, and testing so your team can focus on building workflows for clients. It can be used on any cloud because it's just python. Out of the box StarThinker provides code samples, best practices, and working recipes. Best part is, any new recipes built by Google gTech or your Automation team plugs right into the UI for Operations teams' to easily discover and deploy.

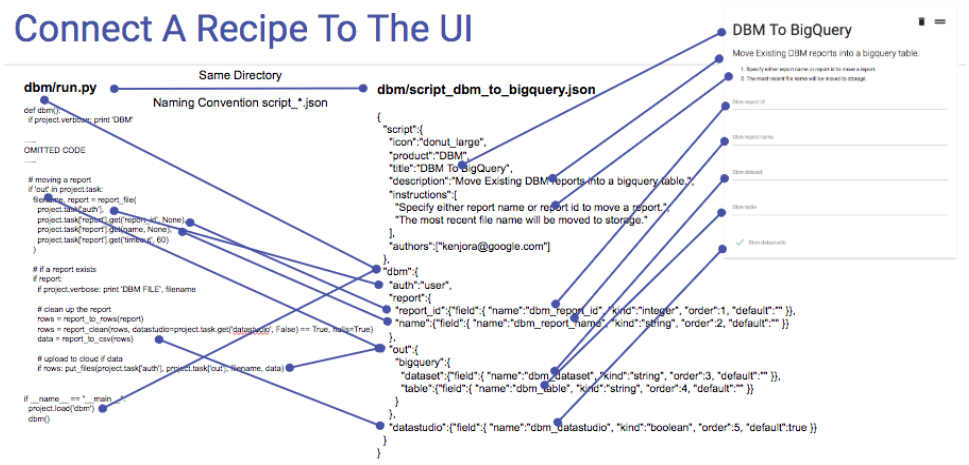
Automation Team Creates New WorkFlow Solution

dbm/script_dbm_to_bigquery.json

```
{
  "script":{
    "icon":"donut_large",
    "product":"DBM",
    "title":"DBM To BigQuery",
    "description":"Move Existing DBM reports into a bigquery table.",
    "instructions":[
      "Specify either report name or report id to move a report.",
      "The most recent file name will be moved to storage."
    ],
    "authors":["kenjora@google.com"]
  },
  "dbm":{
    "auth":"user",
    "report":{
      "report_id":{"field":{ "name":"dbm_report_id", "kind":"integer", "order":1, "default":"" }},
      "name":{"field":{ "name":"dbm_report_name", "kind":"string", "order":2, "default":"" }}
    },
    "out":{
      "bigquery":{
        "dataset":{"field":{ "name":"dbm_dataset", "kind":"string", "order":3, "default":"" }},
        "table":{"field":{ "name":"dbm_table", "kind":"string", "order":4, "default":"" }}
      }
    },
    "datastudio":{"field":{ "name":"dbm_datastudio", "kind":"boolean", "order":5, "default":true }}
  }
}
```

1. Create a new JSON file and add a sequence of tasks calling StarThinker-provided python endpoints. There are 75+ working tasks in StarThinker today.
2. Add instructions and documentation to the new workflow recipe.
3. **Newly created recipe becomes instantly available in the UI for the Ad Operations to deploy for clients.**

Automation Team Creates A Custom Python Connector



1. Create a python script to do the work.
2. Create a JSON recipe that defines the parameters for that script.
3. **It becomes available in the UI for Operations teams to deploy for clients.**

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Deploying StarThinker

Globally Accessible Deployment

StarThinker is an open source GitHub hosted project provided by Google gTech under the Apache License, Version 2.0. Anyone can use, modify, and extend it. In addition,we made the deployment so easy, anyone can stand up an instance even with limited technical experience.

To simplify things, deployments are handled through a command line script. A Google Cloud Project is required to run some of the recipes. The script has three options:

Developer

Quickly try out StarThinker and develop a new recipe.

Most basic setup, for developers can be run on any linux machine.

Data Scientist

Set up a recurring job to execute a workflow recipe quickly.

Ideal for a single user wanting to run jobs on any linux machine.

Enterprise

Stand up a UI with multiple logins on Google Cloud App Engine.

Ideal for Ad Operations with multiple users supporting multiple clients.

10 min

To deploy on Google Cloud directly from GitHub open source repository.

100%

Securable using Google Cloud permissions and/or gSuite restrictions.

5 days

Of using StarThinker and you'll see your Ad Operations transformed.

StarThinker can also be installed from GitHub as a package.

StarThinker Resources And FAQ

Helping Our Partners Do More For Clients

How often is StarThinker updated?
About once a week. We try to make all changes backwards compatible unless otherwise called out.

Can we fork a repository and develop independently?
Yes, StarThinker code you build belongs to you.

Does Google warrant StarThinker code?
No, this code is NOT WARRANTIED in any way, use at your own risk. The code is provided as a reference to help our community.

Do I have to be a certified partner to use StarThinker?
No, the starthinker code and documentation is open source and available to anyone.

Will Google gTech build new recipes by request?
We release recipes built internally for clients without schedule. We do not currently have support for managing custom recipe requests.

How do I contact the StarThinker team?
Reach out to starthinker-help@google.com.

Resources

Apache License

BigQuery

CM API

Data Studio

Django

DV 360 API

GitHub

Google Cloud

How To Videos

Partner Certification

Python

Sheets

Solution Gallery