Personalizer Demo

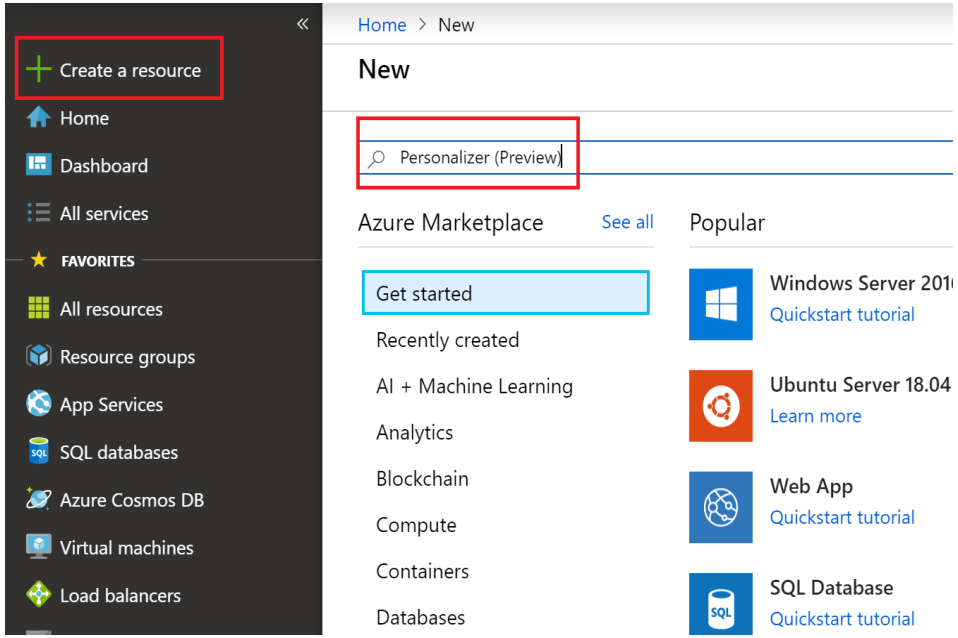
Preparation

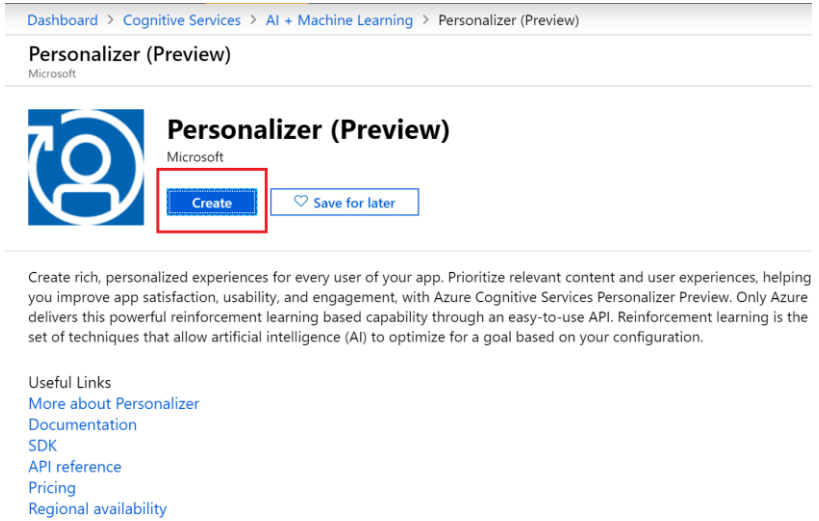
- Create free Azure/Microsoft account
  - https://azure.microsoft.com/en-us/free/
- Install python and pip
- Clone demo repository
  - https://github.com/VowpalWabbit/icml2019
- Install client wheel package
  - Download client wheel package
  - pip install azure_cognitiveservices_personalizer-0.2.0-py2.py3-none-any.whl

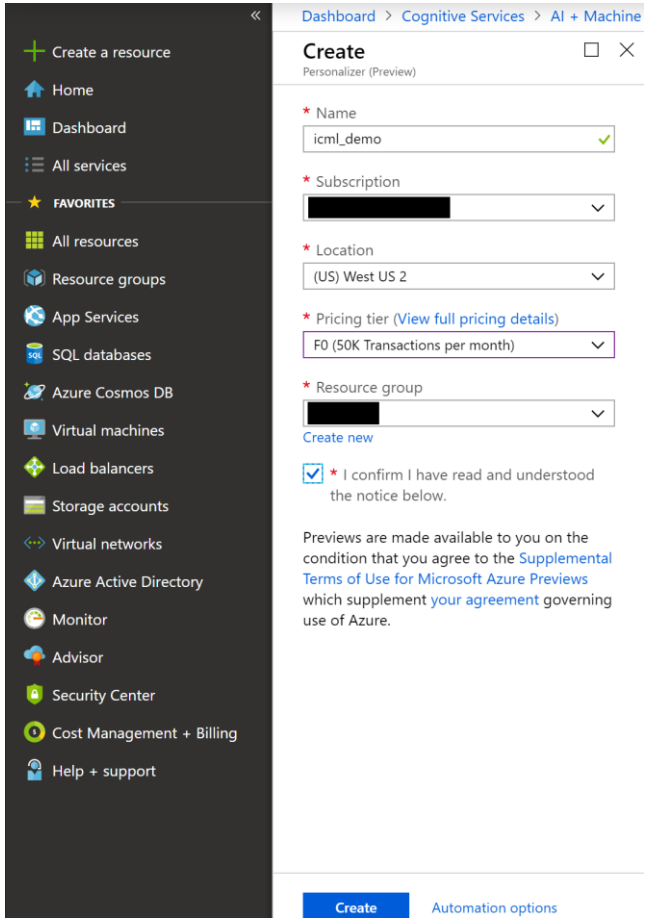
Documentation

- Personalizer Docs:
  - https://docs.microsoft.com/en-us/azure/cognitive-services/personalizer/
- API References:
  - https://westus2.dev.cognitive.microsoft.com/docs/services/personalizer-api/operations/Rank
- More Examples:
  - https://github.com/Azure-Samples/cognitive-services-personalizer-samples

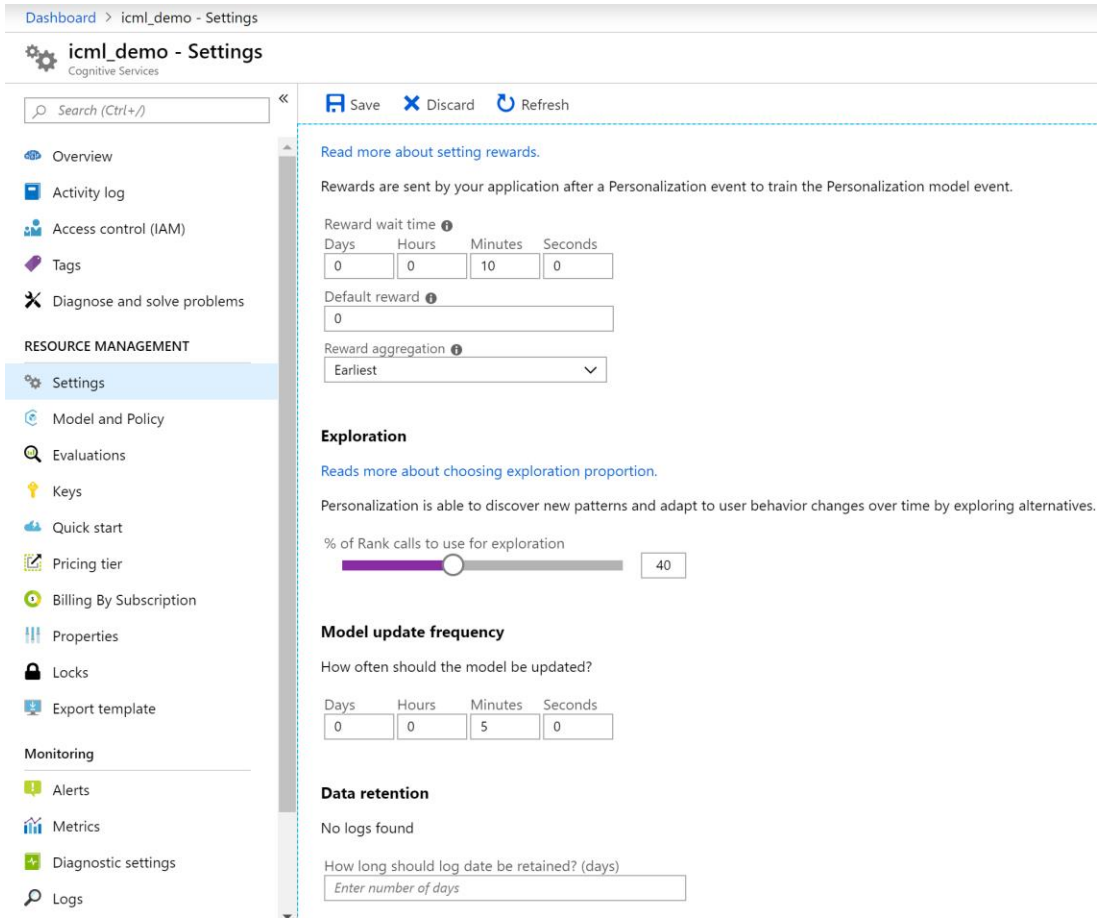
Create Personalizer Instance



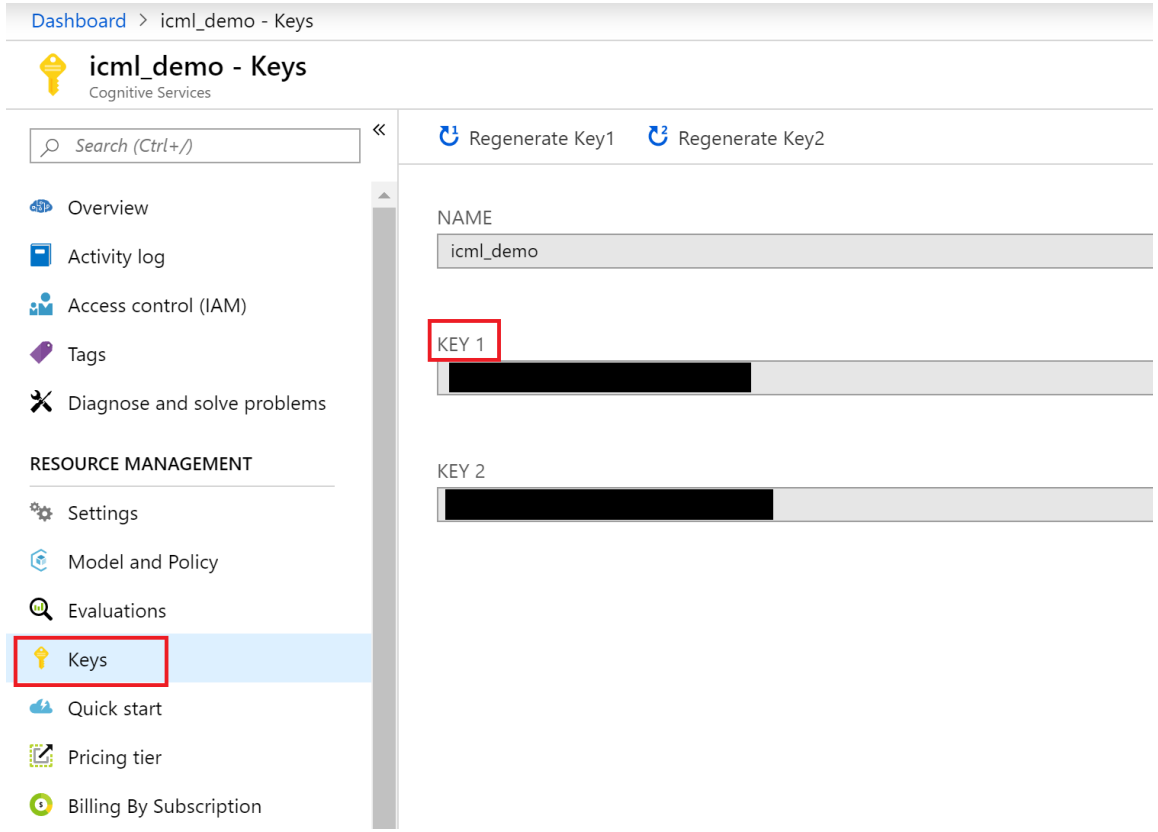




Settings

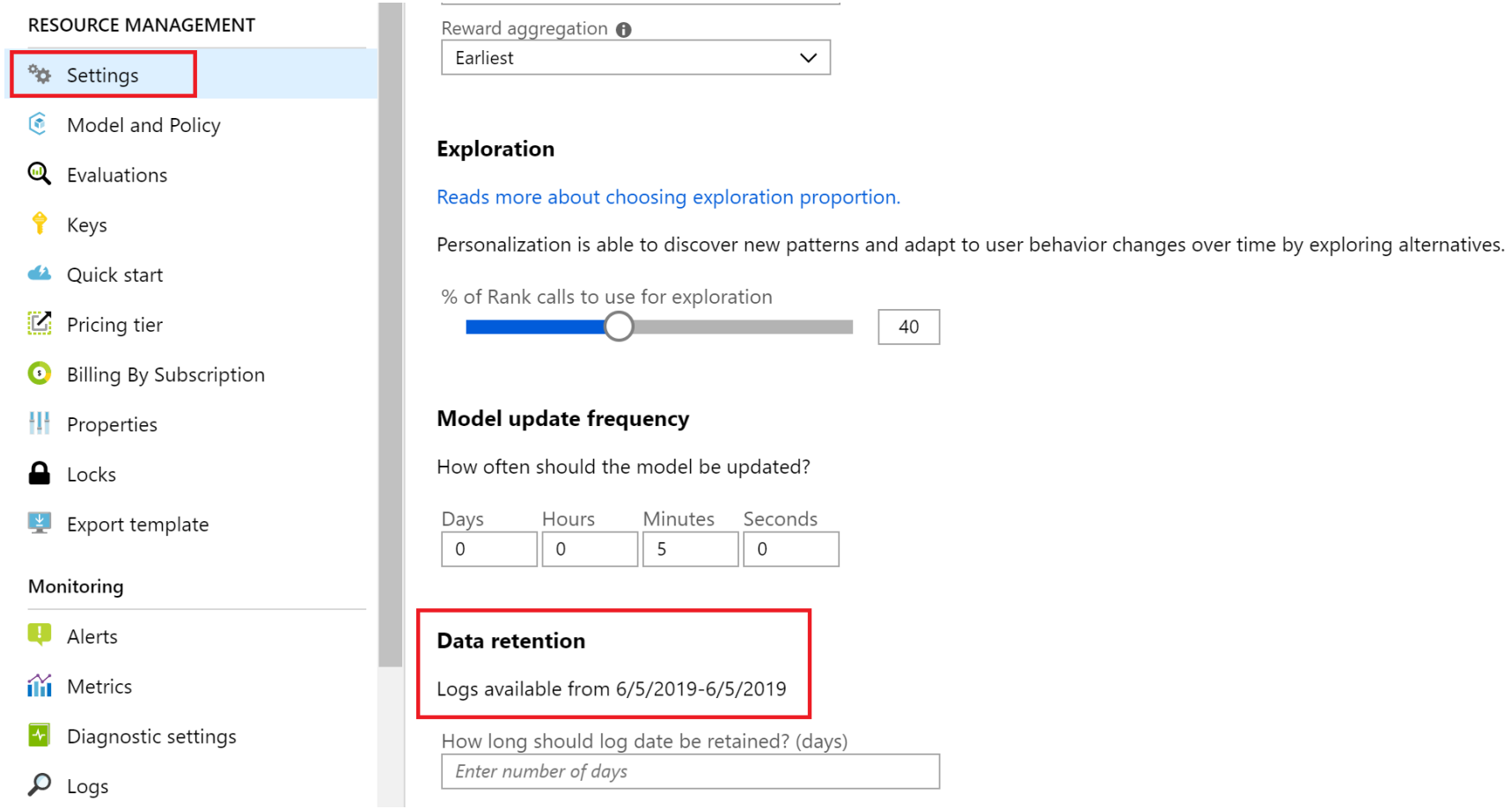

Dashboard > icml_demo - Settings
icml_demo - Settings
Cognitive Services
Search (Ctrl+/)
Overview
Activity log
Access control (IAM)
Tags
Diagnose and solve problems
RESOURCE MANAGEMENT
Settings
Model and Policy
Evaluations
Keys
Quick start
Pricing tier
Billing By Subscription
Properties
Locks
Export template
Monitoring
Alerts
Metrics
Diagnostic settings
Logs
Save
Discard
Refresh
Read more about setting rewards.
Rewards are sent by your application after a Personalization event to train the Personalization model event.
Reward wait time
Days Hours Minutes Seconds
0 0 10 0
Default reward
0
Reward aggregation
Earliest
Exploration
Reads more about choosing exploration proportion.
Personalization is able to discover new patterns and adapt to user behavior changes over time by exploring alternatives.
% of Rank calls to use for exploration
40
Model update frequency
How often should the model be updated?
Days Hours Minutes Seconds
0 0 5 0
Data retention
No logs found
How long should log date be retained? (days)
Enter number of days

Send events




```
33  client = PersonalizerClient(endpoint="https://westus2.api.cognitive.microsoft.com/",
34      credentials=CognitiveServicesCredentials(""))   # Put your credentials here
35
36  #Available content
37  actions=[
38      models.RankableAction(
39          id='politics',
40          features=[{'topic': 'politics'}]),
41      models.RankableAction(
42          id='sports',
43          features=[{'topic': 'sports'}]),
44      models.RankableAction(
45          id='music',
46          features=[{'topic': 'music'}]
47      )]
```

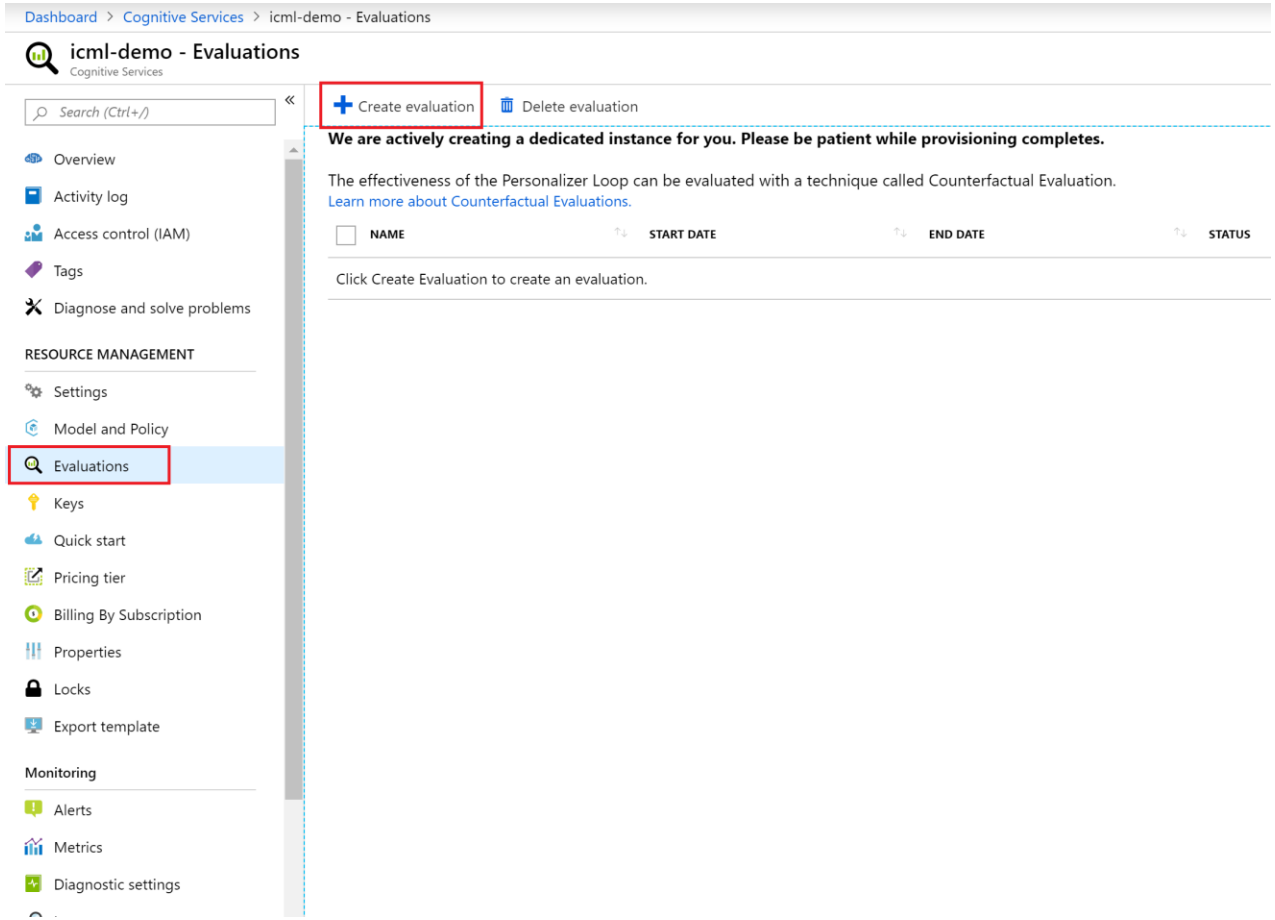
Verify data was logged successfully

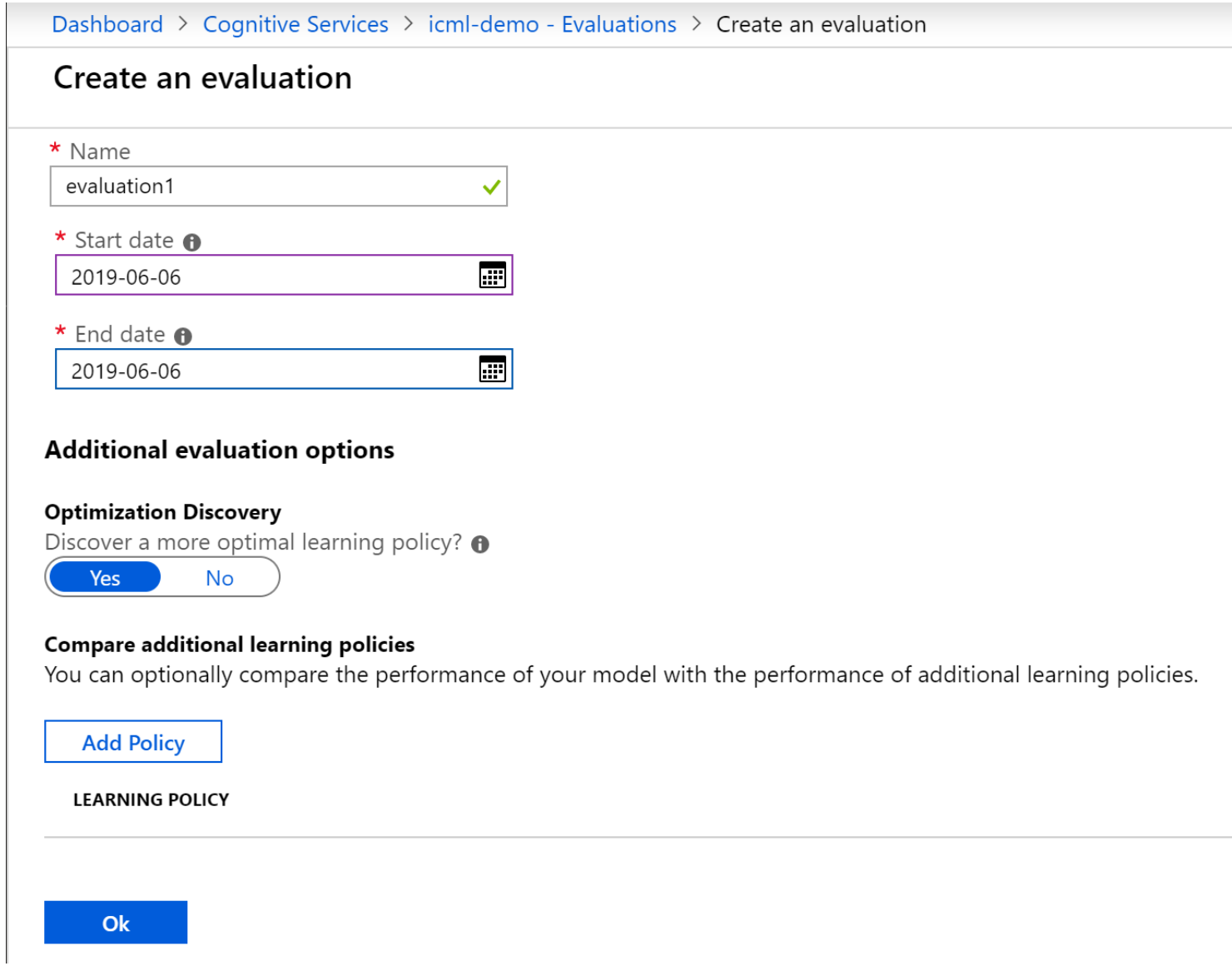


Counterfactual evaluation

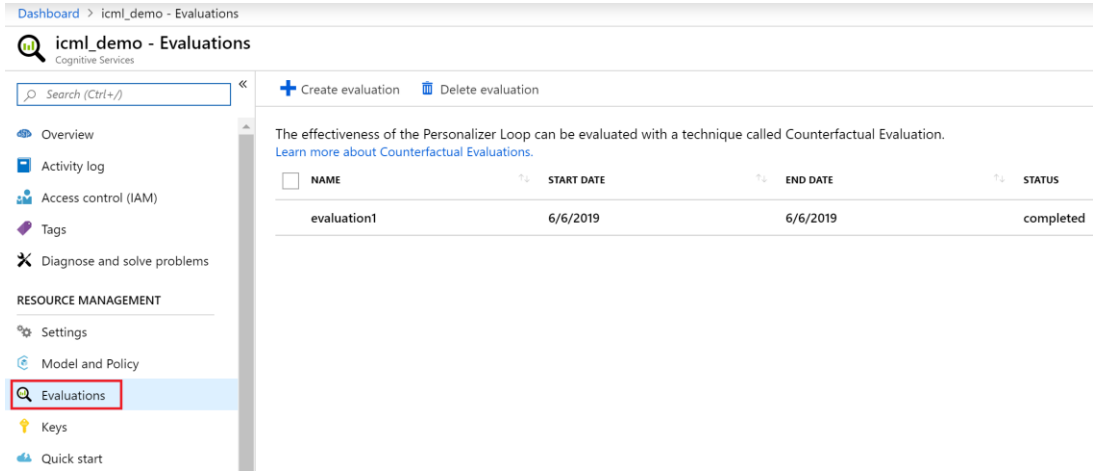
- What is counterfactual evaluation?
  - “What if” analysis
  - Visualize different policies
  - Only use online experimentation data

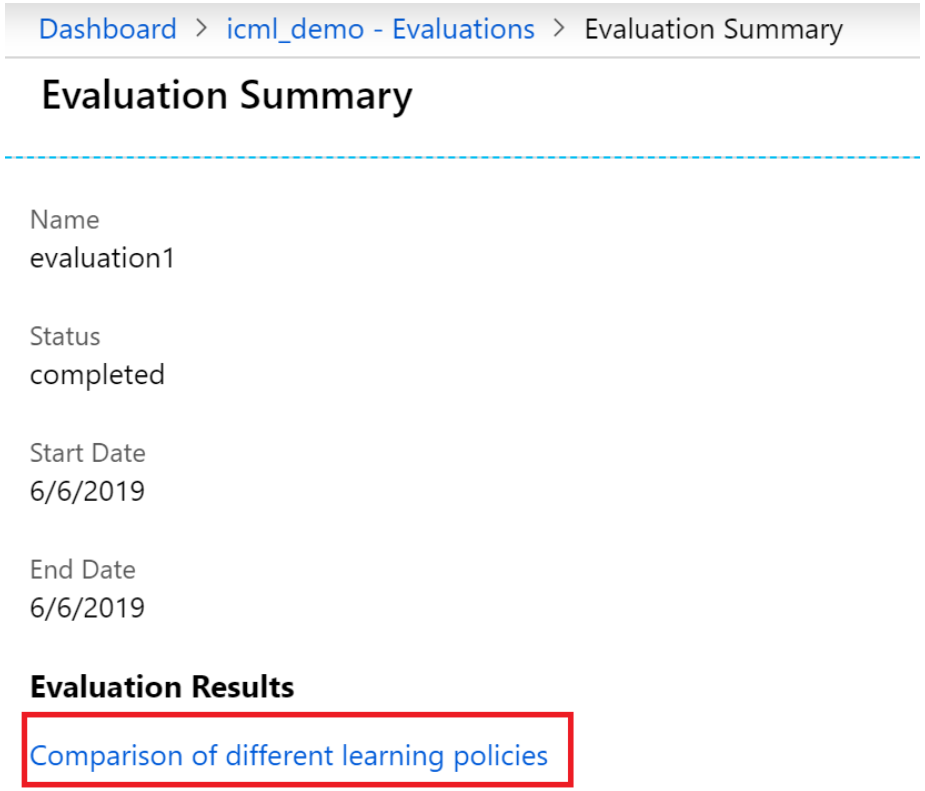
Create counterfactual evaluation




Dashboard > Cognitive Services > icml-demo - Evaluations > Create an evaluation
Create an evaluation
* Name
evaluation1
* Start date
2019-06-06
* End date
2019-06-06
Additional evaluation options
Optimization Discovery
Discover a more optimal learning policy?
Yes
No
Compare additional learning policies
You can optionally compare the performance of your model with the performance of additional learning policies.
Add Policy
LEARNING POLICY
Ok

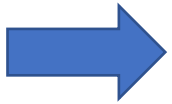
View counterfactual evaluation





Use Case (demo)

	Tom	Anna
Monday	Politics	Sports
Sunday	Music	Politics



	Tom	Anna
Monday	Politics	Sports
Sunday	Sports	Sports

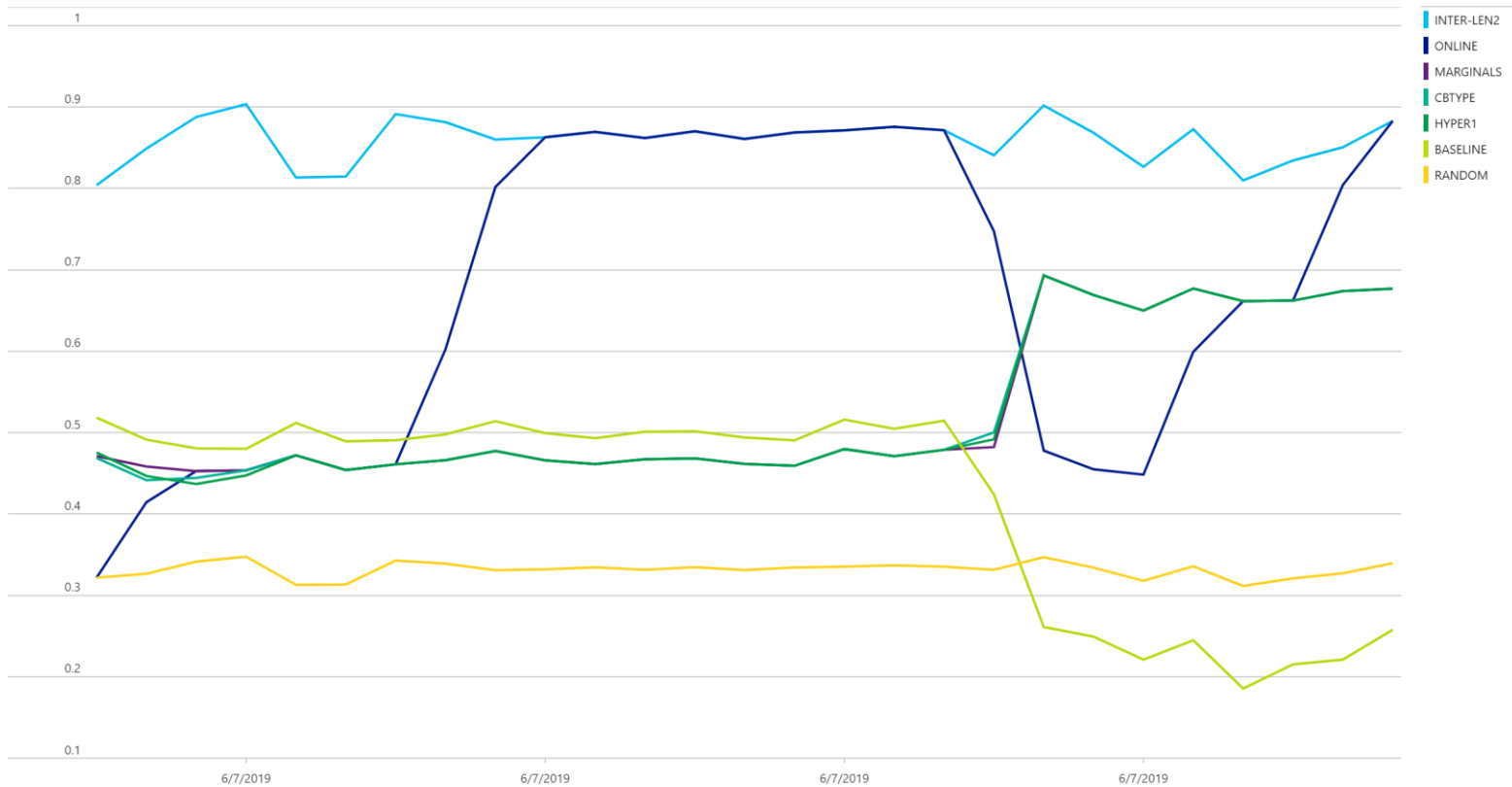
Results

Evaluation Results

Learning Policy Comparison

LEARNING POLICY	SOURCE	AVERAGE REWARD	CONFIDENCE INTERVAL (P95)	DOWNLOAD
Inter-len2	Uploaded	0.86102	0.85150 - 0.87054	Download
Online	Current Learning Policy of this Personalizer Loop	0.67561		
Marginals	Uploaded	0.52820	0.52281 - 0.53359	Download
cbType	Uploaded	0.52790	0.52245 - 0.53334	Download
Hyper1	Uploaded	0.52732	0.52185 - 0.53279	Download
Baseline	First action sent to Rank by the app	0.41478	0.40897 - 0.42060	
Random	Randomly generated ranks	0.33160	0.32793 - 0.33527	

Average Reward vs Time (UTC)



Different way of making decision, how would it perform

- if system choose action at random
- if system always choose first action
- if system is configured with different parameters

Import new policy