# Pushservice

Pushservice is the main push recommendation service at Twitter used to generate recommendation-based notifications for users. It currently powers two functionalities:

- RefreshForPushHandler: This handler determines whether to send a recommendation push to a user based on their ID. It generates the best push recommendation item and coordinates with downstream services to deliver it

- SendHandler: This handler determines and manage whether send the push to users based on the given target user details and the provided push recommendation item

## Overview

### RefreshForPushHandler

RefreshForPushHandler follows these steps:

- Building Target and checking eligibility

- Builds a target user object based on the given user ID

- Performs target-level filterings to determine if the target is eligible for a recommendation push

- Fetch Candidates

- Retrieves a list of potential candidates for the push by querying various candidate sources using the target

- Candidate Hydration

- Hydrates the candidate details with batch calls to different downstream services

- Pre-rank Filtering, also called Light Filtering

- Filters the hydrated candidates with lightweight RPC calls

- Rank

- Perform feature hydration for candidates and target user

- Performs light ranking on candidates

- Performs heavy ranking on candidates

- Take Step, also called Heavy Filtering

- Takes the top-ranked candidates one by one and applies heavy filtering until one candidate passes all filter steps

- Send

- Calls the appropriate downstream service to deliver the eligible candidate as a push and in-app notification to the target user

### SendHandler

SendHandler follows these steps:

- Building Target

- Builds a target user object based on the given user ID

- Candidate Hydration

- Hydrates the candidate details with batch calls to different downstream services

- Feature Hydration

- Perform feature hydration for candidates and target user

- Take Step, also called Heavy Filtering

- Perform filterings and validation checking for the given candidate

- Send

- Calls the appropriate downstream service to deliver the given candidate as a push and/or in-app notification to the target user