

# **Apps Data Management**

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## Part 1: Login

When you first access the website, the login screen appears.

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UT Dallas

### Apps Data Management

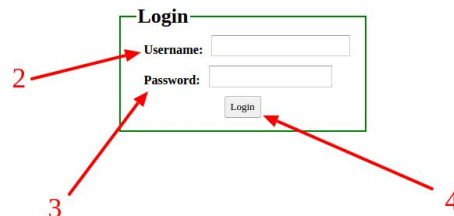


A screenshot of a login form titled "Login". It contains two input fields: "Username:" and "Password:". Below the "Password:" field is a "Login" button.

1. To obtain a username and password, contact the Big Data Analytics and Management Lab at UTD.

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### Apps Data Management



A screenshot of the same login form as above, but with four red arrows pointing to specific elements, numbered 2 through 4. Arrow 2 points to the "Username:" input field. Arrow 3 points to the "Password:" input field. Arrow 4 points to the "Login" button.

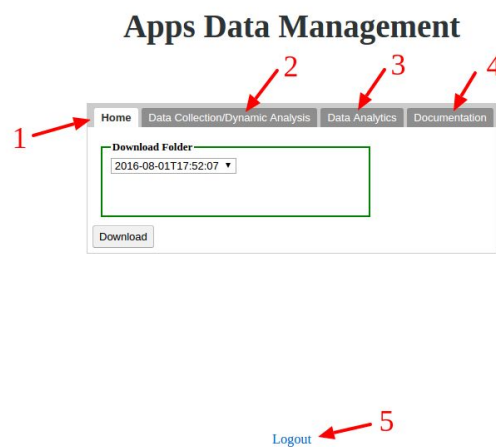
2. Enter the username in the "Username: " field.
3. Enter the password in the "Password: " field.
4. Click the "Login" button or hit the Enter key on your keyboard.

## Part 2: Navigating the Main Page

Once logged in, the main page loads. All functions can be accessed from this page.

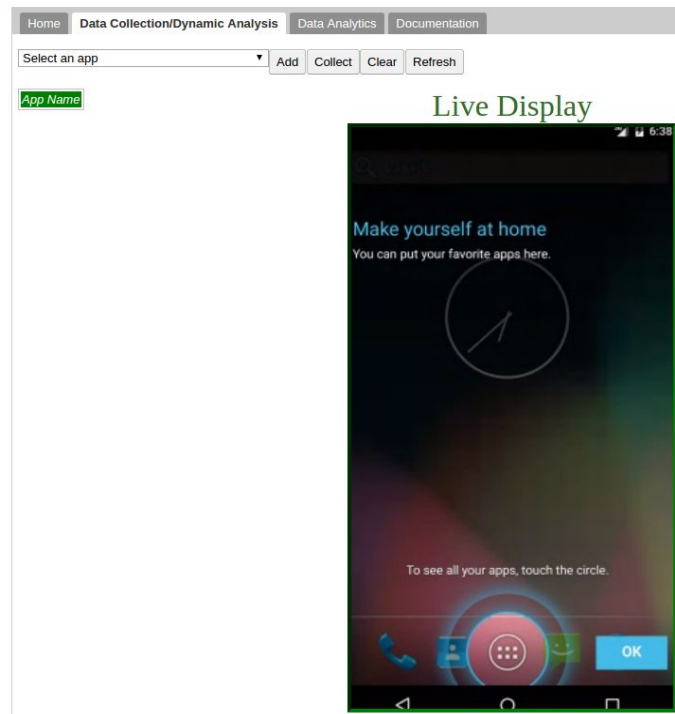
1. The “**Home**” tab is open when the page loads. It hosts the “*Download*” button which will be used later, after tests have been run. Ignore this for now.

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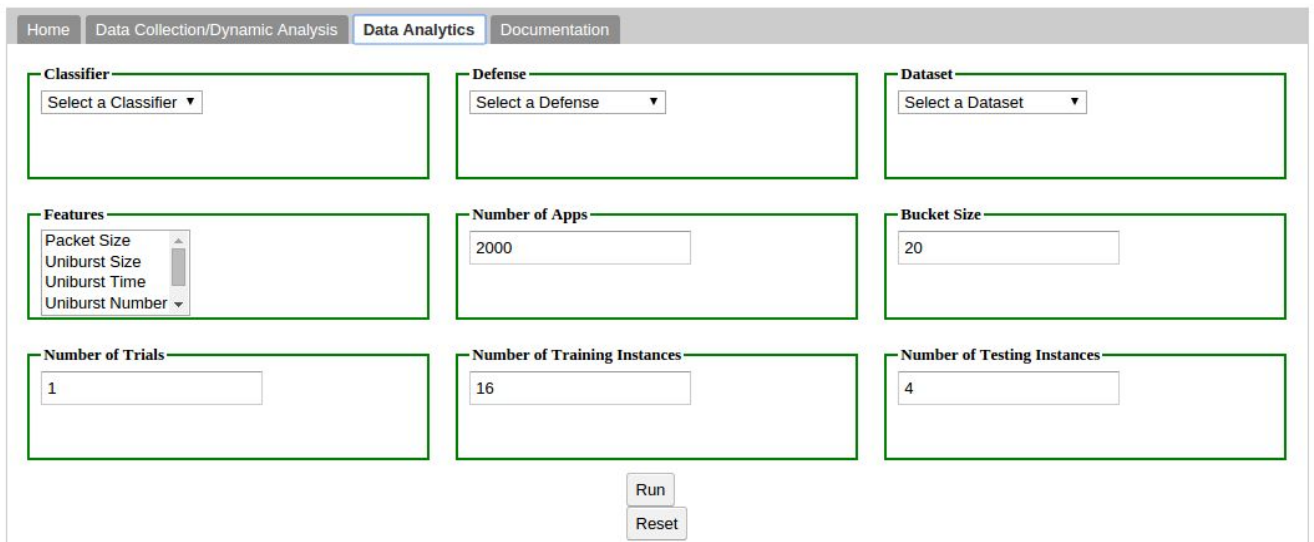


This page is explained in further detail below. The numbers on the diagram correspond to the numbered explanations.

2. The “**Data Collection/Dynamic Analysis**” tab is where you can run tests to determine what websites an app accesses when it runs.



3. The “**Data Analytics**” tab is where you can run app fingerprinting tests by setting specific parameters.



Classifier	Defense	Dataset
Select a Classifier	Select a Defense	Select a Dataset

Features	Number of Apps	Bucket Size
<input type="checkbox"/> Packet Size <input type="checkbox"/> Uniburst Size <input type="checkbox"/> Uniburst Time <input type="checkbox"/> Uniburst Number	2000	20

Number of Trials	Number of Training Instances	Number of Testing Instances
1	16	4

Run  
Reset

4. The “**Documentation**” tab contains helpful links. These include relevant papers, website documentation, etc.

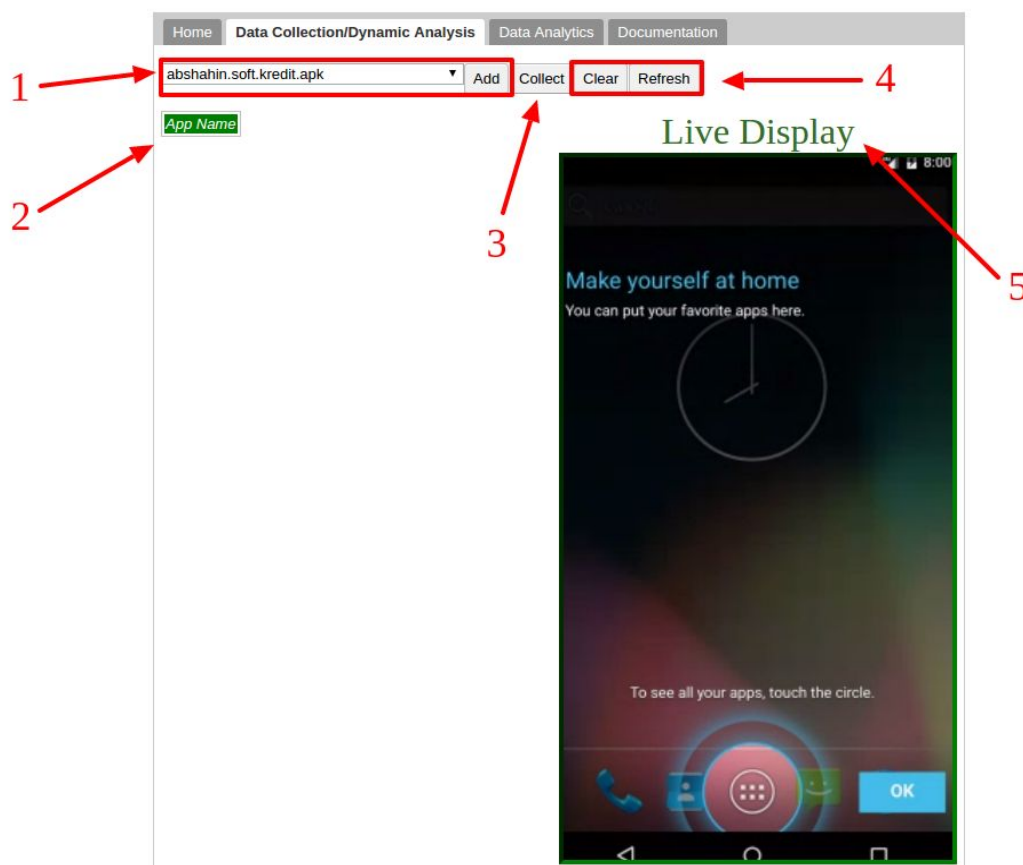


5. The “**Logout**” link at the bottom of the page allows you to logout and return to the login screen. It is available with any tab selected.

### Part 3: Data Collection/Dynamic Analysis

This tab hosts the mechanism to run app specific tests.

When apps run, they access a number of remote services in the background that a user is not aware of. These test determine which services are being accessed.



1. The drop down is used to select an app. To test an app, select it in the drop down box and click the “**Add**” button next to it. The apps selected will be tested to determine what remote services they access.

2. Once an app has been added, its name will appear in the table under the green “**App Name**” heading.

App Name
abshahin.soft.valyuta.apk
ackmaniac.currencyfxrates.apk
acore.taxauscal.apk

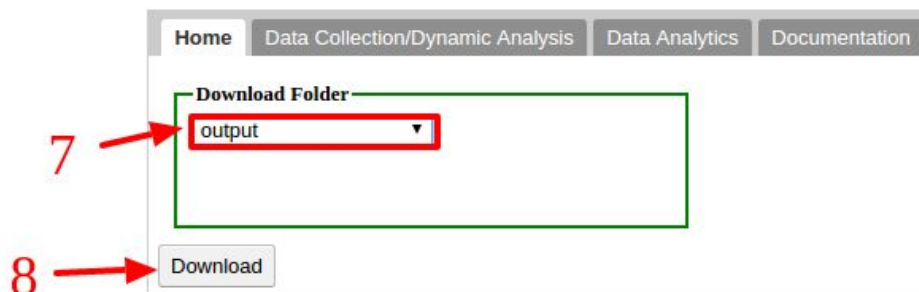
3. When you are done adding apps to test, click the “**Collect**” button. The tests will start running. A message will appear letting you that the test have begun.

App Name
abshahin.soft.valyuta.apk
ackmaniac.currencyfxrates.apk
acore.taxauscal.apk



The request is being processed. Please wait.

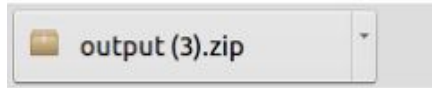
4. If you would like to clear the list of apps you want to test, hit the “**Clear**” button. If you want to refresh the tests, hit the “**Refresh**” button.
5. The “Live Display” screen shows the process that occurs when the tests are running. Ex: apps opening, closing, etc.
6. When the tests are done running, a pop up window will appear.
7. To obtain the results, go to the “**Home**” tab.



8. In the drop down box in the “**Download Folder**” box, select “**output**”.



9. Click the “**Download**” button. A link will appear at the bottom left of your screen like the image below.



10. Click the link and follow the file path  
*/home/dml\_u td/tomcat/webapps/appfin/appsData/output/*  
and the results will be there. Copy and paste these files before running other tests or they will be overwritten.

## Part 4: Data Analytics

This tab hosts the mechanism to run feature specific app tests.

When a user opens an app, it accesses remote servers. Sometimes, these servers cannot be readily identified and certain features they have must be extracted and used to identify them.

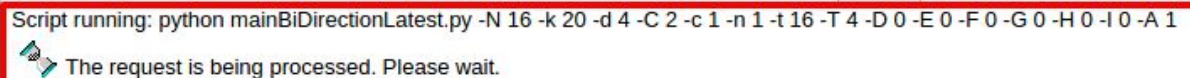
The screenshot displays the 'Data Analytics' tab in a web application. The interface includes a navigation bar with 'Home', 'Data Collection/Dynamic Analysis', 'Data Analytics' (selected), and 'Documentation'. Below the navigation bar, there are nine configuration fields arranged in a 3x3 grid, each with a red number indicating its function:


- Classifier** (1): A dropdown menu labeled 'Select a Classifier'.
- Defense** (2): A dropdown menu labeled 'Select a Defense'.
- Dataset** (3): A dropdown menu labeled 'Select a Dataset'.
- Features** (4): A multi-select bar with options: Packet Size, Uniburst Size, Uniburst Time, and Uniburst Number.
- Number of Apps** (5): A text input field containing '2000'.
- Bucket Size** (6): A text input field containing '20'.
- Number of Trials** (7): A text input field containing '1'.
- Number of Training Instances** (8): A text input field containing '16'.
- Number of Testing Instances** (9): A text input field containing '4'.

At the bottom center, there are two buttons: 'Run' and 'Reset'. Red arrows point to these buttons with the numbers 11 and 10 respectively.

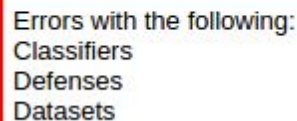
1. Use the drop down menu to select a **Classifier** under which the tests will be run.
2. Use the drop down menu to select a **Defense**, if any, that will be applied to the apps that are being being fingerprinted.
3. Use the dropdown menu to select a **Dataset** from which websites will be selected for the tests.
4. Use the multi-select **Features** bar to select the features, if any, you want the tests to take into account. To select multiple features, press and hold the ctrl key as you select features. The features you select will be the ones used to fingerprint the websites

5. Enter the **Number of Apps** you want the test to use.
6. Enter the **Bucket Size** you want the test to use.
7. Enter the **Number of Trials** you want to tests to have.
8. Enter the **Number of Testing Instances** you want to tests to have.
9. Enter the **Number of Training Instances** you want to tests to have.
10. If you want to reset the fields, click the “**Reset**” button.
11. When you are done filling out all the fields, click the “**Collect**” button.
12. If all the fields were correctly filled in, a message will appear letting you know that he tests have begun, as shown in the image below.



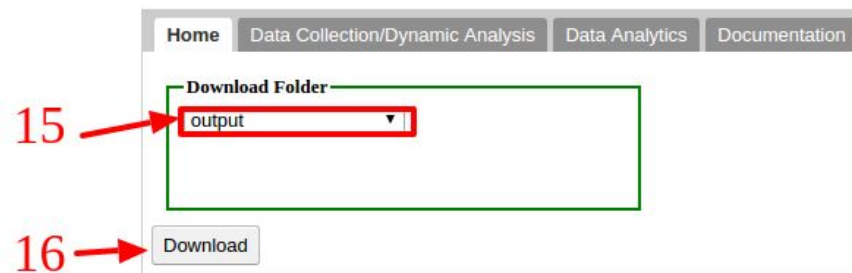
Script running: python mainBiDirectionLatest.py -N 16 -k 20 -d 4 -C 2 -c 1 -n 1 -t 16 -T 4 -D 0 -E 0 -F 0 -G 0 -H 0 -I 0 -A 1  
 The request is being processed. Please wait.

If they were not correctly filled in, a message will appear letting you know which ones to correct, as shown in the image below. Correct them, and hit “**Collect**” again.



Errors with the following:  
 Classifiers  
 Defenses  
 Datasets

13. When the tests are done running, a pop up window will appear.
14. To obtain the results, go to the “**Home**” tab.



- 15.** In the drop down box in the “**Download Folder**” box, select “**output**”.
- 16.** Click the “**Download**” button. A link will appear at the bottom left of your screen like the image below.



- 17.** Click the link and follow the file path  
`/home/dml_u td/tomcat/webapps/appfin/appsData/output/`  
and the results will be there. Copy and paste these files before running other tests or they will be overwritten.

## Part 5: Documentation

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This tab hosts useful links.



There are links to useful papers relative to app fingerprinting, web documentation etc.