



POST a CSV file using REST API in Azure Synapse

Nanda Nainadurai

Introduction



Nanda Nainadurai

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I help Fortune 500 companies to build their Data & AI strategy

Hobby project – <https://chatwithaurora.com>

Blog – <https://nanda-nainadurai.com>

Agenda

- Scenario & Challenges
- Demo
- Other Considerations



Example Scenario

Employee ID	First Name	Last Name	Date of Birth	Position	Department	Date of Joining	Email	Phone Number	Salary
E1001	John	Doe	15/01/1990	Software Developer	IT	01/06/2015	john.doe@example.com	123-456-7890	60000
E1002	Jane	Smith	20/05/1985	HR Manager	Human Resources	10/08/2014	jane.smith@example.com	123-456-7891	65000
E103	Alice	Brown	20/07/1998	Data Analyst	Analytics	23/11/2019	alice.brown@example.com	123-456-783	73911
E104	Bob	White	20/05/1998	Product Manager	Product	31/08/2020	bob.white@example.com	123-456-784	59405
E105	Charlie	Green	28/08/1997	Design Lead	Design	26/10/2020	charlie.green@example.com	123-456-785	49108
E106	David	Black	05/07/1998	QA Engineer	Quality	27/03/2021	david.black@example.com	123-456-786	72702
E107	Eve	Grey	24/06/2000	Network Administrator	IT	13/07/2019	eve.grey@example.com	123-456-787	52307
E108	Frank	Blue	11/04/1996	Sales Executive	Sales	22/07/2021	frank.blue@example.com	123-456-788	72986
E109	Grace	Yellow	12/02/1985	Research Scientist	R&D	18/04/2018	grace.yellow@example.com	123-456-789	70535
E1010	Hannah	Pink	01/03/1989	Marketing Specialist	Marketing	20/02/2020	hannah.pink@example.com	123-456-7810	75673

A sample csv file

via REST API



A web server

ADF or Synapse Pipeline

Challenges

- Copy Activity with REST API as the destination does not work with the REST endpoint expecting a file
- Sending an attachment using Web Activity is not straightforward in ADF/Synapse
- Official Microsoft documentation and examples are ambiguous

Web service endpoint code

C#

Copy

```
[HttpPost]
public HttpResponseMessage Execute([FromBody] object payload)
```

Raw Content

☒ Format JSON

☒ Word-Wrap

Copy

```
[
  {
    "Prop_0": "Employee_ID,First_Name,Last_Name,Date_of_Birth,Position,De
rtment,Date_of_Joining,Email,Phone_Number,Salary\r\nE1001,John,Doe,1990-01-
15,Software Developer,IT,2015-06-01,john.doe@example.com,123-456-7890,60000
\r\nE1002,Jane,Smith,1985-05-20,HR Manager,Human Resources,2014-08-10,jane.
smith@example.com,123-456-7891,65000\r\nE1003,Alice,Brown,1998-07-20,Data An
alyst,Analytics,2019-11-23,alice.brown@example.com,123-456-783,73911\r\nE10
4,Bob,White,1998-05-20,Product Manager,Product,2020-08-31,bob.white@exampl
e.com,123-456-784,59405\r\nE105,Charlie,Green,1997-08-28,Design Lead,Desig
n,2020-10-26,charlie.green@example.com,123-456-785,49108\r\nE106,David,Blac
k,1998-07-05,QA Engineer,Quality,2021-03-27,david.black@example.com,123-456
-786,72702\r\nE107,Eve,Grey,2000-06-24,Network Administrator,IT,2019-07-13,
eve.grey@example.com,123-456-787,52307\r\nE108,Frank,Blue,1996-04-11,Sales
Executive,Sales,2021-07-22,frank.blue@example.com,123-456-788,72986\r\nE10
9,Grace,Yellow,1985-02-12,Research Scientist,R&D,2018-04-18,grace.yellow@ex
ample.com,123-456-789,70535\r\nE1010,Hannah,Pink,1989-03-01,Marketing Speci
alist,Marketing,2020-02-20,hannah.pink@example.com,123-456-7810,75673\r\n"
  }
]
```

Source: <https://learn.microsoft.com/en-us/azure/data-factory/control-flow-web-activity#web-service-endpoint-code>

Construct a HTTP MIME approach

- MIME – Multipurpose Internet Mail Extensions
- The form data is sent as a series of parts

Example

```
POST /upload HTTP/1.1
Host: example.com
Content-Type: multipart/form-data; boundary=49kg16ljr9lnwf92ro15gxegyjm5tpo

--49kg16ljr9lnwf92ro15gxegyjm5tpo
Content-Disposition: form-data; name="text"

hello
--49kg16ljr9lnwf92ro15gxegyjm5tpo
Content-Disposition: form-data; name="file"; filename="sample-file.csv"
Content-Type: text/csv

... contents of sample-file.csv...
--49kg16ljr9lnwf92ro15gxegyjm5tpo--
```

Construct a HTTP MIME approach

- Content-Type header with boundary

Example

POST /upload HTTP/1.1

Host: example.com

Content-Type: multipart/form-data; boundary=49kg16ljr9lnwf92ro15gxejytm5tpo

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Content-Disposition: form-data; name="text"

hello

--49kg16ljr9lnwf92ro15gxejytm5tpo

Content-Disposition: form-data; name="file"; filename="sample-file.csv"

Content-Type: text/csv

... contents of sample-file.csv...

--49kg16ljr9lnwf92ro15gxejytm5tpo--

Construct a HTTP MIME approach

- Content-Type header with boundary
- Different parts of the form

Example

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Content-Disposition: form-data; name="text"

hello

--49kg16ljr9lnwf92ro15gxejytm5tpo

Content-Disposition: form-data; name="file"; filename="sample-file.csv"

Content-Type: text/csv

... contents of sample-file.csv...

--49kg16ljr9lnwf92ro15gxejytm5tpo--

Construct a HTTP MIME approach

- Content-Type header with boundary
- Different parts of the form
- End of the parts

Example

```
POST /upload HTTP/1.1
Host: example.com
Content-Type: multipart/form-data; boundary=49kg16ljr9lnwf92ro15gxejytm5tpo
```

```
--49kg16ljr9lnwf92ro15gxejytm5tpo
Content-Disposition: form-data; name="text"
```

```
hello
--49kg16ljr9lnwf92ro15gxejytm5tpo
Content-Disposition: form-data; name="file"; filename="sample-file.csv"
Content-Type: text/csv
```

... contents of sample-file.csv...

```
--49kg16ljr9lnwf92ro15gxejytm5tpo--
```



DEMO

Other Considerations

- This approach works for most web servers, but some web servers behave weirdly on how new lines are formed in the body
- Uploading larger files is with the assumption that the ADF variable can hold the entire content
- Other file types can be uploaded using a similar approach



Thank you!