C4 Model in AsciiDoctor

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Purpose

The purpose of this document is to show how AsciiDoc can be used to generate C4 diagrams from PlantUML, both as html and pdf. The following example is based on the System Context Diagram example at the C4 Model home page. Consequently, this C4 diagram:

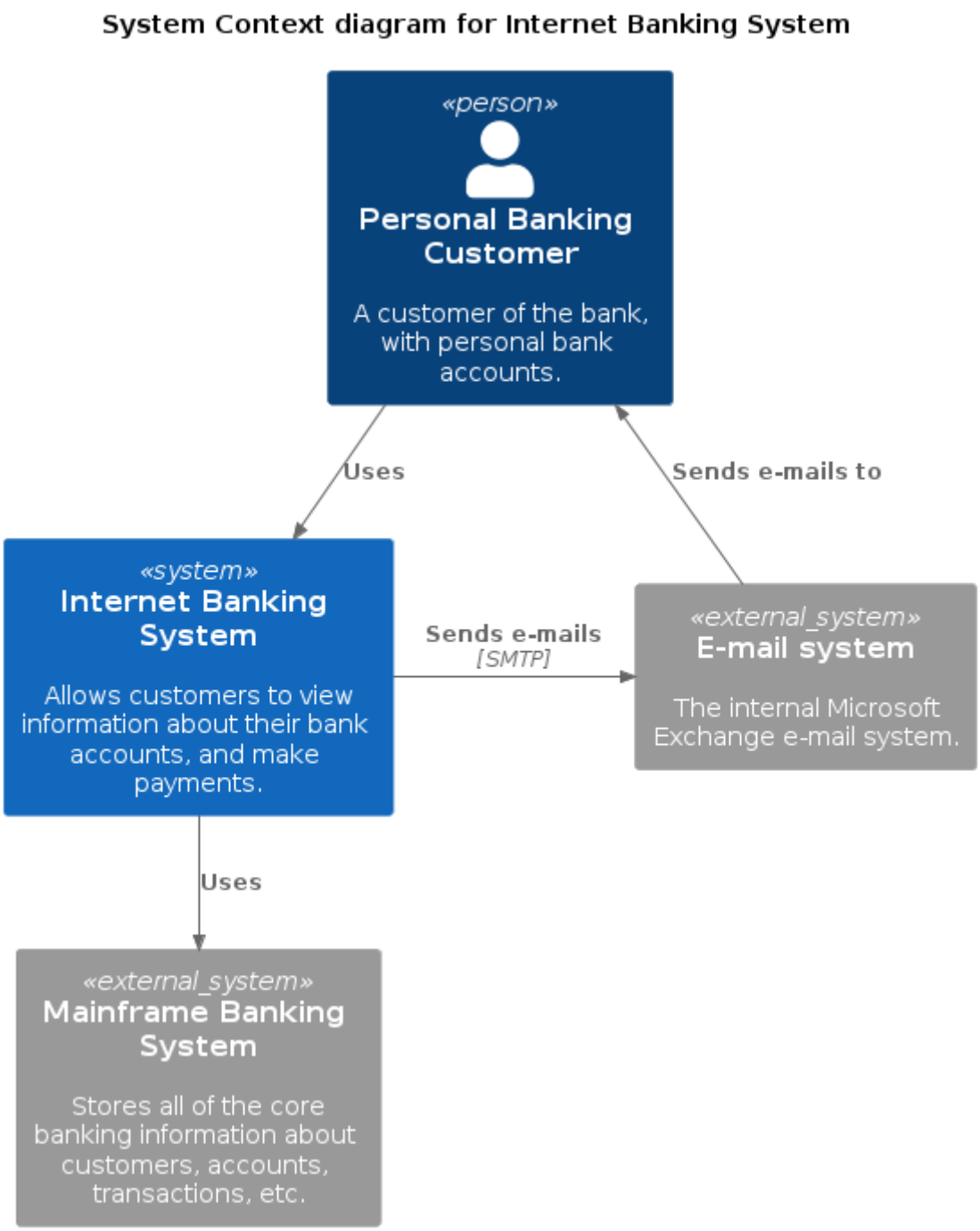

Figure 1. C4 Example

is generated from this PlantUML file:

plantuml source

```
@startuml
!include <C4/C4_Container>
title System Context diagram for Internet Banking System

Person(customer, "Personal Banking Customer", "A customer of the bank, with personal
bank accounts.")
System(banking_system, "Internet Banking System", "Allows customers to view
information about their bank accounts, and make payments.")

System_Ext(mail_system, "E-mail system", "The internal Microsoft Exchange e-mail
system.")
System_Ext(mainframe, "Mainframe Banking System", "Stores all of the core banking
information about customers, accounts, transactions, etc.")

Rel(customer, banking_system, "Uses")
Rel_Back(customer, mail_system, "Sends e-mails to")

Rel_Neighbor(banking_system, mail_system, "Sends e-mails", "SMTP")
Rel(banking_system, mainframe, "Uses")
@enduml
```

Build Local

Prerequisites

- You need to have Docker installed and running.
- Then you need to download the `asciidoctor/docker-asciidoctor` image:

```
docker pull asciidoctor/docker-asciidoctor
```

Render html

This project can be rendered as html using this bash command:

bash

```
docker run --rm \
  -v "$(pwd)":/documents/ \
  asciidoctor/docker-asciidoctor \
  asciidoctor \
  --require asciidoctor-diagram \
  --destination-dir target \
  docs/index.adoc
```

Explanation

Line by line explanation of the bash commands above:

1. `docker run` starts a Docker container. The `--rm` option removes the container after the command has completed.
2. `-v` mount a volume to the container, i.e. the current directory (as returned by `$(pwd)` command) is mounted to the `/documents/` directory in the running Docker. container. The `/documents/` directory is the default working director of the `asciidoctor/docker-asciidoctor` Docker image.
3. `asciidoctor/docker-asciidoctor` the name of the Docker image that is used to create the Docker container.
4. `asciidoctor` command to execute asciidoctor command to render html.
5. `--require asciidoctor-diagram` require the asciidoctor-diagram to be included (necessary for PlantUML rendering).
    - `--destination-dir target` the destination directory of the output files in the Docker container (and in the current directory since it is mounted).
    - `docs/index.adoc` the name of the AsciiDoc source file to generate the file from. Only the root document needs to be included since the other files are linked from it.

Render pdf

Alternatively, this project can be rendered as a pdf:

generate pdf

```
docker run --rm \
  -v "$(pwd)":/documents/ \
  asciidoctor/docker-asciidoctor \
  asciidoctor-pdf \
  --require asciidoctor-diagram \
  --destination-dir target \
  docs/index.adoc
```

Explanation

As can be seen, rendering a pdf is very similar to rendering html. The only difference is the asciidoctor command on line `4` that has been changed to `asciidoctor-pdf`.

GitHub Actions

Build using GitHub Actions and publish to GitHub Pages:

```
name: Build and deploy

on:
  push:
    branches:
      - main

jobs:
  build:
    runs-on: ubuntu-20.04

    container:
      image: asciidoctor/docker-asciidoctor:1.18
      volumes:
        # /documents/ is the default working directory of the docker-asciidoctor
container
        - ${{github.workspace}}:/documents/

    env:
      BUILD_DIR: target
      DEPLOY_DIR: _site

    steps:
      - name: Checkout 
        uses: actions/checkout@v3

      - name: Generate html 
        run: asciidoctor --require asciidoctor-diagram docs/index.adoc --destination
-dir "${BUILD_DIR}"

      - name: Generate pdf 
        run: asciidoctor-pdf --require asciidoctor-diagram docs/index.adoc
--destination-dir "${BUILD_DIR}"

      - name: Copy artifacts 
        run: apk add rsync && rsync -av --exclude=".*" "${BUILD_DIR}/" "${DEPLOY_DIR}"

      - name: Deploy 
        uses: JamesIves/github-pages-deploy-action@v4.3.3
        with:
          branch: public
          folder: ${{env.DEPLOY_DIR}}
```

References

Table 1. references

Link	Comment
This project at GitHub	https://github.com/matsev/c4-model-adoc
AsciiDoctor Docker at GitHub	https://github.com/asciidoctor/docker-asciidoctor#readme
PlantUML	https://plantuml.com
C4 PlantUml	https://plantuml.com/stdlib#062f75176513a666
GitHub Pages	https://pages.github.com