Appendix A.
Functional Requirements for DocProc
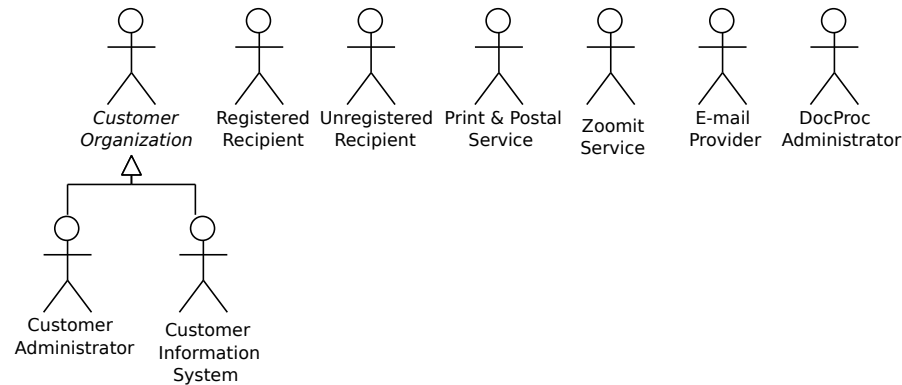
Contents

1 Overview

1.1 Actors

Figure 1: Overview of the actors in the use cases

An overview of the actors in the use cases is given in Figure 1. These actors are:

- Customer Administrator: An employee of the customer organization that administers the System for this customer organization, such as an employee responsible for invoicing. A Customer Administrator manually employs the System through human interfaces such as the website. Notice that a customer organization can have multiple Customer Administrators.

- Customer Information System: The IT system of one of the customer organizations of DocProc. A Customer Information System employs the System through machine interfaces such as a SOAP interface, a REST interface, FTP, etc.

- Customer Organization: An abstract actor that represents the customer organization from the point of view of the System. Concrete subactors are the Customer Administrator and the Customer Information System.

- DocProc Administrator: An human administrator of DocProc.

- E-mail Provider: An organization that is responsible for delivering e-mail.

- Print & Postal Service: A service employed by DocProc to print and deliver documents by postal mail.

- Registered Recipient: A human recipient of documents that has registered himself or herself with the System and therefore has a personal document store.

- Unregistered Recipient: A human recipient of documents that has not registered himself or herself with the System for having a personal document store.

- Zoomit Service: A service employed by DocProc to deliver invoices electronically.

1.2 Use case diagram

An overview of the use cases is given in Figure 2.
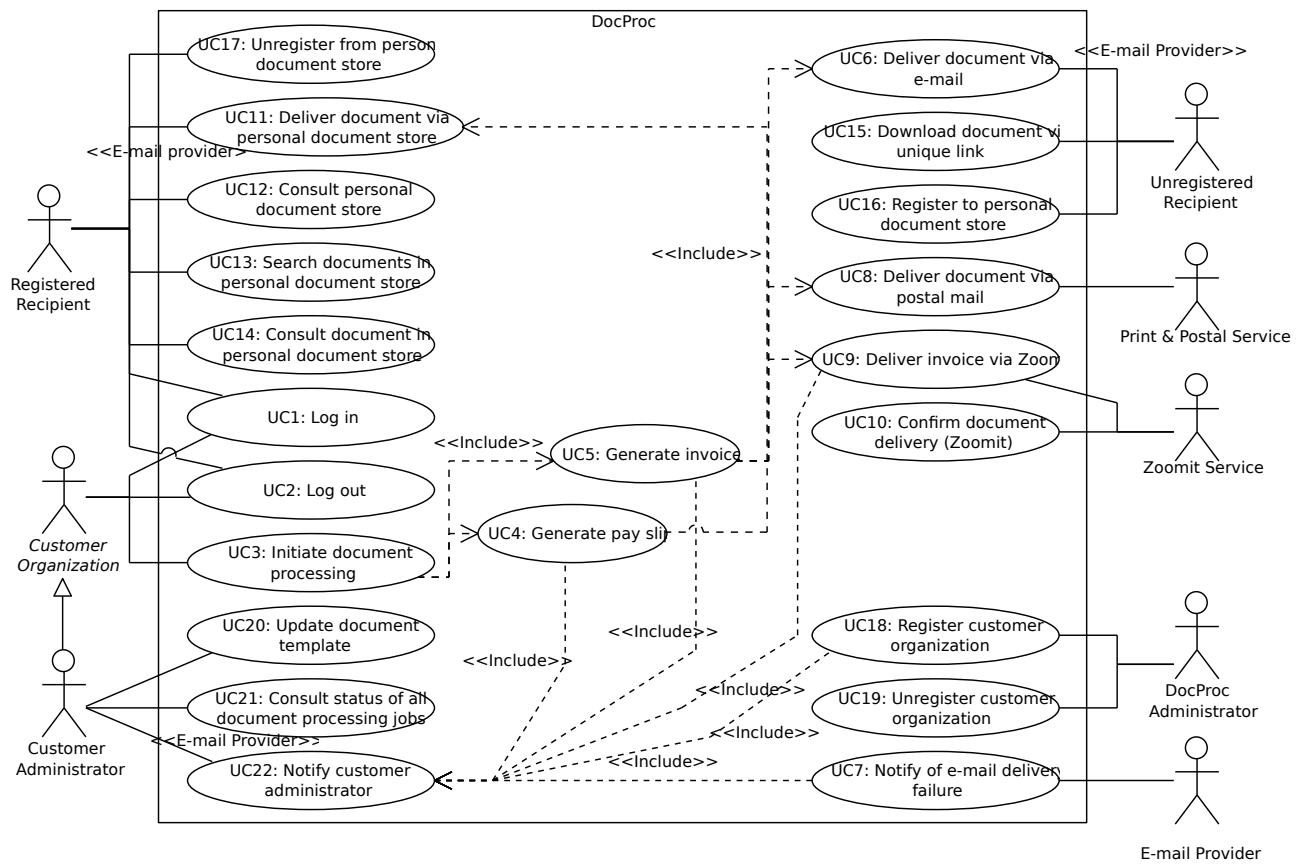
Figure 2: Overview of the use cases.

2 Textual use cases

2.1 *UC1*: Log in

- **Summary:** A Customer Organization or Registered Recipient wants to use the application and logs in by providing authentication credentials.

- **Primary actor**: Customer Organization or Registered Recipient

- **Secondary actors:**

- **Interested parties:**

  - DocProc: wants to protect the data of its customer organizations and recipients by means of authentication.
  - Customer Organizations: want to have sole access to their data.
  - Recipients: want to have sole access to their documents.

- **Preconditions:**

  - The Primary Actor is registered (cf. *UC16*: Register to personal document store or *UC18*: Register customer organization)

- **Postconditions:**

  - The Primary Actor is logged in and can use the System.

- **Main scenario**:

  1. The Primary Actor indicates he wants to log in to the System and provides authentication credentials, e.g., username and password.
  2. The System verifies the provided authentication credentials, confirms successful login to the Primary Actor and logs him or her in.

- **Alternative scenarios:**

  2a. If the provided credentials are incorrect, the system notifies the Primary Actor of this. Restart from step 1.

- **Remarks:**

  - This use case abstracts from the method of authentication that is used. For example, authentication can be done using techniques such as username-password, security tokens, IP-based, using cryptographic keys etc. Amongst others, the employed method depends on the type of Primary Actor.

2.2 *UC2*: Log out

- **Summary:** A logged in Customer Organization or Registered Recipient signs out of the System.

- **Primary actor**: Customer Organization or Registered Recipient

- **Secondary actors:**

- **Interested parties:**

  - DocProc: wants to protect the data of its customer organizations and recipients by means of authentication.
  - Customer Organizations: want to have sole access to their data.

- Recipients: want to have sole access to their documents.

- **Preconditions:**

  - The Primary Actor is logged in (cf. *UC1*: Log in).

- **Postconditions:**

  - The Primary Actor is logged out.

- **Main scenario:**

  1. The Primary Actor indicates he wants to log out of the System.
  2. The System logs the Primary Actor out and indicates success to the Primary Actor.

- **Alternative scenarios:**

- **Remarks:**

  - This use case abstracts from the method of authentication that is used (cf. *UC1*: Log in).

2.3 *UC3*: Initiate document processing

- **Summary:** A Customer Organization initiates a batch of document processing jobs by delivering the raw data from which the documents should be generated and delivered.

- **Primary actor**: Customer Organization

- **Secondary actors:**

- **Interested parties:**

  - DocProc: wants to process as much documents as possible.
  - Customer Organizations: want to generate and deliver their documents as cheaply and easily as possible.
  - DocProc Administrators: want document processing to perform with as little human interaction as possible.
  - Unregistered Recipients and Registered Recipients: want to receive their documents correctly and as early as possible.

- **Preconditions:**

  - The Customer Organization is logged in (cf. *UC1*: Log in).

- **Postconditions:**

  - The System has validated the raw data (e.g., correctly formatted XML).
  - The System has validated the entries in the raw data (e.g., consistent postal codes and addresses).
  - The System has started new document processing jobs, each marked as initiated.

- **Main scenario:**

  1. The Customer Organization indicates that he/she/it wants to initiate a batch of document processing jobs.
  2. The Customer Organization indicates the type of the documents to be generated (i.e., payslip or invoice).
  3. The System validates whether the contract of this customer organization allows generating the provided type of documents (as configured in *UC18*: Register customer organization).

4. If this non-recurrent batch should be handled with a different priority than the default priority of this customer organization, the Customer Organization indicates this priority to the System.

5. The Customer Organization provides the raw data to the System in an appropriate format (e.g., an Excel file, a zipped XML file, a CSV file). For each document to be generated, this raw data contains the data necessary for instantiating the customer-specific template (e.g., the amount to be paid for an invoice) and at least the following meta-data:

    (a) An identifier of the document that is at least unique within the set of documents generated by the Customer Organization.
    (b) The channel by which the document should be sent (i.e., e-mail, postal mail or Zoomit).
    (c) The first name and last name of the addressee.
    (d) The address of the addressee, i.e., the address to which the document should be sent. This address depends on the channel by which the document should be sent, e.g., an e-mail address for e-mail.

6. The System validates the received raw data (e.g., checking whether the content of the received Excel file can be read or whether a received XML file is correctly formatted).

7. If the Customer Organization indicated that this raw data corresponds to a recurring batch of document processing jobs, the System validates that the raw data does not contain more than the maximally allowed number of documents to be generated.

8. The System validates the individual entries in the raw data (e.g., whether an e-mail address is present for every document that should be sent using e-mail or whether the city and the postal code in the postal addresses are consistent).

9. The System indicates to the Customer Organization that the raw data is received correctly.

10. The System starts a new document processing job marked as initiated (**include:** *UC4*: Generate payslip, or **include:** *UC5*: Generate invoice).

- **Alternative scenarios:**

    4a. If this raw data corresponds to a recurring batch of document processing jobs, the Customer Organization instead indicates this to the System and indicates to which of its recurring batches it corresponds. The use case continues from step 4.

    7a. If the System detected an error in the raw data package (e.g., an invalid Excel file or incorrectly formatted XML), the System indicates the error to the Customer Organization. The use case ends.

    8a. If the System detected that the raw data contains more than the maximally allowed number of documents for this batch of recurring document processing jobs, the System indicates this error to the Customer Organization. The use case ends.

    9a. If the System detected errors in one or more entries in the raw data, the System indicates to the Customer Organization that the raw data is received correctly, together with the list of incorrect documents in the raw data.

    10a. If the System detected errors in one or more entries in the raw data, the System starts a new document processing job marked as initiated for every document of which the raw data was correctly received (**include:** *UC4*: Generate payslip, or **include:** *UC5*: Generate invoice).

- **Remarks:**

2.4 *UC4*: Generate payslip

- **Summary:** The System generates a payslip from a raw data entry.

- **Primary actor**: System (this use case is internal to the System)

- **Secondary actors:**

- **Interested parties:**

- DocProc Administrators: want document processing to perform with as little human interaction as possible.
- Unregistered Recipients and Registered Recipients: want to receive their documents correctly and as early as possible.
- Customer organizations: want their documents to be generated correctly and on time, want to have a clear and detailed overview of the status of their document processing jobs and want to be notified when any error occurs.

- **Preconditions:**

  - A Customer has initiated the processing of one or more payslips by correctly providing the respective raw data (cf. *UC3*: Initiate document processing).
  - A DocProc Administrator or Customer Administrator has configured the template and other data required for generating payslips for this customer organization (cf. *UC18*: Register customer organization and *UC20*: Update document template).

- **Postconditions:**

  - The payslip has been generated.
  - The System has marked this document processing job as generated.
  - If this payslip is not part of a recurring batch of document processing jobs, the System has billed the customer organization for generating it.

- **Main scenario:**

  1. The System executes the following steps to generate a payslip from a raw data entry:
     (a) The System fetches the template, including the customer organization data such as company name, to be used for payslips for this customer organization (as configured in *UC18*: Register customer organization or *UC20*: Update document template).
     (b) The System validates that the raw data entry and the data fetched in step 1a are sufficient to completely fill in the fetched template.
     (c) The System fills in the fetched template with the fetched customer organization data and the raw data entry.
     (d) The System generates a PDF from the filled in template.
  2. The System stores the generated PDF and all relevant meta-data (e.g., the date and time when the job was started, the date and time when the job ended, the destination to which it should be sent, the channel by which the document should be sent, etc).
  3. If this payslip is not part of a recurring batch of document processing jobs, the System adds the cost of generating the generated payslip to the bill of the customer organization.
  4. The System marks this job as generated.
  5. The System delivers the generated payslip using the appropriate channel (**include:** *UC6*: Deliver document via e-mail, or **include:** *UC8*: Deliver document via postal mail, or **include:** *UC11*: Deliver document via personal document store).

- **Alternative scenarios:**

  1da. If the System detected that it does not have all of the data required to fill in the template, the System notifies the appropriate Customer Administrator of the corresponding customer organization and marks this job as failed (**include:** *UC22*: Notify customer administrator). The use case ends.

- **Remarks:**

2.5 *UC5*: Generate invoice

- **Summary:** The System generates an invoice from a raw data entry.

- **Primary actor**: System (this use case is internal to the System)

- **Secondary actors:**

- **Interested parties:**

  - DocProc Administrators: want document processing to perform with as little human interaction as possible.
  - Unregistered Recipients and Registered Recipients: want to receive their documents correctly and as early as possible.
  - Customer organizations: want their documents to be generated correctly and on time, want to have a clear and detailed overview of the status of their document processing jobs and want to be notified when any error occurs.

- **Preconditions:**

  - A Customer Administrator or Customer System has initiated the processing of one or more invoices by correctly delivering the respective raw data (cf. *UC3*: Initiate document processing).
  - A DocProc Administrator or Customer Administrator has configured the template and other data required for generating invoices for this customer organization (cf. *UC18*: Register customer organization and *UC20*: Update document template).

- **Postconditions:**

  - The invoice has been generated.
  - The System has marked this job as generated.
  - If this invoice is not part of a recurring batch of document processing jobs, the System has billed the customer organization for generating it.

- **Main scenario:**

  1. The System executes the following steps to generate an invoice from an entry in the raw data:
     (a) The System fetches the template, including the customer organization data such as its terms and conditions and VAT identification number, to be used for invoices for this customer organization (as configured in *UC18*: Register customer organization or *UC20*: Update document template).
     (b) The System validates that the raw data entry and the data fetched in step 1a are sufficient to completely fill in the fetched template.
     (c) The System fills in the fetched template with the fetched data of the customer organization and the raw data entry.
     (d) The System generates a PDF from the filled in template.
     (e) The System signs the complete PDF for this customer organization using the organization's key.
  2. The System stores the generated PDF and all relevant meta-data (e.g., the date and time when the job was started, the date and time when the job ended, the destination to which it should be sent, the channel by which the document should be sent, etc).
  3. If the invoice is not part of a recurring batch of document processing jobs, the System adds the cost of generating the generated invoice to the bill of the customer organization.
  4. The System marks this job as generated.
  5. The System delivers the generated invoice using the appropriate channel (**include:** *UC6*: Deliver document via e-mail, or **include:** *UC8*: Deliver document via postal mail, or **include:** *UC9*: Deliver invoice via Zoomit, or **include:** *UC11*: Deliver document via personal document store).

- **Alternative scenarios:**

  1da. If the System detected that it does not have all of the data required to fill in the template, the System notifies the appropriate Customer Administrator of the corresponding Customer Organization and marks this job as failed (**include**: *UC22*: Notify customer administrator). The use case ends.

- **Remarks:**

2.6 *UC6*: Deliver document via e-mail

- **Summary:** The System delivers a document that has been generated (cf. *UC4*: Generate payslip or *UC5*: Generate invoice) via e-mail.

- **Primary actor**: Unregistered Recipient

- **Secondary actors:**

  – E-mail Provider

- **Interested parties:**

  – DocProc Administrators: want document processing to perform with as little human interaction as possible.
  – Unregistered Recipients: want to receive their documents correctly and as early as possible.
  – Customer Organizations: want to deliver their documents.
  – Customer administrators: want to have a clear and detailed overview of the status of their document processing jobs.
  – E-mail Providers: want to correctly deliver e-mails to their customers.

- **Preconditions:**

  – A document has been generated (cf. *UC4*: Generate payslip and *UC5*: Generate invoice) that should be delivered via e-mail (as indicated in *UC3*: Initiate document processing).
  – The addressee of this document is not a Registered Recipient.

- **Postconditions:**

  – The System has sent an e-mail to the addressee of the document. This e-mail either contains the document as an e-mail attachment or contains a link to the document if the corresponding Customer Organization has enabled receipt tracking.
  – The System has marked this job as sent via e-mail without receipt tracking or sent via e-mail with receipt tracking (if the corresponding Customer Organization has enabled receipt tracking).
  – If this document is not part of a recurring batch of document processing jobs, the System has billed the customer organization for it.

- **Main scenario:**

  1. The System verifies whether the customer organization that sent the document has enabled receipt tracking for its documents.
  2. The System constructs an e-mail and adds the document to the e-mail as attachment. The e-mail is addressed to the name of the Unregistered Recipient and mentions that a new document was received from the sender of the document.
  3. The System sends this e-mail to the e-mail address of the Unregistered Recipient via an E-mail Provider.
  4. The System marks this job as sent via e-mail without receipt tracking.

5. If this document is not part of a recurring batch of document processing jobs, the System adds the cost of delivering the generated document to the bill of the customer organization.

- **Alternative scenarios:**

  2a. If the corresponding Customer Organization has enabled receipt tracking, the System constructs a different e-mail. This e-mail is addressed to the name of the Unregistered Recipient, and contains a short description of the received document (i.e., the sender of the document, the type of the document and the date at which the document was sent) and a link that can be used to download this document (cf. *UC15*: Download document via unique link). This link contains a unique and unguessable identifier.

  4a. If the corresponding Customer Organization has enabled receipt tracking, the System marks this job as sent via e-mail with receipt tracking.

- **Remarks:**

  – An e-mail is not guaranteed to be delivered correct. In case an error occurs, the E-mail Provider will notify the System of this (cf. *UC7*: Notify of e-mail delivery failure).

2.7 *UC7*: Notify of e-mail delivery failure

- **Summary:** The System gets notified that a certain e-mail containing a document cannot be delivered to the requested e-mail address.

- **Primary actor**: E-mail Provider

- **Secondary actors:**

  – Customer Administrator

- **Interested parties:**

  – Customer Organizations: want to track the delivery of their documents.
  – Customer Administrators: want to have a clear and detailed overview of the status of their document processing jobs.
  – Recipients: want all of their document to be delivered correctly.
  – E-mail Provider: want to correctly deliver e-mails to its customers.

- **Preconditions:**

  – The System has tried to deliver a document via e-mail (cf. *UC6*: Deliver document via e-mail).
  – An error occurred when this E-mail Provider tried to delivered this e-mail to the addressee.

- **Postconditions:**

  – The System has notified a Customer Administrator of the failed delivery.
  – The System has marked that the e-mail delivery has failed.

- **Main scenario:**

  1. The E-mail Provider indicates that the delivery of a certain e-mail has failed, e.g., because the e-mail address does not exist or does not exist any more.
  2. The System looks up the corresponding customer organization and notifies the appropriate Customer Administrator of this customer organization of the failure (**include**: *UC22*: Notify customer administrator).
  3. The System marks that the e-mail delivery has failed and adds a description of the error.

- **Alternative scenarios:**

- **Remarks:**

  – We ignore the failure of other kinds of e-mails.

2.8 *UC8*: Deliver document via postal mail

- **Summary:** The System delivers a document that has been generated (cf. *UC4*: Generate payslip or *UC5*: Generate invoice) via postal mail by forwarding it to the external Print & Postal Service. This Print & Postal Service will then actually print the document and deliver it to the addressee via postal mail.

- **Primary actor**: Print & Postal Service

- **Secondary actors:**

- **Interested parties:**

  – DocProc Administrators: want document processing to perform with as little human interaction as possible.
  – Unregistered Recipients and Registered Recipients: want to receive their documents correctly and as early as possible.
  – Customer Organizations: want to deliver their documents in print via postal mail.
  – Print & Postal Service: wants to print and deliver as many documents as possible.
  – Customer Administrators: want to have a clear and detailed overview of the status of their document processing jobs.

- **Preconditions:**

  – A document has been generated (cf. *UC4*: Generate payslip and *UC5*: Generate invoice) that should be delivered via postal mail (as indicated in *UC3*: Initiate document processing).

- **Postconditions:**

  – The System has sent the document to the Print & Postal Service. The Print & Postal Service will print the document and deliver it to the addressee via postal mail.
  – The System has marked the corresponding job as sent to Print & Postal Service.
  – If this document is not part of a recurring batch of document processing jobs, the System has billed the customer organization for it.

- **Main scenario:**

  1. The System fetches the print parameters for documents of this Customer Organization, e.g., the paper type to be used, whether its documents should be printed single-sided or double-sided, whether its document should be printed in color or in black and white, etc.
  2. The System sends the document to the Print & Postal Service, together with the complete postal address of the addressee and the print parameters, e.g., the paper type, whether the document should be printed single-sided or double-sided, whether the document should be printed in color or in black and white.
  3. The Print & Postal Service indicates to the System it successfully received the document.
  4. The System marks the corresponding document processing job as sent to print & postal service.
  5. If this document is not part of a recurring batch of document processing jobs, the System adds the cost of delivering the generated document to the bill of the customer organization.

- **Alternative scenarios:**

- **Remarks:**

  – For now, DocProc does not support receipt tracking for postal mail.

2.9 *UC9*: Deliver invoice via Zoomit

- **Summary:** The System delivers an invoice that has been generated to the addressee by forwarding it to Zoomit. Zoomit will then deliver the invoice to the addressee.

- **Primary actor**: Zoomit Service

- **Secondary actors:**

- **Interested parties:**

  - DocProc Administrators: want document processing to perform with as little human interaction as possible.
  - Unregistered Recipients and Registered Recipients: want to receive their documents correctly and as early as possible.
  - Customer Organizations: want their documents to be delivered.
  - Zoomit Service: wants to deliver as many documents as possible.
  - Customer Administrators: want to have a clear and detailed overview of the status of their document processing jobs.

- **Preconditions:**

  - An invoice has been generated (cf. *UC5*: Generate invoice) that should be delivered via Zoomit (as indicated in *UC3*: Initiate document processing).

- **Postconditions:**

  - The System has sent the invoice to Zoomit, which will actually deliver the invoice to the addressee.
  - The System has marked the corresponding job as sent to Zoomit.
  - If this invoice is not part of a recurring batch of document processing jobs, the System has billed the customer organization for it.

- **Main scenario:**

  1. The System delivers the invoice to the Zoomit Service, together with the name of the customer organization for which the document is sent and the identifier of the Zoomit account of the addressee of the document.
  2. The Zoomit Service indicates full receipt to the System by replying with a unique Zoomit identifier for this invoice.
  3. The System stores the Zoomit identifier and marks the corresponding document processing job as sent to Zoomit.
  4. If this document is not part of a recurring batch of document processing jobs, the System adds the cost of delivering the generated invoice to the bill of the customer organization.

- **Alternative scenarios:**

  2a. The Zoomit Service indicates failure to the System, e.g., because of an incorrect Zoomit account identifier or because this Zoomit user has indicated that he or she does not want to receive documents (of this customer organization) via Zoomit any more.
  3a. The System looks up the corresponding customer organization of the invoice and notifies the appropriate Customer Administrator of the failure (**include:** *UC22*: Notify customer administrator). The use case ends.

- **Remarks:**

2.10 *UC10*: Query document status (Zoomit)

- **Summary:** Query the status of a document that was sent to Zoomit for delivery.

- **Primary actor**: Zoomit Service

- **Secondary actors:**

- **Interested parties:**

    - Zoomit Service: wants its service to be as usable as possible.
    - DocProc: wants to correctly report the status of its processed documents.
    - Customer Organizations: want to track the delivery of their documents.
    - Customer Administrators: want to have a clear and detailed overview of the status of their document processing jobs.

- **Preconditions:**

    - The System has employed Zoomit to deliver an invoice to its addressee (cf. *UC9*: Deliver invoice via Zoomit).

- **Postconditions:**

    - The System has updated the status of the corresponding job.

- **Main scenario:**

    1. The System queries Zoomit about the status of a document identified using a unique Zoomit id.
    2. The Zoomit service answers with the current status of that document: "sending", "sent", "read", "invalid", or "send-error".
    3. The System updates the stored status information accordingly.

- **Alternative scenarios:**

- **Remarks:**

2.11 *UC11*: Deliver document via personal document store

- **Summary:** The System delivers a document to a Registered Recipient by adding it to his or her personal document store and notifying him or her of the new document.

- **Primary actor**: Registered Recipient

- **Secondary actors:**

    - Email Provider

- **Interested parties:**

    - DocProc Administrators: want document processing to happen with as little human interaction as possible.
    - Registered Recipients: want to receive their documents correctly and as early as possible.
    - Customer Organizations: want their documents to be delivered.
    - Customer Administrators: want to have a clear and detailed overview of the status of their document processing jobs.

- **Preconditions:**

  - A document has been generated (cf. *UC4*: Generate payslip and *UC5*: Generate invoice) that should be delivered via e-mail (as indicated in *UC3*: Initiate document processing).
  - The addressee of this document is a Registered Recipient.

- **Postconditions:**

  - A new document has been added to the personal document store of the Registered Recipient.
  - The System has sent a notification to the addressee of the document. This e-mail contains a short description of the document and a link to the document.
  - The System has marked the corresponding job as added to personal document store.
  - If this document is not part of a recurring batch of document processing jobs, the System has billed the customer organization for it.

- **Main scenario:**

  1. The System adds the document to the personal document store of the Registered Recipient.
  2. The System constructs an e-mail. This e-mail is addressed to the name of the Registered Recipient and contains a short description of the received document (i.e., the sender of the document, the type of the document and the date at which the document was sent) and a link to the document.
  3. The System sends this e-mail to the e-mail address of the Registered Recipient.
  4. The System marks the corresponding document processing job as added to personal document store.
  5. If this document is not part of a recurring batch of document processing jobs, the System adds the cost of delivering the generated document to the bill of the customer organization.

- **Alternative scenarios:**

- **Remarks:**

2.12 *UC12*: Consult personal document store

- **Summary:** A Registered Recipient consults an overview of all received documents in his or her personal document store.

- **Primary actor**: Registered Recipient

- **Secondary actors:**

- **Interested parties:**

  - Registered Recipients: want to maintain a clear overview of all the documents they have received so far.
  - Customer Organizations: want their documents to be delivered correctly.

- **Preconditions:**

  - The Registered Recipient is logged in (cf. *UC1*: Log in).

- **Postconditions:**

  - The Registered Recipient has received an overview of all documents he or she received and can request a detailed view on each of these documents.

- **Main scenario:**

1. The Registered Recipient indicates that he or she wants to consult his or her personal document store.

2. The System looks up all documents sent to the Registered Recipient.

3. The System provides an overview of all the documents in the personal document store of the Registered Recipient, e.g., as a table or a list, together with the possibility to consult each individual document (cf. *UC14*: Consult document in personal document store) and the possibility to download each such document as a PDF.

- **Alternative scenarios:**

  3a. If the Registered Recipient has not received any documents yet, the System indicates this to the Registered Recipient. The use case ends.

- **Remarks:**

2.13 *UC13*: Search documents in personal document store

- **Summary:** A Registered Recipient searches for certain documents in his or her received documents.

- **Primary actor**: Registered Recipient

- **Secondary actors:**

- **Interested parties:**

  - Registered Recipients: want to look up a certain document as swiftly as possible.

- **Preconditions:**

  - The Registered Recipient is logged in (cf. *UC1*: Log in).

- **Postconditions:**

  - The Registered Recipient has received an overview of his or her received documents that match the given search query.

- **Main scenario:**

  1. The Registered Recipient indicates that he or she wants to search for certain documents in his or her received documents.

  2. The Registered Recipient provides the System his or her search query. Amongst others, the Registered Recipient can specify (part of) the required name of the sender, a date range in which the documents should be received, and the required type of document.

  3. The System looks for documents received by the Registered Recipient that match the given search query.

  4. The System provides an overview of the matching documents sent to the Registered Recipient, e.g., as a table or a list, together with the possibility to consult each individual document (cf. *UC14*: Consult document in personal document store) and the possibility to download each such document as a PDF.

- **Alternative scenarios:**

  4a. If there are no documents in the personal document store of Registered Recipient that match the given query, the System indicates this to the Registered Recipient and the use case ends.

- **Remarks:**

2.14 *UC14*: Consult document in personal document store

- **Summary:** A Registered Recipient consults a specific received document.

- **Primary actor**: Registered Recipient

- **Secondary actors:**

- **Interested parties:**

  - Registered Recipients: want to get a clear overview of each of their documents.
  - Customer Organizations: want their documents to be delivered.
  - Customer Administrators: want to have a clear and detailed overview of the status of their document processing jobs.

- **Preconditions:**

  - The Registered Recipient is logged in (cf. *UC1*: Log in).

- **Postconditions:**

  - The Registered Recipient has received a detailed view on the requested specific document.
  - The document has been marked as received.

- **Main scenario:**

  1. The Registered Recipient indicates that he or she wants to view a received document, e.g., in the overview of received documents (cf. *UC12*: Consult personal document store or *UC13*: Search documents in personal document store) or by following the link in a notification (cf. *UC11*: Deliver document via personal document store).
  2. The System looks up the requested received document and its meta-data, e.g., the sender of the document and the date on which it was received, and presents the document and its meta-data to the Registered Recipient.
  3. If the corresponding customer organization has enabled receipt tracking for its sent documents, the System marks the document as received.

- **Alternative scenarios:**

- **Remarks:**

2.15 *UC15*: Download document via unique link

- **Summary:** An Unregistered Recipient downloads a document as PDF by following the unique link to this document sent by the System via e-mail.

- **Primary actor**: Unregistered Recipient

- **Secondary actors:**

- **Interested parties:**

  - Unregistered Recipients: want to download the documents that they received and want to have sole access to this document.
  - Customer Organizations: want their documents to be delivered and want to track the delivery of their documents.

- **Preconditions:**

– The Unregistered Recipient has received a notification containing a unique link to download a received document.

- **Postconditions:**

  – If the link was not expired yet, the Unregistered Recipient has downloaded the specific document as PDF.

  – The document has been marked as received.

- **Main scenario:**

  1. The Unregistered Recipient indicates that he or she wants to download a document by following the link in the notification.

  2. The System verifies that the link has not expired yet, i.e., whether the link has been generated less then 30 calendar days ago.

  3. The System looks up the PDF of the requested document and provides the PDF to the Unregistered Recipient for download.

  4. The System marks the document as received.

- **Alternative scenarios:**

  3a. If the link is older than 30 calendar days, the System indicates to the Unregistered Recipient that the given link has expired. The use case ends.

- **Remarks:**

2.16 *UC16*: Register to personal document store

- **Summary:** An Unregistered Recipient registers himself or herself in order to have a personal document store.

- **Primary actor**: Unregistered Recipient

- **Secondary actors:**

- **Interested parties:**

  – DocProc: wants as many Unregistered Recipients to register as possible.

  – Unregistered Recipients: want to register in the System for the improved functionality and ease of use.

  – Customer Organizations: want a reliable way to deliver their documents.

- **Preconditions:**

- **Postconditions:**

  – The Unregistered Recipient is now a Registered Recipient and can from now on log in to the system to (amongst others) get an overview of all received documents.

  – The System has added all documents sent to the e-mail address of the Unregistered Recipient to his or her personal document store.

  – The Unregistered Recipient is logged in and can immediately use the System as Registered Recipient.

- **Main scenario:**

  1. The Unregistered Recipient indicates that he or she wants to register himself or herself.

2. The Unregistered Recipient specifies his or her details, i.e., his or her first name, last name, e-mail address and postal address.

3. The System verifies whether the Unregistered Recipient has given all necessary details.

4. The System verifies whether no user already exists with the given e-mail address.

5. The System adds all documents sent to the given e-mail address to the personal document store of the Unregistered Recipient.

6. The System indicates success to the Unregistered Recipient and logs him or her in.

- **Alternative scenarios:**

  3a. If the Unregistered Recipient has not provided all necessary details, the System indicates the missing details to the Unregistered Recipient. Continue from step 2.

  4a. If another user exists with the given e-mail address, the System indicates this to the Unregistered Recipient. Continue from step 2.

- **Remarks:**

  – For brevity, we ignore the verification of the e-mail address of the Unregistered Recipient in this assignment.

2.17 *UC17*: Unregister from personal document store

- **Summary:** A Registered Recipient unregisters himself or herself from the personal document store.

- **Primary actor**: Registered Recipient

- **Secondary actors:**

- **Interested parties:**

  – Registered Recipients: want to be able to stop using the System at any point in time.
  – DocProc: wants as many Unregistered Recipients to register as possible.

- **Preconditions:**

  – The Registered Recipient is registered.
  – The Registered Recipient has read every document in his or her personal document store, i.e., every document in the personal document store of the Registered Recipient has been delivered.

- **Postconditions:**

  – The Registered Recipient has been logged out.
  – The Registered Recipient is now an Unregistered Recipient and cannot use the System any more without registering again.
  – The System has not deleted the documents received by the Registered Recipient so that they will still be available when he or she registers again with the same e-mail address.

- **Main scenario:**

  1. The Registered Recipient indicates that he or she wants to unregister himself or herself.
  2. The System asks the Registered Recipient to confirm.
  3. The Registered Recipient confirms that he or she wants to unregister himself or herself.
  4. The System removes the account of the Registered Recipient and logs the Registered Recipient out (cf. *UC2*: Log out).

- **Alternative scenarios:**

  3a. The Registered Recipient does not confirm. The use case ends.

- **Remarks:**

2.18 *UC18*: Register customer organization

- **Summary:** A DocProc Administrator registers a new Customer Organization.

- **Primary actor**: DocProc Administrator

- **Secondary actors:**

- **Interested parties:**

  – DocProc: wants to have more paying customer organizations.
  – Customer Organizations: want to be able to sign up for the System as swiftly as possible.
  – DocProc Administrator: wants to register new customer organizations as easily as possible.

- **Preconditions:**

  – The DocProc Administrator is logged in (cf. *UC1*: Log in).

- **Postconditions:**

  – The Customer Organization can now use the System, amongst others to generate and deliver documents (cf. *UC3*: Initiate document processing).

- **Main scenario:**

  1. The DocProc Administrator indicates that he or she wants to register a new customer organization.

  2. The DocProc Administrator specifies the details of the new customer organization. These details comprise at least:

     (a) the name of the new customer organization,
     (b) the VAT identification number of the new customer organization,
     (c) the postal address of the new customer organization,
     (d) the e-mail addresses and initial passwords of the Customer Administrators of the new customer organization,
     (e) whether the new customer organization opts for receipt tracking for digital documents,
     (f) the types of documents that the new customer organization wants to process as negotiated in the contract, i.e., payslips and/or invoices,
     (g) the initial template to be used for every type of document that the new customer organization wants to generate,
     (h) the price per document for processing a document of every type of document that the new customer organization wants to process apart from the specified recurring batches as negotiated in the contract,
     (i) the service level promised to the new customer organization, i.e., whether the default priority level of the new customer organization is silver, gold or diamond,
     (j) the print parameters for documents of this customer organization that should be sent via postal mail, e.g., the paper type to be used, whether its documents should be printed single-sided or double-sided, whether its document should be printed in color or in black and white,
     (k) the key to be used for signing invoices,

(l) optionally: the details of every recurring batch of documents for which the new customer organization wants to employ the system, i.e., when the recurring batch will occur, the type of document in the recurring batch, the maximal number of documents per batch and the price per document as negotiated in the contract,

(m) optionally: the details of the technical details of the IT system of the customer organization such as the protocol that will be used to initiate document processing jobs (e.g., FTP or SCP), etc.

3. The System verifies whether no user already exists with one of the given e-mail addresses for the Customer Administrators.

4. The System notifies the Customer Administrators of the registration (**include:** *UC22*: Notify customer administrator).

5. The System indicates success to the DocProc Administrator.

- **Alternative scenarios:**

  3a. If another user exists with one of the given e-mail addresses for the Customer Administrators, the System indicates this to the DocProc Administrator. Continue from step 2.

- **Remarks:**

2.19 *UC19*: Unregister customer organization

- **Summary:** A DocProc administrator unregisters a customer organization.

- **Primary actor**: DocProc Administrator

- **Secondary actors:**

- **Interested parties:**

  – DocProc Administrator: wants to unregister new customer organizations as easily as possible.

- **Preconditions:**

  – The DocProc Administrator is logged in (cf. *UC1*: Log in).

- **Postconditions:**

  – The Customer Organization cannot use the System any more, e.g., the Customer Organization cannot generate and deliver documents any more.

- **Main scenario:**

  1. The DocProc Administrator indicates that he or she wants to unregister a certain customer organization.
  2. The System asks the DocProc Administrator to confirm.
  3. The DocProc Administrator confirms that he or she wants to unregister the customer organization.
  4. The System marks the account of the customer organization as inactive.
  5. If a Customer Administrator or Customer System of this customer organization is logged in, the System logs him/her/it out (cf. *UC2*: Log out).

- **Alternative scenarios:**

  3a. The DocProc Administrator does not confirm. The use case ends.

- **Remarks:**

  – Because (some of) the documents processed for this Customer Organization are still required by their recipients (e.g., as part of the personal document store), the System does not delete any document when unregistering a Customer Organization.

2.20 *UC20*: Update document template

- **Summary:** A Customer Administrator updates the template to be used for generating documents of a certain type.

- **Primary actor**: Customer Administrator

- **Secondary actors:**

- **Interested parties:**

  - Customer Organizations: want to be able to freely update their document look and feel, and want their documents to be processed correctly.
  - Customer Administrators: want to update a document template as easily as possible.
  - DocProc Administrators: want to process documents with as little errors as possible.

- **Preconditions:**

  - The Customer Administrator is logged in (cf. *UC1*: Log in).

- **Postconditions:**

  - The System has stored and will employ the updated template of the Customer Organization.

- **Main scenario:**

  1. The Customer Administrator indicates that he or she wants to update on of its document templates.
  2. The System indicates the document types that the corresponding customer organization is allowed to generate, and the current templates for these types.
  3. The Customer Administrator indicates which document template he or she wants to update.
  4. The Customer Administrator provides the new template.
  5. The System stores the new template and indicates success to the Customer Administrator.

- **Alternative scenarios:**

- **Remarks:**

2.21 *UC21*: Consult status of all document processing jobs

- **Summary:** A Customer Administrator requests an overview of the status of all document processing jobs that this customer organization has ever initiated (i.e., ongoing jobs, successfully finished jobs and unsuccessfully finished jobs).

- **Primary actor**: Customer Administrator

- **Secondary actors:**

- **Interested parties:**

  - Customer Administrators: want to have a clear and detailed overview of the status of their document processing jobs.
  - DocProc: wants its Customer Organizations to have a clear and detailed view on their document processing jobs.

- **Preconditions:**

  - The Customer Administrator is logged in (cf. *UC1*: Log in).

- **Postconditions:**

  - The Customer Administrator has received an overview of the status of all documents that this customer organization has ever initiated.

- **Main scenario:**

  1. The Customer Administrator indicates that he or she wants to get an overview of all documents that this customer organization has ever initiated (i.e., ongoing jobs, successfully finished jobs and unsuccessfully finished jobs).
  2. The System looks up the status of all documents that this customer organization has initiated for now. For example, this status can be:
     (a) initiated at moment X,
     (b) generated at moment X,
     (c) error during generating and Customer Administrator notified at moment X,
     (d) sent to the addressee Y via on moment X or,
     (e) delivered to the addressee on moment X.
  3. The System provides an overview of the status of all documents as a table, ordered descending by initialization date.

- **Alternative scenarios:**

  3a. If the customer did not initiate any document yet, the System indicates this to the Customer Administrator and the use case ends.

- **Remarks:**

2.22 *UC22*: Notify customer administrator

- **Summary:** The System notifies a Customer Administrator of an error when generating or delivering a document.

- **Primary actor**: Customer Administrator

- **Secondary actors:**

  - E-mail Provider

- **Interested parties:**

  - DocProc: wants to correctly process the documents of our customer organizations and wants document processing to be as easy and clear as possible for our customer organizations.
  - Customer Administrators: want to be kept up-to-date of errors when processing their documents.

- **Preconditions:**

  - An error has occurred during the generation or delivery of a document.

- **Postconditions:**

  - The System has sent an e-mail to the Customer Administrator of the corresponding customer organization containing the description of the error and the document.

- **Main scenario:**

1. The System looks up the administrator of the customer organization corresponding to the failed document.

2. The System constructs an e-mail. This e-mail is addressed to the name of the Customer Administrator and contains a description of the error and a description of the corresponding document, i.e., its id, its initialization date etc.

3. The System sends this e-mail to the e-mail address of the Customer Administrator via an E-mail Provider.

- **Alternative scenarios:**

- **Remarks:**