Report Development Process

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## Specing

### Overview

For the Specing process, we are focused on gathering all the necessary information to begin the report process. We aim to have a meeting with a SME (Subject Matter Expert) to discuss the type of report they are looking for and the details they wish to include in the report. At the beginning of our initial meeting, the client will either have an idea of the report they want or a concrete example of a report they wish to have created. It is our job to then tailor the report request to include any and all customizations needed to make the report effective for the city.

The best way to create a comprehensive list of these requests is by exporting a PDF of a report that is close to what they need and commenting on all the fields and formatting they want. This includes verifying specific key report aspects such as: the report name, page size and orientation, report extract, specifications on page number limits, font size and type, the module the report belongs to, required static text, any needed logos or watermarks, and the dynamic fields that will be pulled from EPL.

Being thorough in this stage of the process will help minimize miscommunication and create a roadmap for building a report the client is happy with.

### New Report Request

For specing a New report, creating a comprehensive list of notes is most important, as there is less of an existing standard compared to our other offerings. Often, the client will not have an example of what they are looking for. In these cases, the client is relying on us to be the driving force and domain experts. We have a few options we can exercise to help the client get a clearer picture of what they may want. Going through the Tyler Standard reports is a great jumping-off point. These are .rdl files and can be more easily modified to fit small adjustments the client needs.

If there is no Tyler Standard report that fits what the client needs, we can typically show the client past reports made for other clients. It is important to verify, before showing the client, that the report does not include private or sensitive information. If there are any questions regarding privacy, we will get manager approval before proceeding.

### Modification Report Request

For specing a Modification report request, it is important to document which fields or aspects of the report the client is looking to change. It is crucial to anticipate common issues in this phase of the report process and communicate potential roadblocks to the client. When a client wants to add or remove certain fields, it is our responsibility to consider how this could affect the report’s format. For example, will adding additional fields to a single-page report break the layout? If so, what options do we have to amend the report?

Additionally, because EPL will no longer support Crystal Reports by the end of 2026, it is beneficial to recommend that a client seeking a modified CR consider beginning a conversion report instead.

### Conversion Report Request

Specing a Conversion report, as mentioned above, can be a modification report request in addition to a conversion report. If no modifications are required, then specing is not needed as the CR will be the basis for what the SSRS (SQL Server Reporting Services) report will look like.

### Data Extract Report Request

Data Extract Reports are different in that there is no report that needs to be created. These reports are typically datasets extracted to Excel. Additionally, there are times when the client will ask for this report but this can be a request from our internal team as well. Communication in these reports comes down to what data is needed and what should be filtered out. What module are we pulling data from? Which fields should be included? Are there specific parameters we should be building?

## Development

### Overview

With the report requests communicated by the client, we can now begin developing the report. For most development processes, we start by going into SSMS (SQL Server Management Studio) and building or editing the query. Through the specing process, we know which module and which tables to pull data from. It is important in this step to ensure that the correct filters are applied and that any JOINs between multiple tables are done correctly.

Once the query is built, it will either be embedded into SSRS or made into a stored procedure to be used for Crystal Reports. The dataset will be used to populate the dynamic fields of the report. Using the formatting specifications gathered previously, we can now build the report and populate it with the necessary data.

In most cases, we build the report using Visual Studio’s Report Builder. Using Visual Studio to launch the Report Builder application allows us to develop the report locally. The difference between using Visual Studio and launching the Report Builder application directly is that the latter requires us to connect to the client’s server. This causes issues because we are only given 1–2 logins and cannot build reports when other team members are working simultaneously, which dramatically slows progress. By using Visual Studio, we can work in our local environment and then transfer the completed report to the Report Builder application if necessary.

The first round of testing begins inside the report using the Preview function. Creating default parameters and adjusting them throughout testing helps ensure the report is ready for the next phase. Once the report has been developed, we upload it to the client’s TEST/TRAIN environment in EPL.

### New Report Request

When developing a New report, we are uniquely concerned about having the fields set up in EPL. In scenarios where a client wants a report with a brand new custom field, we will reach out to the implementation team so they can build this functionality within the client’s environment. Also, because the report is new and being built from the ground up, testing in development is crucial as there is the most room for error here.

### Modification Report Request

For Modification reports there is additional emphasis on maintaining existing format structure in the report. For the query, it is important we pay close attention to the JOIN structure. Adding a new field to an existing query with existing JOINs can be more complicated than simply adding a new column. We are responsible for understanding how the JOINs are filtering the new data.

### Conversion Report Request

If the Conversion report does not require any changes to its contents, then the query development is already complete. Instead of writing a new query, we can use a function in SSRS that allows us to call a stored procedure already created in the client’s database on our server. When developing the report, we are responsible for making the new SSRS report as similar to the Crystal Report (CR) as possible.

Steps to take include reviewing the sizing and positioning of text boxes, tables, images, and other elements on the report. Ensuring the margins match and properly grouping the data fields are also important aspects to be mindful of. In cases where a conversion report is also being modified, it is best to develop the query in SSMS before embedding it into SSRS.

### Data Extract Report Request

For Data Extract reports, no report development is needed aside from transforming the dataset within Excel into a table for easier filtering. For the query, because the purpose of the report is to review data in a client’s system we do need to ask Tyler Tech for the most recent backup in order for our report to be accurate and meaningful.

## TEST/TRAIN

### Overview

Depending on the client’s setup, the method of uploading a report will vary. If a client is supported through Tyler’s cloud server, we need to move the report into the Report Builder application to upload it to their environment. Note that we must wait for Tyler Tech to push the report into EPL. If the client has their own local server, we typically access it by logging into their VPN and uploading the report directly into EPL ourselves. Although uploading to local servers is easier, we can only obtain the client’s backup from Tyler Tech, which means we can never test our reports using live data.

Once the report has been uploaded into the TEST/TRAIN (UAT) environment within EPL, we can begin testing how the report functions inside the software. If issues are found during UAT, we must return to the development stage, resolve the problems, and reupload the report to UAT.

### New Report Request

To begin the process of bringing an uploaded New report into EPL, we need to configure the report using EPL’s Report Setups function. This can be found by searching for it in the omnibar. The report setup will point to the server and the folder where the report is stored.

For testing the report in the UAT environment, we should create our own test records. This step should only be done in UAT, as we do not want to create fake data in the client’s live environment. The purpose of creating these test records is to ensure that every field in the report is working properly. Since finding records with every field populated is not reliable, we use this process in UAT to confirm the report’s reliability all at once.

After testing multiple test records, we can also test real records to confirm the report’s overall functionality.

### Modification Report Request

For Modification Requests, depending on the extent of the changes it may be easier to find existing records with the newly included fields rather than creating entirely new test records. We do not need to find reports that are populating every single field, only the modified ones. If it is easier to query for these fields directly then this method will suffice for testing.

### Conversion Report Request

For Conversion reports there will already be a CR within the environment. Testing in UAT will constitute in pulling identical records from the CR and SSRS versions of the same report and making sure they are identical.

### Data Extract Report Request

Data Extract reports do not need to go into the UAT environment. Although this step is not necessary for these types of reports, vigorous testing is still required. Approximately 25% of the records in the report should be tested

## PROD

### Overview

Ideally at this stage of the process there are no issues with the reports. Although, because data is less up to date and therefore may be less reliable, another round of testing in the Production (PROD) environment is necessary. At this stage, the team should have already done a significant amount of testing plus the client will need to sign off on any reports that exist in UAT to move them into the PROD environment.

### New Report Request

For a New report, we can no longer create our own records in this environment. Therefore, it is important to pull a significant number of samples that, all together, will populate all the potential fields in a report. Note that there are rare instances in which there are no records that possess data for a certain field. In these cases, it is recommended to check the query to confirm no records possess a specific data field.

### Modification Report Request

Modification reports should be pulling data the same way as done in UAT.

### Conversion Report Request

Conversion reports should be pulling data the same way as done in UAT.

### Data Extract Report Request

Data Extract reports will be uploaded into PROD as Excel files if the request came from the client. In the same fashion as other report types, this should be signed off by a city department team member before the file is uploaded into EPL.

## Report Development Process Summarized Flow Chart

FlA diagram of a process

Description automatically generated