Commercial In Confidence

Blue Prism

Work Queues Guide

Revision History

Date	Revision	Author	Description
18/1/2016	1.0	JT	Document Created
26/5/1017	1.1	JT	Added encryption chapter

Contents

1   Introduction

This document is a guide to using Work Queues within Blue Prism. During the Foundation Training Course you were taught that Work Queues provide the functionality to store, manage, share and report on process work. This guide will provide additional knowledge of Work Queue features not covered by the Foundation course.

2 Tags

A Tag is a keyword of term assigned to a Work Queue item as a method of categorising or grouping that item. This might be done for the following reasons:

- For Management Information (MI), to easily view or report on Work Queue items with a specific tag

- For process reasons, giving a Blue Prism process more control over how Work Queue items that are locked and worked.

Examples of tags include:

- Customer Type, i.e. Business, Consumer, Internal, SME, Premier etc.

- Process Work Source, i.e. Web Portal, Call Centre, Financial Advisor

- Completed Type, i.e. if there are multiple completed outcomes from a process

- Computer Name, i.e. if an item needs to be worked by the robot that added it to the queue

Tagging is not meant as a way of recording unique item information, so should not be used for storing information such as a customer's account number or telephone numbers. Unique information should only be stored in the Item Data.

2.1 Adding Tags

Adding a Tag to a Work Queue item simply requires the use of an Action Stage. To add a tag simply take the following steps in Process Studio:

- Add an Action stage into your process flow

- In the Action stage, do the following:

  - Select the Internal – Work Queues Business Object

  - Select the Tag Item Action

  - Set the Item ID Input Parameter to be the Item ID for the Work Queue Item you wish to tag. The item does not need to be locked to add a tag

  - Set the Tag Input Parameter to be the Tag that you want to add to the Work Queue item.

  - Click OK

After following the above steps, your item will be tagged. This should be visible if you view the item in the Queue Management tab in Control Room.

Figure 1   Tagging an item

Figure 2   Item tagged

2.2 Removing Tags

Removing a Tag from a Work Queue item also requires the use of an Action stage. To remove a Tag simply take the following steps in Process Studio:

- Add an Action stage into your process flow

- In the Action Properties do the following:

    - Select the Internal – Work Queues Business Object

    - Select the Untag Item action

    - Set the Item ID Input Parameter to be the Item ID for the Work Queue Item you wish to un-tag. The item does not need to be locked to remove a Tag.

- Set the Tag Input Parameter to be the Tag that you want to remove from the Work Queue item.

- Click OK

After following the above steps, your item will have the tag removed. This should be visible if you view the item in the Queue Management tab in Control Room.
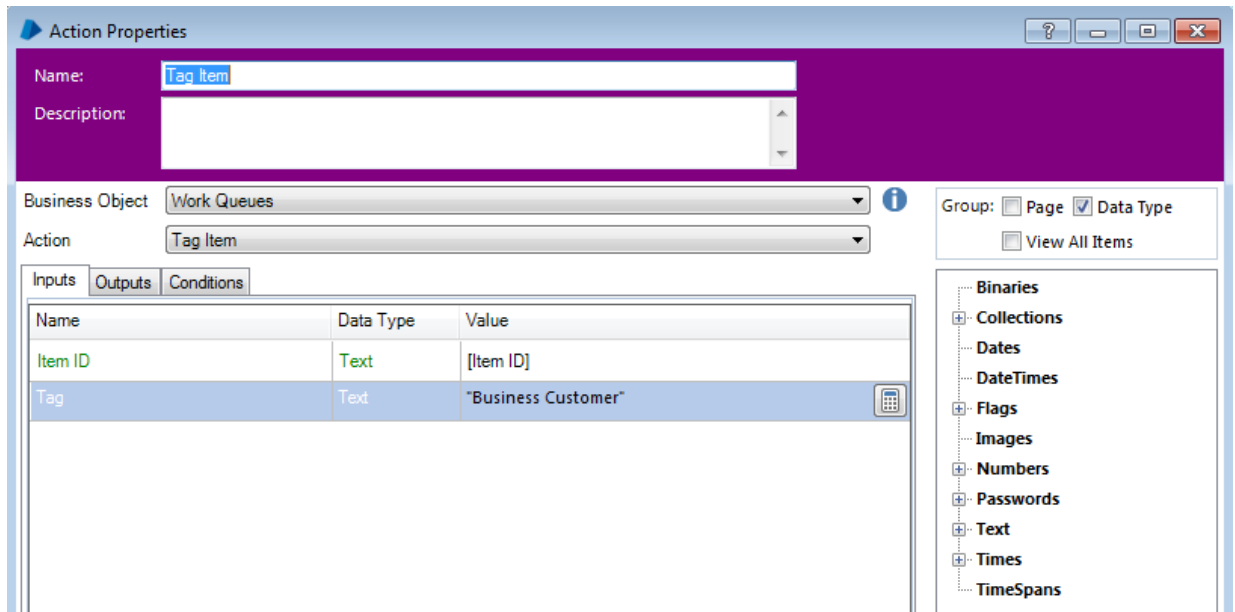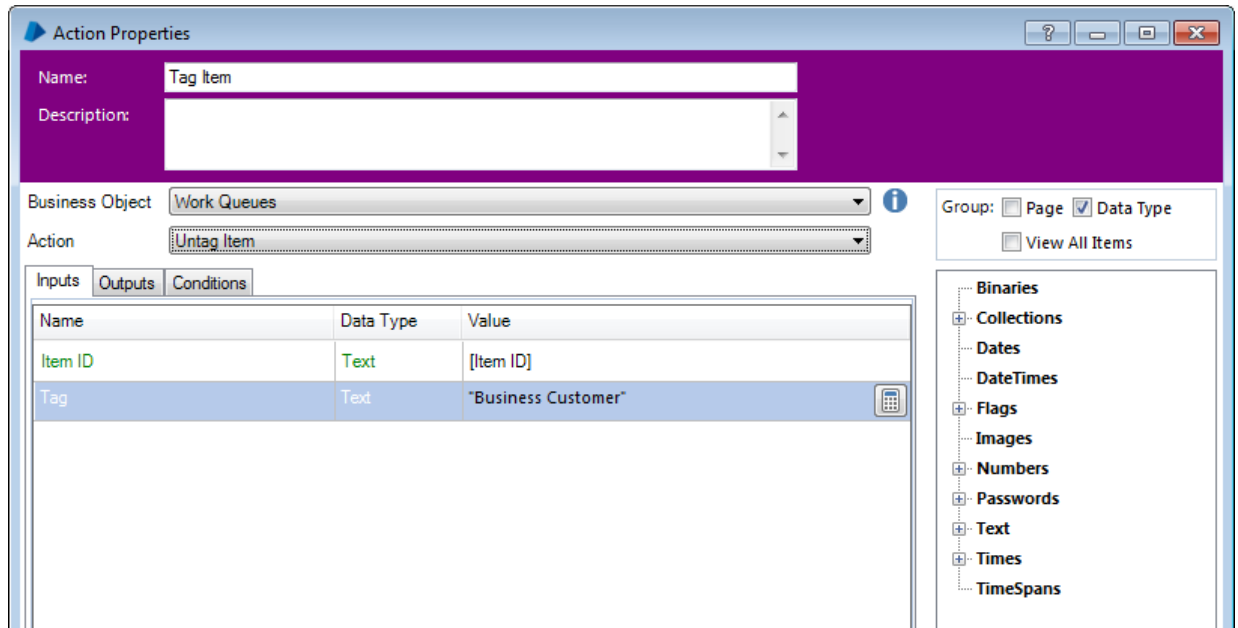

Figure 3   Untagging an item

Figure 4   Untagged queue item

2.3 Using Tags to get Work Queue Items

Tags can be used when getting items from the Work Queue. You can filter the items to retrieve by the presence or absence of a specific tag, by giving the appropriate arguments to the Tag Filter input parameter of the Get Next Item action.

When using the Get Next Item action you can set the Tag Filter input parameter as follows:

- Using the + filter you can ensure only items with a specific tag are returned. For example, by setting the Tag Filter to be "+Work Type1", the next item which has a "Work Type1" tag will be returned.

- Using the - filter you can ensure only items without a specific tag are returned. For example, by setting the Tag Filter to be "-Work Type1", the next item without a "Work Type1" tag will be returned.

- You can also use a combination of tags in the Tag Filter parameter, separated by semi-colons. For example, by setting the Tag Filter to be "+Work Type1;+Customer Type2;-Work Source1" the next item with the "Work Type1" and "Customer Type2" tags and without a "Work Source1" tag will be returned.

Using tags allows flexibility in the order items are worked within a single Work Queue.

Figure 5   Using a Tag Filter

2.4 Filtering by Tags in Control Room
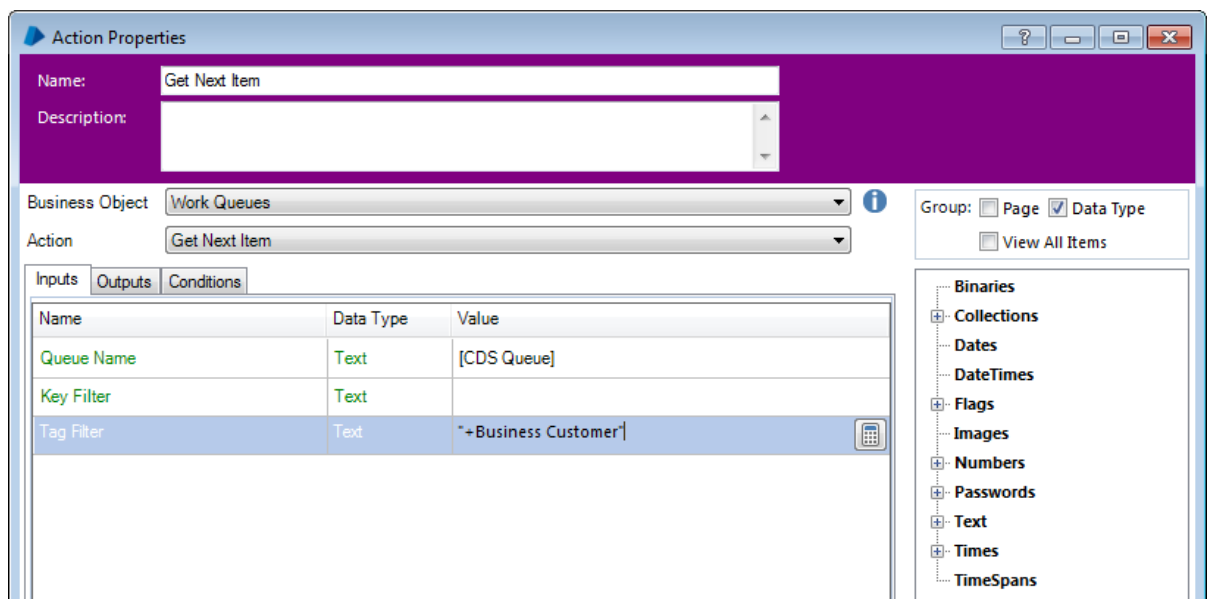
Tags can be viewed and filtered in the Queue Management tab in Control Room

The tag filter looks like a text filter at first glance, but does not work in quite the same way. Using the tags filter, you can search for items which have specific tags, or which do not have specific tags, or a combination of both.

- **Searching for items with a tag**: To search for items with a specific tag, just enter that tag (case insensitive) into the filter, optionally prefixing it with a "+" symbol. For example, "wanted tag" will search for any items which have been assigned a tag labelled "wanted tag" or a tag "Wanted Tag" or any other case variation. "+wanted tag" is treated as an exact synonym - i.e. the "+" is implied if no symbol is given.

- **Searching for items without a tag**: To search for items which don't have a specific tag, enter that tag into the filter, prefixed with a "-" symbol. For example, "-unwanted tag" will search for any items which do not have the tag "unwanted tag" assigned to them.

- **Searching for items with multiple tags assigned/unassigned:** A tag filter can consist of any number of tag searches - each term can be separated by a semi-colon and they are all applied to the search (i.e. they are AND'ed terms not OR'ed terms).For example, "Account: Joint; -Balance: Overdrawn; Card: *Visa*" will include any items which match all the terms, i.e.:

  - Every item must have an 'Account: Joint' tag applied.

  - No item can have a 'Balance: Overdrawn' tag applied.

  - Every item must have a tag applied which starts with 'Card: ' and then contains the text 'Visa'.

- **Using Wildcards:** Tag searches support two wildcards. An asterisk character can be used to search for 'any other characters', and a question mark character can be used to search for 'any single character'. For example, "+Category: Senior*" will return items which have a tag beginning "Category: Senior" and exclude any items which aren't assigned such a tag. A search for "Priority ?; -Doc:*" will return any items which have a tag beginning 'Priority ' followed by a single character, and which do not have a tag beginning "Doc:". To search for literal asterisks, they can be escaped by entering them in the search twice, for example, a search for ** Star ** will return those items which have a tag of '* Star *' recorded on them. There is no mechanism for escaping a question mark, though a '?' wildcard character will obviously match the required character.

2.5 Item Tags and the Blue Prism performance report

Item Tags are reported in the standard Blue Prism Performance report.

	Tags	Mon 18	Tue 19	Wed 20	Thu 21	Fri 22	Total
47							
48	Work Type 1	83	20	5	120	25	253
49	Work Type 2	22	12	111	12	27	184
50	Work Type 3	2	5	42	54	20	123
51	Low Priority	20	8	42	53	5	128
52							

Figure 6   Item Tags reported on in the Performance Report

3   Item Status

Each Work Queue item has a status. The status can be used as a method of recording what work has been done so far on a Work Queue item.

This might be done for the following reasons:

- For MI, to easily see how far an item has been worked

- To aid manual working of exceptions, providing the Item Status can inform staff what work is still outstanding on an item that needs manually completing

- To enable Work Queue items to be safely retried, a process can use the item status to know which updates have already been performed so that they are not repeated,

Examples of statuses in use in a Work Queue:

00-Pending, 01-Data Verification, 02-Work Step A, 03-Work Step B, 04-Work Step C, Completed.

While with the above statuses, if an item was retried that already had a status of "04-Work Step C" the process could skip all the previous steps in the process as they will have already been completed. Likewise, if manual staff are given an exception to manually complete, knowing that the status is 04-Work Step C allows the item to be manually worked form that point in the process onwards.

3.1 Setting the Status

Setting the Status for a Work Queue item simply requires the use of an Action stage. The following steps will be required:

- Add an Action stage into your process flow

- In the Action Properties do the following:

  - Select the Internal – Work Queues Business Object

  - Select the Update Status action.

  - Set the Item ID Input Parameter to be the Item ID for the Work Queue Item you wish to assign a status to.

  - Set the Status Input Parameter to be the Status that you want to update the Work Queue item with.

  - Click OK
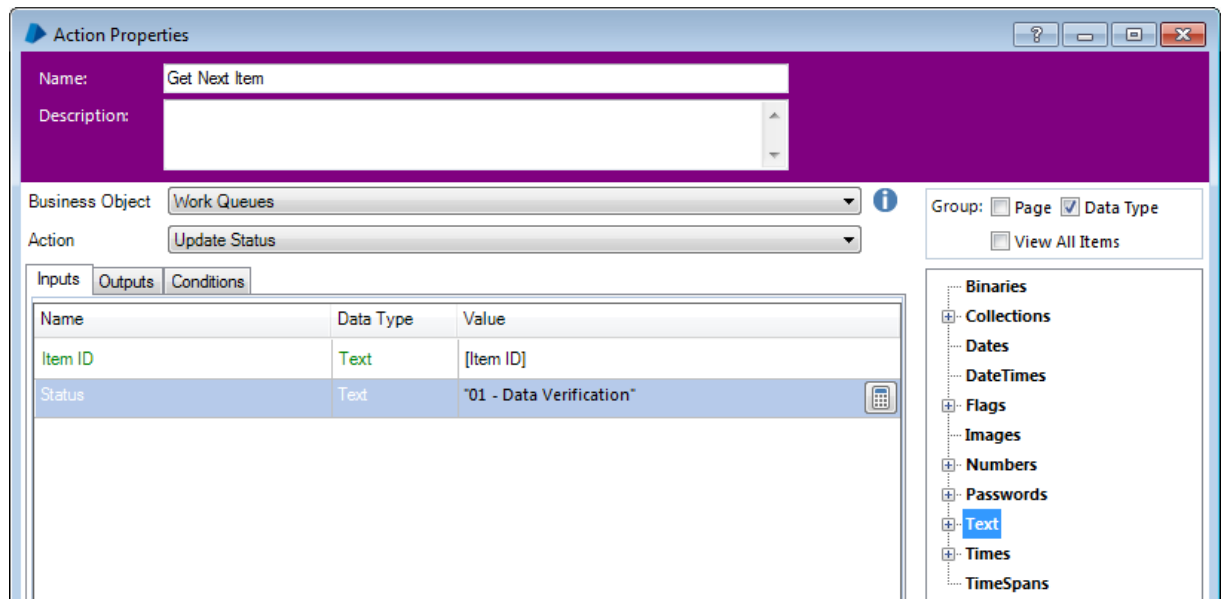
Figure 7   Updating the Item Status

3.2 Using the Status

Your process can also be configured to use the item status to ensure steps within your process that should never be repeated are never repeated.

To use the Item Status, simply add decision stages to your process that check the Item Status so that any parts of your process that have already been done for the item can be skipped. Remember, the Item Status can be returned as an output from the Get Next Item action.

Figure 8   Get Next Item outputs Item Status

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Figure 9   Decision Stage using Item Status

Figure 10   Example process flow

4 Priorities

When designing an automated solution, you should consider if any different work types or scenarios within the process should be worked before other worked items.

For example:

- Does work from one source have a shorter SLA than work from another source?

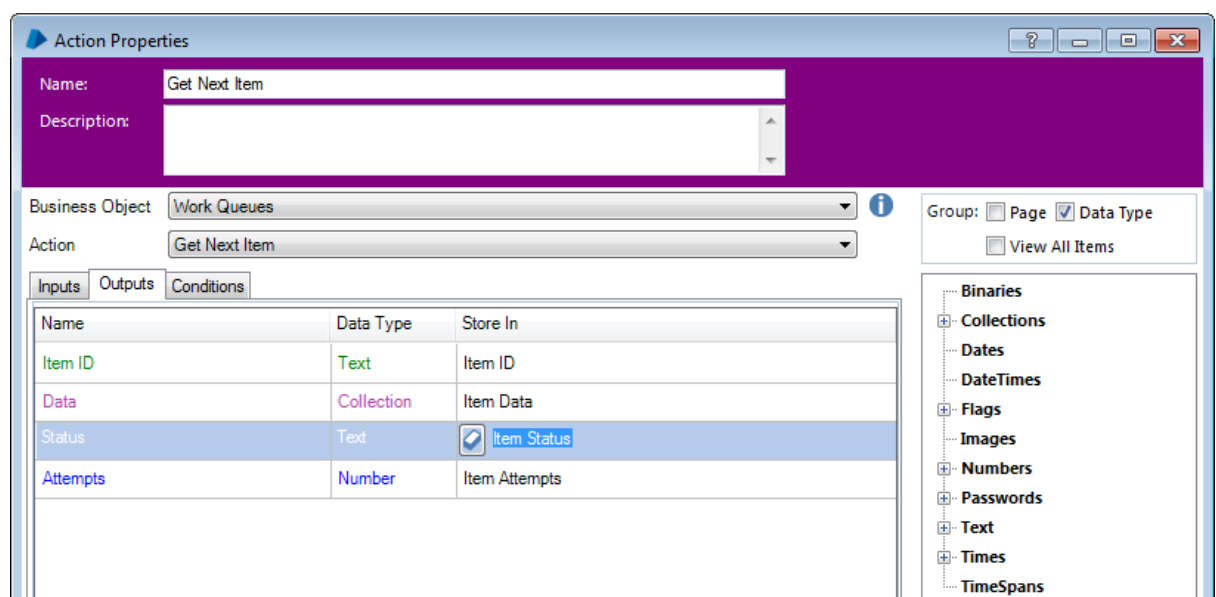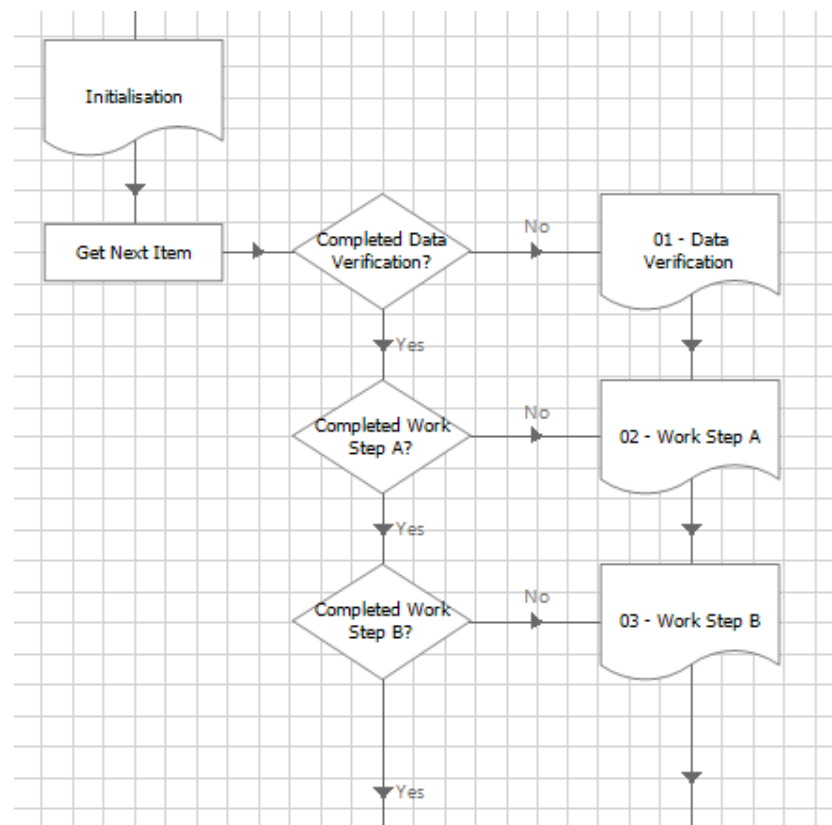- Does work from one type of customer have a shorter SLA than items from another type of customer?

- Does the source of work come in an order other than oldest request first?

If you do need to control the order in which Work Queue items are worked, Blue Prism gives you numerous options:

- You could have multiple Work Queues for the same work, and work them in order of priority

- You could use tagging for work with different SLAs, using process logic to work items tagged with the highest priority first

- You can use the Work Queue priority (explained below). This is only an option if you know what the priority should be when the item is first added to the queue.

4.1 Setting and using the item Priority

Setting the Priority for a Work Queue item is done when the item is first added to the queue using the Add To Queue action. The Priority of an item cannot be changed after it has been added to the queue.

To set the Priority for an item:

- Populate the Priority input parameter of the Add To Queue action

- Items are worked in order of lowest priority number first, so an item with Priority set to 1 will be worked before an item with Priority set to 2.

- If the Priority input parameter is not set, the default value of 0 (highest priority) is used.

To use an item's priority, you need to do nothing different as it is always used by the Get Next Item action, even if you are not setting the Priority input parameter. The next item to work is always returned in order of priority, and then date loaded into the queue (oldest first).

Figure 11   Setting Item Priority

4.2 Priorities – Other Considerations

It is important to ensure work items given a lower priority are eventually worked. If your process is configured to prioritise work in an order other than the default first in first out, there is a risk that lower priority work might never be worked.

To circumvent that risk your options include:

- Ensure that there is always enough robots working the process to clear all work each day

- Design a solution that uses more than one method of prioritising, adding logic to your design that works lower priority items if they are over a configured age.

- Include SLA monitoring and alerting to your solution, to ensure Blue Prism Controllers are informed if work items are at a risk of missing their SLAs. The Controller can then take the appropriate action if required.

SLA monitoring could take the form of either an occasional check within your processes, or a separate process that runs throughout the day, querying your Work Queues to check the age of the oldest unworked item.

5   Encrypting Work Queues

The data held by each work item is stored in plain text on the database by default. The queue can be configured to encrypt the data automatically when it is saved to the queue, and decrypt it automatically when it is retrieved from the queue.

To enable encryption on a queue, an Encryption Scheme must be configured for the current environment.

To change the encryption scheme or disable encryption, go to System and select Work Queues. Then select the desired queue and use the checkbox and drop down list to choose the encryption state of the queue.

Figure 12   Setting Queue encryption

If the key for the selected scheme cannot be found then it will be appended with Unresolved Key and, as such, any work item operations in this queue are likely to fail.

Like the other queue configurations, changes are not saved until the Apply button is pressed.

Only the Item Data is encrypted. If items already exist in the queue before it is set to encrypted, only new items will be encrypted once added to the queue. Encrypted items remain encrypted if encryption is turned off, although Get Next Item action stages will continue to work.

6 Item Resolution Best Practice

When a Work Queue is used to feed a process or recording MI, queue items are finished by being marked as "Exception" or "Completed". We know to expect Business Exceptions and System Exceptions, and in all probability there will be different types of each. Similarly, there may well be more than one way to successfully complete an item. In other words, an item will have many potential resolutions, both successfully completed and uncompleted for either business or system reasons.

6.1 Tagging Completed Items

If a process is successfully completed to a conclusions (no more working is required on the case) the work queue item should be tagged as completed, with a brief completion type. For example, an item might be tagged as "Completed – Account Closed" or "Completed, Account Already Closed". There may be numerous completed statuses depending on the complexity of the process, and each should be tagged.

Because tags show up on the Blue Prism Performance Report, tagging completed statuses provides an easy way to keep track of how many cases complete with each completion reason.

6.2 Tagging Main Exception Categories

The Blue Prism product allows developers to create as many types of exceptions as they wish. However, all exception types will fall into one of two main categories, System Exception or Business Exception, and a work queue item being marked as an Exception should always be tagged with one of these categories. The System Exception and Business Exception tags are used to summarise exception category details on the Blue Prism Performance Report.
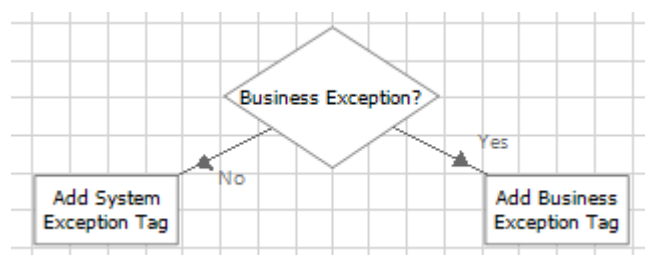
Figure 13   Determining Item Tag

6.3 Templates

It is strongly recommended that the Blue Prism Process Templates are used as the basis for all processes created in Blue Prism. Using templates ensures processes are easy to configure and support, and how Work Queues are used is consistent across all processes that are created.

By using Process Templates:

- Where the Work Queue is loaded with new work and where the Get Next Item action is used is standardised across all processes

- All complete cases are routed through a "Resolve Item" page and all exception items are routed through a "Resolve Exception" page. This is easier to develop and support than having multiple Mark Exception and Mark Completed stages throughout your process

- Process development is quicker because examples are provided of different Work Queue loading scenarios

- It is easier to familiarise yourself with already created processes since they follow similar templates.

7   Design Examples

Most processes will follow a simple flow that adds items to a single Work Queue, works the items in the queue in a linear flow, and marks each item as Complete or Exception. There will be times where the process being automated requires a more complex use of Work Queues. In the following slides we will look at the following examples of more complex work queue designs:

- Multiple-Part Processes: where a case needs to be worked in multiple parts at different times

- Parent/Child Relationships: where individual Work Queue items must be linked to a single request

- Using Workflow Systems: where work is driven from an external system rather than from a Blue Prism work queue

- Real-time work requests: where requested are added throughout the day and must be worked in a short SLA period

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7.1 Multi-Part Processes – Deferring and Multiple Queues

Some business processes involve work that is not worked immediately end-to-end, but instead requires a period of time to pass between some of the process steps.

Examples of multi-part processes include:

- System updates that require time to complete before another update can be done/ For example, a process might remove a flag from an account which will allow other process updates to be done. The other updates will not be enabled immediately after the flag is removed.

- A part of the process must be completed manually by a member of staff, the process involves "hand-offs" between the automated solution and manual staff

- The process must give a period of time, or days, for a customer to respond before it can be completed. For example, a letter is sent to a customer informing of an Account Closure, and a number of days must pass before the account can be closed.

There are two main Work Queues designs to split a business process into a multi-part robotic solution. You can either:

- Use a single Work Queue and defer the item for the required period of time

- Use multiple Work Queues and Processes for the different stages of the business process

Deferring

In the Foundation course you will have learnt how to defer a Work Queue item. Deferred items are temporarily frozen in the Work Queue until the deferred datetime has passed.

Figure 14   Deferring an Item

If you are deferring items within your process as a way of making your process a multi-part one, you will need a method of recognising that a Work Queue item is one that was previously deferred, and skip to the point in the process from which processing should continue. This can be achieved by using the Item Status and decision stages, in the same way as described earlier in this document. For example, if the status of an item is "05-Deferred for system update" your decision stage may route the process to step 06 of your process.

Using deferring as a method for a multi-part process is best suited to:

- Processes where the separation period (minutes rather than days) and/or

- Processes where not every item needs to be deferred

Using a single Work Queue makes reporting of the process easier. The process performance will be reported in a single Blue Prism Performance Report.

However, there are disadvantages of deferring:

- Processes that use deferring as method of segmenting work tend to be more complex, with additional logic to refer items, and also to continue working items from the correct place once the items deferral datetime has passed.

- Monitoring and managing Work Queues that make use of deferring items may not be as easy for Blue Prism Controllers, especially if the defer period is multi-day.

Multiple Queues

Another method of separating out your multi-part business process is to use multiple Work Queues, each with a single Blue Prism process working it. Effectively, you are splitting your process at each point where a delay in processing or a hand off is required.
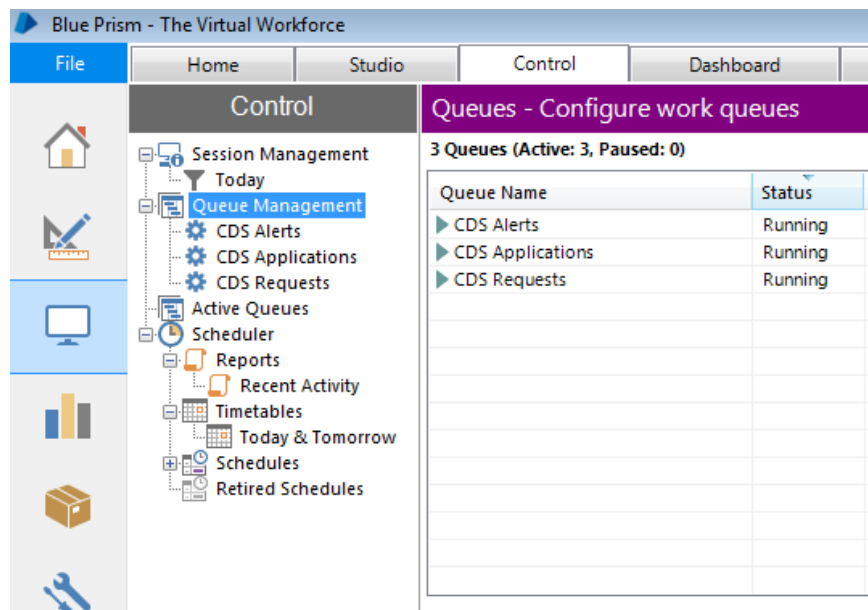
Figure 15   Multiple Work Queues for one Business Process

For example, the manual business process could be: Step 1, Step 2, a wait for 14 days, Step 3, Step 4. The Blue Prism solution could be made up of two processes and two Work Queues:

Process 1 = Get Queue 1 Item, Step 1, Step 2, Create Queue 2 Item (deferred for 14 days), Mark Queue 1 Item as completed.

Process 2 = Get Queue 2 Item, Step 3, Step 4, Mark Queue 2 Item as completed.

Using multiple queues as a method for a multi-part process is best suited to:

- Processes where the separation period in work is longer (days) and/or

- Processes where every item needs to be processed in multiple parts

There are some advantages of using multiple Work Queues rather than deferring queue items:

- It is easier to monitor and manage multiple Work Queues. The Controller can easily see outstanding work in each Work Queue and reallocate robots accordingly

- The multiple processes will each be far more simplistic than a single complex multi-part process. This will be easier to build, test and support.

However, there are some disadvantages of using multiple Work Queues:

- Using multiple Work Queues can make it more difficult to gain a single view of the Business Process. The standard Blue Prism Performance Report will generate a separate report for each queue, meaning that you have multiple performance reports for a single process. To get around this, you could create your own reporting process.

7.2 Parent/Child Relationships

Parent/Child Relationships are where individual Work Queue items must remain linked in some way to other items in the same Work Queue to which they have a relationship.

For example:

- A business process is triggered by an Excel spreadsheet containing hundreds of items to work. Multiple spreadsheets may be received to work throughout the day

- A Work Queue item is created for each item in the Excel spreadsheet

- When all the items in a spreadsheet have been worked, an email needs to be sent with details specific to the items on that spreadsheet.

In this example the Blue Prism solution requires a method of knowing when all items that came from the same Excel spreadsheet source have been worked, and retrieve information from those related work items for the output email.

Creating a Parent/Child Relationship

The recommended way to maintain Parent/Child Relationships is by:

- Tagging related child items with a "Key" Item Tag that only they are tagged with

- The use of an additional Parent Work queue, providing a single view of the related work

Tagging related items

As you add the child items to the Work Queue, tag them with a key value that will be unique to all the related items. For example, you could tag the item with the name of their source, (i.e. an Excel filename), and/or tag the datetime that the request was received.

Creating a Parent Work Queue item

It is a good idea to give the Child and Parent Work Queues the same name, but with a "Child" and "Parent" suffix on the queue names. This will ensure the Work Queues can be easily viewed together in Control Room.

Only if all the child items are successfully added to the "Child" Work Queue should the Parent Work Queue item be created. A Tag such as "Parent Created" can then be added to all the Child Items used by the process that works the queue to ensure items are only worked if that tag exists.

The flow of adding Parent/Child items to Work Queues is as follows:

- Get new work from the work source (i.e. Excel, Web Service, Database, Workflow System etc...)

- Add child items to the "Child" Work Queue. Store the Item ID for the new child items so that they can be subsequently tagged

- Tag each Child item with the same "relationship key"

- When all child items are added, add a single item to the "Parent" Work Queue. The Item Key will be the same as the relationship key Item Tag added to the child items.

- The item data for the Parent item could include all the item keys of the child items, this can then drive the output once all child items have been worked.

- Tag each item with the Item Tag "Parent Created"

After following these steps you will now have Child Items ready to be worked by your Blue Prism process, and a closely related Parent Item in a separate "Parent" Work Queue.

Using the Parent/Child Relationship

Once you have created your Child and Parent Work Queue items, the following steps outline the main process flow:

- Your main process flow will get work from the main Child queue using the Get Next Item action

- Once the Item is Worked and Marked as Completed or Exception, the following steps can be taken:

Use the Get Report Data action to search for unworked items in the Child Work Queue with the same relationship tag as the item just worked

If there are unworked items found, no further action is required and your process can continue onto the next case, skipping the following steps

If there are no unworked items found with the same relationship key, it means that all the child items have now been worked

Get the Parent item to work using Get Next Item. If the Parent Item is not available it means that another robot has already worked or is currently working the Parent Item. Your process can continue on to get the next child case to work, skipping the following step

If the Parent item is successfully locked, it can be worked. Any Parent level actions that need to be taken by the process can be taken (i.e. sending a work complete confirmation email), and the Parent item can be marked as completed.

Ensuring the Parent/Child Relationship

It is important to ensure that the Parent/Child Relationship of your work items is maintained. A poorly designed solution might have the following risks:

- An "orphaned relationship" where some or all child items are added to the Child Work Queue, but no Parent Work Queue item exists for them.

- A "broken relationship" where at least one of the following exists:

Work on Child items starts before all Child items and the Parent item is added to the Work Queue

Not all Child items are added to the Work Queue but the Parent item is created

Something occurs after the Work Queues are populated to delete a Child or Parent item from the Work Queue (i.e. a Controller manually deletes them)

- A problem or exception when working the Parent Work Queue item leaves the final Parent workflow incomplete, and therefore all the child items are also incomplete.

Integrity Checking

To circumvent the risks of a Parent/Child Work Queue relationship, an "Integrity Check" work flow is recommended. The integrity flow may either be in the process that works the business process, or in a totally separate checking process ran daily.

The integrity check flow should:

- Ensure that all parent items have the correct number of child items, and all child items have a "Parent" Work Queue item.

- Ensure no "Child" items are "trapped" within the solution. This could be a simple check upon the age of child and/or parent items

- Ensure that all Parent items with all child items completed are successfully worked

The Integrity Check could simply send an alert to the Blue Prism controller if any issues are found.

7.3 Using Workflow Systems

Some business processes use a Workflow System to manage, monitor and allocate work.

How work is collected from the Workflow System will depend on how the system works, but usually it is one of the following:

- Users navigate to a work list where all outstanding items are shown. Users simply select and item not showing as locked

- Users take an action, such as clicking a "Next Item" button and the next item to work is opened and locked to that user

Even though there is a Workflow System managing and allocating work, a Blue Prism Work Queue should still be used for the following reasons:

- So Blue Prism Controllers can see what each robot is currently working on

- For reporting purposes

Loading Work

There are two main methods of a Blue Prism process getting work from a Workflow System:

Method 1: Load all work from the Workflow System into a Blue Prism Work Queue at once. Blue Prism robots get items to work from a Work Queue instead of from the Workflow System

The process may take the following steps to load work:

- Using an Environment Lock to ensure only one robot goes to load new work

- Navigating the Workflow System to a view of all unworked items

- Load all unworked items from the Workflow System into a Work Queue

The Main process flow may then take the following steps to work items:

- Get Next Item from the Blue Prism Work Queue to get the case to work

- Search the Workflow System for the case

- Work the case as per the Process Definition

- Mark the item as worked in the Workflow System or move the item to a different user/queue/inbox in the Workflow System to be manually completed

- Mark the item as Completed or an Exception in the Blue Prism Work Queue

Method 2: Blue Prism robots get cases to work directly from the Workflow System. For each case, an item is added to the Blue Prism Work Queue and immediately locked for work.

The main process flow may take the following steps to work items:

- Gets the next item to work directly from the Workflow System

- Add the item to the work queue, tagging the new item with the robot computer name

- Immediately lock the work queue item it has created, using the computer name tag to ensure it locks the item it is working

- Work the case as per the process definition

- Mark the item as worked in the Workflow System or move the item to a different user/queue/inbox in the Workflow System to be manually completed

- Mark the item as Completed or an Exception in the Blue Prism Work Queue

Other Considerations – Monitoring outstanding work and SLAs

When a Workflow System is used, the method of monitoring work to ensure SLA's are met remains unchanged by the Blue Prism solution.

- The Blue Prism Work Queue should not be used to monitor the amount of outstanding work. The Work Queue will only show outstanding work that has been loaded into Blue Prism, not all the outstanding work in the Workflow System

- The Workflow System should be accessed and monitored for a view of what work is outstanding.

If the requires of the Blue Prism solution includes using Blue Prism to monitor workloads, it is recommended that a process proactively checks the Workflow System for outstanding work and sends an alert to Controllers if SLAs are at risk of being missed.

Other Considerations – Performance Report – "Lost Time"

When getting work items one at a time from the Workflow System (Method 2) it is possible that there may be some processing time not recorded in the Blue Prism Work Queue. This can

occur if you mark an item as Completed before getting the next item from the Workflow System.

For example, your process may take the following steps:

- Get next case to work from the Workflow System

- Add item to Blue Prism Work Queue

- Work case and mark Work Queue item as Completed

- Get next case to work from Workflow System

- Etc…

In the above flow, the processing time to get a case from the Workflow System (between steps 3 and 4) would not be included in the Blue Prism Performance reports. To rectify this, your process could instead only mark a Work Queue item as completed after attempting to get the next case to work from the Workflow System

7.4 Real-time Work Requests

Some processes get work requests throughout the day that need to be worked within a very short SLA timeframe.

Examples of this type of process include:

- A process that marks patients as arrived in a hospital, so the relevant department can see that the patient is in the hospital

- A web service request for information, instigated from a user's smartphone and needed by the user to be able to perform work for a client

- A type of work request that needs to be worked quickly due to the expectations of the customer and the industry. For example, the cancellation of a Direct Debit Instruction by an online banking customer, or the addition of a feature to a Smartphone by a telephone customer.

Not working such requests in the expected timeframe could lead to decreased customer satisfaction or increased costs in downstream processing.

Recommendations

The following are recommendations for automated solutions working short SLA or real-time requests:

- **Separate the work request confirmation from the work.** With Blue Prism, work will never be completed instantly, it will be queued and processed via the User Interface. The source of the work request should be designed with this in mind. For example, if a work request comes via a Web Service call, Blue Prism should simply add the request to a Work Queue and respond (output) that the request has been received.

- **Allocate Enough Robots.** Ensure enough robots are allocated to work the Work Queue at peak times with the Expected SLA. A method of alerting the Controllers should be designed into a solution to inform them if an SLA is at risk of being missed. Work Queues can be reported upon to estimate whether the available capacity is enough to meet expected work loads

- **Have a robust contingency.** Contingency planning is an integral part of a Blue Prism framework. Ensure expected SLA times are included in your contingency plans.

8 Active Queues

Using the traditional session management model, sessions are started on resources which poll the work queue for cases to work. These sessions are started in Control Room manually, or via a scheduler service which is running on a Blue Prism Server instance.

Active queues introduce an alternative mechanism for managing the sessions which work the queues, made possible by creating a closer association between work queues and sessions.

Instead of creating sessions separately in Control Room and then moving to the queue management page to see the results, active queues allow you to set a target number of resources which should be working the queue, Blue Prism uses the active queue configuration to determine how to achieve that target.

Active Work Queues are only useful when running dozens of sessions for one process. When this is not the case, the benefits of Active Work Queues will not be realised.

8.1 Active Queue Requirements

In order for Blue Prism to determine how to start and stop sessions on behalf of a queue, it needs to know two things about the queue:

- Which process works the queue?

- Which resources should be used to work the queue?

This information is set in the Work Queues page under Workflow in the System section of the Blue Prism client, by associating a published process and a resource group with the queue.

With this information, Blue Prism can find an available resource and create a process on it which will then work the queue.

In order to stop a session which is running on behalf of an active queue, a 'stop request' is made to the session, allowing it to ensure it does not stop in the middle of a transaction. See the process requirements for more detail.

8.2 Process Requirements

In order to operate on behalf of an active queue, a process must meet some basic requirements:

- The process must be published before it can be set as the assigned process in an active queue.

- Assuming that the process contains a main loop, the function IsStopRequested() must be queried using a decision stage within that loop in order to ascertain if a safe stop has been requested.

This is the mechanism used by the active queue controller to stop sessions running on behalf of active queues that it is controlling.

Check the Active Queues chapter of the Blue Prism help file for more information.