

What you should know
before you start
**Migrating to
IBM Business
Automation Workflow**

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So you're moving to IBM Business Automation Workflow and Need a Plan...

Migration is the process of moving applications and configuration data from an earlier version of a product to the later version of the product, or one product to another.

Consider this: Are you migrating for the right reasons? Here's why you should:

- To improve performance
- To fix requirements that can be only happen with a new version
- The new version of the software has features you need
- Your current product is going out of service

If you've answered yes to any of these questions, then you're in the right place. Read on to learn about planning your migration



Performing a Migration Test is Useful for the Following Reasons:

- Estimating in advance the amount of downtime that will be needed for migration.
- Making sure that the new version improves performance.
- Making sure that the required fixes are in the new version and work as expected.
- Making sure that your existing applications work correctly in the new version.

Performing a Migration Test Best Practices

The following factors must be the same in both the test environment and the production environment.

- Operating system type and version
- Database type and version
- IBM® Business Automation Workflow version
- WebSphere® Application Server version
- IBM Business Automation Workflow topology.

Should I Perform a Migration Test?

Before you migrate any production environment, make sure to migrate your staging or test environment and perform a test on your applications in the new environment.

Should I Perform a Migration Test?

Note: If you are not testing for the amount of downtime, you might not care about disk space, memory, or processor.

Test the migration. Make sure that all the migration steps run successfully. Use your test cases to make sure that all applications work correctly after migration. Make sure that you note all changes to your application and keep track of everything that you moved to the new environment to help when you migrate the production environment.

Choosing a Migration Approach

Before you migrate your systems, you can choose to **migrate artifacts only** or you can choose to **migrate artifacts in your test and development environments and then migrate business data and applications** in your staging and production environments.

Examples of artifacts include designs, requirements, source files, plans, scripts, simulations, models, test plans, and binary executable files. In an HTTP context, artifacts have a URI and are called resources.

Reasons to Migrate Artifacts Only

- You can keep two systems running in parallel until all existing processes have completed.
- You are changing database vendors.
- You are upgrading from IBM BPM Express.
- You do not have long-running process instances and human tasks, or you can run parallel production environments while you drain the process instances and human tasks in the source environment as new instances are started in the target production environment.
- Your business cannot tolerate a production environment downtime window to perform the migration.

Reasons to Migrate Artifacts and then Migrate Business Data and Applications

- You have long-running process or human task instances that started in the source environment and must complete in the target environment.
- You have product data in queues that were created in the source environment and this data must survive the migration and be managed in the target production environment.
- You want to move your applications to the target version without a dependency on the development tools and the development environment.
- Your business can tolerate a production environment downtime window to perform the migration.

Should I Migrate Artifacts Only or Migrate Artifacts in Test and Development Environments?

Migrating Artifacts

To migrate artifacts, you create a parallel target production environment that is configured from scratch differently from the source production environment.

After you have migrated the artifacts, you can modify your applications to use the new capabilities that the latest version of IBM Business Automation Workflow contains. You can then test and deploy the applications to the parallel target production environment.

When the applications are deployed to the target production environment a new set of database tables are created, so the applications do not have access to the application data that is stored in the databases that are configured for the source production environment.

There are two approaches that you can use when migrating artifacts: the **drain approach** or the **milestone-transfer (restaging) approach**.

Drain Approach

With the drain approach, you migrate artifacts to the new system and let the existing process instances in the old system run to completion. This process is called the drain approach because the existing process instances are drained from the old system. Then you start all new instances in the new system.

Milestone-Transfer

With the milestone-transfer approach, you transfer the process instance state midstream. You let the existing process instances in the old system run to a designated set of business milestones and then start new instances in the new system from those milestones. This approach is not supported by the system and requires custom coding to perform the transfer.

Migrating Artifacts and then Business Data and Applications

When you migrate artifacts and then migrate business data and applications, you migrate the artifacts in your development and test environments and then you migrate the business data and applications in your staging and production environments.

To migrate business data and applications, you export the configuration information from your current environment (the source), modify it for your new environment, and transfer the modified configuration information into your new environment (the target). Then you point to your databases from your new environment and update the databases.

Alternatively, you can clone your databases and use the cloned databases to test the migration before you migrate your production environment.

When all applications are working in the new system, you convert the databases to make them compatible with the new system. For a procedure to follow, see [Migrating artifacts and then business data and applications](#).

This approach works on one deployment environment at a time. If your environment contains multiple deployment environments, consider the relationships within your topology so that you can map them properly in the target environment.

Benefits and Drawbacks of Migrating Artifacts with Different Approaches

Benefits	Drawbacks
Migrating Artifacts (Drain Approach)	
You can migrate one application at a time	Historical information not moved to new system
No system downtime required	Two systems must be running in parallel until all existing properties have been complete
You're able to change database vendors	There must be a separate Heritage Process Portal for users of two systems, unless you use a custom federated portal.
Migrating Artifacts (Milestone Transfer Approach)	
You can migrate one application at a time new to the system	Historical Information not moved to new system
No system downtime required	Two systems must be running in parallel until all existing properties have been complete
You're able to change database vendors	There must be a separate Heritage Process Portal for users of two systems, unless you use a custom federated portal.
Depending on your setup with milestones, the migration of instances can be shorter as compared to the drain approach	Custom development of the transfer process is required and could be complicated depending on the existing process design and where records are stored.
Migrating Artifacts and then Business Data Applications	
All historical information is preserved	There are more steps to perform as compared to the other migration methods
	System downtime is required and could take up to between 24 and 48 hours depending on the database size.
	All applications must be migrated at the same time

Migrating Multiple Databases

Before you migrate to IBM Business Automation Workflow, consider the databases and schemas that you want to create and the ones that you want to reuse.

Note: Before upgrading your production databases during migration, it is a good idea to clone the databases and use the cloned databases to test the database upgrade.

This test method prevents your production databases from being corrupted and you can start your source environment again if required. You can keep your source environment running and do the migration testing in parallel using the cloned databases, as long as you make sure that your test environment is isolated from the production environment.



Here's what to do to make sure you're prepared and all systems are go for your migration to IBM BAW.

1. Perform a Premigration Cleanup

To keep your migration organized, it's important to clean up your environment. A well-maintained environment is a happy one.

2. Removal of Default Users and Authentication

IBM Business Automation Workflow now uses role-based user assignments instead of default users. Think of it this way, removal of default users means removal of future headaches.

3. Enable Password Encryption

If encrypted passwords were a big part of your IBM Business Process Management configuration, you'll want to make to enable this functionality.

Premigration Cleanup Checklist

- ❑ Remove runtime data from Process Database associated with business process definition (BPD)
- ❑ Delete your unneeded tasks from process database
- ❑ Delete snapshots and their dependencies if you no longer need them
- ❑ Remove data that you no longer need from the Performance Data Warehouse database
- ❑ Delete used durable subscription messages from the LSW_DUR_MSG_RECEIVED database table

What To Do Before Migrating

Every great project, requires great planning. While there's excitement to move to an improved version of a software, if not executed with planning in mind it could lead to disastrous results.

Premigration Checklist #1

Remove runtime data from Process Database associated with business process definition.

Remove all runtime data from the Process Database associated with completed business process definition (BPD)

Completed BPD instances are not automatically deleted from the system. When a process instance is completed the instance is not needed anymore, therefore all of its associated tasks are closed, and future work is not possible with the instance.

If you do not delete the old completed instances, your team experiences slow performance on Process Portal and a potentially unusable state. Ignoring increases in database size could cause an increase in backup time and disk space. The recommended approach for this is to use the **BPMProcessInstancesPurge** command.

IBM Business Automation Workflow Admin > Health Management

Select a command to manage the health of the IBM Business Automation Workflow system. [Learn more.](#)

Delete Processes

Deletes the specified process instances according to their states, completion dates, process models, or process instance identifiers. This operation is asynchronous. Messages for this operation are available only in IBM Business Automation Workflow administrators are authorized to perform this call.

Parameters

*** states**
Select the states the process instances to be deleted need to be in.

finished
terminated
running
suspended
stopped
did_not_start

force
Set this parameter to the value 'true' if you want to delete process instances regardless of whether they are in an end state.

container
The acronym of the process application for which process instances are deleted.

versions
A comma-separated list of snapshot acronyms for which process instances are deleted. This parameter is only valid if the container parameter is specified.

ended_before
Only process instances that completed before this point in time are deleted. Specify the time in ISO 8601 format 'yyyy-MM-ddTHH:mm:ssZ'.

Note: Deleting old instances affects only the search for history items from Process Portal. When you run the delete queries, you can specify to delete only completed processes that are older than 30 days. Store any data that you really need in either the performance database or in another system of record for auditing or metrics.

Remove snapshots that are no longer required

You can delete an inactive process application snapshot on any test or production workflow server. The process that you use varies depending on whether you are using the IBM® Business Automation Workflow Advanced deployment environment or the Standard deployment environment. You might want to delete snapshots and their dependencies if you no longer need them or if you have concerns about space on your system.

Premigration Checklist #2

If you don't need them, delete snapshots and their dependencies.

The screenshot shows the IBM Business Automation Workflow Admin console. The top navigation bar includes 'Process Admin Console', 'Server Admin', 'Process Inspector', 'Installed Apps', and 'System Maintenance Status'. The left sidebar shows a tree view with 'Health Management' selected. The main content area is titled 'IBM Business Automation Workflow Admin > Health Management' and contains the following information:

Select a command to manage the health of the IBM Business Automation Workflow system. [Learn more...](#)

Delete Snapshots

Deletes process app or toolkit snapshots that match the specified criteria. Too many snapshots might cause your system to delete some snapshots from Workflow Server, ensuring first that they are inactive, have no running instances, and are not deployed that you archive named snapshots. Delete unnamed and archived snapshots when they are obsolete. This operation is asy operation are available only in the system log. Only Business Automation Workflow administrators are authorized to perform

Parameters

*** container**
The acronym of the process application or toolkit.

branch_name
Workflow Center server only. The name of the track that is associated with the process application or toolkit. If this parameter default track is used.

versions
Required for Workflow Server. Optional for Workflow Center server. Use a comma-separated list to specify multiple snapshots. If this parameter is specified, you cannot specify any other filters, such as values for the kept_number, created_before_version, or delete_archived parameters.

force

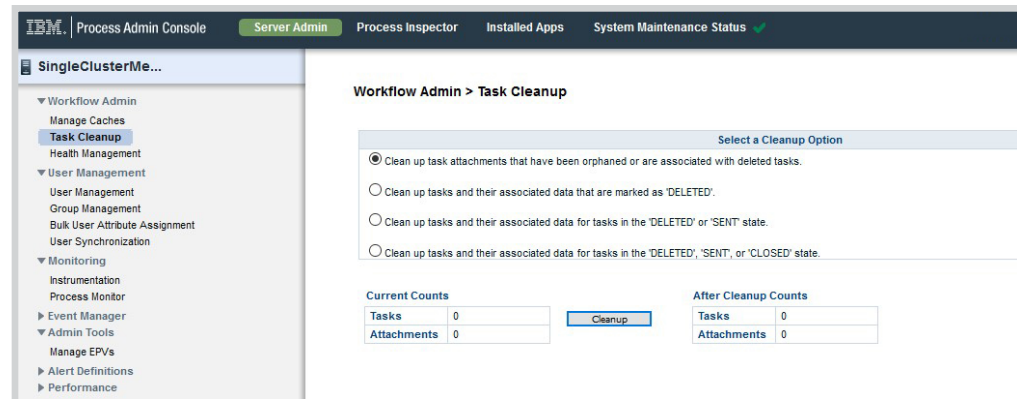
Submit Clear

Premigration Checklist #3

Delete your unneeded tasks from the process database.

Remove completed tasks

Delete your unneeded tasks from process database. To reduce the amount of space IBM® Business Automation Workflow uses, administrators can use the Task Cleanup utility in the Process Admin Console to delete tasks from the Business Automation Workflow Process database.



Remove durable subscription messages that have already been used

To delete used durable subscription messages from the **LSW_DUR_MSG_RECEIVED** database table, use the **BPMDeleteDurableMessages** command ran with the AdminTask object of the **wsadmin** scripting, This command deletes durable subscription messages according to their age.

The screenshot shows the IBM Business Automation Workflow Admin console. The left sidebar contains a navigation menu with categories like Workflow Admin, Health Management, User Management, Monitoring, Event Manager, Admin Tools, Alert Definitions, and Performance. The main content area is titled 'IBM Business Automation Workflow Admin > Health Management'. It features a dropdown menu set to 'Delete Durable Messages'. Below this is a descriptive paragraph explaining that the command deletes durable subscriptions based on their age. A 'Parameters' section contains three input fields: 'older_than' (with a tip about 24-hour interpretation), 'maximum_duration' (in minutes), and 'transaction_slice' (number of instances per transaction). 'Submit' and 'Clear' buttons are at the bottom.

Premigration Checklist #4

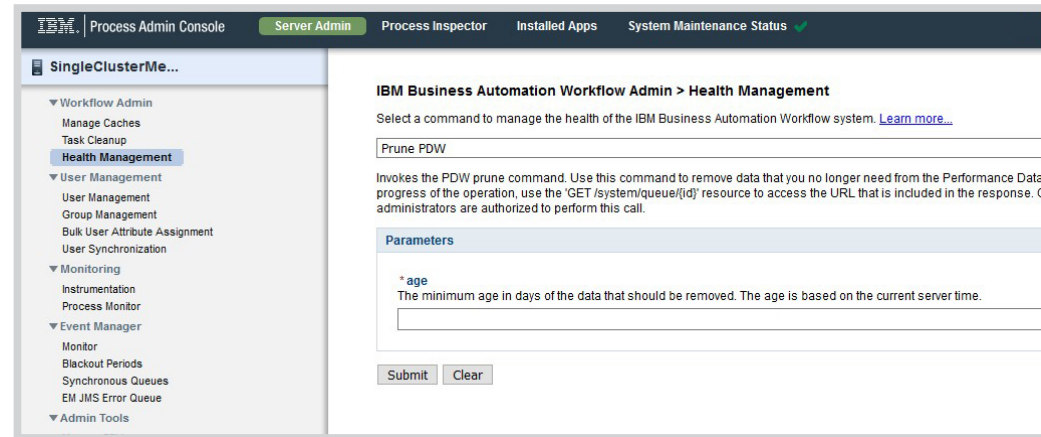
Delete used durable subscription messages from the LSW_DUR_MSG_RECEIVED database table.

Premigration Checklist #5

Remove data that you no longer need from the Performance Data Warehouse database.

Remove performance data warehouse data that is no longer required

To remove data that you no longer need from the Performance Data Warehouse database, you'll need to run the `prune` command as part of the **perFDWTool1**. This command is able to remove data is older than the number of days, defined by the `-days01d` parameter.



Removal of Default Users and Authentication

IBM Business Automation Workflow uses role-based user assignments to access interfaces, process applications, and toolkits. Based on this change, the default users from previous products have been removed. In addition, many of the authentication aliases have been removed. Before you migrate, check the list of default users and authentication aliases that have been removed.

If your applications are using aliases that have been removed, you must re-create them manually in the target environment after migration. If your applications are using users that have been removed, **you must assign the required security roles to them again after migration.**

Default users removed from IBM Business Automation Workflow
bpmadmin
bpmAuthor
tw_admin
tw_author
tw_portal_admin
tw_runtime_server
tw_user
tw_webservice

Authentication aliases removed from IBM Business Automation Workflow	
Bspace_Auth_Alias	WPSDB_Auth_Alias
WPSDB_Auth_Alias_XAR	SCA_Auth_Alias
BPC_Auth_Alias	BPMPrimaryAdmin_Auth_Alias
BPMAdmin_Auth_Alias	BPMAuthor_Auth_Alias
BPMUser_Auth_Alias	BPMWebservice_Auth_Alias
RALSecurity_Auth_Alias	processdblogon
processdblogon_XAR	performancedblogon
performancedblogon_XAR	PROCSVR_Auth_Alias
PERFDW_Auth_Alias	

Enable Password Encryption

If you enabled custom password encryption in your source Business Automation Workflow environment to protect passwords that are contained in your WebSphere® Application Server configuration, you must complete the following steps before migration.

1. Immediately after you install the new version of IBM Business Automation Workflow, copy the custom encryption JAR file to `install_root_V19.0.0.3/lib/ext`.
2. Before you run `BPMConfig -create -de` to create the deployment environment, enable the command script to support custom encryption.
 - a. From `install_root_V19.0.0.3/bin` on all Business Automation Workflow V19.0.0.3 installations, including the deployment manager and all nodes, open `BPMConfig.bat` for Windows or `BPMConfig.sh` for Linux or UNIX.
 - b. Find the Enabling custom password encryption comment block. Read the comments and then uncomment the lines to enable custom password encryption.
 - c. Set a WebSphere property to point to your encryption implementation class by changing the value of the `com.ibm.wsspi.security.crypto.customPasswordEncryptionClass` property to the name of your encryption implementation class.
 - d. Set any further properties that your encryption implementation class needs by adding `-Dkey=value` for any further properties.

If the custom password encryption class has additional properties and you want them to be handled automatically, the properties must be prefixed by the package name of the custom encryption class.

For example: If the class is `com.ibm.wsspi.security.cryptocustomPasswordEncryptionClass=com.acme.crypto.CustomPwEncryption` then the properties would be named `com.acme.crypto.keystore=${WAS_INSTALL_ROOT}/acme/crypto.jceks` and `com.acme.crypto.certalias=BPM`

Your Migration Process

Planning a migration isn't easy, and if not done correctly you could be creating more problems for your business and lose your investment.

We can help.

Our team of experts have been working with the IBM Digital Business Automation Platform for more than 30 years with a specialization in migration services.

Let's cut your migration project time in half and ensure you're correctly set up with our proven accelerator tools and unparalleled expertise.

Let's Get Started!



About Pyramid Solutions

Pyramid Solutions helps businesses around the world achieve more than they ever imagined with robotic process automation (RPA), business process automation, intelligent capture, decision management, natural language processing and capture.

Each of their innovative solutions drive greater operational efficiency by optimizing business processes to drive better productivity and customer satisfaction.

Time and again, clients trust Pyramid Solutions to resolve their biggest technological challenges and deliver best-in-class solutions with exceptional results.

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