Engineering Lifecycle Management 7.0

Upgrade Run Book Template

Revision History

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| --- | --- | --- |
| Rev # | Date | Author/Editor |
| 1.0 Initial release | 10 April 2020 | Jim Ruehlin, IBM |

Overview

Use this Runbook template to plan and execute your ELM 7.0 upgrade. Each organization's upgrade strategy is different due to different configurations, business processes, and organizational structures. So every upgrade should have a Runbook that clearly describes how to perform the upgrade.

The Runbook should be written so that someone who is NOT the author can perform the upgrade. The original author may not always be the person performing the upgrade for a release, upgrades may need to be replicated later, or there will be future upgrades that others may need to perform. Writing the Runbook with others in mind will also make it easier for other stakeholders to review such as mentors and DBAs.

Start by creating upgrade instructions using the [Interactive Upgrade Guide](https://www.ibm.com/support/knowledgecenter/SSYMRC_7.0.0/com.ibm.jazz.install.doc/topics/interactive_guides.html). This will provide detailed steps for the upgrade that you must then customize further to address the issues in your own environment.

This template is not a complete list of all the work and steps you may need to go through for your organization. The intent is to server as a starting point to document the research, planing, and steps to perform your upgrade.

Roles

|  |  |  |
| --- | --- | --- |
| Role name | Contact info | Description |
| User rep |  | The communication channel to users. This could be an individual, Slack channel, mailing list, etc. |
| ELM admin |  | Administrator responsible for upgrading ELM to 7.0 and for writing the Runbook. |
| DBA |  | Database Admins |
| Backup DBA |  | In case a DBA is urgently needed but the identified DBA isn't available. |
| Other IT administrators |  | Other IT admins that might be required in your environment such as LDAP/Security admins. |
| Backup IT administrators |  | In case an IT admin is urgently needed but the identified IT Admin isn't available. |
| Upgrade mentor |  | IBM staff or business partner assisting with upgrade |
| Upgrade manager |  | Approver of non-technical upgrade decisions (timeframe, personnel, etc) |
| IBM Support and CSPO | <https://www.ibm.com/mysupport> |  |

Pre-upgrade Steps

There's often a significant amount of work needed to prepare for upgrading an ELM instance. Information needs to be gathered, software versions need to be checked for compatibility, 3rd party software and hardware may need to be upgraded before or during the ELM upgrade, etc. Use these steps to assure you're prepared to perform a smooth and successful upgrade.

Larger or more complex upgrades often require days or weeks of research, organization, preparation, and testing in a staging environment. Your goal should be to successfully upgrade a replica of your Production ELM instance (including data) in Staging using the run book. This will significantly reduce your down time and risk associated with complex upgrades.

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Description | Required role(s) | Est. time |
| Review [Get Ready for ELM 7.0](https://jazz.net/blog/index.php/2019/12/20/get-ready-for-ibm-engineering-lifecycle-management-v7-0/) | Summary of the ELM 7.0 release | ELM admin  Upgrade manager  User rep | 1 hour |
| Review the [ELM Checklist wiki page](https://jazz.net/wiki/bin/view/Deployment/UpgradeMustReadList) | Provides general information and links to materials for upgrading ELM | ELM admin | 2 hours |
| Review the [Upgrade Planning](https://jazz.net/wiki/bin/view/Deployment/UpgradePlanning)article | This article provides advice and insight into planning your upgrade. | ELM admin  Upgrade manager | 1 hour |
| Review the [Upgrade Checklist](https://jazz.net/wiki/bin/view/Deployment/UpgradeMustReadList)article | Provides links to important reading to prepare for the upgrade. | ELM admin | 1 hour |
| Review the [ELM 7.0 Upgrade Notes](https://jazz.net/pub/new-noteworthy/install_upgrade/7.0/index.html) | These notes provide new and noteworthy upgrade information for 7.0 that you may not find elsewhere. | ELM admin | 1 hour |
| Review the [Upgrade Insider](https://jazz.net/wiki/bin/view/Deployment/UpgradeInsider)article | Provides information on recent known upgrade issues and tips | ELM admin | 2 hours |
| Search the tech notes for recent information about upgrades | Use [this search criteria](https://www.ibm.com/support/home/search-results?q=elm%20AND%207.0%20AND%20upgrade) for an initial set of relevant results. Adjust your plans and upgrade steps based on this latest information. | ELM admin | 1 hour |
| Review What's New for the release | Check if there are any new features you want to adopt or potential changes in your configuration due to new items. See the New and Noteworthy tab in the [ELM or product download pages on jazz.net](https://jazz.net/downloads/clm). | ELM admin  Upgrade manager  User rep | .5 hours |
| Review DOORS Next performance information | If you're upgrading DOORS Next, review the [7.0 Performance wiki page](https://jazz.net/wiki/bin/view/Deployment/RequirementsManagement70Performance)so you understand the changes to performance in 7.0. | ELM admin  DBA | 1 hour |
| Create strategy for RRCx diagrams | DOORS Next 7.0 does not display legacy RRCx-based drawings. If you need to reference these drawings you should have a strategy for making them available to users post-upgrade. | Upgrade manager | 4 hours4 hours4 hours4 hours |
| Identify steps needed to migrate from traditional WAS to WAS Liberty | If you use traditional WAS, [review the steps to migrate to WAS Liberty](https://jazz.net/wiki/bin/view/Deployment/MigrateFromTWAStoLiberty) and if appropriate add migration steps to the Upgrade Steps section. [Liberty is the preferred web server for ELM](https://jazz.net/wiki/bin/view/Deployment/LibertyVersusWASFullProfileForCLM). |  | 2 hours |
| Review add/drops for the release | [See if there's anything you must upgrade due to an added or dropped version](https://jazz.net/jazz/web/projects/Jazz%20Collaborative%20ALM#action=com.ibm.team.dashboard.viewDashboard&tab=_79). If an integration you're using is dropped you may need to identify an alternate solution. |  | .5 hours |
| Download ELM 7.0 with the latest iFix | See the [jazz.net Downloads section for ELM](https://jazz.net/downloads/elm). Be sure to get the latest iFix. | ELM admin | .5 hours |
| Obtain licenses |  | Upgrade manager | .5 hours |
| Create first draft of Runbook | Document the initial set of steps for the Pre-upgrade, Upgrade, Backup, Rollback, and Validation sections below. Use the [interactive upgrade guide](https://www.ibm.com/support/knowledgecenter/SSYMRC_7.0.0/com.ibm.jazz.install.doc/topics/interactive_guides.html) as a starting point for the Upgrade section. Do a first pass at annotating the steps based on the references in this section, your previous experience, and your knowledge of the deployment environment. | ELM admin | 12 hours |
| Replicate Production in Staging | Assure your Staging environment matches your Production environment (Hardware, software stack, ELM versions, database, etc). You will successfully upgrade to 7.0 in your Staging environment before beginning your Production upgrade.  If you don't have a Staging environment you should expect to spend a few days to create one. | ELM admin  DBA  Other IT admins | 4 hours if you already have an automated staging environment. 4 days if you don't have a staging environment. |
| Move LDX and GC off of the JTS server | If you have the GC or LDX applications on the same server as your JTS you should move them to separate servers. This is the deployment topology guidance for ELM 7.0. | ELM admin  Other IT admins | 2 days |
| Consider migrating from SQL Server | SQL Server is supported for ELM but it's not recommended for larger enterprise-scale deployments. If you use SQL Server you should consider migrating to a DB that will scale with your ELM growth. | ELM admin  DBA  Upgrade manager |  |
| Identify ELM stack upgrades | Document the [system requirements for all elements of the ELM stack](https://jazz.net/wiki/bin/view/Deployment/ELMSystemRequirements70)and identify components that need to be upgraded in order to run ELM 7.0.  Document your software versions in the Target ELM Stack section below. |  |  |
| Identify integration migrations | Add 3rd party integrations to the Target Deployment Topology. Identify steps to migrate the integrations with the ELM 7.0 upgrade, and add the steps to the Upgrade Steps. |  |  |
| Identify hardware changes | Review the [Sizing Strategy document](https://jazz.net/wiki/bin/view/Deployment/CLMSizingStrategy60)and identify any hardware changes required for the upgrade or to support new use cases.  Document your hardware in the Target ELM Topology section below. | ELM admin | 2 hours |
| Upgrade hardware | Install new hardware or upgrade existing hardware. | IT admins |  |
| Upgrade ELM stack | Perform upgrades of components in the ELM stack that can be done independently from the upgrade. For example, it may be possible to upgrade your database prior to upgrading ELM but you will upgrade Liberty servers during the ELM upgrade.  Consider creating separate runbooks for each component of the stack you upgrade. |  |  |
| Document backup steps for your ELM instances |  | ELM admin  DBA  Other IT admins |  |
| Identify an upgrade mentor | For complex upgrades you should consider getting assistance/review from the IBM ELM CSPO office or ELM Support by [opening a support case](https://ibmwatsonhealth.force.com/mysupport/s/?language=en_US), [IBM IoT Expert Labs](mailto://pkalampu@us.ibm.com/), or a business partner. | ELM admin  Upgrade manager |  |
| Document upgrade steps for your ELM instances | Create a fully detailed set of steps that can be used for upgrading to ELM 7.0 using the Upgrade Steps section below. | ELM admin |  |
| Document rollback steps for restoring the original ELM instances | This is necessary in case the upgrade fails. Use the Rollback Steps section below. | ELM admin  DBA |  |
| Review the classic test scenario | Review the [BVT test scenario](https://jazz.net/wiki/bin/view/Main/ClmTesting) for insight and planning. You may choose to use all or part of this scenario for your testing, or create your own testing scenario. | ELM admin |  |
| Document validation steps | Every upgrade must be validated to assure the software was upgraded successfully and that your data is complete and correct. Use the Validation Steps section below. | ELM admin  Upgrade manager |  |
| Successfully perform a  non-production upgrade | Successfully upgrade to ELM 7.0 in a staging environment using production data. The Runbook cannot be reliably created unless it's used to perform a successful upgrade.  You will likely use this step to help create the steps for Backup, Upgrade, Rollback, and Validation. | ELM admin |  |
| Open a pre-upgrade support case | For complex deployments open a support case to alert [IBM Support](https://www.ibm.com/mysupport) of the timeframe for the upgrade. This will aid Support in having the appropriate resources available for your upgrade. | ELM admin |  |
| [additional steps for your organization] |  |  |  |

Estimated time to perform pre-upgrade tasks:

This section should require little or no production downtime.

Backup Steps

Describe the steps required to backup your existing ELM instance. Include the time required to create and wait for IT tickets, the time needed to actually perform the test, and the time required to wait for automated tasks to complete steps. See the [Backup Strategies page](https://jazz.net/wiki/bin/view/Deployment/BackupStrategies) for some guidance on how to backup ELM.

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Description | Required role(s) | Estimated time |
| Gather existing system information |  |  |  |
| Prevent users from accessing the ELM instance | Users need to be removed from the system before the upgrade begins | ELM admin |  |
| [additional backup steps for your organization] |  |  |  |

Estimated time to backup the existing version of ELM:

Upgrade Steps

Describe the steps required to upgrade your existing ELM instance to version 7.0. Include the time required to create and wait for IT tickets and other roles to complete tasks, the time needed to actually perform the test, the time required to wait for automated tasks to complete steps, and the amount of time ELM will be unavailable (downtime).

Create your initial set of detailed steps by answering the questions in the [Interactive Upgrade Guide for ELM 7.0](https://www.ibm.com/support/knowledgecenter/SSYMRC_7.0.0/com.ibm.jazz.install.doc/topics/interactive_guides.html)

Some items to be aware of as you plan your upgrade and estimate the time required:

* rebuildTextIndices can be done online which will reduce your downtime. But we recommend you do it offline. It can take a while to rebuild the indices and text queries will not provide complete details until the rebuild is complete.
* Allow ample time for LQE reindex and TRS rebase if you have larger database. The best way to estimate the downtime is when you perform the rebase on production data in your staging environment.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Step | Description | Required role(s) | Est. time | Est. downtime |
| Prevent users from accessing the ELM instance |  | ELM admin |  |  |
| [Repair skipped resources](https://www.ibm.com/support/knowledgecenter/SSYMRC_7.0.0/com.ibm.team.jp.lqe2.doc/topics/c_lqe_trbl_skipped_resources.html) |  | ELM admin |  |  |
| [add steps from the [Interactive Upgrade Guide](https://www.ibm.com/support/knowledgecenter/SSYMRC_7.0.0/com.ibm.jazz.install.doc/topics/interactive_guides.html)] |  | ELM admin |  |  |
| [additional backup steps for your organization] |  | ELM admin |  |  |

Estimated time to complete the ELM 7.0 upgrade:

Estimated downtime:

Validation Steps

Be sure and test that your ELM 7.0 instance is working properly and the data is correct before making it available to your users. If the upgrade must be re-done after users have started entering new data, that data will be lost. For some examples of validation see the [BVT test scenario](https://jazz.net/wiki/bin/view/Main/ClmTesting). You'll also need to include tests that directly validates your ELM data.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Step | Description | Required roles(s) | Est. time | Est. downtime |
| Benchmark database performance | Test the performance of the upgraded system (with production data) to assure it meets your requirements. Record the results so you have a performance benchmark for future comparison.  You can use Performance Tester for simulating and tuning [EWM](https://jazz.net/wiki/bin/view/Deployment/HowToPerformanceTestCLM) and [Jazz-based](https://jazz.net/wiki/bin/view/Deployment/TuningForPerformanceTesting)products.  [Here's guidance on how to do performance benchmarking on your disks](https://jazz.net/wiki/bin/view/Deployment/DiskBenchmarking).  If you use Oracle and begin to detect performance issues, you'll want to understand the [performance of SQL statements on that DB](https://jazz.net/wiki/bin/view/Deployment/OracleSQL).  You can also compare your results against the [Performance sizing guides and data sheets.](https://jazz.net/wiki/bin/view/Deployment/PerformanceDatasheetsAndSizingGuidelines) |  |  |  |
| [additional backup steps for your organization] |  |  |  |  |

Estimated time to validate and approve the ELM 7.0 upgrade:

Estimated downtime:

Rollback Steps

|  |  |  |  |
| --- | --- | --- | --- |
| Step | Description | Required roles | Est. time |
| [additional backup steps for your organization] |  |  |  |

Total estimated time to rollback to the existing ELM deployment:

* Your downtime will be the same as the time it takes to rollback because ELM will not be available until rollback is complete.

Target (to-be) Deployment Topology

Describe the target (to-be) deployment topology. This is best done using diagrams and brief descriptions of how deployment components work together.

Hardware description (real and virtual)

Identify hardware (real and virtual) needed for each server, client, etc.

|  |  |  |
| --- | --- | --- |
| Item | Configuration | Notes |
| Server 1 | for example 2ghz 4 cores/64GB RAM/500GB disk |  |
| Client |  |  |
| [additional topology information] |  |  |

Target (to-be) ELM Stack

Describe all software and versions needed to run ELM 7.0 or that will integrate with ELM 7.0. See the [Deployment Wiki](https://jazz.net/wiki/bin/view/Deployment/DeploymentInstallingUpgradingAndMigrating) for software requirements.

|  |  |  |  |
| --- | --- | --- | --- |
| Application | Version required | Current app and version | Description |
| Engineering Lifecycle Management |  |  |  |
| DOORS classic |  |  |  |
| Other related ELM products |  |  | These are ELM products that will run at a different version or are not part of core ELM such as RMM and Rational Publishing Engine. |
| Server OS |  |  | e.g. RHEL |
| Client OS |  |  | e.g. Windows |
| DB |  |  | e.g. DB2 |
| Eclipse runtime environment (server) |  |  | Shipped with ELM |
| Identity manager |  |  |  |
| Reverse Proxy |  |  | e.g. IHS |
| EWM caching proxy |  |  | e.g. Squid |
| Java |  |  |  |
| Eclipse Client |  |  |  |
| Visual Studio client |  |  |  |
| Web server |  | Tomcat 8.1 | e.g. Liberty |
| Authentication server |  |  |  |
| Virtual machine app |  |  |  |
| Container application |  |  |  |
| IBM Installation Manager |  |  |  |
| License key server |  |  |  |
| Adobe Flash player |  |  |  |
| IBM IoT MessageSight |  |  |  |
| Web browser |  |  |  |
| [Hypervisor/virtualization](https://www.ibm.com/support/pages/node/719833) |  |  |  |
| Asset management |  |  |  |
| ClearQuest |  |  |  |
| Other config management |  |  | Git, GHE, ClearCase, BuildForge, etc |
| Other tools and integrations |  |  | Jenkins, Tasktop, RAD, instant messaging, etc |
| [additional topology information] |  |  |  |