

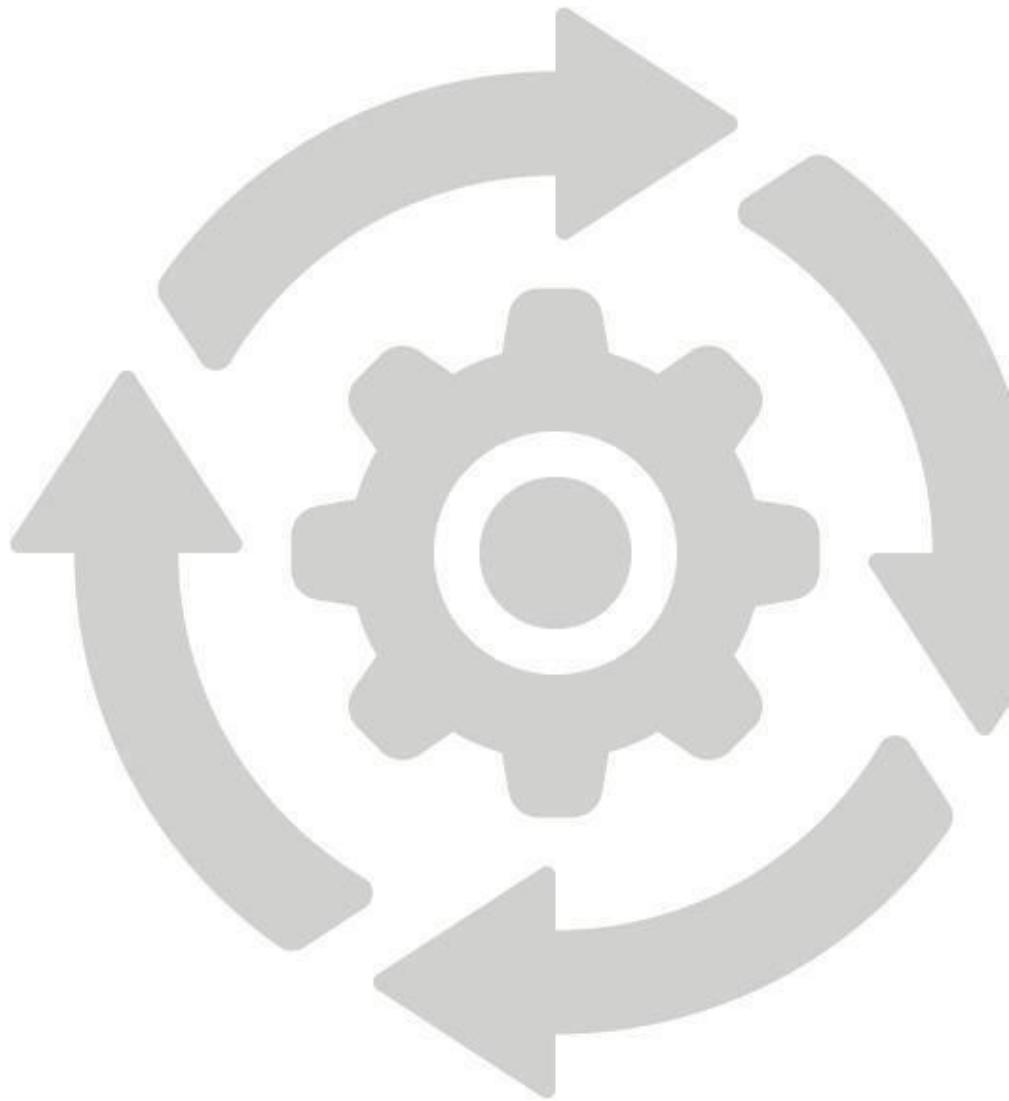
UPM Release Management Process Overview

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UPM 24.x

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Software Product Development Management Overview

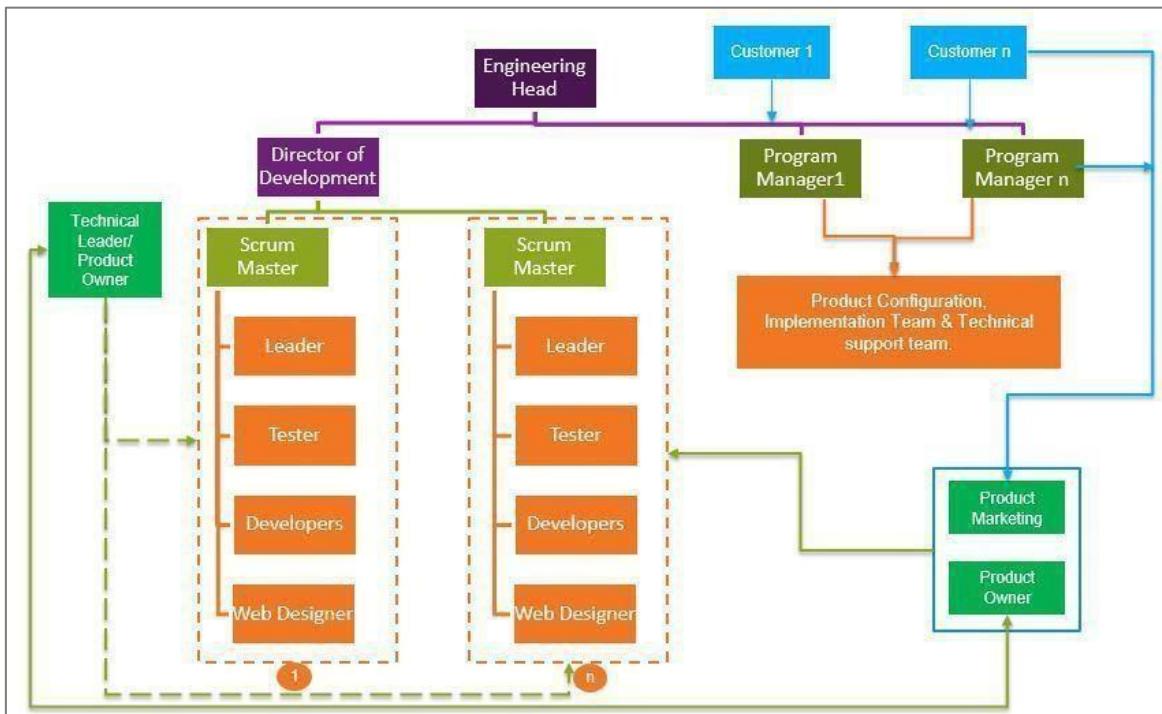
ZINFI has built a Customer Linked Innovation & Commercialization (CLIC) process where both market and customer inputs are taken in a structured way to build ZINFI's Unified Partner Management platform forward. The following functional roles describe in detail how CLIC activities are carried out.

- Director of Engineering: This person is responsible for the setting the overall process and architecture directions. This person also oversees schedules and moderates the Sprint reviews, estimation meetings and works with the product owner(s) to determine the release, finalize release scope and schedule, and to make sure there is always sufficient product backlog ready for each Sprint.
- Program Manager: This person is responsible for capturing customer requirements to build detailed statement-of-work, and also responsible for customer engagement, communication and working with the configuration team to configure any customer request. The program manager also works with technical support team to configure appropriate features properly.
- Product Manager: The product manager is responsible for the product or product lines; this person works with the director of engineering to finalize release schedules and scope and develops detailed use-cases that drive the release schedule. This person also works with technical product owners to gather necessary technical expertise and details for the program delivery team.
- Scrum Master: This is a senior developer that has also made the transition to a leadership role. This person drive the architecture and works with the technical lead to review code, and manage the flow of use-cases into the team throughout the Sprint process. This person is also responsible for coordinating with cross-functional team members for daily scrums, and retrospectives.
- Technical Product Owner: This person is responsible for helping the team in technical aspects. They work with product owner Product Owner and Scrum Master to define the product architecture/ design etc.
- Technical Support Manager: This person (and his team) has the primary responsibility of providing support to both internal and external customer requests. This person leads the effort on urgent requirements for a specific client, but then also manages the merging of the unique code to the main product releases by working with the overall development team and both product manager and technical product owner.

The following organization and work flow chart represents how ZINFI drives Customer Linked Innovation and Commercialization (CLIC) process globally.

Program Managers in each region act on a regular basis as a conduit for customer feedback into the engineering organizations. Certain experienced program managers act as a product manager also. To protect

exact organizational structure and employee details, the following diagram has been created to simplify the overall information and work flow through out ZINFI's CLIC process.



This organizational design has allowed ZINFI to build a global development team that is highly connected to the market and customer base, allowing ZINFI to innovate ahead of its competitors. ZINFI is the only vendor today that has an end to end channel management software platform and global services. These channel management capabilities are fully powered by state-of-the-art technology platform that ZINFI has built over the past eight years.

Software Product Release Process Overview

The following is a high level overview of ZINFI's CLIC based software product release process.

- **Staging / testing system**
 - First ZINFI's development team creates the features on a development server. Once the features are implemented and considered stable, then they get merged into the staging branch and then automatically deployed to a customer specific staging instances. ZINFI staging environment automatically creates a staging URL for each client. It is very convenient to have a separate staging URL as it allows developers to deploy multiple branches to the same location simultaneously, simply by merging everything that needs to be deployed. It also helps testers to understand how exactly the product will perform on the production server.

- Once a staging environment has been created, ZINFI's quality assurance (QA) process starts. ZINFI's quality assurance team goes through the staging instance and verifies that the functionalities do work as intended. Here the QA team performs the entire testing process from Smoke to Regression and when they find the percentage of the issues reduces to 2-5% of the use cases they request the Implementation team to push the build into the production environment. Depending on the nature of the feature set, a customer review meeting is set up, and only upon customer approval the features are released into the production environment.
- **QA Testing**
 - We are a product based company and we already have the basic documentations uploaded in our Test Management Tool. After getting confirmation on the requirements from the PM, we start developing the Test Plan and confirm the Use Cases with the PMs. Based on these our QAs prepares the Test Cases for the customer-wise requirements and append them with the Product Test Cases.
 - After completing the build, the Development Team uploads the solution on the Staging URL and QA-Team starts their activities on it.
 - ZINFI's test management methodology provides a clear and concise approach that focuses on detecting defects early through quality checks while identifying, quantifying, and mitigating risk. An integral part of the agile methodology, business driven test management assesses project/product risks to increase visibility and improve decision making. We use our in-house as the foundation for test management processes.
 - ZINFI Offers is a fully customized service in which we take responsibility for test activities at the program level. A collaborative approach to sourcing testing and QA services, ZINFI is the solution for clients who want to achieve high-quality systems as an integrated service without the expense of large overheads and day-to-day responsibilities.
- **Initiate and Plan:** QA is involved early in the SDLC to contribute to the overall project charter from a QA strategy perspective and to support the project from a testing perspective. Early involvement of the QA Lead reduces the knowledge transfer effort for the other stake holders.
- **Requirements Analysis Phase:** The Requirement Analysis Phase incorporates the Planning and Control phases when creating functional requirements. This provides the basis for a manageable and high quality testing process. The value of the development planning, the expected quality of the test object, organization of the various tasks and the availability of staff, infrastructure and time are factors that are taken into account in determining the test estimation and approach.
- **Initiate and Plan:** QA is involved early in the SDLC to contribute to the overall project charter from a QA strategy perspective and to support the project from a testing perspective. Early involvement of the QA Lead reduces the knowledge transfer effort for the other stake holders.
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- **Design Phase:** The Design Phase aligns to the Preparation Phase of the test management process. The first activity during this phase is knowledge acquisition of the Test Team. Once the first version of the

specification is ready with an adequate level of quality, the actual preparation activities begin. This phase consists of detailed review of the specification and other documentation that serve as the starting point for testing (Static Testing).

- **Build Phase:** The Build Phase is aligned to the Specification Phase of the Test Management. In this phase, the test cases are specified and the accompanying test infrastructure is realized. A test case consists of a description of the input, the process to be executed, and a prediction of the expected output. In parallel to the test design, the test infrastructure is constructed. Developers conduct unit tests during this phase and unit tests are reviewed and verified by the QA Team.
- **Test Phase:** The Verification Phase starts as soon as the first testable components of the software product are available and align to Execution Phase. When (parts of) the software product, the infrastructure and the test database are available, the first pre-tests are executed to check whether the main functions of the object can be tested. As soon as the pre-tests have been completed successfully, test execution can start using the test scripts to validate the functionality. If there is a difference between the test result and the expected result, it indicates a software product or specification defect, a defect in the test infrastructure, or an invalid test case.

Key Deliverables	Quality Checks	Action Plan
Test Execution Report	Integration test	Execute the tests at different levels, log and track defects to closure, capture relevant metrics
Defect Status Report	System test	
Execution and Defect	Regression test	
Metrics	Performance test	
Phase End Test	Automation (if applicable)	
Summary Report		
Process Compliance		
Report		

- Deployment Phase: The Deployment Phase map to the Test Management Completion Phase and support period, which occur after the completion of test execution.

- Our PMs do a round of UAT, i.e. the testing process and the quality of the product are evaluated in front of the customer. Quantities of statistics are used to improve the future planning and optimization of the testing processes, development processes, and the quality of the system.

By adapting to the process described above, the following additional advantages are anticipated, potentially reducing cost:

- Prevention and discovery of defects at an early stage;
- Test execution is the only activity on the critical path of the testing lifecycle;
- The test process is comprehensible, manageable and business driven.

Software Planning: We are using Microsoft VSTS for software planning and coding.

Ticket Processing: We have our own ticketing system. The customers/ partners can add a ticket with a detailed description of the request, with screen shots. Also, they can set the priority of the issue. The admin can view all tickets and their status etc.

Coding Strategy: we are using agile (scrum) process for s/w development.

Infrastructure: Please check the IT Infrastructure document for the details.

Staging Environment for Modifications: We always provide a staging environment for each customer organization. We first configure the customer request in the development environment. Then we move this to staging environment. Also, sometime we work directly into the staging environment that is a UI level configuration change. The customers are reviewing the changes in the staging environment and provide their feedback. Then, we move the changes to live after getting customer confirmation.

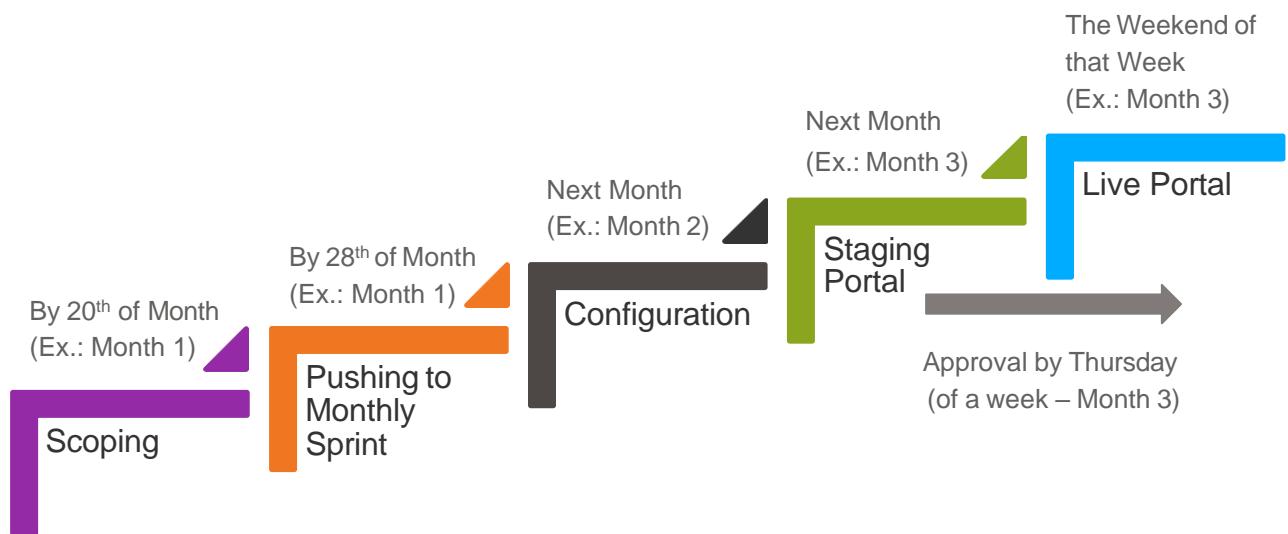
Multi-tenancy Hierarchy: Please check the attached multi-tenant documents for the details. Also, right in our platform the partners cannot view the campaigns of two customers in one organization. They need to login to the specific customer organization to get access of assets, campaign of that customer.

Release Management Process Flow

The release management process flow is overseen by the release management team, though they may decide to delegate some amount of their duties to subordinates. The job of the release management team typically encompasses the following duties:

- Scheduling, coordinating and managing releases across the enterprise.
- Building the Release Calendar in working closely with the departmental managers and centralizing view of the releases.
- Assist in project management and interdependencies for milestone.

The release management process flow of UPM at ZINFI is fairly straightforward, though it can be broken down into numerous subsections, as follows:



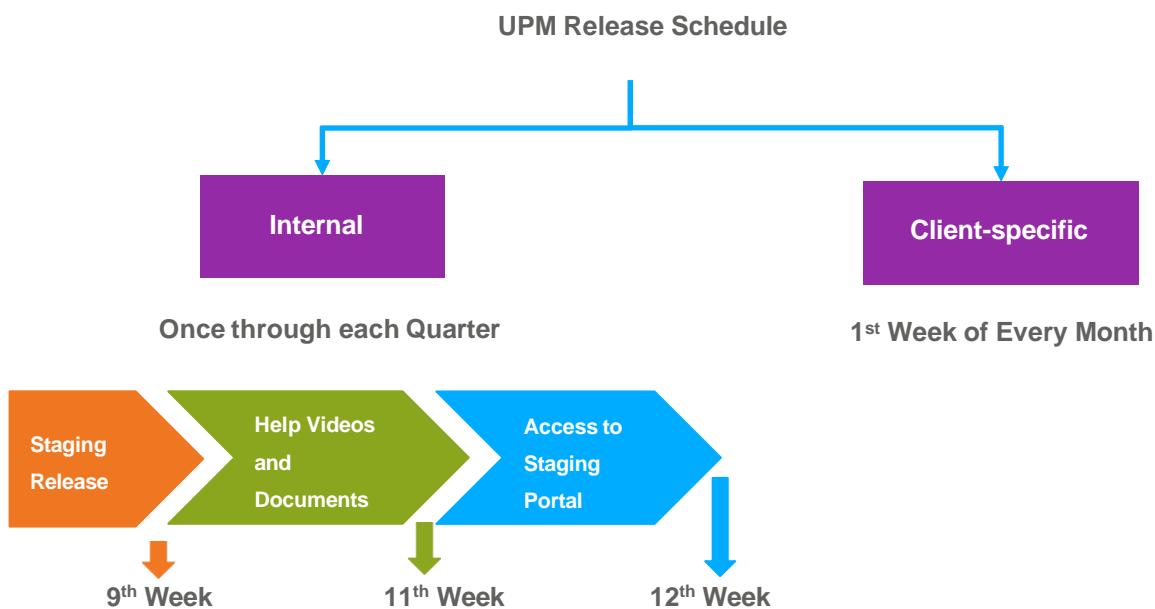
- **Scoping** - Project scoping involves determining and documenting a list of specific project goals, deliverables, features, functions, tasks and deadlines. In other words, it is what needs to be achieved for the upcoming release. Scoping of the Release is completed by 20th of each month.
- **Monthly Sprint** - a time-box of one month or less during which a “Done”, useable, and potentially releasable product Increment is developed. Sprints have consistent durations throughout a development effort. A new Sprint starts immediately after the conclusion of the previous Sprint. Once scoping is concluded, the requirements are pushed to the next monthly sprint by 28th of that month and the development sprint concludes by the end of the next month.
- **Configuration** - Our product configuration model consists of multiple modules and components that are tied together through subcomponent relationships. The modules and components are the main building blocks of the UPM configuration model, and needs to be configured for optimum utilization as per the scoping perquisites. With the conclusion of the development sprint, configuration of UPM as per the release items initiates and concludes by moving the system to the staging environment of early next month.
- **Staging** - A stage or staging environment is the UPM environment Staging Server for testing that exactly resembles a production environment. It seeks to mirror the actual production environment as closely as possible and may connect to other production services and data, such as databases. On Approval of the Staging System, the system is pushed to Live in the weekend. If System at Staging Environment is approved by the week's Thursday, then System is pushed to the Production Environment (Live) in that weekend, if system gets approved post Thursday, system is pushed to Live in the next weekend.
- **Live** – UPM Production Release refers to deployment to LIVE/production environments and Verification includes making sure the features released meet the requirements.

Release Schedule

ZINFI has primarily two types of releases:

- Internal Release
- Client-specific Release

The Release schedule is defined through the following diagram:



Internal Release Process

We normally release a new version of UPM through every quarter in a calendar year. Updated System is released at Staging portal after 2 weeks – in the 9th week of the Quarter, Help Videos and documentation respective to the new features or updates, initiates and is concluded in the next 2 weeks – and in the 11th week help videos and documentation update process is concluded. In the 12th week, Staging Portal access of Released System is provided along with the Release Notes.

ZINFI Internal Release process may vary as per technological insights, social factors, risks, etc. associated with the release process, and ZINFI would prior inform clients on release deviations.

Release Notes

Release notes is a document, which is released as part of the final build that contains descriptions of new enhancements/updates that went in as part of that release of UPM. Release Notes are published by the ZINFI release management team and communicated/shared with clients for each quarterly release.

Training and Support

ZINFI provides training for the new platform release. Updated release feature videos and respective documentation/guides are shared to the trainees/clients for easy understanding of the released system. Release features training is manageable by the End-Users/Trainees/Clients, and specific release items/features can be filtered out (if easily understandable) or escalated for advance training (if complex). Clients can always reach out to ZINFI for add-on support on understanding of the released features.

Internal Release Timeline – 16 Weeks Release Cycle

Release Process	Weeks															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Roadmap Item Finalization and Mockup Development	■	■	■	■												
System Development					■	■	■	■	■	■	■					
Internal Release in Staging									■							
Internal Beta Testing, Bug Analysis/Debugging, QA										■	■	■				
Supporting Documentation and Videos									■	■	■					
Release Notes										■						
Supporting Documentation and Videos Release											■	■				
Live Release												■				

Client-specific Release Process

At ZINFI, we follow AGILE development principles, and customer collaboration is considered the driving factor for the development of UPM release features. Feature updates and addition of new features are governed by a defined principle at ZINFI, and defined below:

Out of the requested release features by Client, few release features would be specific for the client and utilized for that client, while some would be implemented for generic UPM release and would be implemented for other clients.

Eg.: **Synchronization with Cornerstone Data** – Cornerstone Data API sync, is a feature which needs to be integrated to UPM, implemented and utilized for other clients, while the implementation of the post-sync process varies from client to client, and implementation use cases of Cornerstone synced-in Data would differ for each implementation for clients.

Thus, ZINFI would be solely responsible to differentiate the release features from being client-specific to be universal for all clients, and reserves the rights to make a final decision in segregating such client specific release features. Though, one should note irrespective of the type, the requested feature would be implemented by ZINFI, either as client-specific or universal.

Release Downtime

- Releases are moved to Staging Environment through weekends, and access is provided in the 1st Week of next month.
- On Client providing green signal to move ahead to Production environment, the following weekend - System is migrated to Production Environment. (48 Hours prior to the weekend Client needs to provide confirmation for migration of System to Production Environment).
- Clients are provided access to Production Environment post migration in the weekend.

Release Notes

Release notes is a document, which is released as part of the final build that contains descriptions of new enhancements/updates that went in as part of client requirements. Client-specific release notes are published on request by the ZINFO release management team and communicated/shared with clients.

Training and Support

ZINFO to provide training for the new feature releases, requested by the client. Updated release feature videos and respective documentation/guides are shared to the trainees/clients for easy understanding of the released system. Release features training is manageable by the End-Users/Trainees/Clients, and specific release items/features can be filtered out (if easily understandable) or escalated for advance training (if complex). Clients can always reach out to ZINFO for add-on support on understanding of the client-specific released features.

Client Specific Release Timeline – 9 Weeks Release Cycle

Release Process	Weeks									
	1	2	3	4	5	6	7	8	9	10
Requirement Capturing										
Feasibility Study										
Requirements Scoping										
Mockups Creation										
Mockups Approval										
Sprint Inclusion										
Configuration, Development and QA										
Staging Release										
Supporting Documentation and Videos										
Live release of Client feature										

Note:

- Releases are moved to Staging Environment through weekends, and access is provided in the 1st Week of next month.
- On Client providing green signal to move ahead to Production environment, the following weekend - System is migrated to Production Environment. (48 Hours prior to the weekend Client needs to provide confirmation for migration of System to Production Environment).