# Version Control for Customer Communication Tools

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**Abstract**

**Customer Communication Management (CCM) is an approach primarily focused on improving the creation, delivery, storage, and retrieval of inbound and outbound communications between businesses and their customers. Functionalities provided by CCM make sure strategy ensures that all customer interactions are efficient, effective, and consistent across multiple communication points or channels. Communication requirements are dynamic and ever-changing; when customer communication templates and objects change due to requirements or compliance regulations, it is crucial to manage these changes carefully; the code checked out for changes must be correct and relevant. In case the wrong version or outdated code is used as the basis of the changes, then that leads to multiple issues such as customer confusion, wrong communication being received, reduced satisfaction, and potential legal or regulatory problems. Version control is crucial to ensure the correct code base is used when starting any development. In this paper, we will go through the benefits of version control and take a deep dive into how version control is done for Customer Communication Management (CCM).**

**Keywords: Version control, Customer Communication Management (CCM), repository, versioning, code base**

## Introduction

Customer Communication Management (CCM) platform empowers organizations to create, manage, and deliver personalized and consistent communications across various channels. It is widely utilized for generating customer-facing documents such as correspondence for healthcare communications, billing statements, invoices, marketing materials, and other types of customer-related documents. Today's industry is volatile, so there are unavoidable template design changes. Companies keep changing their branding, and there are always new security compliance requirements that make Customer communication templates undergo multiple changes.

In today's dynamic industry, customer communication templates are changed/updated continuously based on various factors. These changes are unavoidable and critical to remain innovative, resilient, and aligned with the company's business strategies. Below are some of the key factors that lead to updates in customer communication templates.

Firstly, Changes are needed for branding. Companies frequently make updates related to rebranding. Each time branding changes are planned; communication templates are updated to have consistency across each communication channel. Templates undergo changes for implementing updates, such as redesigning logos, colors, fonts, and styles. Marketing campaigns or promotions might require customized communications, which involve altering templates to reflect new messaging, offers, or designs.

Adapting to the ever-evolving healthcare, finance, and telecommunications compliance and security regulations certainly presents a challenge! By updating templates to meet new legal standards, modifying legal notices, or safeguarding sensitive data, we can ensure our communication remains transparent and compliant. In today's business, where data breaches are widespread, there is a necessity to keep communication secure, and based on new rules and regulations, communications templates undergo frequent updates to communicate the regulations to customers.

Last but most importantly, Customers expect communications to be more personalized, relevant, and timely. Therefore, companies are leveraging new technologies to make communications acceptable to demanding customers. To create relevant communications, organizations need to adapt their templates to incorporate innovations. Also, templates should be flexible, easily managed, and updated to reduce the development time needed to deliver messages to customers more quickly. Templates must be designed to be easily modified and updated without significant delays.

As templates undergo multiple iterations for updates, version control becomes essential to ensure the correct version is being used and that past versions are preserved for reference or auditing.

**Importance of Version controlling**

Version control systems are tools that record changes made to software code or components by keeping track of modifications made in the code. The Version control system keeps track of changes made to a particular software and takes a snapshot of every modification. For instance, if a developer adds some new functionalities to an application and the updated version is not working correctly as the version control system keeps track of our work, It is very easy to discard new changes and continue with the previous version in case of an error or requirement change. Version control features in CCM platforms allow tracking all template changes, making it easy to revert to earlier versions and check the version history for audits. This is important when templates need to be changed for various reasons, such as branding, requirement change, or customer reviews. CCM platforms are equipped with in-built tools that ensure communication templates are tested, approved, and deployed efficiently. Changes to templates can be routed through approval processes involving multiple teams, such as legal, marketing, and compliance, ensuring that all updates meet company standards before going live. Sometimes, a system administrator working on the CCM team also approves the objects, and after thorough testing and reviews, approved versions are created.

**Process of Version Control**

Version controlling typically allows the creation and management of documents and templates. Version controlling enables the creation of reusable templates that can be modified over time. When a new document or template is created in Version controlling, it is given a version number (e.g., v1.0). All changes made are stored, and the system tracks these modifications. Version controlling tracks all changes made to a document or template, including who made the changes, the nature of the change, and when it occurred. This log can be used to review changes or for audit purposes.

Only authorized users can check in or check out documents/templates when there is a need to change or update the template. Permissions ensure that only certain users can access sensitive communications or documents. Users with access check out a document or template to make changes. While it is checked out, no one else can modify it. After making the changes, the user rechecks the document or template. Before finalizing a document or template, it often goes through a review and approval process. Once the changes have been approved, the document may be marked as the final or released version. This ensures that the correct version is used for production. In case of errors, users can revert to a previous version of a document or template. This rollback feature ensures users can undo unintended changes and continue working without losing progress.

Version controlling can be integrated with external systems such as version control repositories, document management systems, or other enterprise systems, where version tracking can be done at a larger scale.

**Criticality of Version Control**

In the software industry, each enterprise system consists of various tools integrated into a framework. Each tool and technology has its logic system and multiple components to perform and fulfill the requirements. As the system is complex and for minor changes, there are various tools and components within the tool change, so version controlling is essential to tag each change and document it. Tagging and documentation of the updates are two critical functions in version control. Below are some key benefits that are offered by version-controlling.

**1. Consistency:**

With version control, you can ensure that all updates made to communication templates are consistent across multiple channels (email, print, web, etc.). When templates are revised, version control ensures that the correct, updated version is used in all channels, avoiding discrepancies. When companies undergo branding updates or make other template changes, version control ensures that the exact version of the design and messaging is applied to all communications, helping to maintain a consistent brand voice and image across different touchpoints.

**2. Audit:**

Version control systems log every change to the communication templates, including who made the change and when. This creates audit information, which is essential, mainly when dealing with regulated industries (e.g., healthcare, finance). For sectors that follow strict regulations, version control provides historical details of template versions and codes, showing that new standards or business requirements made updates.

**3. Team Coordination:**

Based on each tool, CCM software provides better team coordination. In some tools, once one developer checks out an object, another cannot modify the object until that developer checks in the changes. Which reduces the conflict. Few tools allow branching, where each member can check the code and merge it later once the individual change is complete. In either case, the system records the action detailing when the object was checked out and who checked out the object automatically, creating all the information for audits.

**4 Smooth Development and proof of concept testing:**

In most CCM tools, developers can create isolated branches for each change or update, allowing them to work on different aspects of the templates (e.g., new designs) without disrupting the main codebase or production environment. Once the updates are tested and reviewed, they can be merged into the main version. Also, Teams that are assigned to test proof of concept can experiment and finish testing the ideas; if the experiments do not work, version controlling allows rolling back of versions that are not required, allowing testing and implementation of new concepts

**5. Recovery:**

If a template update results in an error or unintended outcome, version control makes reverting to a previous stable version easy. This ensures minimal disruption in customer communications and helps maintain continuity. By reviewing the history of changes, developers and managers can quickly identify the root cause of any issues, improving troubleshooting and reducing downtime.

**6. Improved Testing**

Version control helps in reviewing the code. Reviewers can quickly check the version of the code and validate the changes effectively. Version control enables quality assurance teams to review and verify the content of communication templates before they are sent out. Having a version-controlled system allows for easy comparisons between different template versions to ensure that content accuracy is maintained.

**7. Access Control:**

Version control systems can be configured to restrict access to sensitive templates or parts of the template development process, ensuring that only authorized personnel can make changes to specific communications. This helps prevent unauthorized or accidental changes to critical templates. The history of changes is stored securely, reducing the risk of unauthorized access or tampering with previous versions of communication templates.

**8. Approval Process:**

Almost all of the CCM tools offer approval processes and workflow. The approval process helps in creating an approved version of the software. This process is essential as administrators only allow the next approved version and history to be created if the change in the code passes quality checks. Comparison of version control in CCM leaders

OpenTex™t Exstream, SmartComm™, and Quadient® Inspire are among the leading Customer Communication Management (CCM) solutions, each offering a variety of features to streamline the creation, management, and delivery of customer communications. Below are the standard features provided by these tools, which help businesses manage communications efficiently, including versioning capabilities:

| Property | Exstream | Smartcomm | Quadient |
|---|---|---|---|
| Template Versioning: | Exstream automatically creates new versions of templates every time they are modified. Each new version is tracked, ensuring a complete version history. | SmartComms automatically generates new versions whenever templates or communication assets are modified. Each version is tagged, and the history of changes is maintained. | Quadient automatically tracks and maintains version histories for communication templates, marking each new version with a timestamp and change log. This ensures easy tracking of template evolution. |
| Check-In/Check-Out Functionality | The platform uses a check-in/check-out to prevent conflicts when editing templates. This allows users to lock a template for editing and ensures only one user can modify it. | SmartComms uses a check-in/check-out system to prevent multiple users from editing the same template simultaneously. Once checked out, a template is locked for editing by a single user. | Like Exstream and SmartComms, Quadient supports a check-in/check-out mechanism to lock templates while editing. This prevents issues arising from simultaneous edits. |
| Audit Trails: | Exstream maintains an entire version history so users can track who made changes, what changes were made, and when. This audit trail is crucial for regulatory compliance. | Every change made to a template is logged with details of who made the change, the nature of the change, and the date/time of the modification. This ensures accountability and transparency, especially for compliance needs. | Quadient includes an audit trail to track all template changes, capturing essential metadata (who, when, what). This helps in ensuring compliance with regulatory standards. |
| Approval Processes: | Exstream provides an inbuilt approval process where templates and | SmartComms enables workflow management, allowing templates to go | The system integrates with workflow tools, allowing users to create approval |

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|---|---|---|---|
| | managing templates start from a work-in-progress level to an approved version. | through the approval process before deployment. This ensures that templates meet regulatory and organizational standards before being used. | processes for template changes. Templates are routed for approval before deployment, ensuring compliance and reducing risk. |
| Rollback and Revert: | Users can quickly revert to a previous version if errors are detected in a new version. | Users can easily compare template versions and roll back to a previous version if needed. This ensures that mistakes can be quickly fixed without disrupting communication processes. | Users can revert templates to previous versions or compare versions to understand changes. |

The above comparison shows that almost all the leaders in the CCM industry support similar features for version control, proving the importance of version control in customer communication management tools.

**Conclusion**

In an industry where constant change is driven by branding updates, regulatory shifts, customer demands, personalization, or technological advancements, Customer Communication Management (CCM) platforms are essential for maintaining control and consistency over customer-facing communications. Following the workflow for creating, managing, and delivering dynamic, personalized communication version controlling helps businesses meet customer requirements and stay competitive. Additionally, version control, workflow automation, and security features help companies manage ongoing communication template changes efficiently while ensuring high accuracy and compliance. Version control in Customer Communication Management (CCM) brings immense benefits in collaboration, accuracy, security, and efficiency. Organizations can deliver consistent, compliant, and high-quality communications to their customers across various channels by ensuring that changes are carefully tracked, reviewed, and implemented. The ability to revert to earlier versions to the previous most accurate versions helps in significant production and reputation issues. This ensures organizations stay competitive and maintain effective customer communication in a rapidly changing environment.

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