

**SECURE ORACLE PAYMENTS PROCESS BY INTEGRATING A THIRD-PARTY  
SYSTEM FOR PAYMENTS APPROVAL WORKFLOW**

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*Abstract*

*In the evolving landscape of digital finance, ensuring secure and efficient payment processes is paramount. This article explores the implementation of a secure Oracle Cloud payments process enhanced by the integration of a third-party payments approval workflow and the subsequent transmission of payments to banks via a payment service provider (PSP). By incorporating a third-party system, organizations can establish a robust approval mechanism, adding an essential layer of security and compliance. The integration process includes configuring Oracle Cloud to interact seamlessly with the third-party system, ensuring that all payments undergo a rigorous approval process before transmission. The final step involves utilizing a PSP to transmit the approved payments to the bank, leveraging their expertise to manage payment data securely and efficiently. This approach not only enhances the security and integrity of the payments process but also streamlines operations, reduces the risk of fraud, and ensures compliance with regulatory standards. The article delves into the technical and procedural aspects of this integration, providing a comprehensive guide for organizations seeking to optimize their Oracle Cloud payments processes through advanced security measures and third-party approvals.*

**Keywords:** *Oracle Cloud Payments, Payables Invoices, Oracle Cloud ERP, Enterprise Resource Planning, Financials, Accounts Payables, Integrations.*

## **I. INTRODUCTION**

In today's digital economy, the security of financial transactions is a critical concern for businesses of all sizes. As organizations increasingly adopt cloud-based solutions to streamline their operations, the need for secure and efficient payment processes becomes paramount. Oracle Cloud, a leading provider of enterprise cloud solutions, offers a robust platform for managing financial transactions. However, to further fortify the payment process, integrating a third-party payments approval workflow and utilizing a payment service provider (PSP) for bank transmissions can significantly enhance security and compliance.

Oracle Cloud's infrastructure is built to handle complex financial operations, ensuring that businesses can conduct transactions smoothly and securely. However, while Oracle Cloud provides a strong foundation, the dynamic nature of financial transactions and regulatory environments necessitates additional layers of security and compliance. To further fortify the payment process, integrating a third-party payments approval workflow can significantly enhance an organization's ability to manage transactions securely. In addition, utilizing a payment service provider (PSP) for the transmission of payments to banks can bolster the overall security framework and ensure compliance with international standards. Together, these integrations address the multifaceted challenges of securing financial transactions in a cloud-based environment.

Integrating a third-party approval workflow into the Oracle Cloud payments process adds an essential layer of verification. This workflow ensures that all payment requests are thoroughly reviewed and approved by authorized personnel before they are processed. By doing so, organizations can mitigate the risk of unauthorized transactions and maintain strict adherence to

internal controls and regulatory requirements. This approval mechanism can be customized to suit the specific needs of the organization, allowing for flexible and scalable security measures.

Once payments have been approved, the next crucial step is their transmission to the bank. Here, the role of a payment service provider becomes indispensable. PSPs are specialized entities that manage the secure and efficient transfer of payment data to financial institutions. By leveraging the services of a PSP, organizations can benefit from advanced security protocols, compliance with international payment standards, and the ability to handle high volumes of transactions seamlessly. Moreover, PSPs offer compliance with international payment standards, which is critical for businesses operating across multiple regions with varying regulatory requirements. The use of a PSP ensures that transactions are not only secure but also compliant with the latest industry standards, reducing the risk of legal or financial penalties. Additionally, PSPs are designed to handle high volumes of transactions seamlessly, providing the scalability needed to support growing businesses. This ability to process large numbers of transactions efficiently without sacrificing security is particularly valuable for organizations experiencing rapid growth or seasonal spikes in transaction volumes.

This article delves into the intricacies of securing the Oracle Cloud payments process through third-party approval workflows and PSPs. It provides a comprehensive guide on how to configure Oracle Cloud to integrate with these systems, ensuring a secure, compliant, and efficient payment process. Whether you are a financial manager, IT professional, or business executive, this article offers valuable insights into optimizing your organization's payment security and operational efficiency.

## **II. ORGANIZATION'S CHALLENGES TO INTEGRATE ORACLE CLOUD PAYABLES WITH THIRD-PARTY PAYMENT APPROVAL WORKFLOW**

As organizations adopt Oracle Cloud ERP to leverage its advanced functionalities, they tend to rely on the third-party approval systems especially for payment approval process to adhere to business compliance. Implementing a secure payments process within Oracle Cloud, while integrating third-party approval workflows and utilizing a payment service provider (PSP) for bank transmissions, presents several challenges. Organizations must navigate technical, operational, and regulatory complexities to achieve a secure and efficient payment process. This article explores these challenges and provides strategies to overcome them.

### ***A. Integration Complexities***

Ensuring compatibility between Oracle Cloud and third-party systems can be challenging. Different platforms may have varying standards, protocols, and data formats, necessitating extensive customization and configuration. Effective integration requires robust API management. This involves handling API authentication, data mapping, and ensuring secure communication channels between Oracle Cloud and the third-party approval system.

### ***B. Security Concerns***

Securing sensitive financial data during transmission and storage is critical. Organizations must implement strong encryption methods and adhere to best practices for data protection to prevent breaches and unauthorized access. Ensuring that only authorized personnel can access and approve payment transactions is essential. This requires robust authentication mechanisms, such as multi-factor authentication, and granular access controls.

### ***C. Reliability and Performance***

Reliability and uptime of the integrated payment system is crucial. Any downtime or performance issues can disrupt financial operations and lead to significant business impacts including missing the vendor payments on time. The integrated system must be scalable to handle varying transaction volumes and adapt to the organization's growth. Ensuring scalability while maintaining performance and security can be challenging.

### ***D. Cost and Resource Allocation***

Integrating third-party approval systems and PSPs can incur significant costs. Organizations must allocate resources for software licenses, development, testing, and ongoing maintenance. Implementing and managing the integrated system requires dedicated resources, including IT staff and financial professionals. Balancing these resources with other organizational priorities can be challenging.

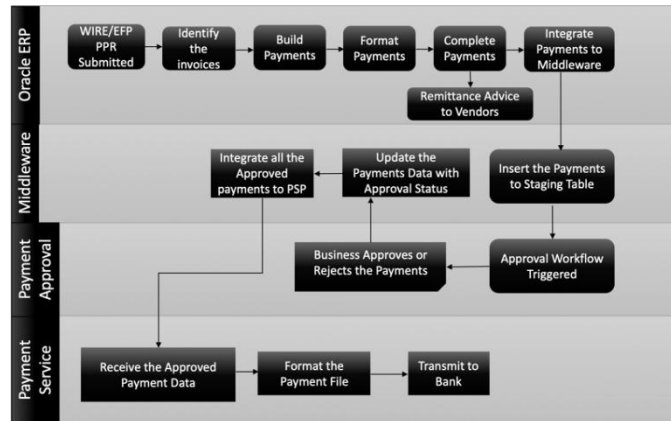


Fig. 1. This flow represents the overall Payments architecture for Wire and Electronic Payments.

#### *E. Vendor Management*

Relying on third-party vendors for approval workflows and payment transmission introduces additional risks. Organizations must carefully assess and manage vendor risks, including service reliability, security practices, and compliance with contractual obligations.

#### *F. Complex Configuration and Customization*

Designing an approval workflow that meets the specific needs of the organization can be complex. It requires a deep understanding of the organization's approval hierarchies, operational processes, and compliance requirements. The out-of-the-box functionality of Oracle Cloud may not fully meet the organization's needs, hence custom integrations to integrate to third-party systems can be necessary, but it adds to the complexity and requires skilled resources for development and maintenance.

#### *G. Compliance and Regulatory Requirements*

Organizations must comply with various financial regulations and standards, such as PCI-DSS, GDPR, and SOX. Ensuring that the integrated system meets all regulatory requirements can be complex and resource-intensive. Maintaining detailed audit trails and generating comprehensive reports for regulatory compliance and internal auditing can be challenging. The system must be capable of logging all transactions and approval activities accurately.

### **III. IMPLEMENTATION APPROACH TO INTEGRATE THIRD-PARTY SYSTEM APPROVAL WORKFLOW FOR PAYMENTS GENERATED FROM ORACLE CLOUD PAYMENTS**

Organizations can effectively secure their Oracle Cloud payments process, leveraging third-party approval workflows and PSPs to enhance security, compliance, and operational efficiency. This comprehensive approach ensures a robust and resilient payment system, capable of supporting the organization's financial operations in a secure and reliable manner. Fig. 1. Shows the integration flow of Oracle Cloud Payments to middleware, third-party approval system and finally to the payment service providers for Wire and Electronic payments. Fig. 3 represents the flow to in-house check printing team for payments with Check payment methods.

#### *A. Payments Data Extraction*

Submit the Payment Process Request for generating the payments data in Oracle Cloud. Ensure the appropriate Payment Process Request templates are chosen to generate the Wire or Electronic or Check payments are created. Based on the payment methods the integration flow will be different. Fig. 2. represents the technical integration flow for Wire and Electronic payments from Oracle SaaS to middleware database, third-party approval system and finally to the PSP.

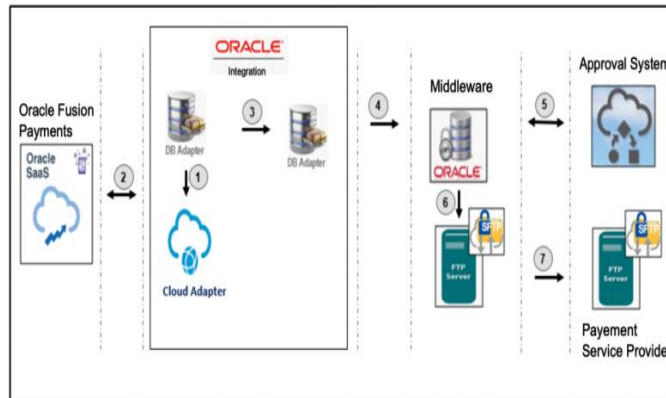


Fig. 2. This figure represents the technical flow of payments from Oracle to Bank.

**B. Staging in PaaS Layer**

After the payments data is generated in the source ERP Cloud, it is loaded to the middleware. Below are custom tables created in the PaaS layer for storing and performing the required transformations.

- XX\_AP\_PAYMENTS\_INT\_SOURCE\_STG
- XX\_AP\_PAYMENTS\_INT\_TARGET

Extracted data from the source ERP system is loaded to the custom table AP\_PAYMENTS\_INT\_SOURCE\_STG. Validations are performed in this staging table and then the data will be transferred to the table XX\_AP\_PAYMENTS\_INT\_TARGET for further processing with the Approval status as 'Pending'. Validation includes to verify if the beneficiary banks accounts are included for Wire and Electronic payments.

**C. Integrate the Payments Data to Third-party System**

Payments Data inserted in the middleware table AP\_PAYMENTS\_INT\_TARGET is pushed to the third-party approval system via integration process. Payments will now be available in the third-party approval system for review and approvals. Business users from the Treasury team will have access to this system. Using the secured login, they will now login to this application and take the appropriate action.

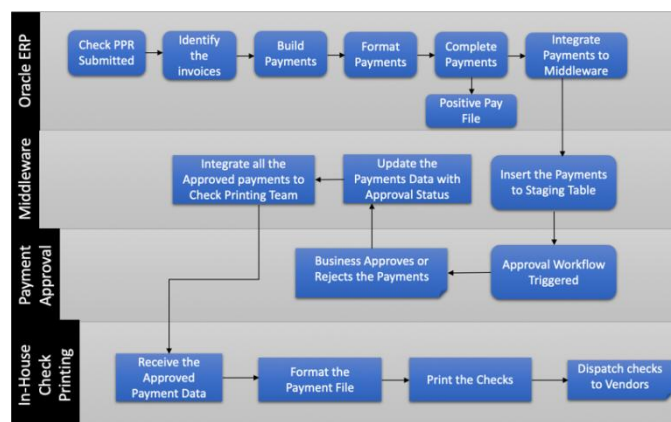


Fig. 3. This figure shows the flow of in-house Check Payments.

**D. Sync the Approval Status in the Middleware**

Once the payments are either approved or rejected, the sync back process will update the middleware table AP\_PAYMENTS\_INT\_TARGET status column with the response received from the third-party approval system. The payment with the 'Approved' status is considered for the further processing. The payments with 'Rejected' status will be sent to the third-party approval system along with the next batch of payments data flowing from the Oracle SaaS ERP system.

***E. Integrate the Payments Data to Payment Service Provider and Transmit to Bank***

Last step in the integration flow is to send the payments data with 'Approved' status in the middleware table AP\_PAYMENTS\_INT\_TARGET to the Payment Service Provider system (PSP). PSP will transform this data to the required format for Wire and Electronic as expected by the banks. It will then transmit the payments files to banks via secured channel. In case of the check payments as shown in the Fig. 3. The 'Approved' payments data from the middleware table is being sent to In-House check printing team. They will consume this data and print the checks as per the bank specifications and courier to the suppliers using the company's preferred shipping vendor (FedEx, UPS or USPS).

**IV. IMPACT**

The benefits of integrating a third-party payments approval workflow with Oracle Cloud and utilizing a PSP are substantial. The implementation approach discussed in this article will ensure that all transactions undergo thorough scrutiny before being processed. This additional layer of security helps mitigate risks associated with unauthorized access and fraudulent activities. By customizing the approval workflow to meet the specific needs of the organization, businesses can maintain strict adherence to internal controls and regulatory requirements.

**V. SCOPE**

The integration of payments data from source ERP system to target middleware, PSP are in the scope of this article. This article focuses solely on the payments data, its approval in the third-party system and integrations to payment service providers or checks team based on the payment method.

**VI. CONCLUSION**

In the digital age, securing financial transactions is critical for organizations striving to protect sensitive data and ensure compliance with regulatory standards. Integrating a third-party payments approval workflow into Oracle Cloud and utilizing a payment service provider (PSP) for transmitting payments to banks represents a strategic approach to enhancing the security and efficiency of payment processes.

In conclusion, securing Oracle Cloud payments through the integration of third-party approval workflows and payment service providers is a comprehensive strategy that addresses the multifaceted challenges of modern financial operations. By implementing these solutions, organizations can ensure their payment processes are robust, compliant, and capable of meeting the demands of an increasingly complex financial landscape. Below are some key benefits of implementing the process discussed in this article:

- Safeguarding financial transactions is imperative for organizations to protect sensitive data and uphold regulatory compliance.
- Incorporating a third-party payment approval workflow into Oracle Cloud fortifies the security and optimizes the efficiency of payment processes.
- Engaging a payment service provider (PSP) for the transmission of authorized payments to banks confers several strategic advantages:
- PSPs possess specialized acumen in orchestrating secure and efficient payment data transfers.
- They ensure rigorous compliance with international standards and protocols, thereby elevating security and adherence.
- PSPs streamline the payment process, alleviating the operational burden on internal IT and finance teams.
- This delegation enables internal resources to focus on core business functions rather than the intricacies of payment processing.
- The integration of third-party approval workflows and PSPs within Oracle Cloud payments constitutes a comprehensive strategy:
- It effectively addresses the multifaceted challenges inherent in contemporary financial operations.
- This approach ensures that payment processes are well-equipped to navigate the complexities of an increasingly sophisticated financial landscape.

**REFERENCES**

1. Oracle Corporation. Using External Data Integration Services for Oracle ERP Cloud, Release 13, 2017. Available:[https://www.metaformers.com/wp-content/uploads/2020/04/Using-External-Data-Integration-Services-R13\\_Oracle.pdf](https://www.metaformers.com/wp-content/uploads/2020/04/Using-External-Data-Integration-Services-R13_Oracle.pdf)
2. S. Seshadri. Oracle Payments User's Guide Release 12.2 Part No. E48766-02, 2014. Available:[https://docs.oracle.com/cd/V46499\\_02/current/acrobat/122ibyug.pdf](https://docs.oracle.com/cd/V46499_02/current/acrobat/122ibyug.pdf)
3. Oracle Help Center. Oracle Fusion Cloud Applications Suite Available: <https://docs.oracle.com/en/cloud/saas/index.html>
4. Alim, W. Gardipe, B. Kostelec, C. A. Lapeyrouse. Oracle Fusion Applications Procurement, Payables, Payments, and Cash Guide 11g Release 1 (11.1.4) Part Number E22897-04, 2012. Available: <https://www.oracle.com/technetwork/fusion-apps/payablespaymentsandcash-1579381.pdf>
5. Halonen, T., Virtanen, T. A System for Secure Mobile Payment Transactions. In: Traunmüller, R. (eds) Information Systems. IFIP WCC TC8, 2002. IFIP – The International Federation for Information Processing, vol 95. Springer, Boston, MA. Available: [https://doi.org/10.1007/978-0-387-35604-4\\_12](https://doi.org/10.1007/978-0-387-35604-4_12)
6. K. Ramachandran, SECURING PII DATA IN PAYMENT TRANSACTIONS: CHALLENGES AND SOLUTIONS, 2018. Available: <https://ijcem.in/wp-content/uploads/2024/05/SECURING-PII-DATA-IN-PAYMENT-TRANSACTIONS-CHALLENGES-AND-SOLUTIONS.pdf>
7. K. -H. Yeh, "A Secure Transaction Scheme With Certificateless Cryptographic Primitives for IoT-Based Mobile Payments," in IEEE Systems Journal, vol. 12, no. 2, pp. 2027-2038, 2018.
8. J. Liu, Y. Xiao, H. Chen, S. Ozdemir, S. Dodle and V. Singh, "A Survey of Payment Card Industry Data Security Standard," in IEEE Communications Surveys & Tutorials, vol. 12, no. 3, pp. 287-303, Third Quarter, 2010.