



2024 KICT-BIM Based Collaboration Platform - XR Based Quality Verification Report

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VIRNECT Co., Ltd.

Quality Verification Report

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Revision History					
REV.1.0	December 3, 2024	Reflecting Quality Verification Results	Kim Sung-tae	Kim Ji-soo	Gu Woo-young
REV. 0.1	December 2, 2024	Initial Draft	Kim Sung-tae	Kim Ji-soo	Gu Woo-young
개정번호	일자	Reason for Revision	Prepared by	Reviewed by	Approved by

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I. Verification Overview

Verification Objectives

1. Check the progress of 2024 development tasks and manage risks within the business scope.
2. Ensure quality by eliminating defects introduced during the development process.

Verification Goals

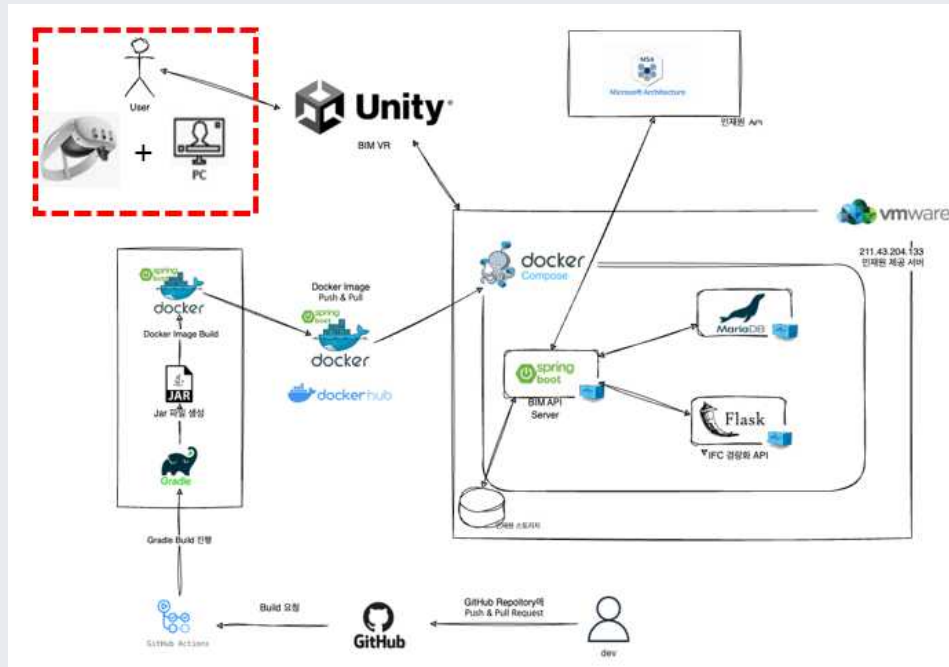
1. Verify the derivation of development quality for 2024.
2. Confirm achievement of quality goals within the 2024 comprehensive test plan.
3. Verify the implementation of internal quality verification functions for requirement items.

Schedule

No.	Schedule	Content	Key Tasks	Responsible Party		Notes
1	2024-11-04 ~ 2024-11-15	Unit (Module) Testing	1. Identify development targets and verification scope. 2. Establish quality verification plan. 3. Secure test environment using test data. 4. Execute quality verification. 5. Record and analyze verification results.	VIRNECT Co., Ltd.	Kim Ji-soo Oh Jin-seok Park Yong-min Kim Sung-tae	
2	2024-11-18 ~ 2024-11-29	Integrated Testing	1. Execute quality verification. 2. Record and analyze verification results.	VIRNECT Co., Ltd.	Kim Ji-soo Oh Jin-seok Park Yong-min Kim Sung-tae	
3	2024-12-03	Reflection of Quality Verification Results	1. Reflect final quality verification results.	VIRNECT Co., Ltd.	Kim Sung-tae	

I. Verification Overview

Scope



<System Concept Diagram>

Special Notes

- No Special Notes.

Test Scope

Item	Meta Quest 3, PC Version
KICT-BIM Based Collaboration Platform - XR Based	<ul style="list-style-type: none"> • Microphone • Model Adjustment • Parameter Adjustment • Issue Registration • Issue List • Object List • Map List • View Members • Navigation • Zoom • Position Coordinates (x, y, z)
	COBIM Digital Collaboration Platform Research Team <ul style="list-style-type: none"> • Project > My Project • Deliverables <ul style="list-style-type: none"> ➢ Deliverable (CDE) > Create New > File Registration ➢ Deliverable (CDE) > Create Collaboration Room ➢ Deliverable (CDE) > Room List > End Collaboration • Message Notification

I. Verification Overview

Quality Objectives

No.	Quality Attribute	Evaluation Item	Target Value	Evaluation Criteria (Acceptance Criteria)	Evaluation Details
1	Functional Suitability	Completeness of Function Implementation	100%	Implementation of all requirements specified in the Requirements Specification	Implemented functions / Specified requirements functions
2	Portability	Ease of Installation	100%	Degree of effectiveness and efficiency in installing or removing the KICT-BIM application in the designated environment	Number of failures / Number of successes
3	Security	Authentication Method	100%	Number of login authentication test cases for the KICT-BIM application	Number of executed login authentication test cases / Total number of login authentication test cases
4	Reliability	Test Coverage	100%	Number of executed test cases during the test period	Number of actual executed test cases / Total number of test cases

I. Verification Overview

Test Environment

Category	Details
Product Name	KICT-BIM Development Server
Execution Environment	<ul style="list-style-type: none">- VMWare (211.43.204.133)- Software (SW):<ul style="list-style-type: none">• Spring Boot : 3.2.3• Flask : Python 3.12.4, Flask 3.0.3• MariaDB : 11.3.2-MariaDB-1:11.3.2+maria~ubu2204• Docker : version 25.0.4, build 1a576c5• Docker Compose : version v2.24.7
Product Information (Description)	BIM-based collaboration platform - XR-based development (voice communication, parameter measurement, issue registration & sharing, location sharing, etc.)

Product Name	Meta Quest 3
SoC	Snapdragon XR2 Gen 2
DRAM	8GB
Storage	128GB
Display Resolution	2064 x 2208 1218PPI 25PPD
FOV (°)	Horizontal 110° / Vertical 96°
Lens Technology	Pancake Lens, Continuous IAD
Color Space	sRGB 100%
Battery	5060mAh ~22 hours continuous

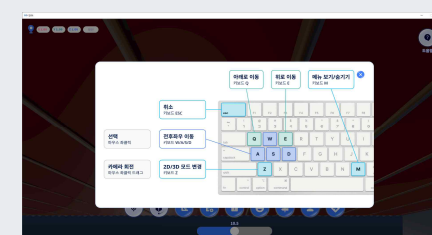
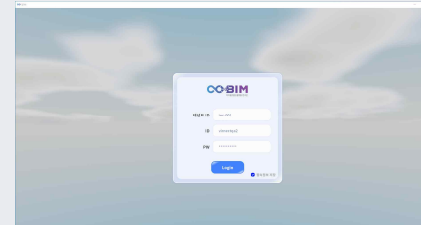
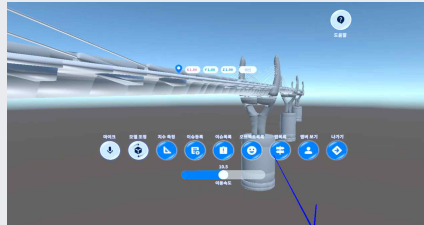
I. Verification Overview

Test Environment

Product Name	PC
OS	Windows 10 Pro
Processor	Intel(R) Core(TM) i7-1195G7 CPU @ 2.90GHz 2.92 GHz
RAM	16.0GB

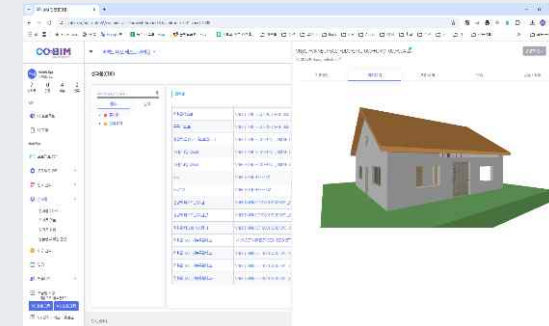
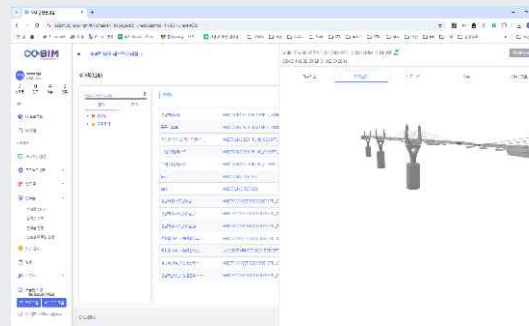
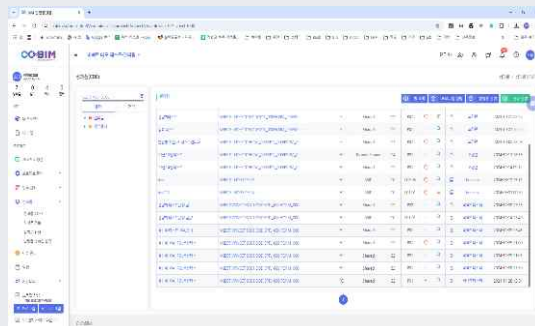
I. 검증 개요

Test Environment



<KICT-BIM Metaquest3>

<KICT-BIM PC>










<cobim((<https://cobim.io>)>

II. Verification Results

Quality Evaluation

The final quality verification was conducted based on the 2024 goals specified in the Requirements Specification and Business Plan.

All quality objectives for the 2024 quality attributes have been achieved.  Exceeded Expectations  Goal Achieved  Not Achieved

No.	Quality Attribute	Evaluation Item	Target Value	Evaluation Criteria (Acceptance Criteria)	Evaluation Details	Evaluation Result
1	Functional Suitability	Completeness of Function Implementation	100%	Implementation of all requirements specified in the Requirements Specification	MetaQuest3 - Upper-Level Functions: 24 MetaQuest3 - Lower-Level Functions: 37 PC Version - Upper-Level Functions: 20 PC Version - Lower-Level Functions: 42	
2	Portability	Ease of Installation	100%	Degree of effectiveness and efficiency in installing or removing the KICT-BIM application in the designated environment	0 installation failures / 30 successful installations & removals	
3	Security	Authentication Method	100%	Number of login authentication test cases for the KICT-BIM application	MetaQuest3: 3 / 3 PC Version: 3 / 3	
4	Reliability	Test Coverage	100%	Number of executed test cases during the test period	MetaQuest3 - Functional (Unit) Test Cases: 54 PC Version - Functional (Unit) Test Cases: 59 COBIM - Digital Collaboration Platform Functionality (Integrated) Test Cases: 21	

II. Verification Results

Summary of Results

1. Based on the business plan, comprehensive test plan, and requirements specification, a total of 134 test specifications were created for functional (unit) and functional (integration) tests:
 - **MetaQuest3 Functional (Unit) Tests:** 54 cases
 - **PC Version Functional (Unit) Tests:** 59 cases
 - **Cobim + MetaQuest3 + PC Version Application Functional (Integration) Tests:** 21 cases
2. All defects identified in the functional (unit) and functional (integration) tests were fixed and regression testing was conducted.
3. The **VIRNECT KICT-BIM-based collaboration platform** achieved its quality objectives in **functional suitability, portability, security, and reliability**, confirming **"Goal Achieved."**

Verification Findings

1. Functional (unit) and functional (integration) tests were conducted based on the **RTM (Requirements Traceability Matrix)**.
2. Functional (integration) testing was conducted under a scenario where the **Cobim platform interacted with the Meta Quest 3 and PC version applications**. Users participated in the same collaboration room to test **voice communication, model adjustments, parameter measurements, issue sharing, and spatial information sharing**.
3. During verification of implemented requirements and operation, **no critical issues** were found.

III Appendix: Quality Verification Execution Environment

Verification Location

Seoul, VIRNECT

Verification Target

KICT-BIM Based Collaboration Platform - XR Based



〈Quality Verification Product Test Environment〉

Thank you.

VIRNECT

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