ICS 35.240.01
CCS L 67

NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 43441.3-2026

Information technology - Digital twin - Part 3: Information exchange

信息技术 数字孪生 第3部分：信息交互

Issued on: January 28, 2026 **Implemented on: August 1, 2026**

Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC

Table of Contents

Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1.Structure and Drafting Rules of Standardization Documents". Drafting. This document is Part 3 of GB/T 43441 "Information Technology - Digital Twins". GB/T 43441 has already published the following parts.

1.General Requirements;

2.Digital Entities;

3.Information Interaction. Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed and is under the jurisdiction of the National Information Technology Standardization Technical Committee (SAC/TC28). This document was drafted by: Chongqing University of Posts and Telecommunications, China Electronics Technology Standardization Institute, and the Industrial Internet Research Institute of Chongqing University of Posts and Telecommunications. Jiangsu CESI Technology Development Co., Ltd., Shenzhen CESI Information Technology Co., Ltd., Wuxi Internet of Things Industry Research Institute, Wuhan Gongxue Zhilian Technology Co., Ltd. Limited Liability Company, China Mobile (Hangzhou) Information Technology Co., Ltd., Chongqing Institute of Quality and Standardization, Tianjin Special Equipment Supervision and Inspection Technology Research Institute, China Telecom Beijing Research Institute, Shaanxi Provincial Information Engineering Research Institute, Perception Data Chain (Wuxi) Technology Co., Ltd. The Sixth Design and Research Institute of Machinery Industry Co., Ltd., the Northwest Branch of the Exploration and Development Research Institute of China National Petroleum Corporation, and Nanjing Aviation... Aerospace University, Sany Group Co., Ltd., Dongfang Electric Group Digital Technology Co., Ltd., Beijing

51 Vision Digital Twin Technology Co., Ltd. The company, Unmanned Intelligent Realm (Beijing) Technology Co., Ltd., Shenyang Aircraft Industry (Group) Co., Ltd., Zhengzhou University of Light Industry, Zhejiang Xitumeng Digital Technology Co., Ltd., Suzhou Gebi Intelligent Technology Co., Ltd., China Construction Technology Group Co., Ltd., Yangtze Optical Fibre and Cable Joint Stock Limited Company, Guangdong Provincial Industrial Edge Intelligence Innovation Center Co., Ltd., the 54th Research Institute of China Electronics Technology Group Corporation, and the Beijing Institute of Automation (Beijing) Technology Development Division Limited Liability Company, China Mobile Internet of Things Co., Ltd., Jinfeng Coal Mine of Ningxia Coal Industry Co., Ltd. of China Energy Investment Corporation, and Donghua Engineering Technology Co., Ltd. Limited Liability Company, Shanghai Power Equipment Complete Set Design and Research Institute Co., Ltd., State Pipeline Group Beijing Pipeline Co., Ltd., Beijing Urban Studies Institute, Jiajie Technology Co., Ltd., Wuhan Cybersecurity Technology Co., Ltd., Dongfang Electric (Wuhan) Nuclear Equipment Co., Ltd., Hubei Huitian New Materials (Yicheng) Co., Ltd., Shenzhen Aite Intelligent Technology Co., Ltd., Dongfang Electric (Chengdu) Innovation

Research Co., Ltd., Shenzhen Byte Technology Co., Ltd., Hefei Zhongke Brain-Inspired Intelligence Technology Co., Ltd., Qinhuangdao Tobacco Machinery Co., Ltd., Shandong Shunshui Information Technology Co., Ltd. Technology Co., Ltd., Jiangsu Xingji Intelligent Manufacturing Technology Co., Ltd., Sanmen Sanyou Technology Co., Ltd., Shenzhen Bangqi Technology Intelligent Development Co., Ltd. Limited Liability Company, Beijing Zongheng Wushuang Technology Co., Ltd., Shenzhen Dagongren Technology Co., Ltd., Vision Technology (Shenzhen) Co., Ltd., Qiao Luming Technology Technology Co., Ltd., Shenzhen Tuwei Technology Co., Ltd., Chengdu Yinci Materials Co., Ltd., Hubei Provincial Institute of Water Resources and Hydropower Research, Northeast University Xue, Jinhang Digital Technology Co., Ltd., Northwestern Polytechnical University, Migu New Sky Culture Technology (Xiamen) Co., Ltd., Beijing Points Era Technology Limited Liability Company, East China Electronic Engineering Research Institute (China Electronics Technology Group Corporation No.

38 Research Institute), Southern Power Grid Energy Development Research Institute Limited Liability Company, Ruili Group Ruian Auto Parts Co., Ltd., Zhejiang Zhuorui Machinery Technology Co., Ltd., Zhejiang Linuo Fluid Control Technology Co., Ltd. Joint-stock limited company. The main drafters of this document are. Huang Xuwei, Li Jia, Wei Min, Zhang Yan, Han Li, Wu Mingjuan, Jiang Zhichao, Zhang Xingxing, Feng Dagang, Dong Xinyang, and Zhang Cheng. Du Fei, Shang Xingyu, Huang Qingqing, Zhao Xiaorong, Zhong Chen, Wu Zhonghua, Pu Chenggen, Wang Hao, Ma Liqun, Liu Lisha, Yao Gang, Peng Cong, Lu Yangguang, Zhang Shurui Yang Menglin, Yuan Biao, Wang Chenkang, Wang Miaoxin, He Zhiyong, Pan Xin, Li Linli, Zhang Zhihui, Cao Yijun, Fan Zesen, Hu Chengguo, Wang Bo, Li Shuang, Qian Weilin Wu Han, Ye Bo, Wang Yong, Xiong Xiaopeng, Zhao Junjie, Niu Tao, Ren Shenlong, Cai Guobin, Zhuang Wei, Yang Kaixuan, Zhang Nannan, Zhang Yongzhong, Wu Yang, Zhu Wuzhen Tang Lian, Cheng Jianchao, Tian Jun, Zhang Han, Yang Yang, Li Tongtong, Ou Mi, Wu Junyi, Wu Xiaoqian, Shen Che, Hu Defang, Sun Wenjun, Xu Na, Li Yuheng Chen Jianhan, Weng Xiaoyan, Chen Qingxi, Yan Che, Chen Lei, Lu Di, Ke Hua, Chen Haijun, Zhang Meili, Li Chao, Peng Yuhuai, Zhang Xiaomei, Liu Yi, Li Shining Zhang Xiaolei, Yang Chengjie, Guo Lei, Zhang Hongqi, Li Jieshan, Pan Yinbin, Huang Jianyu, Feng Huibin, Song Qiu.

A digital twin is a digital representation of a specific target entity with a data connection that guarantees both physical and virtual states. Synchronization is performed between them at an appropriate rate and precision. This is because digital twins possess the capabilities of virtual-real fusion and real-time interaction, iterative operation and optimization, and full... With its features of being driven by data from all elements, processes, and business operations, it has been widely applied in various fields such as manufacturing, urban development, agriculture, energy, and construction. Given the widespread application of digital twins in various scenarios, standardization efforts for digital twins are particularly important. GB/T 43441 The aim is to define the general requirements for digital twins, the construction of digital entities, information interaction, and the classification and

management of digital assets. It is proposed to consist of four parts. constitute.

1.General Requirements. The purpose is to specify the reference architecture, basic requirements, functional requirements, and security requirements for digital twins.

2.Digital Entities. The purpose is to standardize the architecture, construction, management, and service invocation requirements of digital entities.

3.Information Interaction. The aim is to standardize the conceptual framework for information interaction in digital twins, as well as the main processes such as measurement and perception.

4.Digital Asset Classification and Management Requirements. The purpose is to define the classification of digital assets generated during the digital twin process. and management requirements. Information Technology Digital Twins Part

1 Scope

GB/T 43441.3-2026 is the Chinese national standard covering how a digital twin exchanges information - with the physical thing it mirrors, with other twins and with the applications that use it, including the synchronisation, the events and the security of that traffic. Part 3 of the series, first edition, with Part 2 on the digital entity. It was issued on 28 January 2026 and has been in force since 1 August 2026, as a first edition. The document is under the responsibility of the Standardization Administration of China. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document presents a conceptual framework for digital twin information interaction, specifying measurement and sensing, feedback control, service invocation, and data processing within this framework. Requirements for output, interaction within digital entities, and interaction between digital entities. This document applies to the development, application, and services of digital twin-related systems or products.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 43441.1-2023 Information Technology - Digital Twins - Part