Introduction

The purpose of this document is to ensure that users who use a Vnet/IP control bus understand the Vnet/IP system configuration, necessary precautions to set up the system, and the settings required to create a control network system before they set up a Vnet/IP system.

Chapter 1 describes Vnet/IP. Chapters 2 and 3 provide the information required to configure a Vnet/IP system. Ensure that you read Chapter 1 first if you are not familiar with the background of Vnet/IP.

Chapter 1 provides an overview of the Vnet/IP system configuration when it is used as a control network, and the devices required for the system.

Chapter 2 describes the Vnet/IP network settings based on system configuration examples. It provides examples of the basic system configuration, multiple domain configuration, and connection with existing systems. These examples describe the required devices, settings, and information when setting up the network. We recommend that you evaluate the general Vnet/IP system configuration by following these examples. You must read Chapter 1 first to understand Chapter 2.

Chapter 3 describes the Vnet/IP network settings in a system configuration that does not use information network but uses Vnet/IP to perform communication that is normally done on an information network. It provides examples of the basic system configuration and multiple domain configuration. These examples also describe the required devices, settings, and information when setting up the network. To set up a system without using information network, you have to fully understand the conditions described in Chapter 1.6 of this document, and then configure and run the system appropriately. You must read Chapter 1 first to understand Chapter 3.

Chapter 4 describes the layer 2 switches, layer 3 switches, cable for Vnet/IP, time synchronization in the Vnet/IP system, and necessary precautions when installing network devices. Time synchronization is important for the electronic records; electronic signatures (21 CFR Part 11) compliant system of Food and Drug Administration (FDA) or for the Sequence of Event (SOE) system.

This document addresses the Vnet/IP network configuration as a control network. When Vnet/IP is connected to an external network, it is necessary to take security issues into consideration. Therefore, this document does not provide complete information on the required network configuration or settings. When connecting to an external network, contact the network administrator to determine the appropriate network configuration.

With the release of CENTUM VP R5.01 and ProSafe-RS R3.01, the guidelines are changed so that Vnet/IP is used as a network for control communications, and other communications are performed on an information network other than Vnet/IP. This document is customized to address this change. Refer to "TI 30A10A10-01 Vnet/IP Network Construction Guide (Legacy Edition)" for the legacy guide.

■ Related documents

TI 30A10A10-01E   Vnet/IP Network Instruction Guide (Legacy Edition)

TI 30A10A20-01E   Vnet/IP Built-In security Features

TI 30A10A30-01E   Network Switch for Vnet/IP

■ Glossary

The following table describes the terms commonly used in this document.

Table   Glossary terms (1/2)

Term	Description
1000BASE-LX	A gigabit Ethernet optical interface standard specified in IEEE 802.3 with a transmission rate of 1 Gbps.
1000BASE-T	A gigabit Ethernet UTP interface standard specified in IEEE 802.3 with a transmission rate of 1 Gbps.
100BASE-TX	A Fast Ethernet UTP interface standard specified in IEEE 802 with a transmission rate of 100 Mbps.
APCS	An Advanced Process Control Station (APCS) performs control functions with a station to improve advanced control and plant efficiency.
BCV	A generic name for Bus Converter. It connects V net stations to V net or HF Bus stations in other domains.
BCV-H	A Bus Converter for HF Bus. It connects V net stations to HF Bus stations in other domains.
BCV-L	A Bus Converter for RL Bus. It connects V net stations to RL Bus stations in other domains.
BCV-V	A Bus Converter for V net. It connects V net stations to V net stations in other domains.
CENTUM	A generic name for Integrated Production Control System CENTUM VP and CENTUM CS 3000.
CENTUM system	A system that consists of CENTUM components.
Control bus TCP/IP communications	The TCP/IP protocol communications on the control bus V net.
Control Communications	A generic name for the control data communication between CENTUM or ProSafe-RS stations.
Control network	The transmission path for control communication between CENTUM and ProSafe-RS systems.
DCOM	A Microsoft-defined specification for distributed object technology. It enables software components referred to as COM objects to communicate and exchange data and processing requests on a network.
ENG	A station with engineering functions that performs CENTUM system configuration and maintenance management. It can be the same station as the HIS.
Exaopc	A station on which Exaopc OPC Interface Package is installed.
Exapilot	A station on which Exapilot Operation Efficiency Improvement Package is installed.
Exaquantum	A station on which Exaquantum Plant Information Management System is installed.
FCS	A Field Control Station (FCS) is a component of the CENTUM system that performs process control and manages communications with subsystems such as PLCs.
Firewall	A generic name for functions and devices that protect the local network against unauthorized access from an external network.
Gigabit Ethernet	An Ethernet standard for 1 Gbps transmission rate, as defined by IEEE802.3.
GSGW	A Generic Subsystem Gateway Station (GSGW) collects and configures data of various subsystem types through OPC DA servers. It is a station with the Generic Subsystem Gateway Package.
HIS	A Human Interface Station (HIS) serves as a human machine interface of the CENTUM system. It is used for operation and monitoring.
HUB	A device that connects network devices on an Ethernet network.
Information network	The transmission path for file transfer and data communication between CENTUM or ProSafe-RS stations and generic Ethernet devices. The information network uses Ethernet standard protocols.
IP address	An Internet Protocol (IP) address is a logical address that identifies network devices.
Layer 2 switch (L2SW)	A network device that relays packets at Layer 2 (Data Link Layer) of the OSI reference model.
Layer 3 switch (L3SW)	A network device that relays packets at Layer 3 (Network Layer) of the OSI reference model.
MAC address	Abbreviation of Media Access Control address which is a unique address that is assigned to each Ethernet interface for identification.