

# HITACHI

SOFTWARE MANUAL  
OPERATION  
**NX/Tools-S10V**  
For Windows®

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**S10V**  
Programmable Controller

SVE-3-137(E)

SOFTWARE MANUAL  
OPERATION  
**NX/Tools-S10V**  
**For Windows®**

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The logo for S10V Programmable Controller is displayed on a blue rectangular background with a textured surface. The text 'S10V' is written in a large, bold, white sans-serif font. Below it, the words 'Programmable Controller' are written in a smaller, white sans-serif font.

**S10V**  
Programmable Controller

First Edition, January 2007, SVE-3-137(B) (out of print)  
Second Edition, October 2007, SVE-3-137(C) (out of print)  
Third Edition, February 2012, SVE-3-137(D) (out of print)  
Fourth Edition, November 2012, SVE-3-137(E)

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Printed in Japan.


SN<IC> (FL-MW2007)

## SAFETY PRECAUTIONS



- Read this manual thoroughly and follow all the safety precautions and instructions given in this manual before operations such as system configuration and program creation.
- Keep this manual handy so that you can refer to it any time you want.
- If you have any question concerning any part of this manual, contact your nearest Hitachi branch office or service engineer.
- Hitachi will not be responsible for any accident or failure resulting from your operation in any manner not described in this manual.
- Hitachi will not be responsible for any accident or failure resulting from modification of software provided by Hitachi.
- Hitachi will not be responsible for reliability of software not provided by Hitachi.
- Make it a rule to back up every file. Any trouble on the file unit, power failure during file access or incorrect operation may destroy some of the files you have stored. To prevent data destruction and loss, make file backup a routine task.
- Furnish protective circuits externally and make a system design in a way that ensures safety in system operations and provides adequate safeguards to prevent personal injury and death and serious property damage even if the product should become faulty or malfunction or if an employed program is defective.
- If an emergency stop circuit, interlock circuit, or similar circuit is to be formulated, it must be positioned external to the programmable controller. If you do not observe this precaution, equipment damage or accident may occur when this programmable controller becomes defective.
- Before changing the program, generating a forced output, or performing the RUN, STOP, or like procedure during an operation, thoroughly verify the safety because the use of an incorrect procedure may cause equipment damage or other accident.
- This manual contains information on potential hazards that is intended as a guide for safe use of this product. The potential hazards listed in the manual are divided into four hazard levels of danger, warning, caution, and notice, according to the level of their severity. The following are definitions of the safety labels containing the corresponding signal words DANGER, WARNING, CAUTION, and NOTICE.

 **DANGER** : This safety label identifies precautions that, if not heeded, will result in death or serious injury.

 **WARNING** : Identifies precautions that, if not heeded, could result in death or serious injury.

 **CAUTION** : Identifies precautions that, if not heeded, could result in minor or moderate injury.

**NOTICE** : This safety label without a safety alert symbol identifies precautions that, if not heeded, could result in property damage or loss not related to personal injury.

Failure to observe any of the  **CAUTION** and  **NOTICE** statements used in this manual could also lead to a serious consequence, depending on the situation in which this product is used. Therefore, be sure to observe all of those statements without fail.

The following are definitions of the phrases “serious injury,” “minor or moderate injury,” and “property damage or loss not related to personal injury” used in the above definitions of the safety labels.

***Serious injury:*** Is an injury that requires hospitalization for medical treatment, has aftereffects, and/or requires long-term follow-up care. Examples of serious injuries are as follows: vision loss, burn (caused by dry heat or extreme cold), electric-shock injury, broken bone, poisoning, etc.

***Minor or moderate injury:*** Is an injury that does not require either hospitalization for medical treatment or long-term follow-up care. Examples of minor or moderate injuries are as follows: burn, electric-shock injury, etc.

***Property damage or loss not related to personal injury:*** Is a damage to or loss of personal property. Examples of property damages or losses not related to personal injury are as follows: damage to this product or other equipment or their breakdown, loss of useful data, etc.

The safety precautions stated in this manual are based on the general rules of safety applicable to this product. These safety precautions are a necessary complement to the various safety measures included in this product. Although they have been planned carefully, the safety precautions posted on this product and in the manual do not cover every possible hazard. Common sense and caution must be used when operating this product. For safe operation and maintenance of this product, establish your own safety rules and regulations according to your unique needs. A variety of industry standards are available to establish such safety rules and regulations.

1.  Hazard Warning Statements

The following are the hazard warning statements contained in this manual.

1.1 NOTICE Statement

(chapter 1, page 1-3)

***NOTICE***

This product allows a program or internal register values to be rewritten while running the PCs. Note that the unnecessary rewriting of a program or register values may result in equipment damage or a serious accident. Therefore, before rewriting any program or values, be sure to confirm normal equipment status.

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This manual provides information on the following program product:

<Program product>

S-7895-13, NX/Tools-S10V SYSTEM, 01-04

S-7895-14, NX/HOST-S10V SYSTEM, 02-00

S-7895-66, NX/HOST-S10V SYSTEM, 01-00



### Revision record

Revision No.	Revision record (revision details and reason for revision)	Month, Year	Remarks
D	<ul style="list-style-type: none"><li>• The procedure used in cases where the system program has not been transferred yet is revised.</li><li>• The procedure used for transferring NX setup information is added.</li></ul>	February 2012	
E	Windows® 7 (32-bit) operating system is newly supported.	November 2012	

In addition to the above changes, all the unclear descriptions and typographical errors found are also corrected without prior notice.

## PREFACE

Thank you for purchasing the NX/Tools-S10V system along with the NX/HOST-S10V system.

The NX/Tools-S10V system, running on a personal computer, is used to load the system program for the NX/HOST-S10V system to an actual S10V controller on which it will be executed. It is also used to add changes to a variety of set parameters after such loading.

This manual describes how to operate the NX/Tools-S10V system in adding changes to the set parameters and how to program with the NX/HOST-S10V system. It covers the following system versions:

P.P. model	System name and version	Supported OS
S-7895-13	NX/Tools-S10V System for Windows®, 01-04 or later	Windows® 2000/XP/7 (32-bit)
S-7895-14	NX/HOST-S10V System for Windows®, 02-00 or later	Windows® 2000/XP
S-7895-66	NX/HOST-S10V System for Windows®, 01-00 or later	Windows® 7 (32-bit)

### <Related manual>

SOFTWARE MANUAL, OPERATION, NX/ACP-S10V For Windows® (manual number SVE-3-134)

### <Trademarks>

- Microsoft® Windows® operating system, Microsoft® Windows® 2000 operating system, Windows® XP operating system, Microsoft® Windows® 7 (32-bit) operating system are registered trademarks of Microsoft Corporation in the United States and/or other countries.
- Ethernet® is a registered trademark of Xerox Crop.

<Definitions of terms>

PCs: Abbreviation for Programmable Controllers.

Generic term for such PLCs as the S10V, S10 $\alpha$ , and S10mini series.

PLC: Abbreviation for Programmable Logic Controller.

This refers to industrial electronic equipment that performs sequence control by using the stored program system.

The S10V, S10 $\alpha$ , and S10mini series are PLCs.

MCS: Abbreviation for Man-machine Communication System.

The term “MCS” is a generic name for software functionality that supports read and write of the PCs’ memory contents.

<Note for storage capacity calculations>

- Memory capacities and requirements, file sizes and storage requirements, etc. must be calculated according to the formula  $2^n$ . The following examples show the results of such calculations by  $2^n$  (to the right of the equals signs).

1 KB (kilobyte) = 1,024 bytes

1 MB (megabyte) = 1,048,576 bytes

1 GB (gigabyte) = 1,073,741,824 bytes

- As for disk capacities, they must be calculated using the formula  $10^n$ . Listed below are the results of calculating the above example capacities using  $10^n$  in place of  $2^n$ .

1 KB (kilobyte) = 1,000 bytes

1 MB (megabyte) =  $1,000^2$  bytes

1 GB (gigabyte) =  $1,000^3$  bytes

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# 1 GENERAL INFORMATION FOR OPERATING THE SYSTEM

# 1 GENERAL INFORMATION FOR OPERATING THE SYSTEM

---

This manual is intended for users who are familiar with programming on Windows®-based personal computers.

## 1.1 System Overview

The NX/Tools-S10V system for Windows® (hereinafter simply called the NX/Tools-S10V) enables you to do the following: 1) to transfer the system program for the NX/HOST-S10V system to an actual S10V controller on which it will be executed and 2) to add changes to the set parameters after such a transfer. You can accomplish these things as if you were using a common Windows® application.

## 1.2 Required Hardware and Software Items

The NX/Tools-S10V system requires the following hardware and software.

- A personal computer (hereafter abbreviated to PC) containing a Pentium 300 MHz or faster CPU, or a 1 GHz or faster CPU (for Windows® 7 (32-bit version))
- A display with a resolution of 800 × 600 (SVGA) or more
- Microsoft® Windows® 2000 operating system (SP2 or later), Microsoft® Windows® XP operating system or Microsoft® Windows® 7 (32-bit) operating system
- 64 MB or more of RAM (for Windows® 2000)
- 128 MB or more of RAM (for Windows® XP)
- 1 GB or more of RAM (for Windows® 7 (32-bit))
- 10 MB or more free space on the hard disk
- LPU and CMU for the S10V series
- Power supply and backboard for the S10V series
- Cable for connecting the personal computer to the CMU or ET.NET module (LQE720) (10BASE-T or 100BASE-T twisted pair cross cable with RJ-45 modular connectors)
- Remote I/O stations, other power supplies and backboards, cards, and wiring as required

Notes:

- The successful use of the NX/Tools-S10V requires the connection of the personal computer to the CMU module via Ethernet.
- This system may not be used in conjunction with the RPDP/S10V system in the same S10V CMU module. If it is so used, its normal operation is not guaranteed.

**NOTICE**

This product allows a program or internal register values to be rewritten while running the PCs. Note that the unnecessary rewriting of a program or register values may result in equipment damage or a serious accident. Therefore, before rewriting any program or values, be sure to confirm normal equipment status.

The user of this product must be knowledgeable about the Windows® environment and user interface. This system conforms to the Windows® standard. This manual is intended for users who are familiar with how to operate Windows®, which is the basis for operating this product.

- When using a PC having a suspend function, turn off the suspend function. Note that operating the suspend function while running the system may inhibit normal system operation.
- Insufficient RAM capacity may cause an application error. Should an application error occur, check the free memory capacity and install additional RAM in case of insufficient free memory capacity.

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## **2 GENERAL DESCRIPTION**

### 2.1 Communications Specifications of NX/HOST-S10V

The NX/Tools-S10V, as described in the previous chapter, is a software system that enables you to transfer the system program for the NX/HOST-S10V to the target machine and to add changes to the set parameters after such a transfer.

The NX/HOST-S10V, on the other hand, is an autonomous-distribution online package software system that serves as an interface to ladder programs running together with it on the S10V controller. In functionality, it is equivalent to a combination of the NX/ACP-S10V and NX/Ladder-S10V.

Table 2-1 shows the major communications specifications of the NX/HOST-S10V.

Table 2-1 Communications Specifications of NX/HOST-S10V

Item	Specification
Network	Ethernet® (used together with CMU module)
Communication protocol	UDP/IP
Message size (in bytes)	1408 max.

This product automatically occupies a memory area as shown below, which is used by the NX/HOST-S10V during data communication. Users are not allowed to use this memory area.

Table 2-2 Exclusively Used Memory Area

Item	Specification
FW registers	FWBFD thru FWBFF (used as error info setting registers)

## 2.2 Software Configuration

This system is used in the software configuration shown in Figure 2-1. It requires the following software item for its normal operation:

- S10V Ladder Chart System

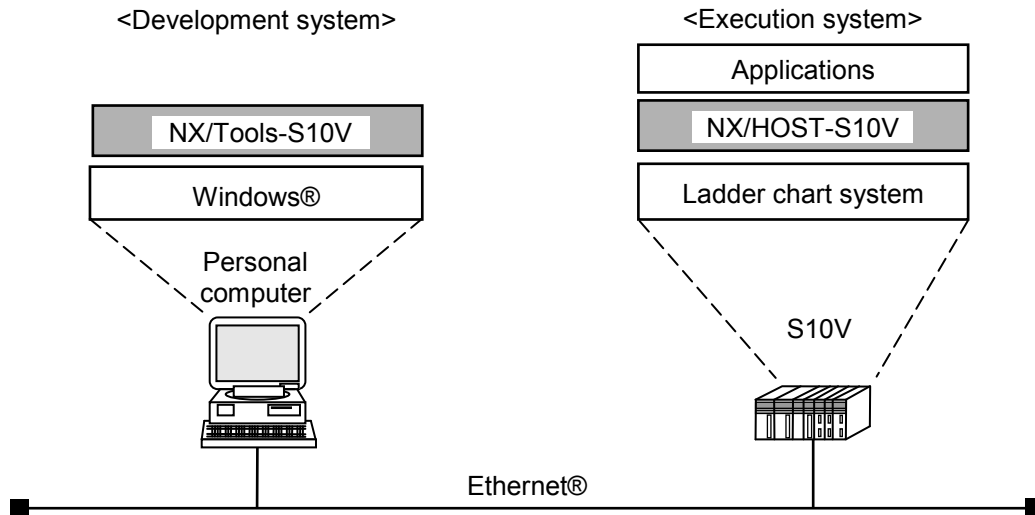


Figure 2-1 Software Configuration

Table 2-3 shows the software systems that are essential to the use of the NX/HOST-S10V and NX/Tools-S10V systems.

Table 2-3 Required Software Systems and Their Versions and Revisions

- Software systems required for personal computers running Microsoft® Windows® 2000 operating system or Microsoft® Windows® XP operating system

System name	Version and revision
Ladder Chart System	01-01 or later (S-7895-02)
NX/Tools-S10V System	01-00 or later (S-7895-13)
NX/HOST-S10V System	01-00 or later (S-7895-14)
S10V Base System	01-01 or later (S-7895-38)

- Software systems required for personal computers running Microsoft® Windows® 7 (32-bit) operating system

System name	Version and revision
Ladder Chart System	01-34 or later (S-7895-02)
NX/Tools-S10V System	01-04 or later (S-7895-13)
NX/HOST-S10V System	01-00 or later (S-7895-66)
S10V Base System	01-15 or later (S-7895-38)



2.3 Multicast Communication

The NX/HOST-S10V supports multicast communication that sends and receives TCD-added messages with other nodes in the network by using the NX/ACP-S10V from the ladder program interface.

Multicast communication is a mode of communication that constitutes the base of the NX protocol. It has the following characteristics:

- It enables efficient transmissions because it can send the same message to a number of distant nodes in the network simultaneously.
- It is easy to use because inter-communicating nodes have no dependency on each other and no procedure is required for establishing a connection between them.

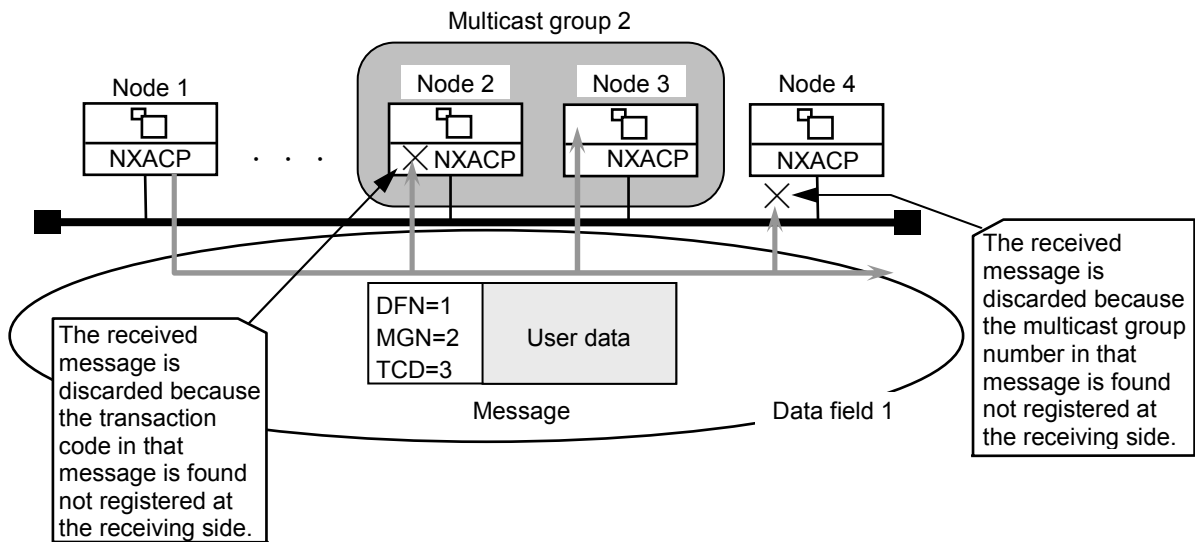


Figure 2-2 A Diagrammatic Representation of Multicast Communication

【Supplementary information】

The sending node sends out messages containing such parameters as the destination data field number, transaction code, etc. and the receiving nodes autonomously take in only messages they need from among the received messages. Thus, none of the nodes have to identify any other communicating party and establish synchronization with it. This enables you to improve the independency of communicating equipment or user programs and, at the same time, increase the extensibility of the entire system.

## 2.4 Transaction Management

The NX/HOST-S10V uses transaction management in which sets of one register and one buffer are placed in one-to-one correspondence with transaction codes.

In transaction management, a register serves as a switch to notify of the completion of a data transmission or of an issued data reception request. That is, a register is switched on by the NX/HOST-S10V system when the system starts a data transmission to satisfy a data transmission (send) request issued by the user, and is switched off when the transmission is completed. When a data message is received from a distant node, another register is switched on by the system when the system has written the received message to the receive buffer. This is illustrated below.

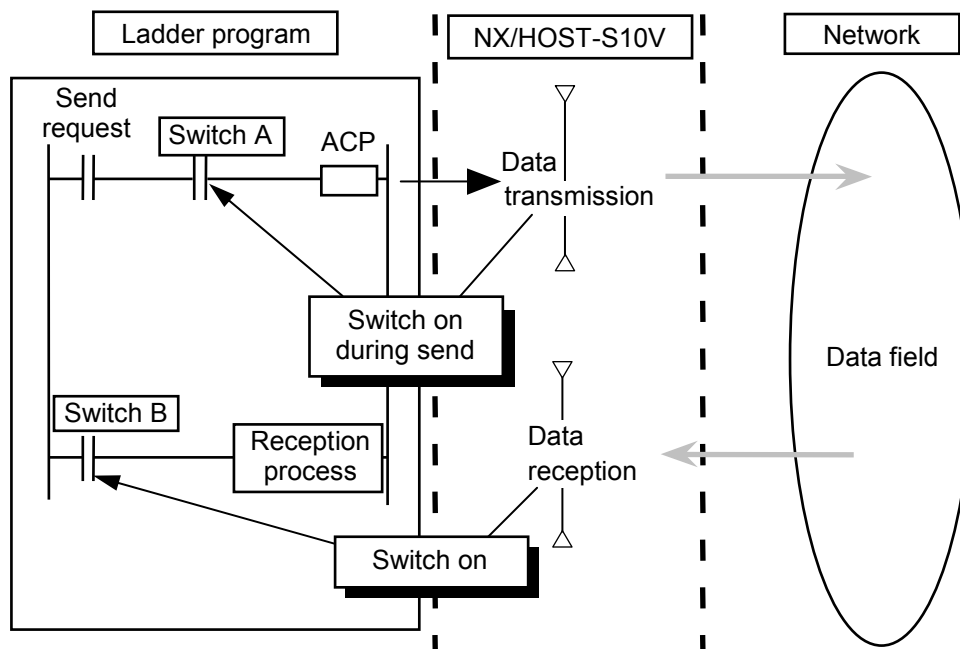


Figure 2-3 A Diagrammatic Representation of Transaction Management

### 【Supplementary information】

Register numbers must be set by the user when constructing a ladder interface.

### 2.5 System Extension Arithmetic Functions

The NX/HOST-S10V offers the following two system extension arithmetic functions:

(1) sat() function

Performs the initialization process for the NX/HOST-S10V. This function must be executed once at the activation of the ladder.

(2) acp() function

Works as a transmission process to satisfy a send request issued by the user.

(3) sato() function

(Prerequisite: Ver.-Rev. 02-00 and later of NX/HOST-S10V (S-7895-14), Ver.-Rev. 01-00 and later of NX/HOST-S10V (S-7895-66) and Ver.-Rev. 01-16 and later of the S10V Ladder Chart System)

In the ladder chart program of the S10/2 $\alpha$  Series or S10mini Series, sato() is the arithmetic function to which the sat() arithmetic function of old NX/Ladder-S10 (Ver.-Rev. 02-00 and earlier) used for NX initialization is converted for S10V. The sato() function works in the same way as for the sat() function in (1) above. However, the parameter specification differs between them.

In a general ladder chart program of S10V, use sat() in (1) above as the arithmetic function that performs NX initialization.

(4) acpo() function

(Prerequisite: Ver.-Rev. 02-00 and later of NX/HOST-S10V (S-7895-14), Ver.-Rev. 01-00 and later of NX/HOST-S10V (S-7895-66) and Ver.-Rev. 01-16 and later of the S10V Ladder Chart System)

In the ladder chart program of the S10/2 $\alpha$  Series or S10mini Series, acpo() is the arithmetic function to which the acp() arithmetic function of old NX/Ladder-S10 (Ver.-Rev. 02-00 and earlier) used for transmission of data requested by a user is converted for S10V. The acpo() function works in the same way as for the acp() function in (2) above. However, the parameter specification and the transmission flag use method differ between them. For details, see “Note: Differences between acp() and acpo()” in the next page.

In a general ladder chart program of S10V, use acp() in (2) above as the arithmetic function that performs NX transmission.

Note: Differences between acp() and acpo()

As shown below, acp() and acpo() differ in specifying parameters and in using the during-send register.

- ① The during-send register of acp() is turned on when transmission starts, and is turned off when transmission ends.

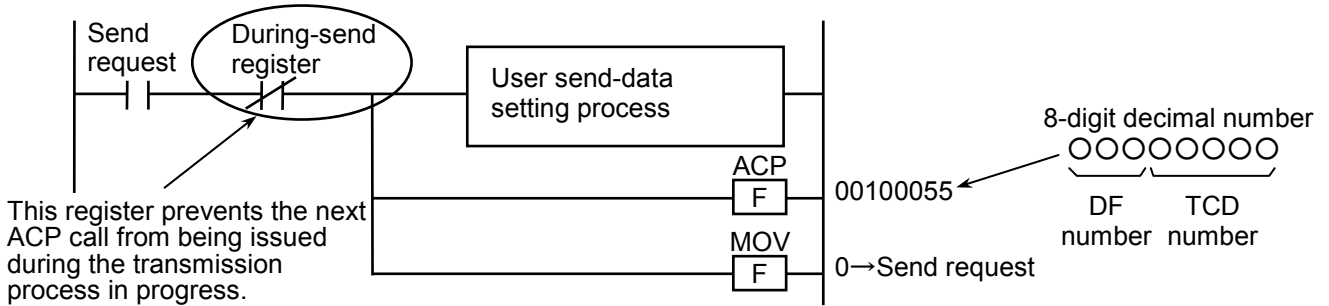


Figure 2-4 Ladder Chart Using acp()

- ② The during-send register of acpo() conforms to the old NX/Ladder-S10 specification and is the ON register that is turned on when transmission is complete. This register needs to be turned off before the next transmission.

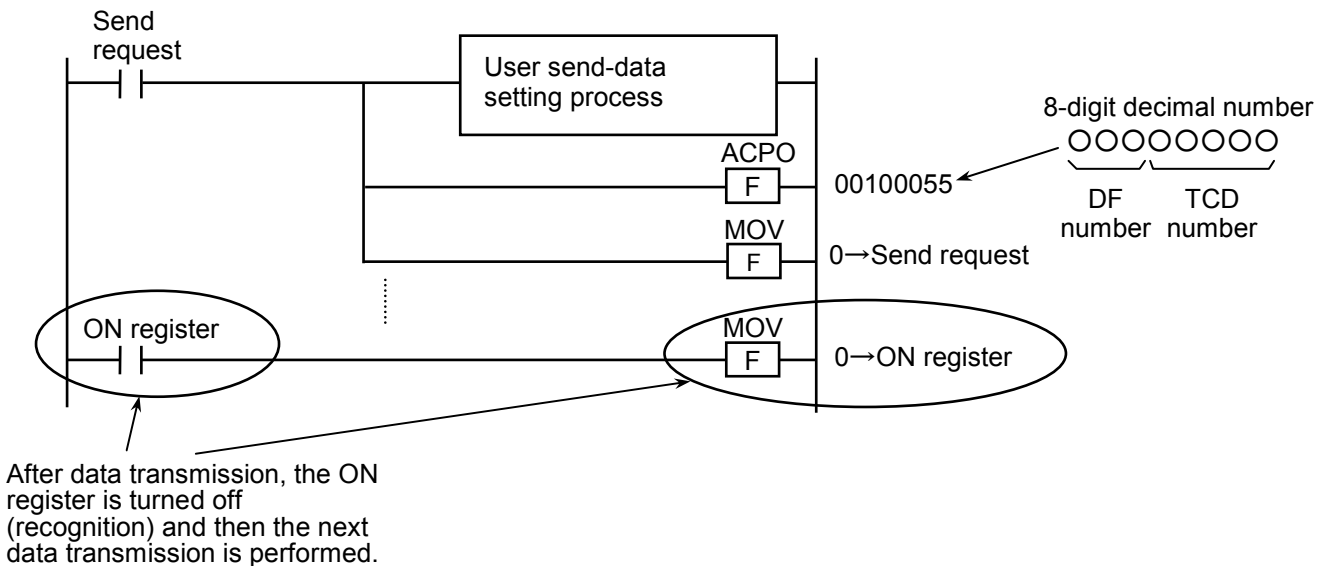


Figure 2-5 Ladder Chart Using acpo()

Note: The ON register registered for NX/Tools-S10V is displayed as the “During Send register” on the Local DF screen. However, read that during-send register as the “ON register.”

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# 3 USAGE GUIDE

### 3.1 Procedure for Creating a Ladder Sequence

To use the NX/HOST-S10V, perform the procedure shown below that aims at the initialization of the ladder chart system and ladder programs.

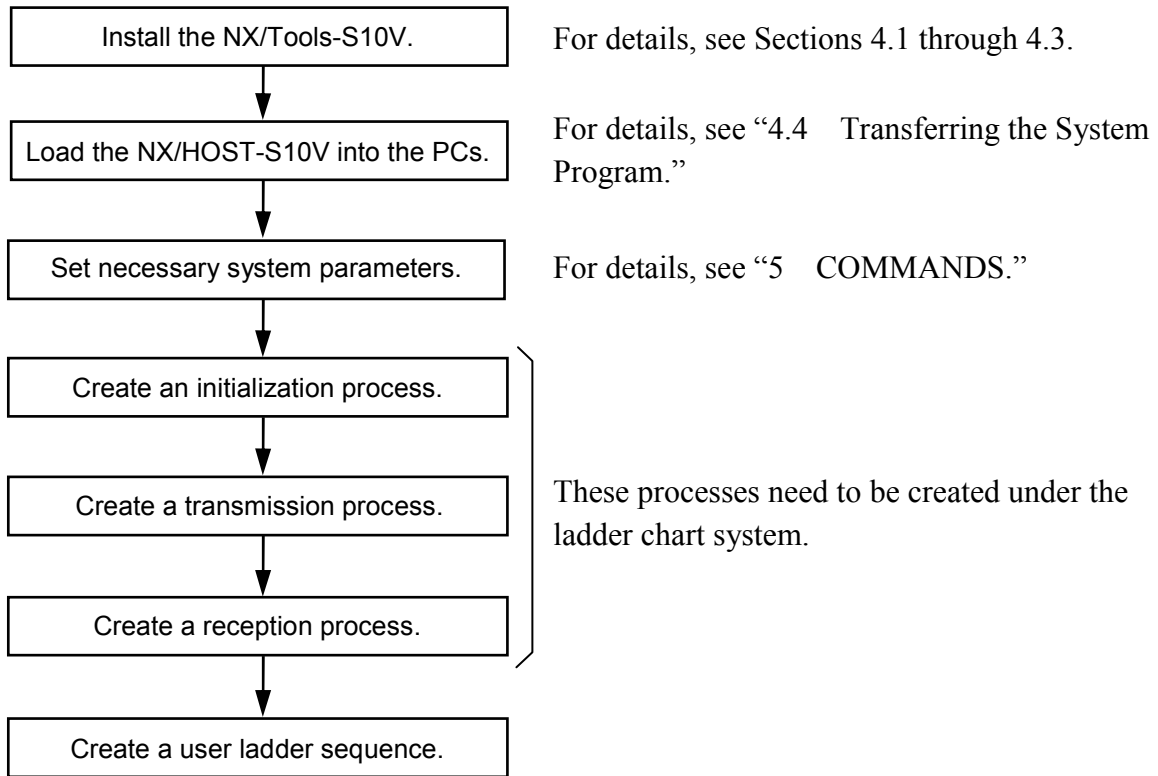


Figure 3-1 Procedure for Creating a Ladder Sequence

### 3.2 Creating an Initialization Process

The sat() function, available as a system extension arithmetic function, is used to initialize and start the NX. This function needs to be executed only once when the PCs has been powered down and then up again or when it has been reset. The sole parameter to sat() must always be set to 0. Figure 3-2 shows an example of a circuit using this function, where the V-contact is used to limit its execution to only once.

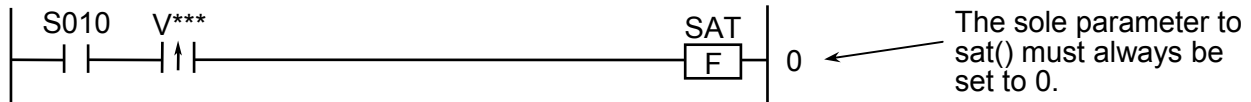


Figure 3-2 A Programming Example of Using the sat() Function

### 3.3 Creating a Transmission Process

The acp() function, available as a system extension arithmetic function, is used to send as many data bytes as specified by the set send-byte count (set via the TCD setting window shown in Chapter 5, “COMMANDS”) from the source specified by the set send-address (set via that same window). This function must be called by performing the following steps: 1) set the desired user data to send from the source, 2) ensure that the during-send register is in Off state, and 3) call the acp() function. When this function is called, clear the send request immediately. The parameters to acp() must be specified by an 8-digit decimal number whose low-order five digits represents a TCD number and whose high-order three digits represents a destination DF (data field) number. These two parameters must be assigned the same values as specified as the TCD number and DF number in the DF setup window described in Chapter 5, “COMMANDS.”

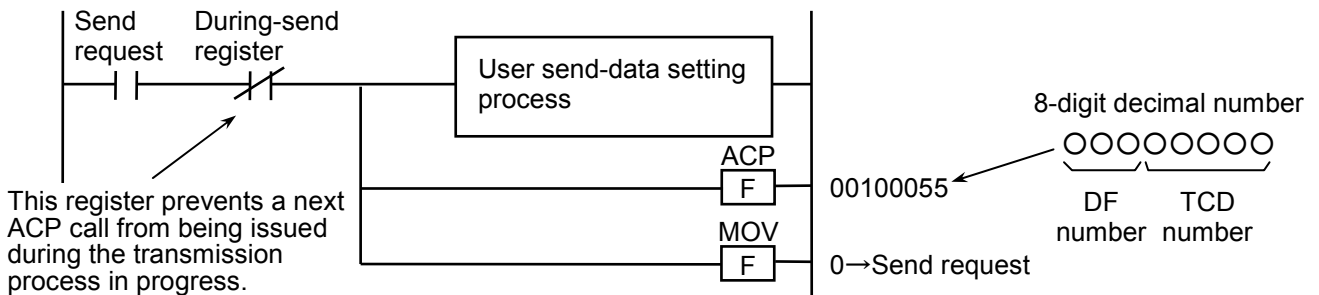


Figure 3-3 A Programming Example of Using the acp() Function

- Note 1: The send request must be a contact that has the acp() initiation condition latched by a V-contact. It must be set to 0 upon every issue of an acp() call. If it is not, the send request will be issued repeatedly (see the example given below).
- Note 2: The during-send register must be one that has been set via the NX/Tools-S10V. This register prevents a next ACP call from being issued during the transmission process in progress.



### 3 USAGE GUIDE

Example: Sending a given piece of data once every time X000 becomes ON.

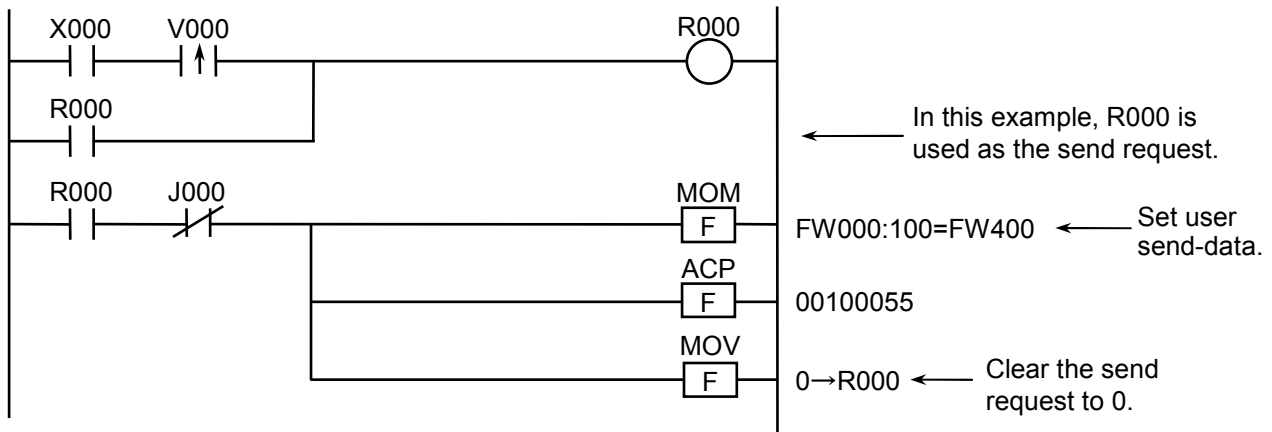


Figure 3-4 A Sending Ladder Circuit

### 3.4 Creating a Reception Process

Upon reception of a given piece of data, the NX/HOST-S10V transfers as many bytes of the received data as specified by the set receive-byte count (set via the TCD setting window shown in Figure 5-4) to the storage location specified by the set receive-address (set via that same window) and then turns on the receive-completion register. If the received data piece contains more bytes than specified by the set receive-byte count, the excess trailing byte(s) will be discarded. When the receive completion register is ON, you must fetch the user data from the specified storage location and clear the receive completion register.

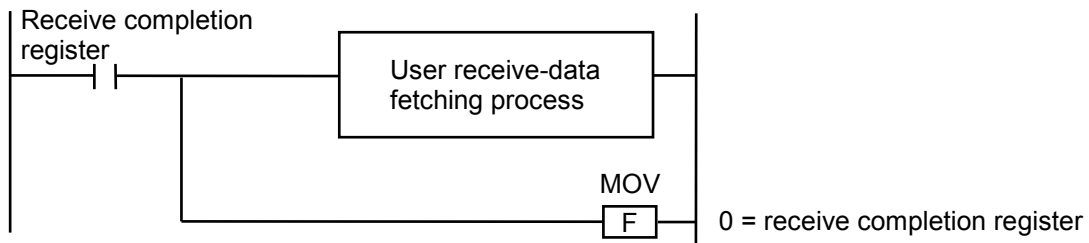


Figure 3-5 A Programming Example of Fetching the Received Data (1)

Note: The receive completion register must be one that has been set as described in Chapter 5, "COMMANDS."

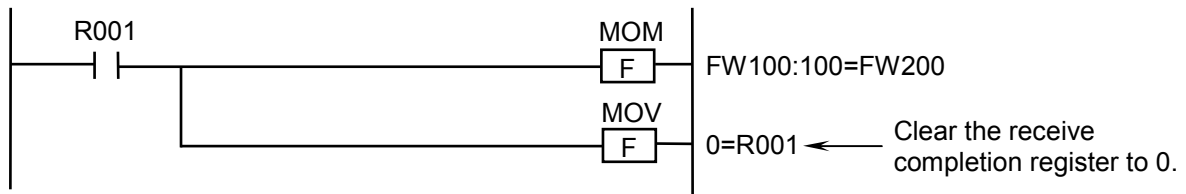


Figure 3-6 A Programming Example of Fetching the Received Data (2)

### 3.5 Converting the Ladder Chart Program That Uses Old NX/Ladder

This section explains the procedure for converting old NX/Ladder for the use in S10V.

New NX and old NX differ in the following two specifications:

- Arithmetic function parameters
- During-send register

To continuously use the SAT and ACP arithmetic functions, the ladder program needs to be changed.

- Parameters of the arithmetic functions are changed from the address format beginning with “H” to DF number + TCD number.
- The logic that is off before transmission for the during-send register that is turned on when transmission is complete is changed to the logic associated with the register that is turned on during transmission only.

The converter function of the Ladder Chart System (Ver.-Rev. 01-16 or later) eliminates the need for program changes, using arithmetic functions compatible with old NX/Ladder (Ver.-Rev. of NX/Ladder-S10 is 02-00 or earlier).

To use the arithmetic functions compatible with old NX, convert the ladder program and construct the NX environment according to the following procedure:

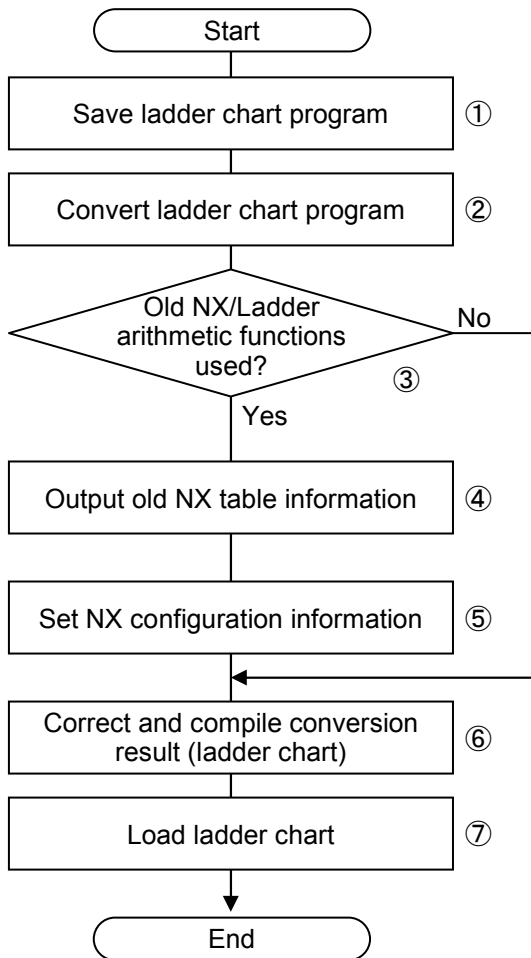
Convert the ladder chart program, which is using old NX/Ladder (Ver.-Rev. of NX/Ladder-S10 is 02-00 or earlier) arithmetic functions of the S10/2 $\alpha$  Series and S10mini Series, to the S10V ladder chart program. (However, if two different data fields (DFs) are in use with NX arithmetic functions within the ladder chart program, S10V can use only one DF. So, correct the ladder chart program and NX configuration information so that only one DF is used.)

Old NX/Ladder and subsequent NX/Ladder differ in specifications. For details, see “2.5 System Extension Arithmetic Functions.” To convert the old NX/Ladder arithmetic functions, Ver.-Rev. 01-16 or later of the S10V Ladder Chart System (model: S-7895-02) is required.

Therefore, this section indicates the S10V Ladder Chart System as that of Ver.-Rev. 01-16 or later.

■ Conversion procedure

(1) Outline of the conversion procedure



- ① Saving the ladder chart program  
Start the Ladder Chart System (model: S-7890-02) and save the ladder chart program from the real machine (S10/2α Series or S10mini Series) with all areas specified.
- ② Converting the ladder chart program  
Start the S10V Ladder Chart System and start converting the ladder chart program saved in the above.
- ③ Checking the use of old NX/Ladder arithmetic functions  
An automatic check is made to see if old NX/Ladder arithmetic functions are used in the ladder chart program for which conversion has started. If these functions are in use, the window in Figure 3-8 in (3) on the next page is displayed.
- ④ Outputting the old NX table information  
NX table information is output if old NX/Ladder arithmetic functions are used in the ladder chart program for which conversion has started.
- ⑤ Setting the NX configuration information  
Start the NX/Tools-S10V system (model: S-7895-13, Ver.-Rev. 01-03 or later), and set the NX configuration information referring to the above NX table information.  
However, the user needs to obtain the following setting information:
  - Logical Node Number
  - Alive message timeout/Alive message interval
  - Alive port number
  - Send my port number
  - Send MCG No./Send Port No.
  - Receive byte number
- ⑥ Correcting and compiling the conversion result (ladder chart)  
Check the conversion result (ladder chart program). When there is no problem in it, compile it. If any problem occurs with it, correct and then compile it.
- ⑦ Loading the ladder chart  
Send the compiled ladder chart program to the real machine (S10V).

- Software requirements for personal computers running Microsoft® Windows® 2000 or Microsoft® Windows® XP

Prerequisite of S10V:	
S10V Ladder Chart System (S-7895-02)	Ver.-Rev. 01-16 or later
NX/HOST-S10V (S-7895-14)	Ver.-Rev. 02-00 or later
NX/Ladder-S10V (S-7895-12)	Ver.-Rev. 02-00 or later

- Software requirements for personal computers running Microsoft® Windows® 7 (32-bit)

Prerequisite of S10V:	
S10V Ladder Chart System (S-7895-02)	Ver.-Rev. 01-34 or later
NX/HOST-S10V (S-7895-66)	Ver.-Rev. 01-00 or later
NX/Ladder-S10V (S-7895-65)	Ver.-Rev. 01-00 or later

## (2) Converting the ladder chart program

- ① Select [Utility] – [Convert] from the menu of the S10V Ladder Chart System.

The conversion source file selection window appears. (See Figure 3-7.)

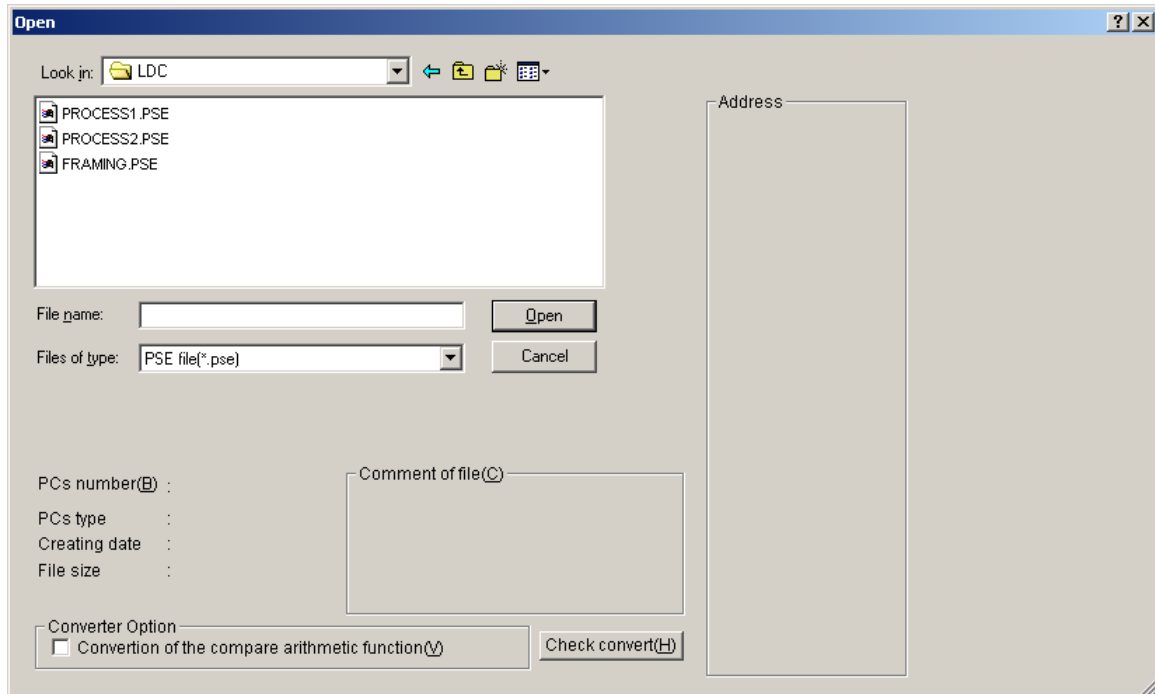


Figure 3-7 Conversion Source File Selection Window

- ② Select the ladder chart program to be converted, from the conversion source file selection window, and then click the **Open** button. The conversion source file selection window closes and the ladder chart program is converted (conversion of the right downward ladder chart program to the horizontal one).  
Clicking the **Cancel** button closes the conversion source file selection window (no conversion occurs).

(3) Checking the use of the old NX/Ladder arithmetic functions

When the conversion of the ladder chart program is complete, a check is made to see if the conversion source ladder chart program is using old NX/Ladder arithmetic functions. If these functions are in use, the window for confirming the start of automatic NX arithmetic function conversion appears. (However, this window does not appear if old NX/Ladder arithmetic functions are not in use.)

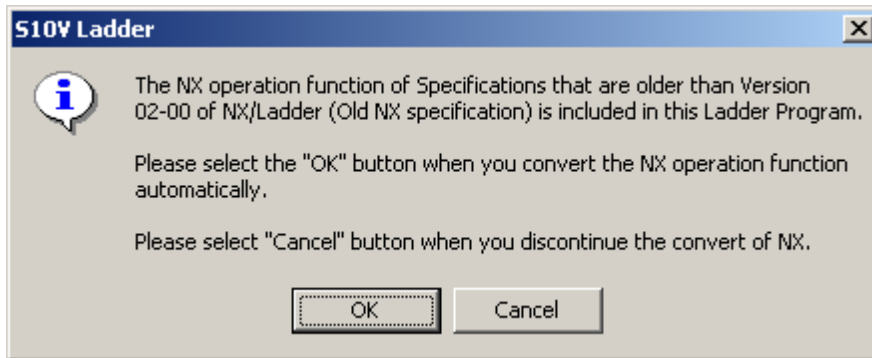


Figure 3-8 Window for Confirming the Start of Automatic NX Arithmetic Function Conversion

Clicking the  button on the window for confirming the start of automatic NX arithmetic function conversion starts converting NX arithmetic functions.

<NX arithmetic function conversion>

When NX arithmetic function conversion is successful, the old NX/Ladder arithmetic functions being used in the ladder chart program are converted to the NX arithmetic functions listed in the table below.

NX arithmetic function		Remarks
Before conversion	After conversion	
SAT XXXXXX	SATO 0	The NX arithmetic functions that failed to be converted are not converted (they remain unchanged regardless of conversion).
ACP XXXXXX	ACPO DDDTTTTT	

XXXXXX: Parameter (address)

DDDTTTTT: DF number + TCD number

DDD = DF number (3-digit decimal)

TTTTT = TCD number (5-digit decimal)

If any problem occurs, an error message dialog box appears. No NX arithmetic functions are converted (see <Unsuccessful NX arithmetic function conversion>).

<Unsuccessful NX arithmetic function conversion>

- The error message dialog box shown below appears if one of the following occurs:  
data of the address (word register) used with NX arithmetic functions is not saved, or the conversion source ladder chart program file does not contain the address (word register) specified with the parameter of the NX arithmetic function (SAT or ACP).

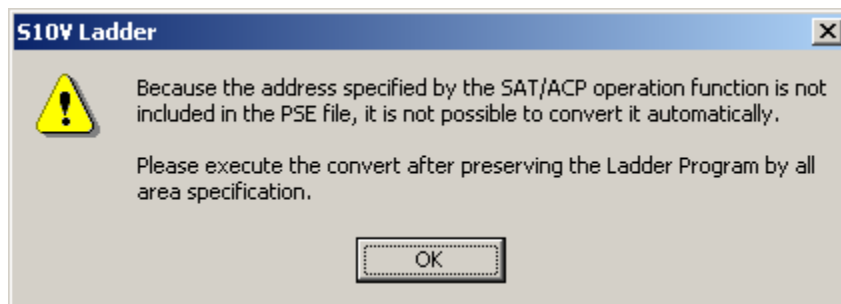


Figure 3-9 Error in NX/Ladder Arithmetic Function Conversion (No Address)

Save the ladder chart program again with all areas specified and then start the conversion.

- If the address used with the NX arithmetic function is in the extended memory  
The following error message dialog box appears if the address specified with the parameter of the NX arithmetic function (SAT or ACP) in the conversion source ladder chart program file is in the extended memory (outside the word register range):

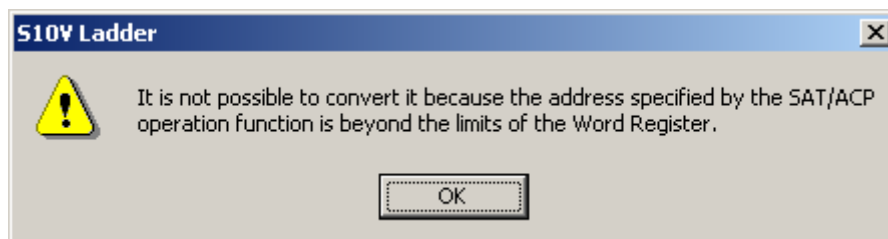


Figure 3-10 Error in NX/Ladder Arithmetic Function Conversion (Extended Memory Used)

After conversion, search the ladder chart circuit for the NX arithmetic function (SAT or ACP) using the cross-reference, and move its parameter from the extended memory to the word register.

### 3 USAGE GUIDE

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#### (4) Outputting old NX table information

When the automatic NX arithmetic function conversion ends successfully, the “Old NX table information is preserved.” window appears. (This window does not appear if that conversion ends abnormally.)

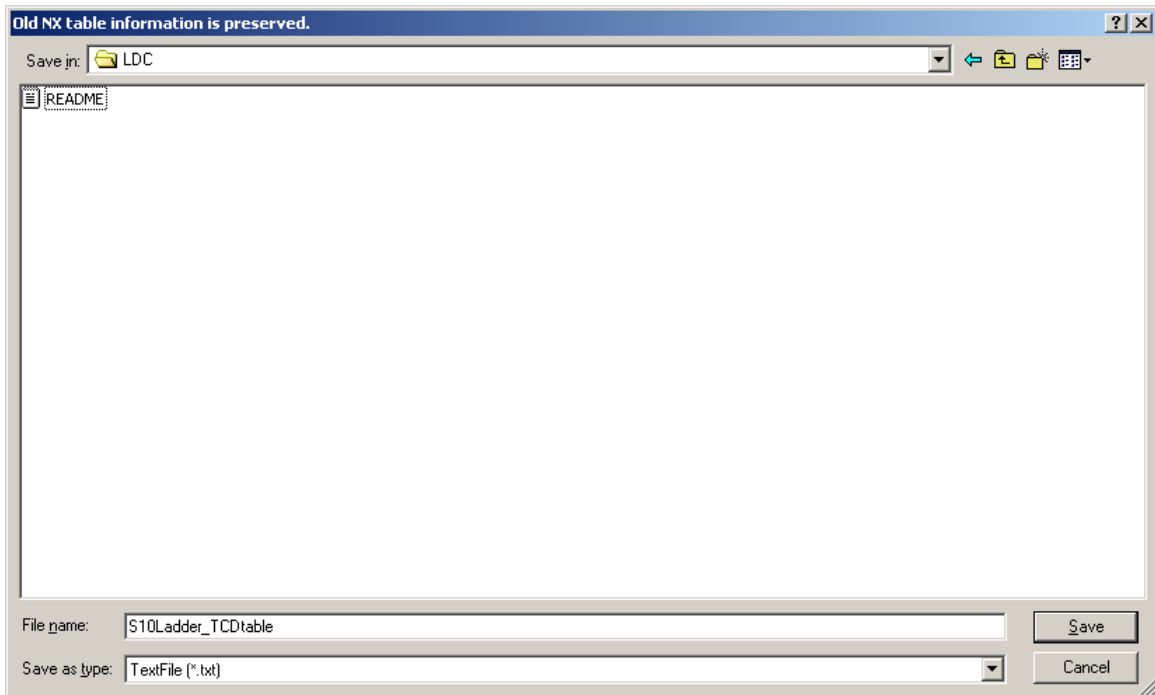


Figure 3-11 [Old NX table information is preserved.] Window

Enter the file name (this entry is not necessary if you use the default file name), and then click the **Save** button. The [Old NX table information is preserved.] window is erased and the old NX table information is saved in the text file.

Clicking the **Cancel** button erases the [Old NX table information is preserved.] window and does not save the old NX table information.

(5) Setting the NX configuration information

Start the NX/Tools-S10V system (Ver.-Rev. 01-03 or later). For details, see “4.3 Starting Up the System.”

1. Before editing the information on the local DF setting and on the TCD setting, confirm that the system program has been transferred to the real machine. If that program is not transferred yet, transfer it. For details, see “4.4 Transferring the System Program.”
2. Select type 4 as the default setting information. For confirmation of whether or not the system program has been transferred, see “4.3.1 Starting it up in online mode.”

Open the old NX table information file, set local DF and TCD, and then write the setting values in S10V. For details, see “5.2 Local DF.”

However, the user needs to obtain the following setting information:

- Logical Node Number
- Alive message timeout/Alive message interval
- Alive port number
- Send my port number
- Send MCG No./Send Port No.
- Receive byte number

① Setting DF, Send MCG No., Send Port No., Receive MCG No., and Receive Port No.

Set the destination DF number of the ACP TDC definition table for DF Number on the [Local] window.

Set Send MCG No., Send Port No., Receive MCG No., and Receive Port No. according to the environment in which the ladder chart program was running before its conversion. For details, see “5.2 Local DF.”

<Old NX specification. Table definition information.>

SAT TCD Definition Table(0x00000)

TCDNumber	ReceiveAddress	ReceiveCompletionRegister	MCGNumber(NotUsed)	ReceivePortNumber(NotUsed)
1	DW101	R101	1	31001
2	DW201	R201	1	31001
3	DW301	R301	2	32001
4	DW401	R401	2	32001
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.

ACP TCD Definition Table(0x00000)

TCDNumber	SendAddress	DuringSendRegister	DestinationDFNumber	SendByteNumber
5001	DW501	R501	1	512

ACP TCD Definition Table(0x00000)

TCDNumber	SendAddress	DuringSendRegister	DestinationDFNumber	SendByteNumber
5002	DW601	R601	1	512
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.

\*The parameter after the ACP operation function is converted is "DF number + TCD number". Please retrieve which TCD table the ACP operation function used in the circuit after it converts it used by "DF number + TCD number".

[Online] Local

DE Number:  Send MCG No.:  Send Port No.:  Receive MCG No.:  Receive Port No.:

Node Name:  Logical Node Number:  Alive message timeout:  Alive message interval:  Alive port number:  Send my port number:

TCD Nu...	Send	Send byte n...	Send addr...	During Send re...	Send MCG	Rec...	Receive byt...	Receive a...
1001	--	--	--	--	--	*	S12	DW101
1002	--	--	--	--	--	*	S12	DW201
2001	--	--	--	--	--	*	S12	DW301
2002	--	--	--	--	--	*	S12	DW401
5001	*	S12	DW501	R501	55	--	--	--
5002	*	S12	DW601	R601	55	--	--	--
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When an interchangeable ACPO operation function to the old NX specification (specification that is older than NXA\_addr(02-00)) is used, "ON register" is displayed in the row of "During send Register". Please read "During send Register" in a different way as "ON register" and use it. (The ACPO operation function is supported since NX/HOST-S10V VerRev:02-00.)



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#### ② Setting the receive TCD information

Set the TCD number, receive address, and receive register of the SAT TCD definition table, respectively, for TCD Number and for Address and Register of the receive group on the [TCD Set] window.

Specify the number of bytes according to the environment in which the ladder chart program was running before its conversion.

For details, see “5.2 Local DF.”

<Old NX specification. Table definition information.>  
SAT TCD Definition Table(0xXXXXX)

TCDNumber	ReceiveAddress	ReceiveCompletionRegister	MCDNumber(NotUsed)	ReceivePortNumber(NotUsed)
1	DW101	R101		
2	DW201	R201	1	31001
3	DW301	R301	2	32001
4	DW401	R401	2	32001
...				

ACP TCD Definition Table(0xXXXXX)

TCDNumber	SendAddress	DuringSendRegister	DestinationDFNumber	SendByteNumber
5001	DW501	R501	1	512

ACP TCD Definition Table(0xXXXXX)

TCDNumber	SendAddress	DuringSendRegister	DestinationDFNumber	SendByteNumber
5002	DW501	R501	1	512
...				

\*The parameter after the ACP operation function is converted is "DF number + TCD number".  
Please retrieve which TCD table the ACP operation function used in the circuit after it converts it used by "DF number + TCD number".

**TCD Set**

TCD Number: 1001

Send:  Unused

Receive:  Unused

Byte Number: [ ] / [ 512 ]

Address: [ ] / [ DW101 ]

Register: [ ] / [ R101 ]

MCG: [ ]

OK Cancel Copy

### ③ Setting the send TCD information

Set the TCD number, send address, during-send register, and send byte count of the ACP TCD definition table, respectively, for TCD Number and for Address, Register, and Byte Count of the send group on the [TCD Set] window.

Specify MCG according to the environment in which the ladder chart program was running before its conversion.

For details, see “5.2 Local DF.”

<Old NX specification, Table definition information.>  
SAT TCD Definition Table(0xXXXXXX)

TCDNumber	ReceiveAddress	ReceiveCompletionRegister	MCGNumber(NotUsed)	ReceivePortNumber(NotUsed)
1	DW101	R101	1	31001
2	DW201	R201	1	31001
3	DW301	R301	2	32001
4	DW401	R401	2	32001
...	...	...	...	...

ACP TCD Definition Table(0xXXXXXX)

TCDNumber	SendAddress	DuringSendRegister	DestinationDFNumber	SendByteNumber
5001	DW501	R501	1	512

ACP TCD Definition Table(0xXXXXXX)

TCDNumber	SendAddress	DuringSendRegister	DestinationDFNumber	SendByteNumber
5002	DW501	R601	1	512
...	...	...	...	...

\*The parameter after the ACP operation function is converted is "DF number + TCD number".  
Please retrieve which TCD table the ACP operation function used in the circuit after it converts it used by "DF number + TCD number".

**Note:** If the `acpo()` arithmetic function is used, the during-send register is positioned as the ON register. The registered ON register is displayed in “During Send register” on the Local DF window. So, read that during-send register as “ON register.”

- If the real machine has not yet transferred the system program, be sure to transfer it first (check the default information check box for the setting information group and select type 4), and set Local DF and TCD.
- For confirmation of whether or not the system program has been transferred to the real machine, see “4.3.1 Starting it up in online mode.”

(6) Correcting and compiling the conversion result (ladder chart)

When the ladder chart program is converted, if the result shows a problem, a message appears on the output window. Referencing that message, correct the converted ladder chart program. After correcting all ladder chart programs (all N coils), perform batch compilation (\*).

(\* If the ladder chart program has been compiled, the message output at conversion is erased. So, be sure to perform compilation after making corrections for all messages output during conversion.

(7) Loading the ladder chart

Send the converted ladder chart program to the real machine (S10V). For the transmission method, refer to “SOFTWARE MANUAL OPERATION S10V LADDER CHART For Windows® (manual number SVE-3-131).”

# 4 INSTALLING THE SYSTEM

### 4.1 Installing the System

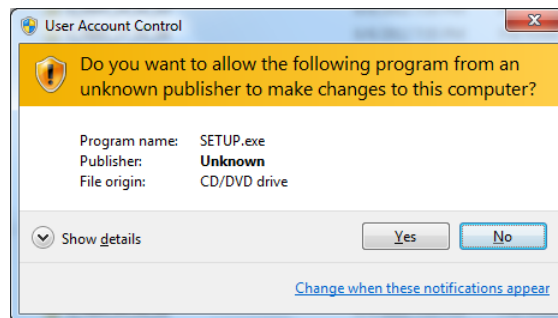
To install the NX/Tools-S10V system in your machine, simply double-click the 'setup.exe' file stored in the DISK1 folder on the CD. When it is installed, create its short cut on the Windows® desktop as you like. The system does not present its initial window automatically at the end of the installation.

Click the  button and choose [(All) Programs] – [Hitachi S10V] – [NX/Tools-S10V] – [NX/Tools-S10V] from the  button on the Windows® screen. Click and hold the right mouse button on the [NX/Tools-S10V] and move the pointer to the desktop. Then, choose [Copy Here] from the pop-up menu.

- The NX/Tools-S10V system requires the S10V base system for its normal operation. If the S10V base system is not installed in your machine yet, you cannot install the NX/Tools-S10V system in it.
- Before you start installing the NX/Tools-S10V system, be sure to exit or close all Windows®-based programs that are running, including memory-resident programs, such as a virus monitoring software. If an attempt is made to install it without closing them, an error may occur during the installation. In this case, uninstall the NX/Tools-S10V system according to the instructions given under “4.2 Uninstalling the System,” close all the Windows®-based programs that are running, and then try to install it again.

**<Notes on installing in Windows® 7 (32-bit)>**

Installing the NX/Tools-S10V system in Windows® 7 (32-bit) operating system requires prior logging onto the operating system with an appropriate Administrator account, which is the Administrator account first created in the initial condition of your personal computer. When you have so logged on, you can then double-click “setup.exe” that is stored in the DISK 1 folder on the NX/Tools-S10V System CD. When “setup.exe” is started, the dialog box as shown below will appear. Click the  **Yes** button to continue the execution of the setup program.



The NX/Tools-S10V system cannot be installed on a per-user basis. To install the NX/Tools-S10V system successfully, the user must first log onto the operating system with an appropriate Administrator account, which is the Administrator account first created in the initial condition of your personal computer.

The NX/Tools-S10V system may not be installed properly in any of the following cases: 1) administrator permission is acquired by using User Account Control(\*) with a standard user account and 2) logon is made with an Administrator account that has been created using User Account Control with a standard user account. If you make a logon with a user account that is different from the one you have used for the installation of the NX/Tools-S10V system, the installed program may be missing from the program menu displayed. In this case, you should perform the following series of steps: 1) make a logon again with the Administrator account first created in the initial condition of your personal computer; 2) uninstall the installed program; and 3) install the program again.

When you want to create a new account, be sure to make a logon with an Administrator account. Do not use User Account Control at that time.

(\*) User Account Control is a Microsoft Windows feature that temporarily grants administrative rights to standard user accounts.

A message reporting a read-only file detected may be displayed during the reinstallation of the NX/Tools-S10V system. In this case, click the  **Yes** button to set off overwriting.

### 4.2 Uninstalling the System

The existing NX/Tools-S10V system needs to be uninstalled when, for instance, you want to upgrade it. The procedure required for uninstalling it is as follows:

(1) Uninstalling from Windows® 2000

Click on  button on your Windows desktop and choose [Settings] – [Control Panel]. When the Control Panel opens, double-click on [Add/Remove Programs]. Then, choose “S10V NX/Tools-S10V SYSTEM” in the [Change or Remove Programs] tab and click the  button. When the [Confirm File Deletion] dialog box appears, click the  button.

(2) Uninstalling from Windows® XP

Click on  button on your Windows desktop and choose ([Settings] – ) [Control Panel]. When the Control Panel opens, double-click on [Add/Remove Programs]. Then, choose “S10V NX/Tools-S10V SYSTEM” in the [Change or Remove Programs] tab and click the  button. When the [Confirm File Deletion] dialog box appears, click the  button.

(3) Uninstalling from Windows® 7 (32-bit)

Click on  button on your Windows desktop and choose [Control Panel]. When the Control Panel opens, click [Programs and features]. Then, select “S10V NX/Tools-S10V SYSTEM” and click  button. When the [Confirm File Deletion] dialog box appears, click the  button.

- The message “Remove Shared File?” may appear during the uninstallation under Windows®. In this case, click the  button so that the shared file may not be deleted.
- When you re-install the NX/Tools-S10V system, first uninstall it and then install it again.

## 4.3 Starting Up the System

### 4.3.1 Starting it up in online mode

The NX/Tools-S10V system can be started up in online mode by performing the following procedure:

- (1) Double-click the NX/Tools-S10V system's icon on the Windows® desktop, or choose [(All) Programs] – [NX/Tools-S10V] from the Start button.

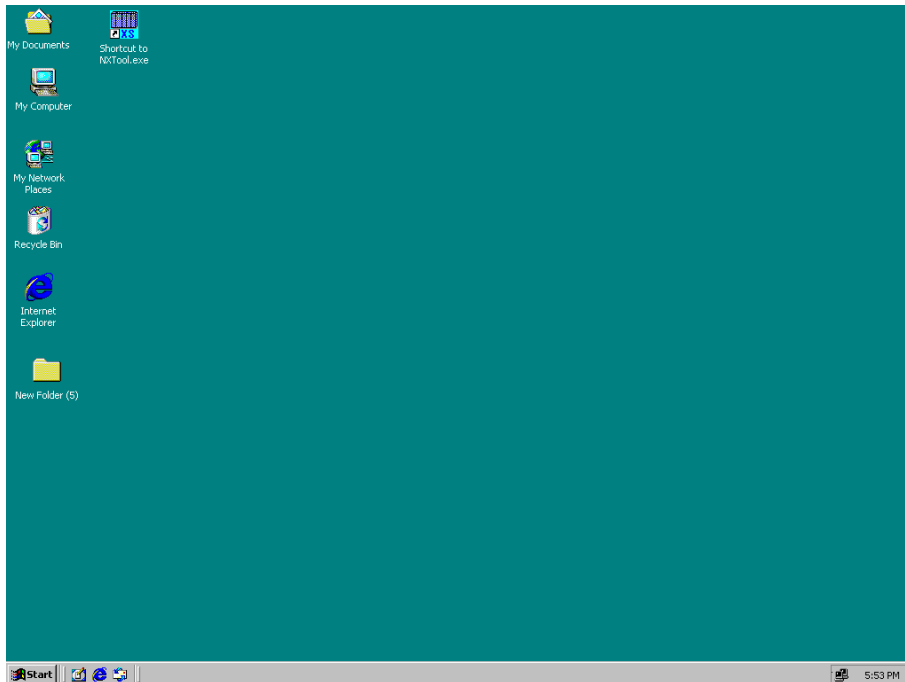


Figure 4-1 The Windows® Desktop

- (2) The NX/Tools-S10V system's main window (Figure 4-2) appears. At this stage, the system is not connected to the PCs yet.

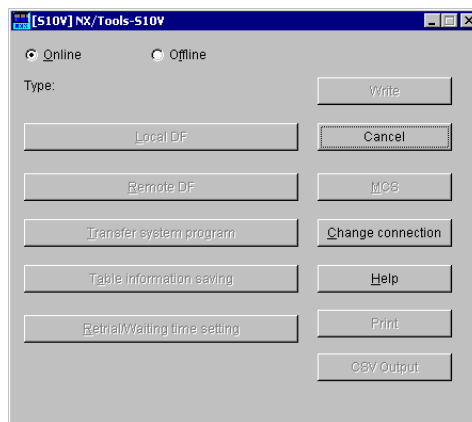


Figure 4-2 The “NX/Tools-S10V” Window



## 4 INSTALLING THE SYSTEM

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- (3) Click the **Change connection** button in the “NX/Tools-S10V” window. The communication type selection window as shown in Figure 4-3 will then appear. Enter the IP address of the CMU module and click the **OK** button. (For details on selecting a communication type, see “5.6 Change Connection.”) If you need not change the destination of connection, click the **Cancel** button.

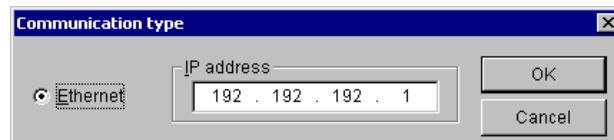


Figure 4-3 The “Communication type” Window

If the specified IP address is found invalid or other than the IP address of an S10V CMU module, the error message dialog box shown in Figure 4-4 is displayed. In this case, enter the correct IP address.

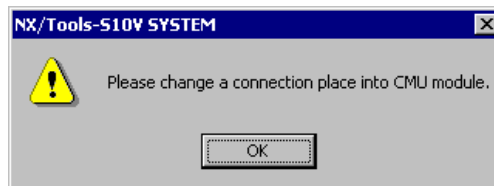


Figure 4-4 The Error Message Dialog Box Reporting a Connection Destination Error

The IP address of an S10V CMU module can be set using the S10V base system (P.P. model S-7895-38). For details, refer to the S10V USER’S MANUAL, BASIC MODULES (manual number SVE-1-100).

- (4) One of the windows shown in Figures 4-5 and 4-6 appears, indicating that the NX/Tools-S10V system has been started up (in online mode). Click the desired command button in the window, except in cases where the necessary system program has not been transferred to the target machine yet (this condition is indicated by the window shown in Figure 4-5). In these cases which transfers the system program to it. For details on the system program transfer, see “4.4 Transferring the System Program.”

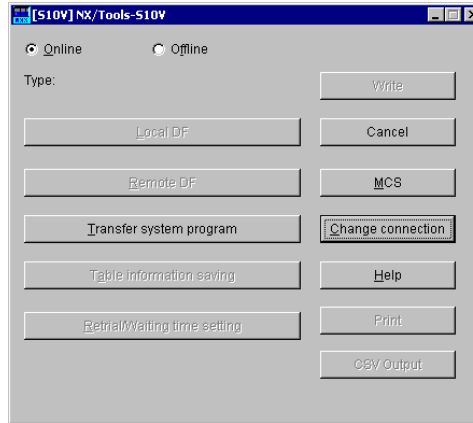


Figure 4-5 The “NX/Tools-S10V” Window (in cases where the system program has not been transferred yet)

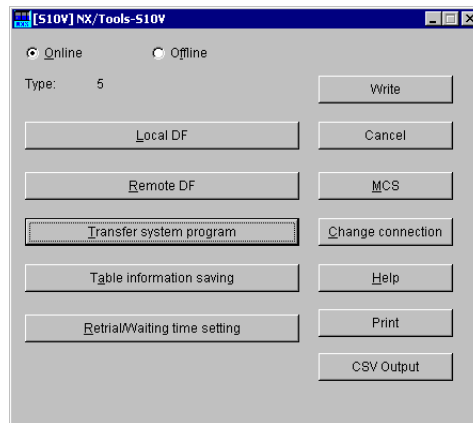


Figure 4-6 The “NX/Tools-S10V” Window (in cases where the system program has been transferred)

- In cases where the system program has already been transferred (as shown in Figure 4-6), if neither the **Local DF** button nor the **Remote DF** button is clickable in the window, the “Default” information, which is part of the setup (or setting) information, may have not been transferred to the target at the time of the previous system program transfer performed. The “Default” information must be transferred to the target, along with the system program. So, perform the transfer according to the instructions given in “4.4 Transferring the System Program.”
- If you want to use the remote DF but the **Remote DF** button is not clickable (only the **Local DF** button is clickable) in the window (Figure 4-6), the system program may possibly have been transferred to the target at the time of the last system program transfer performed, with the “Type 4” radio button selected, which is part of the setup (or setting) information. The system program must be transferred to the target, with the “Type 5” radio button selected, not “Type 4”. So, perform the transfer according to the instructions given in “4.4 Transferring the System Program.”

## 4 INSTALLING THE SYSTEM

### 4.3.2 Starting it up in offline mode

The NX/Tools-S10V system can be started up in offline mode by performing the following procedure:

- (1) Take the same steps as Steps (1) and (2) described under “4.3.1 Starting it up in online mode.”
- (2) Select the [Offline] radio button, as shown in Figure 4-7.

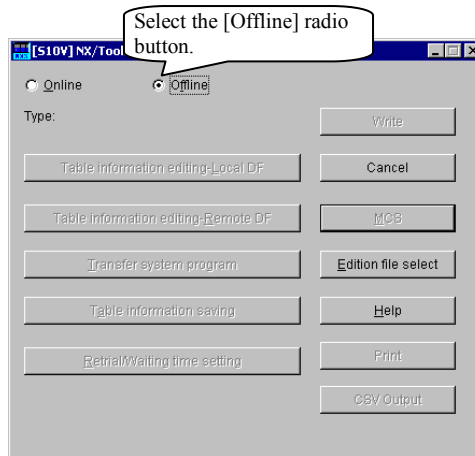


Figure 4-7 Selecting the [Offline] Radio Button

- (3) Click the **Edition file select** button in the “NX/Tools-S10V” window and, as shown in Figure 4-8, choose the NX setup information file you want to edit in offline mode. For information on how to edit the NX setup info file in offline mode, see either “5.8 Table Information Editing -- Local DF” or “5.9 Table Information Editing -- Remote DF,” whichever you need.

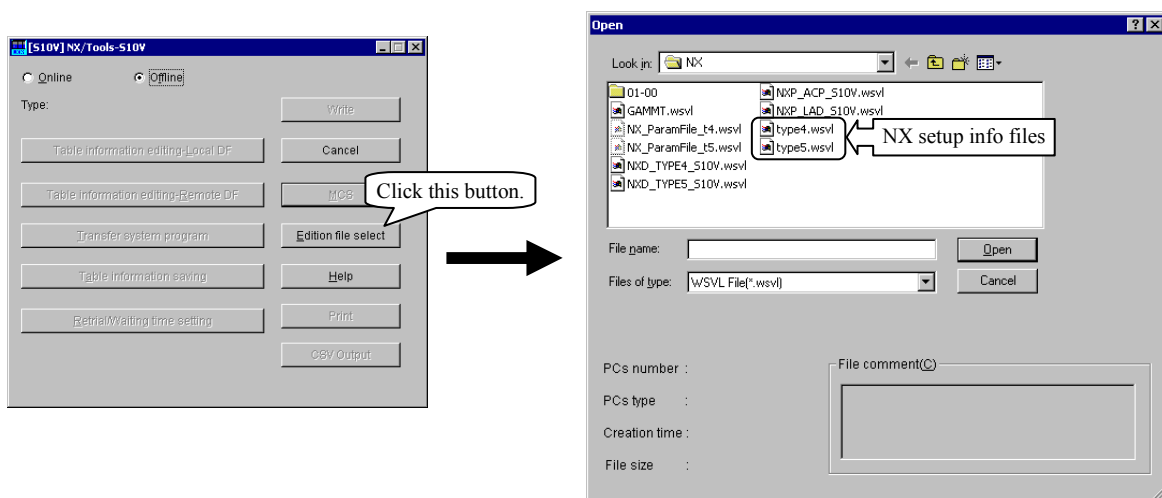


Figure 4-8 Selecting an Edition File

## 4.4 Transferring the System Program

The NX/Tools-S10V system offers an option named “Transfer system program”. This option loads to the PCs a set of program modules (tasks, IRSUBs, etc.) and setup information (tables to be referenced or updated by those program modules during their execution) for the system program that are necessary for use in communication with the NX.

These program modules, as well as the setup information, cannot be transferred to the target while a ladder operation is in progress (or the LADDER switch is set in RUN position). They can be transferred only when a ladder operation is not in progress (or the LADDER switch is set in STOP position). **Further, you are not allowed to start a ladder operation during a system program or setup information transfer. Any such start, if attempted, will result in a malfunction.**

When the system program is transferred to the target, the S10V unit will be automatically reset (by remote resetting). So, care must be taken when using this option.

To use this option, click the Transfer system program button in the “NX/Tools-S10V” window. The System program transfer window shown in Figure 4-9 will then appear.

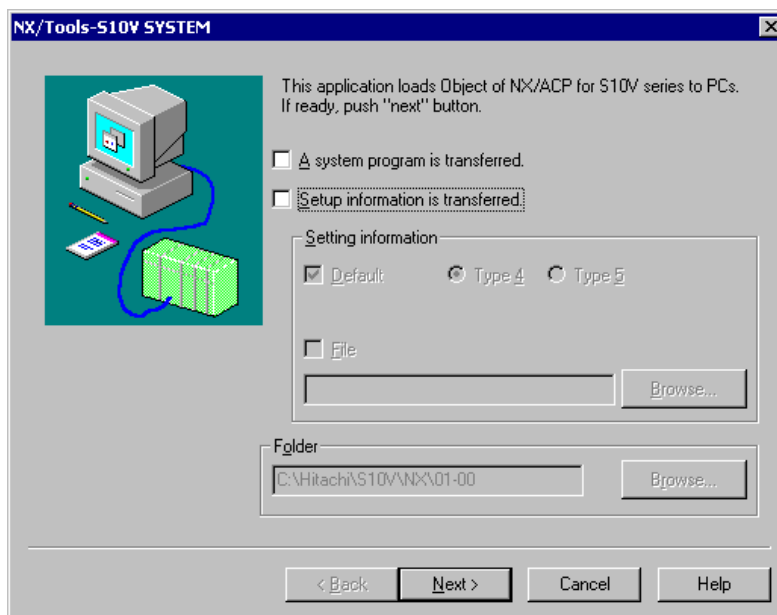


Figure 4-9 The System Program Transfer Window

## 4 INSTALLING THE SYSTEM

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The above window for system program transfer can be used in the following cases:

- The system program has not been transferred to the target yet.
- The system program need to be replaced because of, for example, a release of its new version.
- The NX setup information created by offline editing needs to be loaded to the target.
- The NX setup information saved from another PCs unit needs to be loaded to the target.

Note: Of the above NX setup information, the retry count/receive-wait time setting information is not loaded to the target. It has to be loaded separately to it according to the instructions given under “5.5 Retrial/Waiting Time Setting.”

#### 4.4.1 Cases where the system program has not been transferred yet

If the system program has not been transferred to the target yet, the **Local DF** button is not selectable, so transfer the system program by performing the procedure described below.

- (1) Click the **Transfer system program** button in the [NX/Tools-S10V] window as shown below.

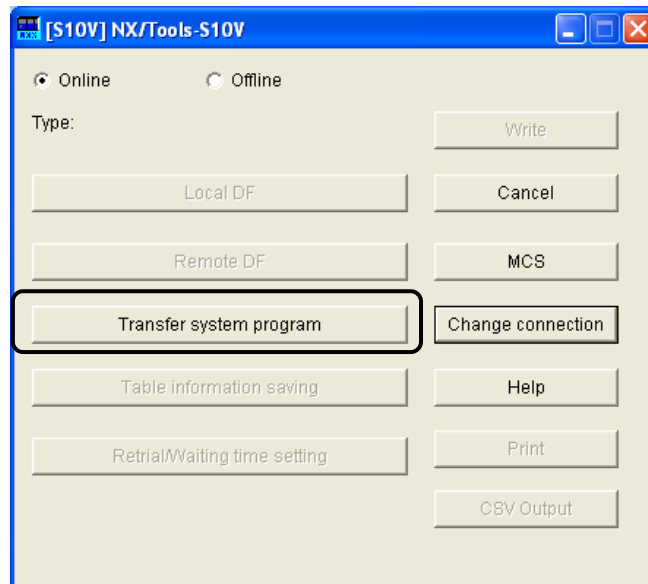


Figure 4-10 [NX/Tools-S10V] Window

The System program transfer window as shown below will then be displayed.

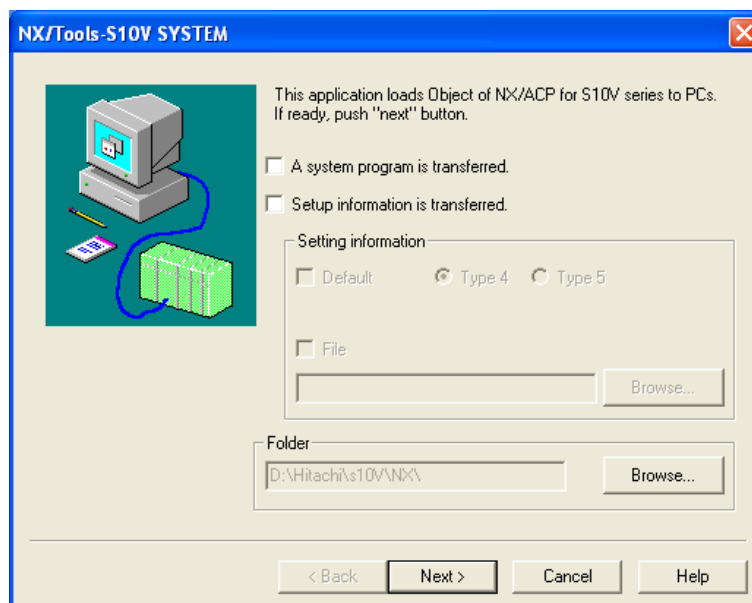


Figure 4-11 The System Program Transfer Window

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(2) Check the following check boxes in the System program transfer window:

- “A system program is transferred.”
- “Setup information is transferred.”
- “Default” in the “Setting information” group box

When the “Default” check box is checked, select the type of NX system program you want to use (only Type 4 or Type 5 selectable). Detailed information on the selectable types of NX system programs is given under the title “<Types and data fields>” in “5.1 Command Repertoire.”

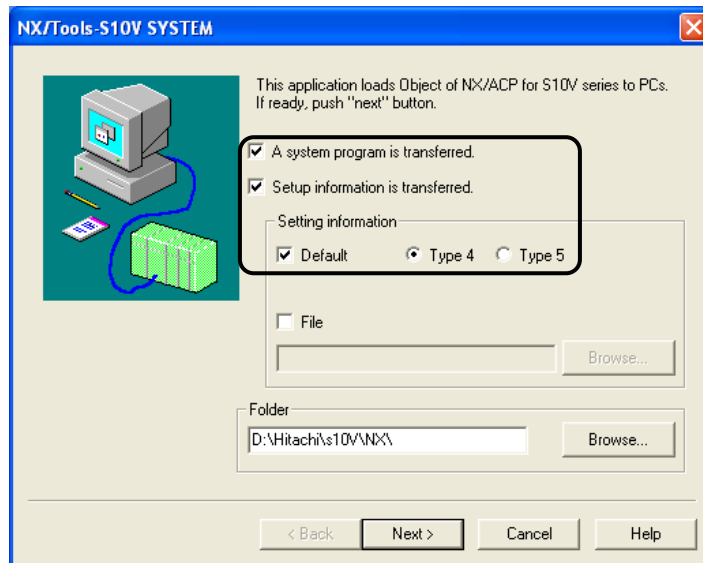


Figure 4-12 The System Program Transfer Window (“Default” selected)

(3) Click the **Browse** button to the right of the “Folder” edit box as shown below and specify the folder in which to store the NX/HOST-S10V system.

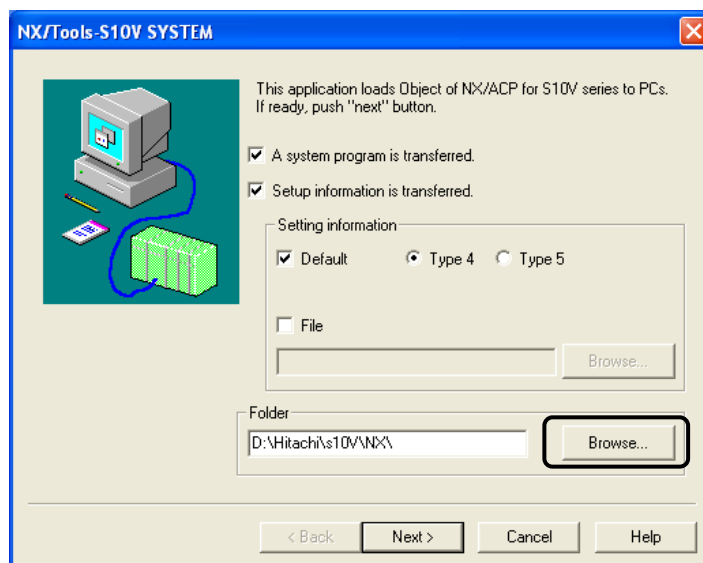


Figure 4-13 The System Program Transfer Window (a folder accessed by browsing)

- (4) Click the **Next** button in the System program transfer window, as shown below.

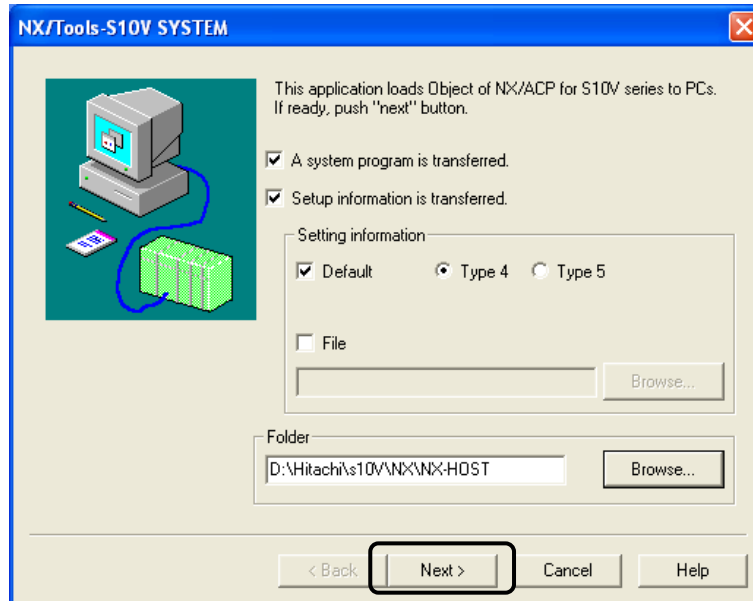


Figure 4-14 The System Program Transfer Window (a folder specified)

- (5) A confirmation dialog box will be displayed as shown below to ask whether or not you are ready to transfer the system program along with the setup information. Make sure that the LPU module's LADDER switch is set in "STOP" position. If the LADDER switch is set in the other position ("RUN"), the NX/Tools-S10V system is unable to perform such transfer. If the switch is set in "STOP" position, click the **Yes** button in the confirmation dialog box, as shown below.

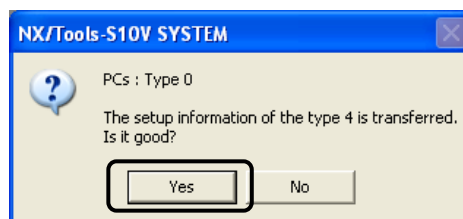


Figure 4-15 A Confirmation Dialog Box for Transferring the Setup Information



## 4 INSTALLING THE SYSTEM

- (6) A confirmation dialog box asking whether or not you need remote resetting of the PCs unit will be displayed as shown below. Click the  button in the dialog box.



Figure 4-16 A Confirmation Dialog Box for Remote Resetting of the PCs Unit

The S10V controller, the destination of the requested system program transfer, will then be automatically reset, followed by the start of the requested transfer. During the transfer, the NX/ACP Object Loading window as shown below will be displayed to show the progress of the transfer being performed.

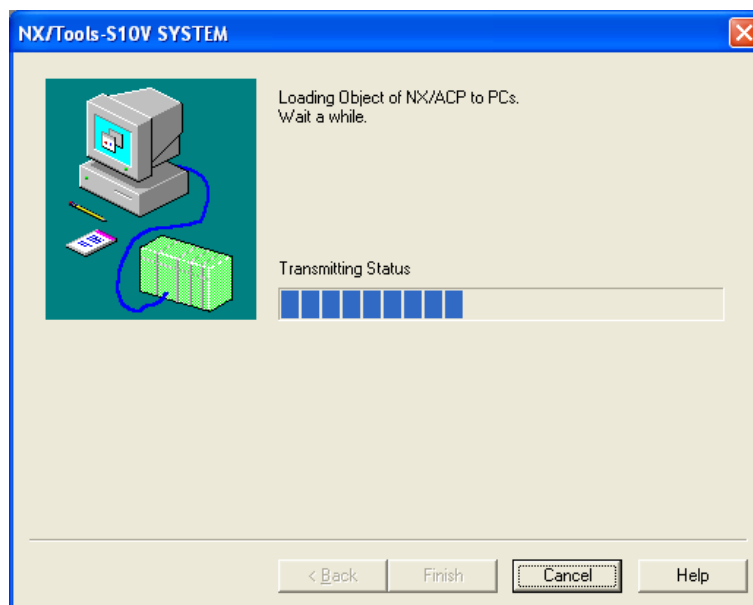


Figure 4-17 The NX/ACP Object Loading Window (showing the progress)

During the transfer, avoid clicking the  button as far as possible. If you click the button during the transfer, the system program thus far transferred will be left incomplete in the S10V controller. In this case, you need to redo the transfer.

- (7) During the transfer, a confirmation dialog box to confirm you need resetting of the PCs unit will be displayed as shown below. Click the **OK** button in the dialog box.

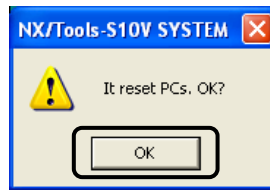


Figure 4-18 A Confirmation Dialog Box to Confirm You Need Resetting of the PCs Unit

- (8) The transfer currently stopped temporarily will be resumed and then a confirmation dialog box to confirm you need resetting of the PCs unit will be displayed at the end of the transfer, as shown below. Click the **OK** button in the dialog box.

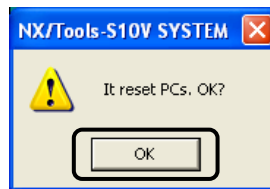


Figure 4-19 A Confirmation Dialog Box to Confirm You Need Resetting of the PCs Unit

When the transfer is complete, the “Sending terminated” message will be displayed in the NX/ACP Object Loading window, as shown below. Click the **Finish** button. Then, the system program transfer process is complete and the [NX/Tools-S10V] window will become active again.

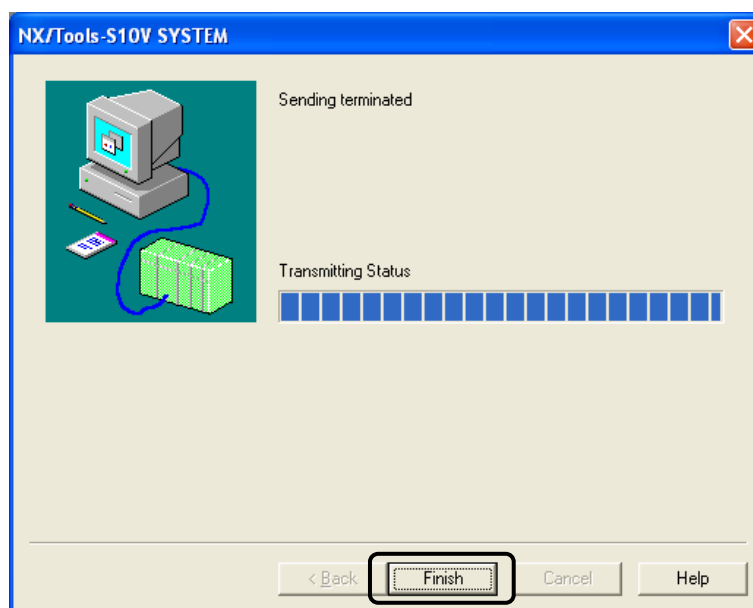


Figure 4-20 The NX/ACP Object Loading Window (transfer completed)

## 4 INSTALLING THE SYSTEM

### 4.4.2 Transferring the NX setup information

In cases where the system program has already been transferred to the PC's unit, you can transfer the setup information contained in an NX setup info file to the same PC's unit by performing the procedure described below.

- (1) Click the **Transfer system program** button in the [NX/Tools-S10V] window as shown below. The System program transfer window will then be displayed.

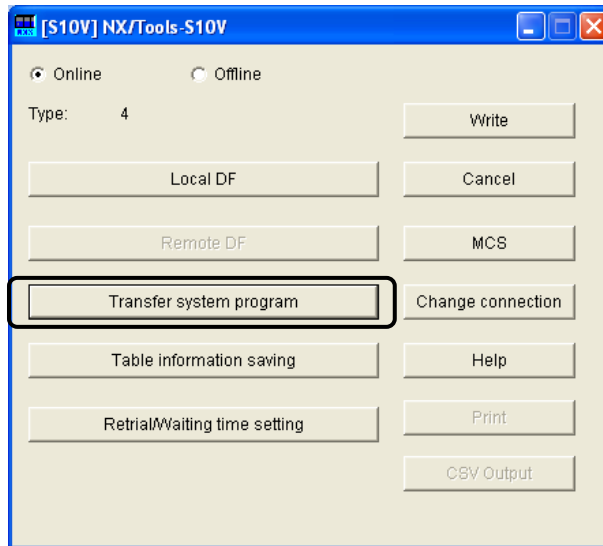


Figure 4-21 The [NX/Tools-S10V] Window (Type 4 setup info already transferred)

- (2) As shown below, check the “Setup information is transferred.” check box in the System program transfer window and also check the “File” check box in the “Setting information” group box.

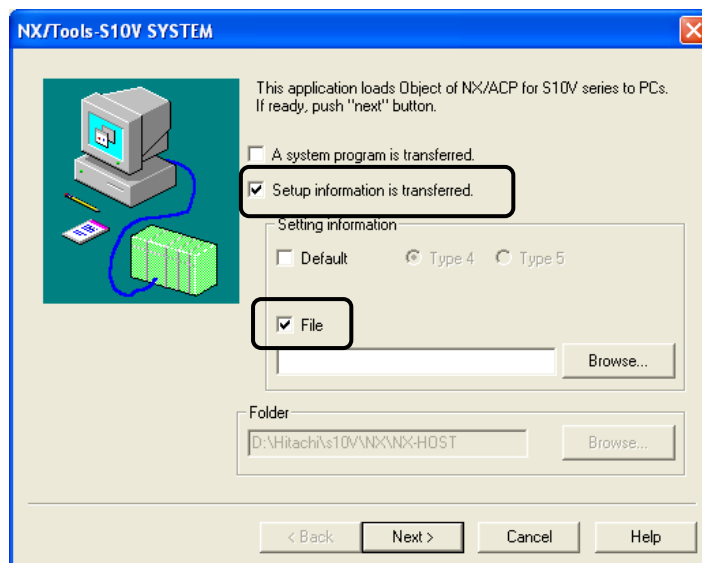


Figure 4-22 The System Program Transfer Window (“File” check box selected)

- (3) Click the **Browse** button in the “Setting information” group box as shown below and select the desired NX setup info file you want to transfer to the destination.

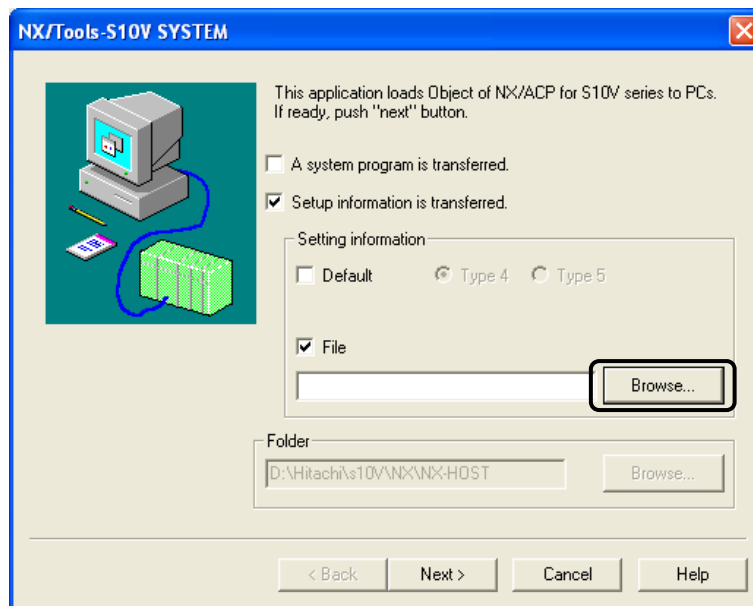


Figure 4-23 The System Program Transfer Window (browsing a folder)

- (4) Click the **Next** button, as shown below.

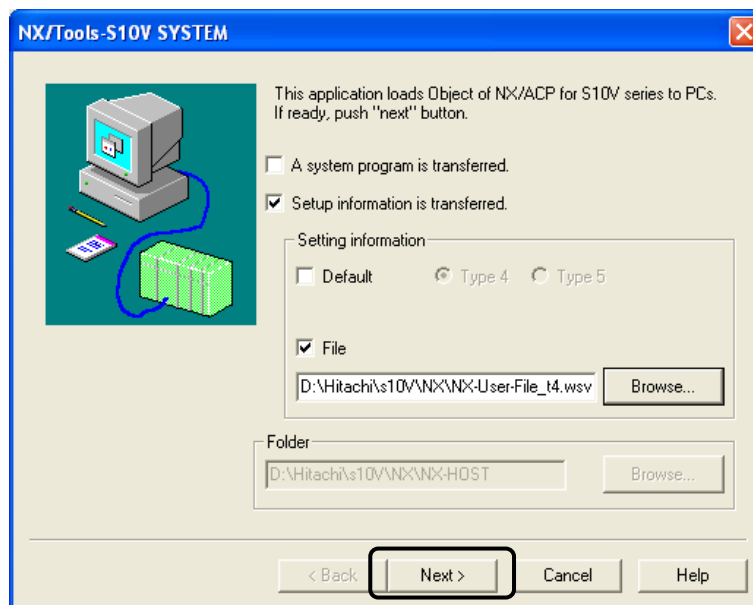


Figure 4-24 The System Program Transfer Window (a file is specified)

## 4 INSTALLING THE SYSTEM

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- (5) A confirmation dialog box will be displayed as shown below to ask whether or not you are ready to transfer the setup information.

Make sure that the LPU module's LADDER switch is set in "STOP" position. If the LADDER switch is set in the other position ("RUN"), the NX/Tools-S10V system is unable to perform such transfer. If the switch is set in "STOP" position, click the  button in the confirmation dialog box, as shown below.

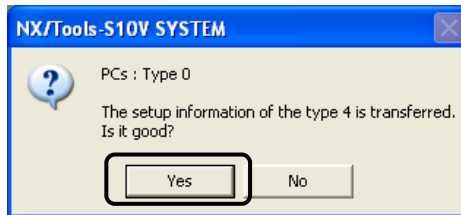


Figure 4-25 A Confirmation Dialog Box for Transferring the Setup Information

- (6) A confirmation dialog box asking whether or not you need remote resetting of the PCs unit will be displayed as shown below. Click the  button in the dialog box.

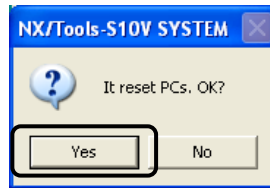


Figure 4-26 A Confirmation Dialog Box for Remote Resetting of the PCs Unit

The S10V controller, the destination of the requested setup information transfer, will then be automatically reset, followed by the start of the requested transfer. During the transfer, the NX/ACP Object Loading window as shown below will be displayed to show the progress of the transfer being performed.

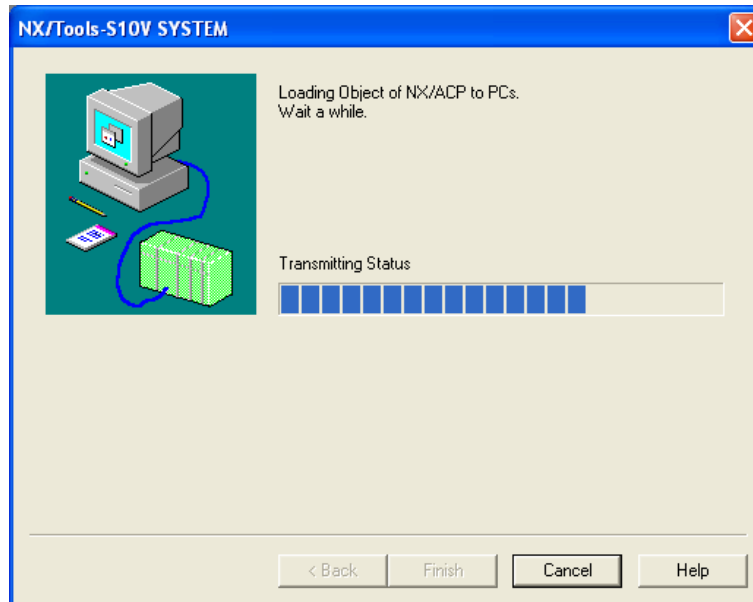


Figure 4-27 The NX/ACP Object Loading Window (showing the progress)

During the transfer, avoid clicking the  button as far as possible. If you click the button during the transfer, the setup information thus far transferred will be left incomplete in the S10V controller. In this case, you need to redo the transfer.

- (7) During the transfer, a confirmation dialog box to confirm you need resetting of the PCs unit will be displayed as shown below. Click the  button in the dialog box.

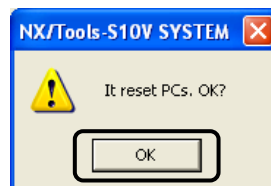


Figure 4-28 A Confirmation Dialog Box to Confirm You Need Resetting of the PCs Unit

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When the transfer is complete, the “Sending terminated” message will be displayed in the NX/ACP Object Loading window, as shown below. Click the **Finish** button. Then, the setup information transfer process is complete and the [NX/Tools-S10V] window will become active again.

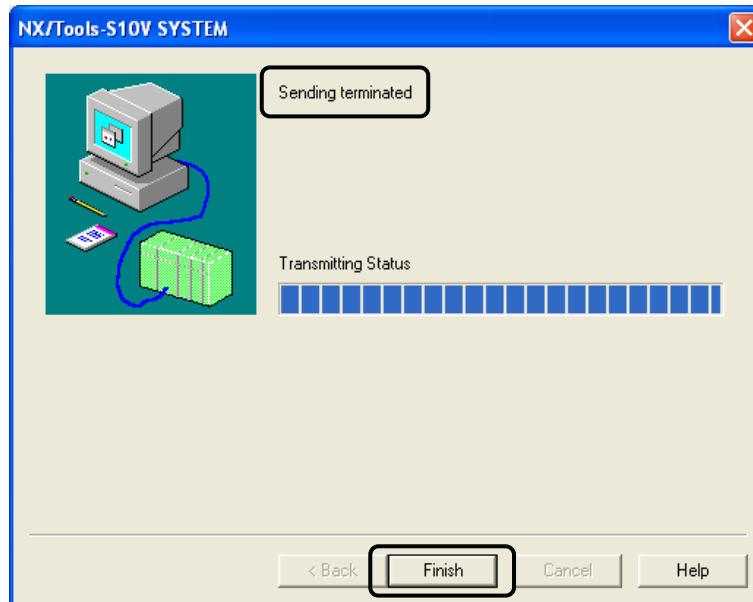


Figure 4-29 The NX/ACP Object Loading Window (transfer completed)

- (8) Click the **Write** button in the [NX/Tools-S10V] window, as shown below. A confirmation dialog box will then be displayed to ask whether you really want to write the edited setup information to the destination.

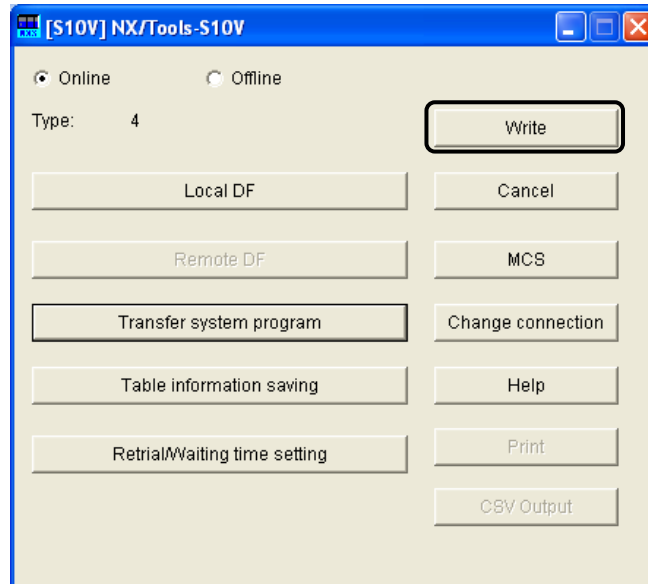


Figure 4-30 The [NX/Tools-S10V] Window (Type 4 setup info already transferred)

- (9) Click the **Yes** button in the confirmation dialog box, as shown below. Another confirmation dialog box will then be displayed to ask whether or not you need remote resetting of the PCs unit.

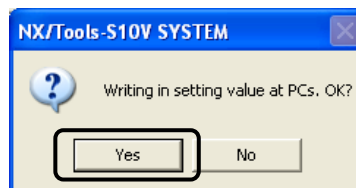


Figure 4-31 A Confirmation Dialog Box for Writing at the Destination

Be sure to click the **Write** button in the [NX/Tools-S10V] window when you have finished transferring the NX setup information. The **Write** button writes the edited setup information from the local and/or remote DF to the destination.



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(10) Click the  button in the dialog box, as shown below. The “Under sending now. ...” message as shown below will then be displayed.

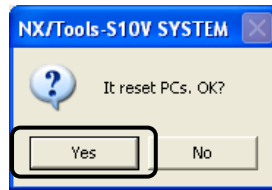


Figure 4-32 A Confirmation Dialog Box for Remote Resetting of the PCs Unit

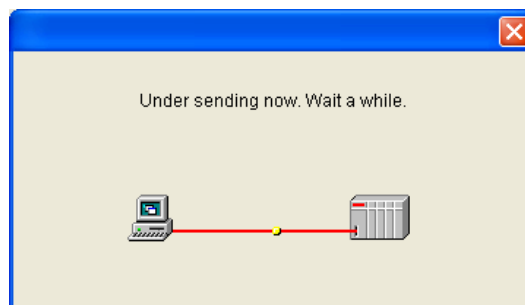


Figure 4-33 The “Under sending now. ...” Message

(11) During the writing, a confirmation dialog box to confirm you need resetting of the PCs unit will be displayed as shown below. Click the  button.

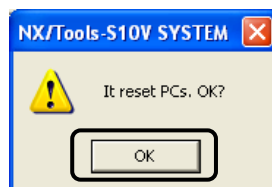


Figure 4-34 A Confirmation Dialog Box to Confirm You Need Resetting of the PCs Unit

(12) When the writing is complete, the [NX/Tools-S10V] window will close and the NX setup info transfer process is completed.

#### 4.4.3 Replacing the system program with its updated version

- (1) Save the existing NX setup information from the PCs unit to a file. For information on how to save it, see “5.4 Table Information Saving.”
- (2) Transfer the up-to-date version of the system program to the PCs unit. For information on how to transfer it, see “4.4.1 Cases where the system program has not been transferred yet.”
- (3) Transfer to the PCs unit the NX setup information that was saved in Step (1). For information on how to transfer it, see “4.4.2 Transferring the NX setup information.”

#### 4.4.4 Transferring the NX setup information created through offline editing

- (1) Save the NX setup information that has been created through offline editing to a file. For details on the offline editing, see “5.8 Table Information Editing -- Local DF” or “5.9 Table Information Editing -- Remote DF.”
- (2) Transfer the system program to the PCs unit if it has not been transferred yet. For details, see “4.4.1 Cases where the system program has not been transferred yet.”
- (3) Transfer to the PCs unit the NX setup information that was saved in Step (1). For information on how to transfer it, see “4.4.2 Transferring the NX setup information.”

#### 4.4.5 Transferring the NX setup information saved from another PCs unit

- (1) Transfer the system program to the PCs unit if it has not been transferred yet. For details, see “4.4.1 Cases where the system program has not been transferred yet.”
- (2) Transfer to the PCs unit the NX setup information that has been saved from the other PCs unit to a file. For information on how to transfer it, see “4.4.2 Transferring the NX setup information.”

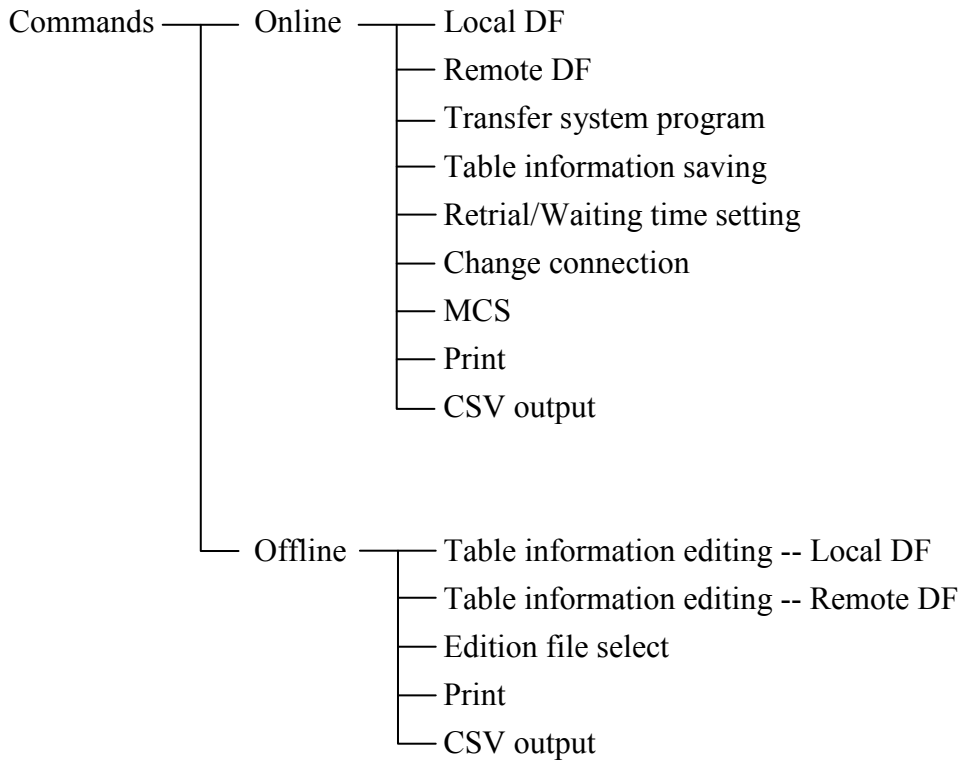
### 4.5 Exiting the System

To exit the NX/Tools-S10V system, simply click the  or  button in the “NX/Tools-S10V” window (Figure 4-5 or 4-6).

# 5 COMMANDS

## 5.1 Command Repertoire

This section shows the command repertoire of the NX/Tools-S10V system. The individual commands in the command repertoire are classified into two groups: commands used in online mode and commands used in offline mode. For details on these classified commands, refer to the online Help.



Of the above commands, some cannot be used depending on the type of the NX system program loaded in the PCs you want to set up. The rest of this section identifies the types of NX system programs supported and shows the relationships between those types and the commands usable with each of the types.

## &lt;Types and data fields&gt;

The types of NX system programs supported by the NX/Tools-S10V system are Type4 and Type5. Each of these two types must be selected in accordance with the network configuration used and the data field you want to access, as shown in Figure 5-1.

If you have used the conventional type (Type1 or Type2) of NX system program on a S10 series machine, migrate to Type4 or Type5. Type4 and Type5 are upgraded versions of Type1 and Type2, and allow you to define more TCDs than before. These two generations of NX system program types are functionally identical to each other.

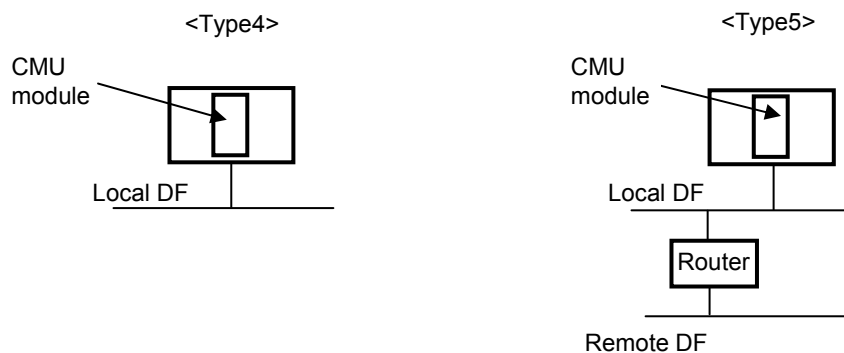


Figure 5-1 Types and Data Fields

The commands that can be used with each selected type are shown in the tables below.

Table 5-1 Commands Usable with Each Type (in online mode)

Command	Without the system	Type4	Type5
Local DF	nu	√	√
Remote DF	nu	nu	√
Transfer system program	√	√	√
Table information saving	nu	√	√
Retrial/Waiting time setting	nu	√	√
Change connection	√	√	√
MCS	√	√	√

√: Usable nu: Not usable

Table 5-2 Commands Usable with Each Type (in offline mode)

Command	Without any file selected	Type4	Type5
Table information editing -- Local DF	nu	√	√
Table information editing -- Remote DF	nu	nu	√
Edition file select	√	√	√

√: Usable nu: Not usable

5.2 Local DF

Function: Adds changes to the set values for the local DF and adds changes to the set values, sets new parameter values, and deletes existing set values for the MCGs and TCDs.

Operation: The operating procedure for using this command is described below, along with its parameters.

- (1) Start up the NX/Tools-S10V system. (For information on how to start it up, see “4.3 Starting Up the System.”) Then, click the Local DF button in its main window.

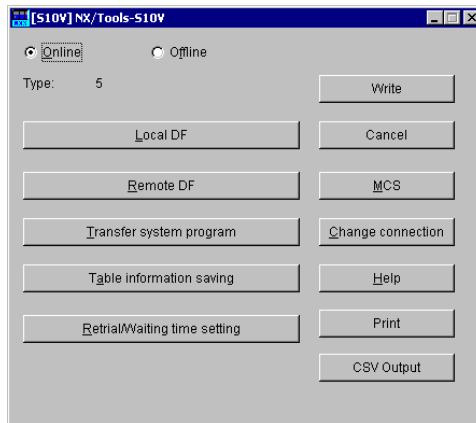


Figure 5-2 The “NX/Tools-S10V” Window (in online mode)

- Local DF  
The local DF is the only data field that is connected directly to the CMU module.
  - Remote DF  
The remote DF is the only data field that is connected to the CMU module via a router or gateway.
- (2) Add changes to the set values, set new parameter values, and/or delete existing set values for the MCGs and TCDs. To accomplish this, first enter values in the “DF Number”, “Node Name”, “Logical Node Number”, “Alive message timeout”, “Alive message interval”, “Alive port number”, and “Send my port number” edit boxes for the local DF you are setting up.

- (3) Enter send- and receive-MCG numbers and the corresponding port numbers for each MCG, as shown below. Up to five sets of MCG and port information can be registered for the local DF.

The screenshot shows a window titled "[Online] Local" with various input fields and a table. The fields are:

- DF Number: 1
- Node Name: node\_S10V
- Logical Node Number: 77
- Alive message timeout: 30
- Alive message interval: 10
- Alive port number: 600
- Send my port number: 1025

Below these fields is a table with columns: TCD Nu..., Send, Send byte n..., Send addr..., During Send re..., Send MCG, Rec..., Receive byt..., and Receive a... The table contains several rows of data, including TCD numbers 1001, 1002, 2001, 2002, 5001, and 5002.

A callout box labeled "TCD settings information list" points to the table.

At the bottom of the window, there is a note: "When an interchangeable ACPO operation function to the old NX specification (specification that is older than NX.Ladder02-00) is used, 'ON register' is displayed in the row of 'During send Register'. Please read 'During send Register' in a different way as 'ON register' and use it. (The ACPO operation function is supported since NX/HOST-S10V VerRev:02-00.)"

Figure 5-3 The “Local” Window (DF settings, displayed in online mode)

#### Description of items:

- **DF (data field) Number**  
Is the ID number assigned to the data field. This ID number must be specified within the range 1 to 255 and may not be duplicated with the DF number set for the remote DF.
- **Node Name**  
Is the ID name assigned to the node. This ID name must be specified with a string of up to nine ASCII characters.
- **Logical Node Number**  
Is the ID number assigned to each device in the data field. This ID number is identical to the host number in the IP address and must be specified within the range 1 to 255.
- **Alive message timeout**  
Is a time period that begins at the detection of an “alive” signal not coming periodically from the source and ends when the continuation of that condition is recognized as a timeout error. This time period must be specified within the range 1 to 43200 (seconds).



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- **Alive message interval**  
Is a time interval at which an “alive” signal is sent out periodically. This time interval must be specified within the range 1 to 3600 (seconds).
- **Alive port number**  
Is the port number of the destination’s port to which an “alive” signal is sent. This port number must be specified within the range 1 to 65535.
- **Send my port number**  
Is the port number of the local node’s port through which messages are sent out. This port number must be specified within the range 1 to 65535.
- **Send MCG (multi-cast group) No.**  
Identifies the destination’s multicast group to which a specified TCD is sent. This ID number may be specified within the range 0 to 255. However, if you need not register it, specify a value of 0 (zero) for it.
- **Send Port No.**  
Is the port number of the sole send port that each node in the data field has for data transmission, and must be specified within the range 1 to 65535. Each specified combination of multicast group number and port number must be used uniquely throughout the data field. Further, the send port number and receive port number must be specified with different values.
- **Receive MCG (multi-cast group) No.**  
Is the ID number of a receive multicast group. This ID number may be specified within the range 0 to 255. However, if you need not register it, specify a value of 0 (zero) for it.
- **Receive Port No.**  
Is the port number of the sole receive port that each node in the data field has for data reception, and must be specified within the range 1 to 65535. Each specified combination of multicast group number and port number must be used uniquely throughout the data field. Further, the send port number and receive port number must be specified with different values.

Notes:

- The port numbers of the above ports must be unique throughout the data field.
- The “Alive message interval” and “Alive message timeout” values specified must satisfy the following condition:

Alive message interval < Alive message timeout

- (4) Enter values for TCD information items in the “TCD Set” window, as described below. First choose the desired TCD number from among those listed in the “TCD Number” column of the TCD settings information list within the “Local” window, and click the **Edit** button. Alternatively, double-click the desired TCD number in the “TCD Number” column. Then, the “TCD Set” window as shown in Figure 5-4 appears, so that you can add changes to the displayed TCD information. (However, if you select the “Copy” check box, the new values you enter will be added as a new registration entry together with the existing values.) If, instead of a TCD number, you choose the symbol “—” next to the last TCD number displayed in the TCD No. column, the new values you enter will be added as a new registration entry together with the existing values.

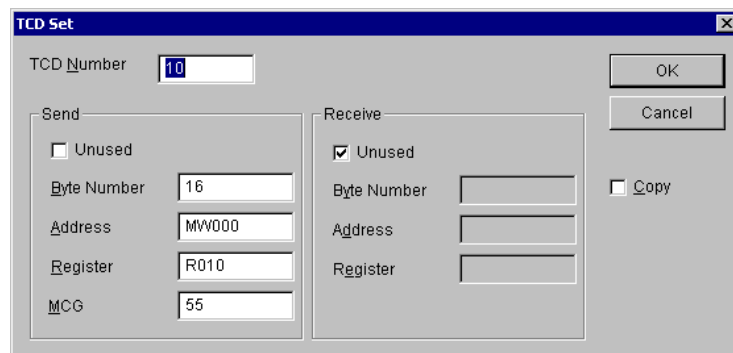


Figure 5-4 The “TCD Set” Window

Description of items:

- **TCD Number**  
Is the TCD number of a transaction code (TCD) sent or received. This TCD number may be specified within the range 0 to 59999. If you need not register a TCD, enter a value of 0 (zero).
- **Unused**  
If you select the “Unused” check box, all of the parameter values in the “Send” or “Receive” group box will become null. This is true even when a valid TCD number (0 to 59999) is specified (in this case, the selection of that check box signifies that the specified TCD number should not be used for data transmission and reception). These nullified values can be validated again by deselecting the “Unused” check box.
- **Send-byte number**  
Is a count of the number of user data bytes sent at a time. This count must be specified with an even number within the range 0 to 1408.

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- Send-address

Is the starting address of a buffer that stores the user data to be sent. Any send-address specified must be one of the addresses listed below. As shown, either a register address or a memory address may be specified as this send-address.

Table 5-3 Setting Ranges of Send-Addresses

No.	Setting range of register addresses	Setting range of memory addresses	Remarks
1	XW000 to FF0	/414000 to /4141FE	Bit/Word registers
2	JW000 to FF0	/E0200 to /E03FE	Bit/Word registers
3	YW000 to FF0	/414200 to /4143FE	Bit/Word registers
4	QW000 to FF0	/E0600 to /E07FE	Bit/Word registers
5	GW000 to FF0	/E0800 to /E09FE	Bit/Word registers
6	RW000 to FF0	/E0C00 to /E0DFE	Bit/Word registers
7	MW000 to FF0	/E0E00 to /E0FFE	Bit/Word registers
8	FW000 to BFC	/E2000 to /E37F8	Word registers
9	DW000 to FFF	/61000 to /62FFE	Word registers
10	LBW0000 to FFF0	/412000 to /413FFE	Bit/Word registers
11	LWW0000 to FFFF	/450000 to /46FFFE	Word registers
12	LXW0000 to 3FFF	/4A0000 to /4A7FFE	Word registers
13	–	/4B2000 to /4CAFFE	PI/O-RAM (battery-backed)
14	–	/414400 to /42D3FE	PI/O-RAM (not battery-backed)
15	–	/1000000 to /10FFFFE	CMU module (*)

(\*) The CMU module does not allow ladder programs to access the listed area directly. To access this area, use the HI-FLOW system.

- Send-register

Is a during-send register. This register is used to notify that a send request to send the user data is issued during a data transmission by the NX/HOST-S10V. When this register is switched on, the ladder sequence can detect a data transmission in progress by checking the register. This register is automatically switched off when the data transmission in progress is completed. If a requested data transmission fails, this register is not switched on, but instead an error code is set in the function work register FWBFF. (For details on the error code, see “APPENDIX A ERROR CODES.”) The FWBFF is overwritten with a new error code every time an error occurs. Therefore, the user has to save the error code in this register to some other place if necessary.

The during-send register must always be specified. If it is omitted, an undefined register may be switched on. Table 5-4 shows the allowable setting ranges of registers that can be used as during-send registers.

Table 5-4 Setting Ranges of During-Send Registers

No.	Setting range of registers	Remarks
1	J000 to FFF	Bit registers
2	Y000 to FFF	Bit registers
3	Q000 to FFF	Bit registers
4	G000 to FFF	Bit registers
5	R000 to FFF	Bit registers
6	M000 to FFF	Bit registers
7	LB0000 to LBFFFF	Bit registers

- MCG

Is the group number of the send-multicast group. This group number must be specified within the range 1 to 255. If a send-multicast group number other than those listed in the Send MCG No. column of the “Local” window (Figure 5-3) is specified, no data transmission will be performed for the specified TCD number.

- Receive-byte number

Is a count of the number of user data bytes received at a time. This count must be specified with an even number within the range 0 to 1408. If the data bytes actually received are more than the set value of the receive-byte count, the excess bytes will be discarded.

- Receive-address

Is the starting address of a storage area that will store the user data received. Any receive-address specified must be within one of the ranges listed in Table 5-3, “Setting Ranges of Send-Addresses.”

- Receive-register

Is a receive-completion register. Any receive-completion register specified must be a bit register that is switched on by the NX/HOST-S10V at the end of a data reception. When this register is switched on, the ladder sequence can detect the end of a data reception by the NX/HOST-S10V. Upon the completion of a data transmission, this register must be switched off by the user. If the NX/HOST-S10V receives data during the ON state of a specific receive-completion register (unique for each TCD), it will discard the received data unless a retry count and a receive-wait time are set by the user. For details, see “5.5 Retrial/Waiting Time Setting.”

Any receive-completion register specified must be within one of the setting ranges listed in Table 5-4, “Setting Ranges of During-Send Registers.”

- Copy

If you select the “Copy” check box and click the  button, the new values you enter will be added as a new registration entry, rather than as changes to the existing TCD information. If you want to select this check box, all of the TCD number, register, and address specified must be unique.

- (5) When all necessary parameter values are entered, click the  button in the “TCD Set” window and then in the “Local” window. The “NX/Tools-S10V” window then becomes active again. Click the  button. Then, a write confirmation dialog box (Figure 5-5) appears.

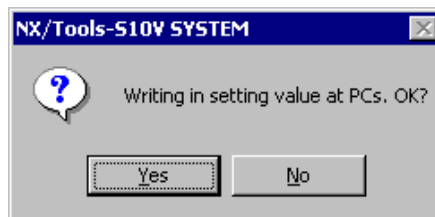


Figure 5-5 The Write Confirmation Dialog Box

If you click the  button, the write confirmation dialog box closes and writing the set values to the PCs starts, provided a ladder operation is not in progress (or the ladder is not in RUN state). If it is in progress, the writing fails, displaying the dialog box shown in Figure 5-6. In this case, stop the ladder operation (or place the ladder in STOP state) and then try it again (by clicking the  button in the “NX/Tools-S10V” window).

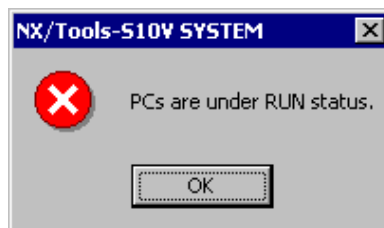


Figure 5-6 The Ladder-in-RUN-State Message Dialog Box

If you click the  button instead, the write confirmation dialog box closes and none of the set values will be written to the PCs.

- (6) When writing the set values to the PCs starts, a send-in-progress message window (Figure 5-8) and a PCs-resetting confirmation dialog box (Figure 5-7) appear successively, in that order.

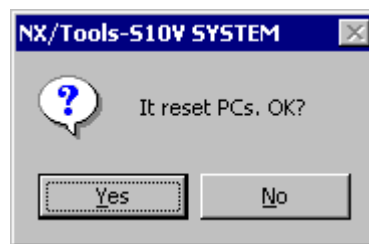


Figure 5-7 The PCs-Resetting Confirmation Dialog Box

If you click the  button, the PCs-resetting confirmation dialog box disappears and the S10V unit will be reset (by remote resetting).

If you click the  button instead, that dialog box disappears, but the S10V unit will not be reset and none of the set values will be written to that PCs unit.

- (7) When the PCs-resetting confirmation dialog box disappears as a result of clicking the  button, a send-in-progress message window (Figure 5-8) opens.

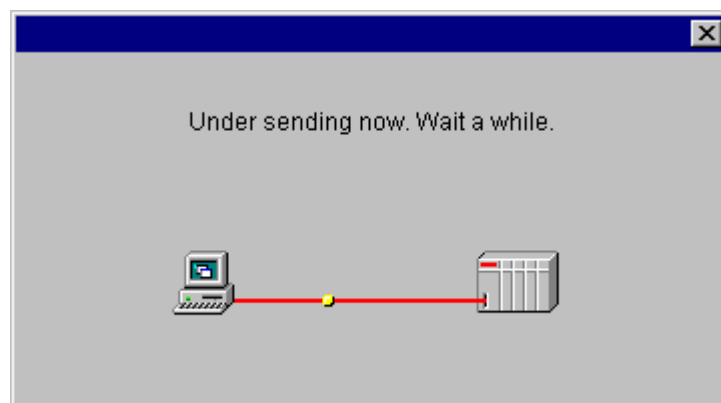


Figure 5-8 The Send-in-Progress Message Window

- (8) When all the set values have been written to the LPU module's non-volatile memory, the CMU module's volatile memory, and the CF (flash memory), the send-in-progress message window closes and a PCs-resetting confirmation dialog box (Figure 5-9) appears. Click the  button. Then, that dialog box closes and the S10V unit is reset.



Figure 5-9 The PCs-Resetting Confirmation Dialog Box

- (9) At the completion of the resetting, the writing process (of the local DF's set values and the remote DF's set values, the latter of which are limited to Type5) is complete and the "NX/Tools-S10V" window closes.

Notes:

- Do not start up two NX/Tools-S10V systems at a time and write set values to the same PCs from both.
- Do not write set values to the PCs while a system program transfer is in progress.
- Do not carry out a system program transfer while writing set values to the PCs is in progress.
- Do not carry out batch loading (restore) by using the backup restore system while a system program transfer is in progress. Carry it out after the transfer is completed.
- Do not carry out batch loading by using the backup restore system while writing set values to the PCs is in progress. Carry it out after the writing is completed.
- Do not carry out a system program transfer or writing set values to the PCs while batch loading by the backup restore system is in progress. Carry them out after the batch loading is completed.

### 5.3 Remote DF

Function: Adds changes to the set values for the remote DF and adds changes to the set values, sets new parameter values, and/or deletes existing set values for the MCGs and TCDs.

**The use of the remote DF requires the prior setting of route information via the “Set CMU IP Address” window of the S10V Base System.**

Operation: The operating procedure for using this command is described below.

- (1) Start up the NX/Tools-S10V system. (For information on how to start it up, see “4.3 Starting Up the System.”) Then, click the **Remote DF** button in its main window.

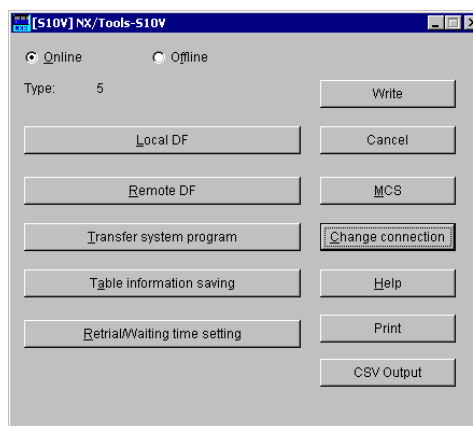


Figure 5-10 The “NX/Tools-S10V” Window (in online mode)





- (3) Enter values for TCD information items in the “TCD Set” window, as described below. First choose the desired TCD number from among those listed in the “TCD Number” column of the TCD settings information list within the “Remote” window, and click the **Edit** button. Alternatively, double-click the desired TCD number in the “TCD Number” column. Then, the “TCD Set” window as shown in Figure 5-12 appears, so that you can add changes to the displayed TCD information. For details on each item of the displayed TCD information, see the description of Step (4) under “5.2 Local DF.”

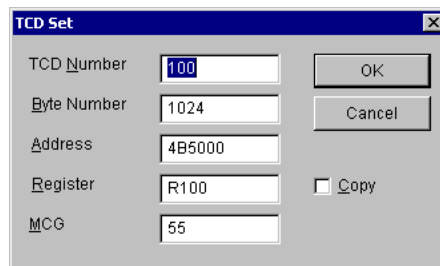


Figure 5-12 The “TCD Set” Window

- (4) When all necessary parameter values are entered, click the **OK** button in the “TCD Set” window and then in the “Remote” window. The “NX/Tools-S10V” window then becomes active again. Click the **Write** button to write all the entered values to the PCs -- or more specifically, the CMU module’s memory (this action updates the set values of both the local DF and remote DF). For details, see the description of Steps (5) through (9) under “5.2 Local DF.”

## 5.4 Table Information Saving

Function: Reads the NX setup information from the PCs (or more specifically, the LPU and CMU modules' memories) and saves it to a user-specified file (in binary format). The saved file can be loaded back to the same PCs or to another PCs unit by using system program transfer (for details, see “4.4 Transferring the System Program”). The saved file does not contain the retry count/receive-wait time setting information, which cannot be saved by this command.

Operation: The operating procedure for using this command is described below.

- (1) Start up the NX/Tools-S10V system. (For information on how to start it up, see “4.3 Starting Up the System.”) Then, click the **Table information saving** button in its main window.

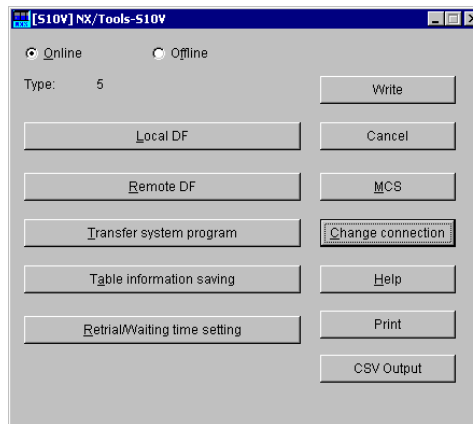


Figure 5-13 The “NX/Tools-S10V” Window (in online mode)

(2) The “Save As” window as shown in Figure 5-14 opens.

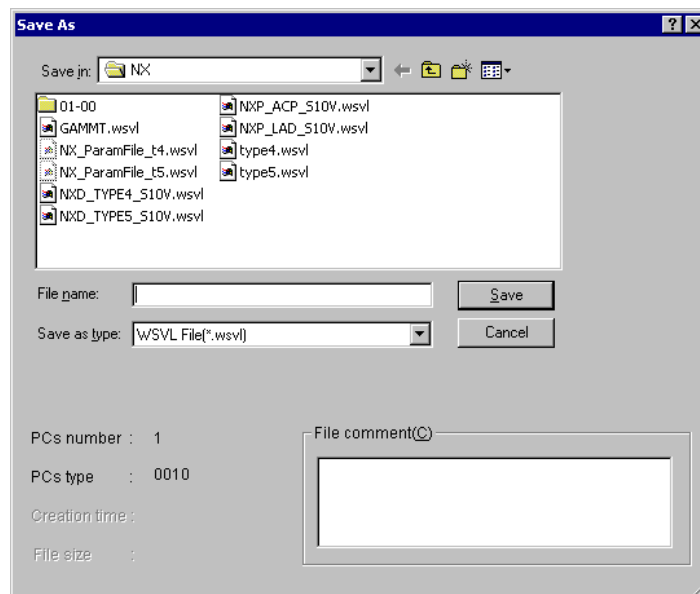


Figure 5-14 The “Save As” Window

The PCs number and PCs type in this window are those of the PCs unit with which the NX/Tools-S10V system has established a connection.

If you want to save the NX setup information together with a file comment, enter the desired comment in the “File comment” text box. This file comment is optional and must be up to 128 characters long if entered.

You can select only a WSVL file in this window.

Enter the desired file name in the “File name” text box and click the **Save** button. If the file extension “.wsvl” is omitted from the specified file name, it will be automatically appended to it.

If you click the **Cancel** button instead of [Save], the “Save As” window closes and the NX setup information will not be saved.

- (3) When the  button is clicked, the “Save As” window closes and the “Receive file” window as shown in Figure 5-15 opens.

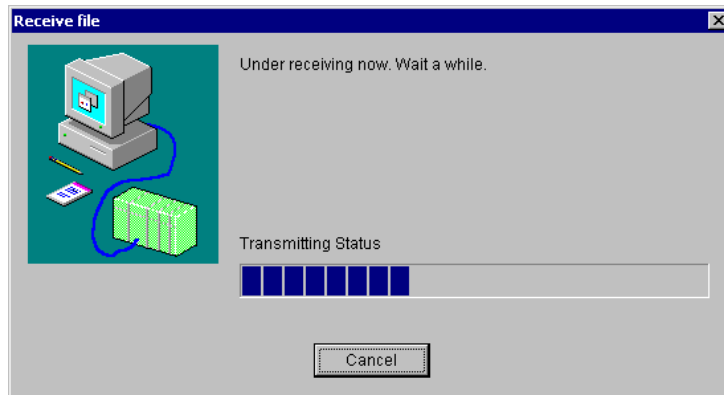


Figure 5-15 The “Receive file” Window

When the NX setup information is saved successfully, the following message dialog box appears:



Figure 5-16 The Message Dialog Box Reporting the Normal End of Saving

If you click the  button during saving, the NX setup information will not be saved. (In this case, the specified file will not be created. However, if the requested saving method is by overwriting, the specified file will be deleted. So, care must be taken when clicking the  button during saving.)

## 5.5 Retrial/Waiting Time Setting

Function: Displays the currently set retry count and retry interval (receive-wait time) that are used in conjunction with a check to see if the receive-completion register is in OFF state. This command also enables you to change those currently set values or enter initially values for those parameters. For information on the receive-completion register, see Figure 5-4, “The ‘TCD Set’ Window,” and the subsequent description of items under “5.2 Local DF.”

Operation: The operating procedure for using this command is described below.

- (1) Start up the NX/Tools-S10V system. (For information on how to start it up, see “4.3 Starting Up the System.”) Then, click the **Retrial/Waiting time setting** button in its main window.

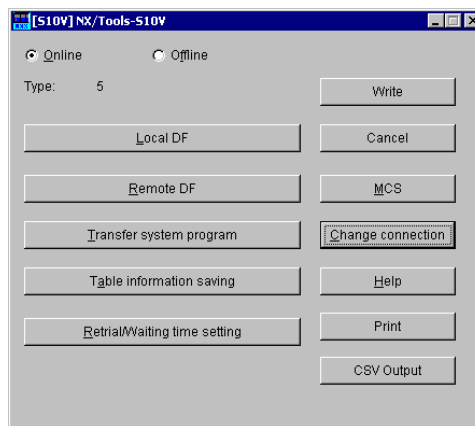


Figure 5-17 The “NX/Tools-S10V” Window (in online mode)

- (2) The “Retrial number of times/Receiving waiting time” window as shown in Figure 5-18 opens.

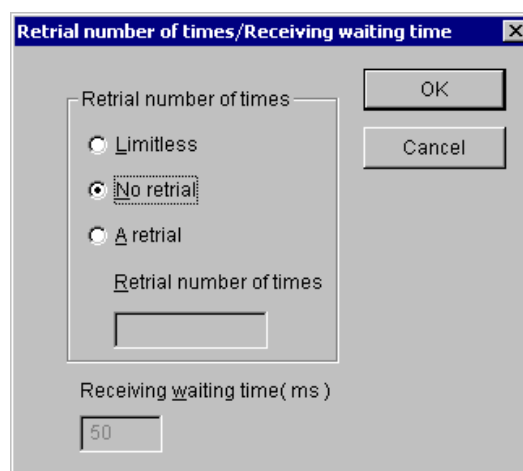


Figure 5-18 The “Retrial number of times/Receiving waiting time” Window

- **Retrial number of times**

Is a count of the number of times a completion check is retried until the receive-completion register is in OFF state. If the receive-completion register is found to be in OFF state by such a check, the NX/HOST-S10V will not discard the received data. The modes of check available for this purpose are the following three:

- **Limitless**

Is selected when you want to retry the check an indefinite number of times.

- **No retrial**

Is selected when you want to execute the check only once.

- **A retrial**

When this mode of check is selected, you must specify a retry count in the range 1 to 2147483647.

- **Receiving waiting time**

Is a receive-wait time and is effective only when “A retrial” is selected as the mode of check. This time interval can be specified in the range 10 to 1000 (milliseconds) and is defaulted to 50.

- (3) To add changes to the retry count/receive-wait time information displayed, click the  button. Then, a “Writing in setting value at PCs, OK?” confirmation dialog box (Figure 5-19) appears.

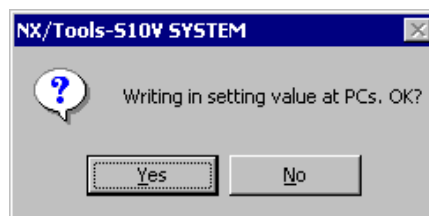


Figure 5-19 The “Writing in setting value at PCs, OK?” Confirmation Dialog Box

If you click the  button, the confirmation dialog box disappears and writing to the PCs starts to write the new retry count/receive-wait time information you have entered, provided a ladder operation is not in progress (or the ladder is not in RUN state). If it is in progress, the writing fails, displaying the dialog box shown in Figure 5-20.

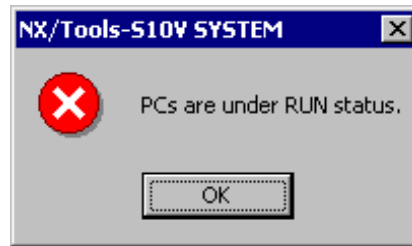


Figure 5-20 The Ladder-in-RUN-State Message Dialog Box

In this case, stop the ladder operation (or place the ladder in STOP state) and then try it again (by clicking the  button in the “NX/Tools-S10V” window).

If you click the  button instead, the confirmation dialog box closes and the information you entered will be written to the PCs.

If you click the  button in the “Retrial number of times/Receiving waiting time” window, that window closes and nothing will be written to the PCs.

- (4) When writing to the PCs starts, a send-in-progress message window and a PCs-resetting confirmation dialog box (Figure 5-21) appear successively, in that order.

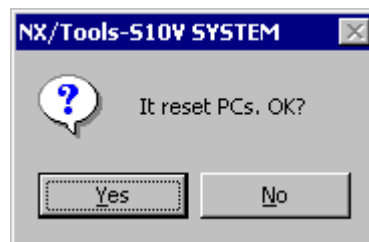


Figure 5-21 The PCs-Resetting Confirmation Dialog Box

If you click the  button, the PCs-resetting confirmation dialog box disappears and the S10V unit will be reset (by remote resetting).

If you click the  button instead, that confirmation dialog box disappears, but the S10V unit will not be reset and nothing will be written to that PCs unit.



- (5) When the PCs-resetting confirmation dialog box disappears as a result of clicking the  button, a send-in-progress message window (Figure 5-22) opens.

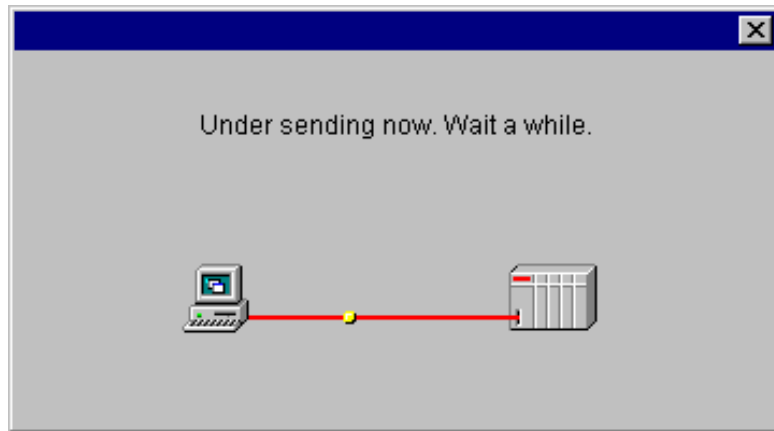


Figure 5-22 The Send-in-Progress Message Window

- (6) When the information you entered has been written to the LPU module's PI/O RAM (battery-backed), the send-in-progress message window closes and a PCs-resetting confirmation dialog box (Figure 5-23) appears. Click the  button. Then, that confirmation dialog box closes and the S10V unit is reset.



Figure 5-23 The PCs-Resetting Confirmation Dialog Box

- (7) At the completion of the resetting, the writing process is complete and the "NX/Tools-S10V" window closes.

## 5.6 Change Connection

Function: Allows you to select the desired S10V unit by specifying the IP address of its CMU module and makes the selected S10V unit ready for data communication (online operation) with the NX/Tools-S10V system.

Operation: The operating procedure for using this command is described below.

- (1) Click the **Change connection** button in the “NX/Tools-S10V” window.
- (2) The “Communication type” window as shown in Figure 5-24 opens.

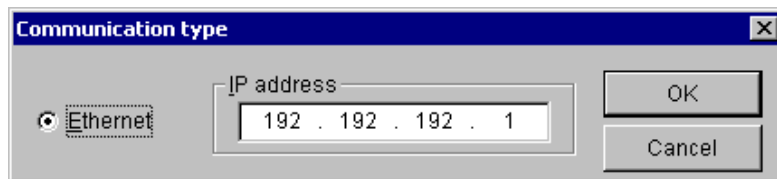


Figure 5-24 The “Communication type” Window

- (3) Enter the IP address of the CMU module -- the IP address that has been set via the S10V base system -- and click the **OK** button.

Then, the “Communication type” window closes and a connection will be established between the specified CMU module and the NX/Tools-S10V system for data communication (online operation).

If you click the **Cancel** button instead of [OK], a connection will be established between the previously specified CMU module and the NX/Tools-S10V system.

If the entered IP address is invalid or the specified module is other than CMU, an error message dialog box (Figure 5-25) appears.

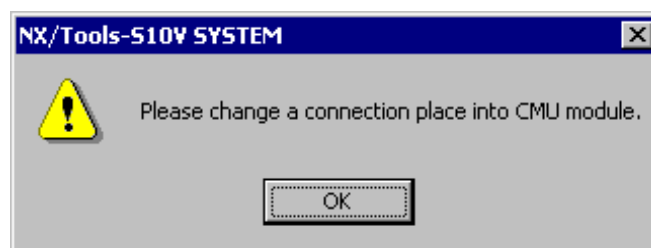


Figure 5-25 The Error Message Dialog Box Reporting a Connection Error

Notes:

- The network address and subnet mask of the personal computer in which the NX/Tools-S10V system is installed must be identical to the network address and subnet mask of the specified CMU module.
- If the specified CMU module's ST.No. setting switches (U and L) are both in "F" position, its IP address is automatically set to "192.192.192.1", ignoring the IP address set via the S10V base system. If you want to make the latter IP address effective, set both of the CMU module's ST.No. setting switches in "0" position.

## 5.7 MCS

Function: Displays the MCS (man-machine communication system) window on screen.

Operation: The operating procedure for using this command is described below.

- (1) Click the **MCS** button in the “NX/Tools-S10V” window.
- (2) The “MCS” window as shown in Figure 5-26 opens. Click either the [Specify address] or the [Specify Symbol] radio button.

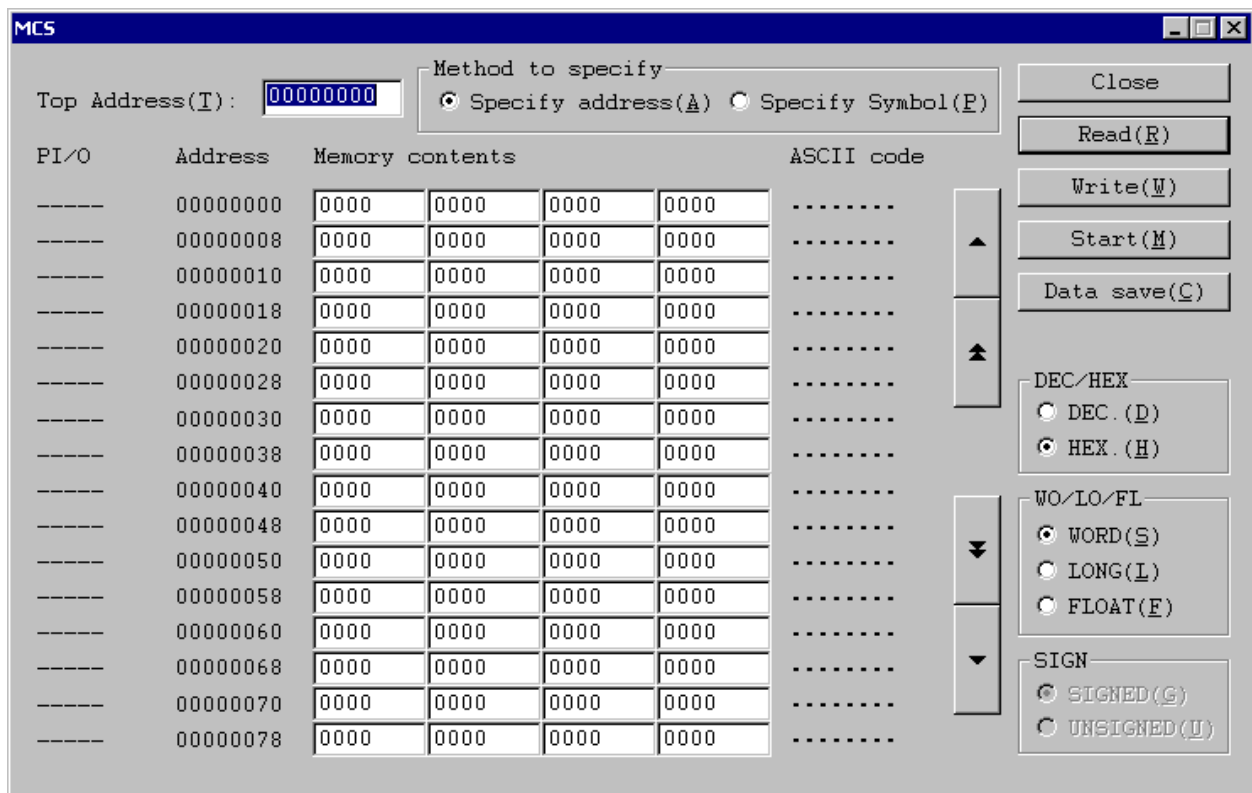


Figure 5-26 The “MCS” Window

- (3) Specify an address or PI/O in the “Top Address” edit box. Then, if you want to read data from them, click the **Read** button. If you want to write data to them, add changes to the displayed memory contents and click the **Write** button. If you want to monitor the specified address or PI/O, click the **Start** button.  
To exit the MCS, click the **Close** button.

5.8 Table Information Editing -- Local DF

Function: Enables you to edit NX setup information for the local DF in offline mode.

Operation: The operating procedure for using this command is described below.

- (1) Select the [Offline] radio button in the “NX/Tools-S10V” window if it is deselected.
- (2) If an edition file is not selected yet or you want to change the currently selected edition file, click the Edition file select button. If the desired edition file is already selected, skip this step. For information on how to select an edition file, see “5.10 Edition File Select.”

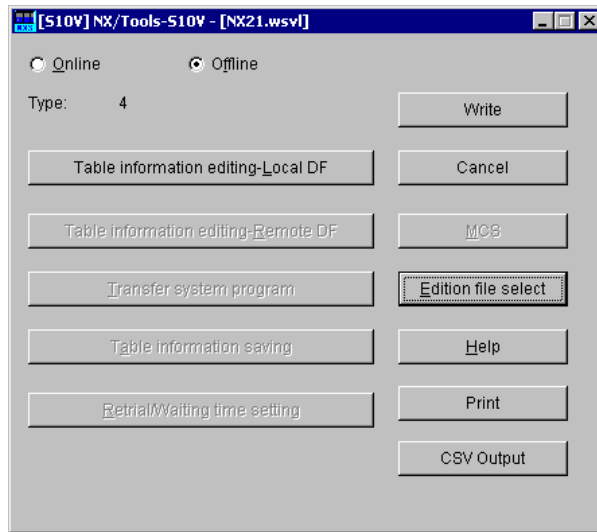


Figure 5-27 The “NX/Tools-S10V” Window (in offline mode)

- Table information editing-Local DF  
This button is clicked when adding changes to NX setup information for the data field directly connected to the CMU module.
  - Table information editing-Remote DF  
This button is clicked when adding changes to NX setup information for the data field connected to the CMU module via a router or gateway.
- (3) Click the Table information editing-Local DF button in the above main window.

- (4) The “Local” window (DF settings, displayed in offline mode) as shown in Figure 5-28 opens. The items shown in this window are the same as those in the “Local” window (DF settings, displayed in online mode) shown in Figure 5-3, except for the file name and file type. For information on how to edit those items, see Figure 5-3 and the subsequent description.

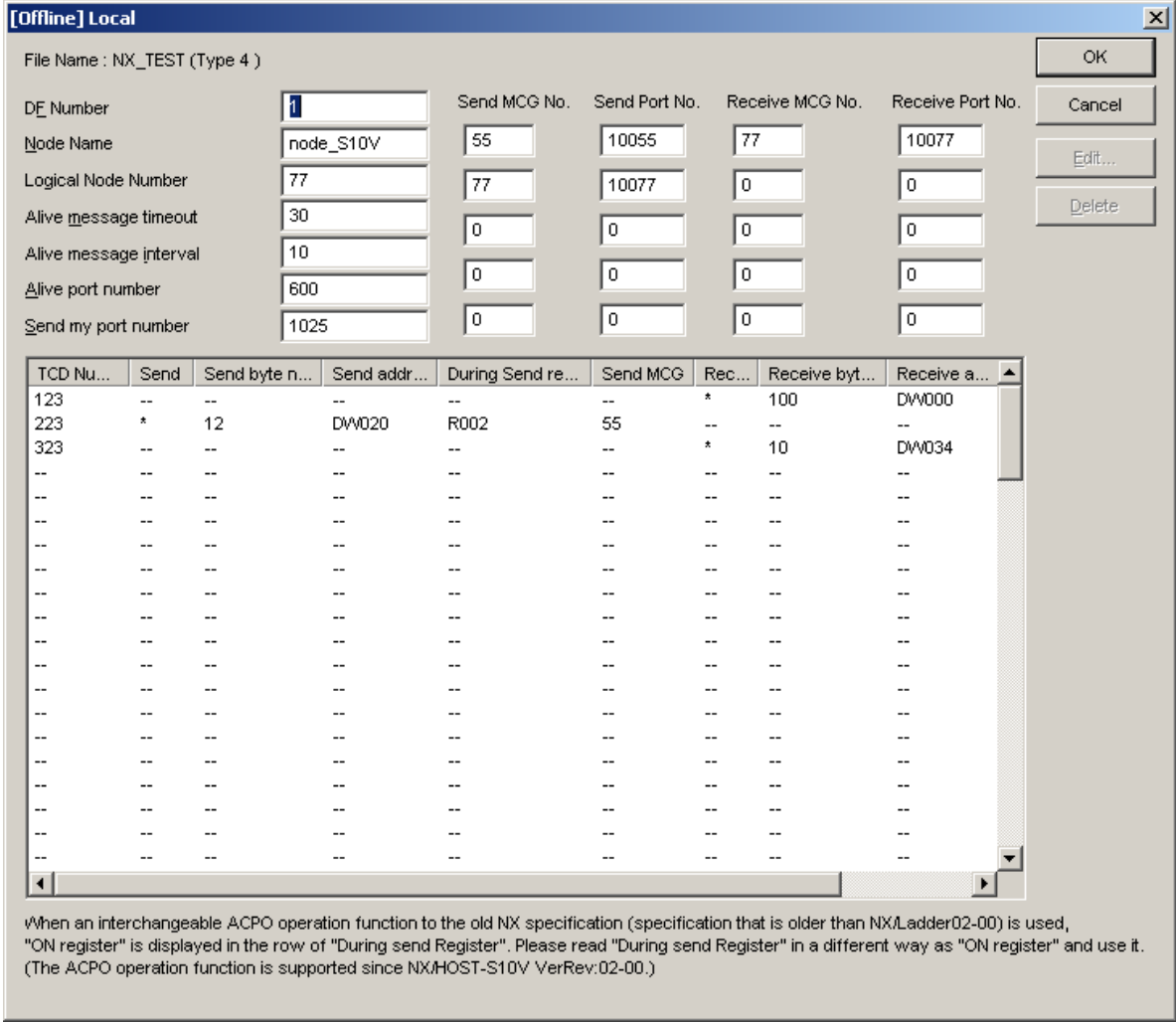


Figure 5-28 The “Local” Window (DF settings, displayed in offline mode)

- (5) Edit the displayed TCD information. For details, see Figure 5-4, “The ‘TCD Set’ Window,” and the subsequent description.
- (6) Save the edited information by clicking the Write button in the “NX/Tools-S10V” window (in offline mode). Saving is done by overwriting.

## 5.9 Table Information Editing -- Remote DF

Function: Enables you to edit NX setup information for the remote DF in offline mode.

Operation: The operating procedure for using this command is described below.

- (1) Select the [Offline] radio button in the “NX/Tools-S10V” window if it is deselected.
- (2) If an edition file is not selected yet or you want to change the currently selected edition file, click the **Edition file select** button. If the desired edition file is already selected, skip this step. For information on how to select an edition file, see “5.10 Edition File Select.”

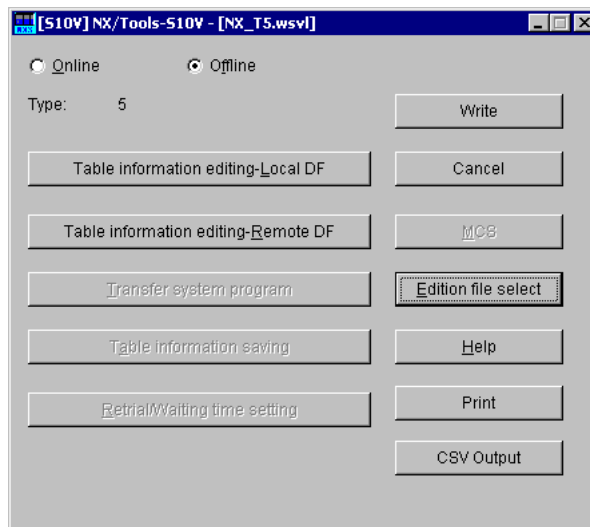


Figure 5-29 The “NX/Tools-S10V” Window (in offline mode)

- (3) Click the **Table information editing-Remote DF** button in the above main window.

- (4) The “Remote” window (DF settings, displayed in offline mode) as shown in Figure 5-30 opens. The items shown in this window are the same as those in the “Remote” window (DF settings, displayed in online mode) shown in Figure 5-11, except for the file name and file type. For information on how to edit those items, see Figure 5-11 and the subsequent description.

TCD Nu...	Send	Send byte n...	Send addr...	During Send re...	Send MCG
100	*	1024	4B5000	R100	55
200	*	1024	4B2000	R200	55
300	*	1024	4B4000	R300	55
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--
--	--	--	--	--	--

Figure 5-30 The “Remote” Window (DF settings, displayed in offline mode)

- (5) Edit the displayed TCD information. For details, see Figure 5-12, “The ‘TCD Set’ Window,” and the subsequent description.
- (6) Save the edited information by clicking the  button in the “NX/Tools-S10V” window (in offline mode). Saving is done by overwriting.



## 5.10 Edition File Select

Function: Selects an edition file for editing. The edition files that you can choose with this command include NX setup information files (either Type1, Type2, Type4, or Type5; Type3 and Type6 are excluded) saved by the “Table information saving” command of NX/Tools-S10 systems, which are supplied for use with S10/2 $\alpha$  series and S10mini series controllers. (This is the case only if the NX/HOST-S10V system is installed.) None of NX setup information files saved by the NX/Tools-S10V system, however, can be used in NX/Tools-S10 systems.

Note: If an NX setup information file saved by the NX/Tools-S10 system is of Type1 (or Type2), the NX/Tools-S10V system converts it to Type4 (or Type5) while reading it.

Operation: The operating procedure for using this command is described below.

- (1) Select the [Offline] radio button in the “NX/Tools-S10V” window if it is deselected.
- (2) If an edition file is not selected yet or you want to change the currently selected edition file, click the Edition file select button. The “Open” window as shown in Figure 5-31 will then open.

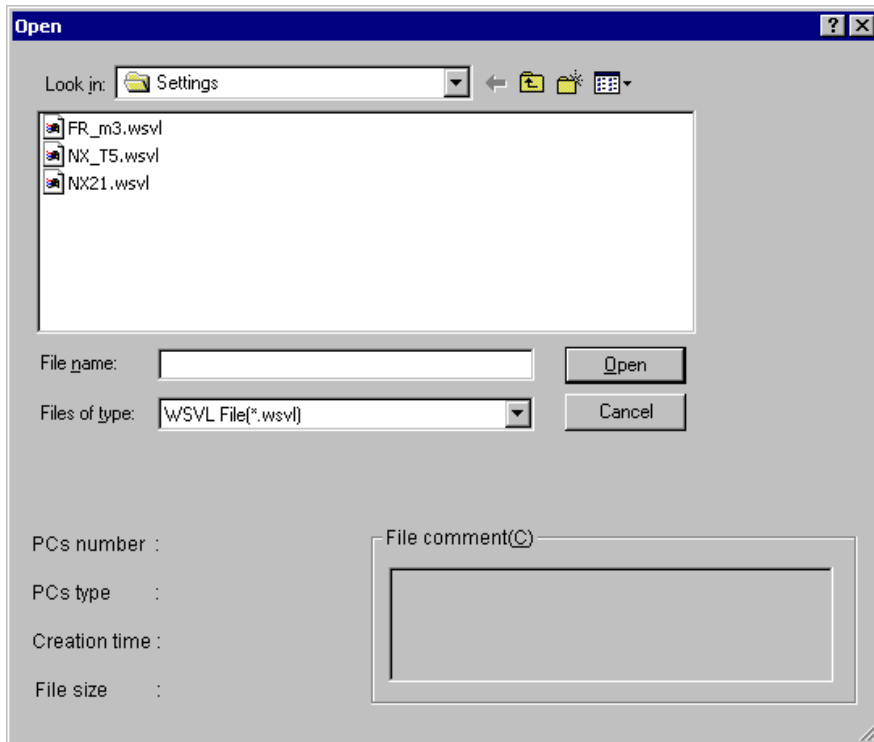


Figure 5-31 The “Open” Window

The types of files that you can select in this window are the following two: WSVL (with the file extension “.wsvl”) and PSE (with the file extension “.pse”). The WSVL file is a file that is created in binary format by the “Table information saving” command of the NX/Tools-S10V system. The PSE file, on the other hand, is a file that is created in binary format by the “Table information saving” command of the NX/Tools-S10 system (for an S10/2 $\alpha$  series or S10mini series controller).

- (3) If you want to create a new NX setup information file and edit its content, enter a new file name and click the **Open** button. The “Creation confirmation” dialog box as shown in Figure 5-32 then appears. Select the desired system program type (either Type4 or Type5) and click the **OK** button.

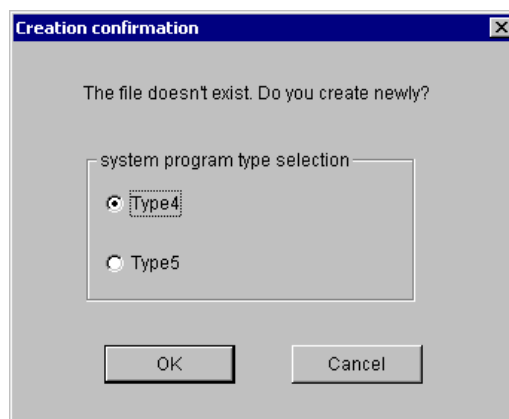


Figure 5-32 The “Creation confirmation” Dialog Box

- (4) If you want to edit an existing NX setup information file, select it from among those listed in the “Open” window. Then, the following information for the selected file is displayed: PCs number (in decimal), PCs type (in hexadecimal), creation time, file size (in kilobytes), and file comment (if any). Click the **Open** button.

If the selected file is found to be a non-NX setup information file or other invalid file, the error message dialog box as shown in Figure 5-33 appears with the

**Table information editing-Local DF** button disabled in the “NX/Tools-S10V” window.

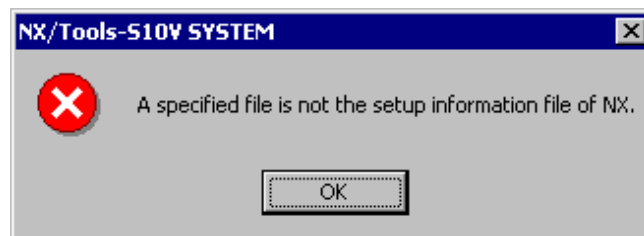


Figure 5-33 The Error Message Dialog Box Reporting an Invalid NX Setup Info File Specified

## 5 COMMANDS

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When the selected file is found to be a valid NX setup info file, you can click either the  button or  button in the “NX/Tools-S10V” window to view and/or add changes to the NX setup information.

## 5.11 Print

Function: Prints the NX setup information under editing to a printer.

Operation: The operating procedure for using this command is described below.

- (1) If the system is started up in online mode, establish a connection with the PCs (see “5.6 Change Connection”). If it is started up in offline mode, select the desired edition file (see “5.10 Edition File Select”).
- (2) Click the **Print** button in the “NX/Tools-S10V” window.
- (3) The “Print” dialog box as shown in Figure 5-34 appears. Specify the desired printer and properties, if necessary, and click the **OK** button.

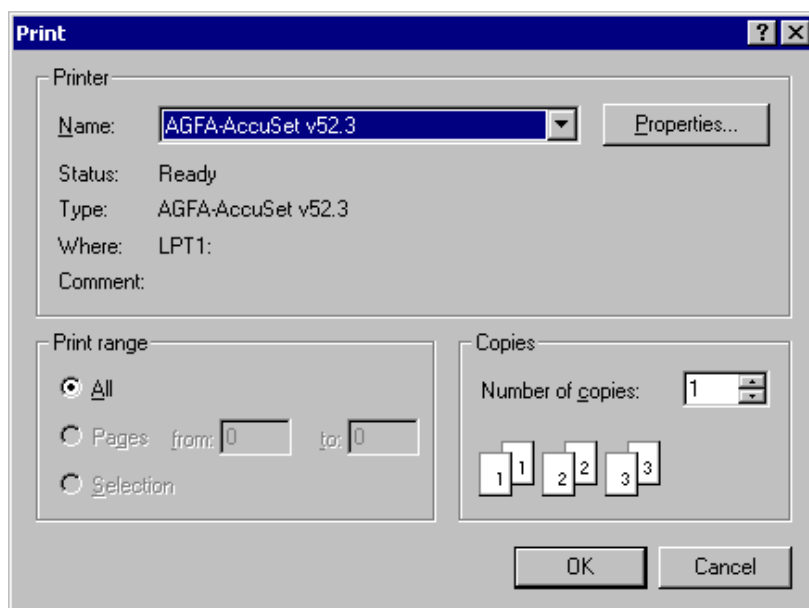


Figure 5-34 The “Print” Dialog Box

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<Sample printout>

NX/Tools s10 2006/10/31 19:01:56  
File Name=C:\Documents and Settings\Administrator\Desktop\Nai\aaa\Settings\NX21.wsv

Local DF(Type 4)  
DF Number 111  
Node Name node56789  
Logical Node Number 77  
Alive message timeout 30  
Alive message interval 10  
Alive port number 600  
Send my port number 1025

Send MCG No.	Send Port No.	Receive MCG No.	Receive Port No.
55	10055	77	10077
77	10077	0	0
0	0	0	0
0	0	0	0
0	0	0	0

TCD No	Send byte num	Send addr	During Send reg	Send MCG	Rcv byte num	Rcv addr	Rcv comp reg
1	200	Fw200	R100	5	100	Fw400	R101
2	10	Fw500	R201	7	20	Fw600	R202
3	--	--	--	--	4	Fw800	R300
4	--	--	--	--	4	Fw840	R304
5	--	--	--	--	4	Fw850	R305
46	--	--	--	--	4	FwAE0	R32E
47	--	--	--	--	4	FwAF0	R32F
48	--	--	--	--	4	FwB00	R330
49	--	--	--	--	4	FwB10	R331
50	--	--	--	--	4	FwB20	R332
51	--	--	--	--	4	FwB30	R333
52	--	--	--	--	4	FwB40	R334
53	--	--	--	--	4	FwB50	R335

## 5.12 CSV Output

Function: Outputs the NX setup information under editing to a file in CSV (comma-separated values) format.

Operation: The operating procedure for using this command is described below.

- (1) If the system is started up in online mode, establish a connection with the PCs (see “5.6 Change Connection”). If it is started up in offline mode, select the desired edition file (see “5.10 Edition File Select”).
- (2) Click the **CSV Output** button in the “NX/Tools-S10V” window.
- (3) The “Save As” dialog box as shown in Figure 5-35 appears. Specify the desired folder and file, and click the **Save** button.

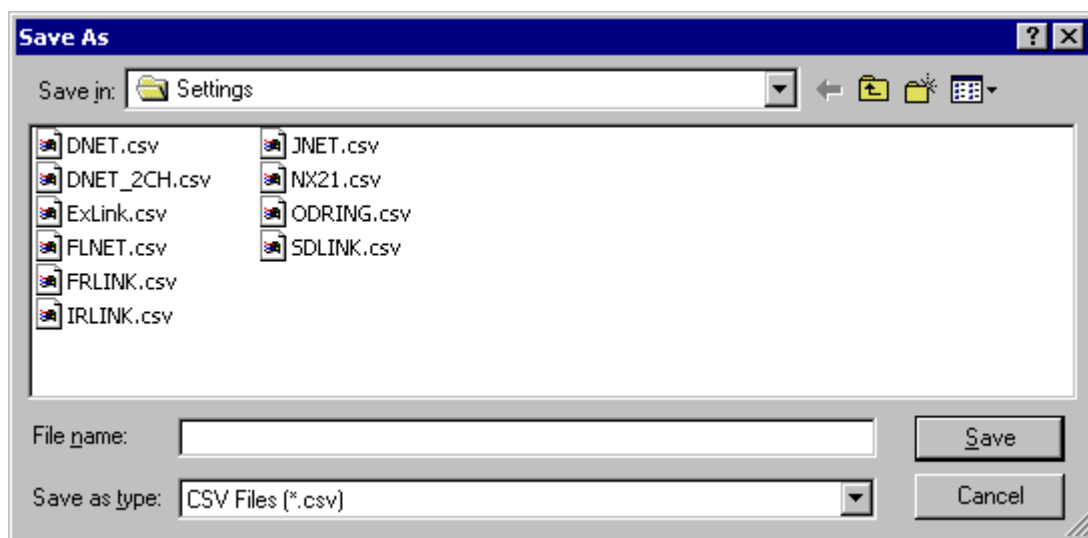


Figure 5-35 The “Save As” Dialog Box

## 5 COMMANDS

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### <Sample CSV file output>

```
NX/Tools S10      2006/10/31      19:03:04
File Name=C:\Documents and Settings\Administrator\Desktop\Nai\aaa\Settings\NX21.wsvl

Local DF(Type 4),
DF Number,111
Node Name,node56789
Logical Node Number,77
Alive message timeout,30
Alive message interval,10
Alive port number,600
Send my port number,1025

Send MCG No.,Send Port No.,Receive MCG No.,Receive Port No.,
55,10055,77,10077,
77,10077,0,0,
0,0,0,0,
0,0,0,0,
0,0,0,0,

TCD No,Send byte num,Send addr,During Send reg,Send MCG,Rcv byte num,Rcv addr,Rcv comp
reg,
1,200,FW200,R100,5,100,FW400,R101,
2,10,FW500,R201,7,20,FW600,R202,
3,--,--,--,--,4,FW800,R300,
4,--,--,--,--,4,FW840,R304,
5,--,--,--,--,4,FW850,R305,
46,--,--,--,--,4,FWAEO,R32E,
47,--,--,--,--,4,FWAFO,R32F,
48,--,--,--,--,4,FWB00,R330,
49,--,--,--,--,4,FWB10,R331,
50,--,--,--,--,4,FWB20,R332,
51,--,--,--,--,4,FWB30,R333,
52,--,--,--,--,4,FWB40,R334,
53,--,--,--,--,4,FWB50,R335,
```

# APPENDIXES



**APPENDIX A ERROR CODES**

(1) Error codes from the NX/HOST-S10V system’s internal receiving task

All error codes in this category are listed in the table below. They are set in the register FWBFF.

Code	Meaning	Required user action
0x834	A receive-completion register address is not set for a received TCD.	Set a receive-completion register address via the NX/Tools-S10V.
0x835	A previously received message has not been processed yet.	Switch off the receive-completion register.
0x836	A TCD definition is not made for a received TCD.	Make a TCD definition for the received TCD via the NX/Tools-S10V.
0x837	A receive-completion register address is not set for a received TCD.	Set a receive-completion register address via the NX/Tools-S10V.
0x838	A previously received message has not been processed yet.	Switch off the receive-completion register.
0x839	A TCD definition is not made for a received TCD.	Make a TCD definition for the received TCD via the NX/Tools-S10V.
0x843	A receiving DF (remote or local) is not set up.	Set up the local or remote DF again via the NX/Tools-S10V.
0xXXX	An error is detected during a reception by the NX. (XXX is a return code from nx_get.)	Troubleshoot the NX from what is reported by the return code.

(2) Error codes from the NX/HOST-S10V system’s internal sending task

All error codes in this category are listed in the table below. They are set in the register FWBFE.

Code	Meaning	Required user action
0x821	The NX’s table is missing.	Load the data of Type4 or Type5 to the target by using the NX/Tools-S10V.
0x823		
0x824		
0x825		
0x826		
0xXXX	An error is detected during a transmission by the NX. (XXX is a return code from nx_put.)	Troubleshoot the NX from what is reported by the return code.

## (3) Error codes from the NX/HOST-S10V system's internal sending task -- classified by arithmetic function

All error codes in this category are listed in the table below. They are set in the register FWBFE.

- Error codes from sat()

Code	Meaning	Required user action
0x804	A duplicated DF number is detected, or the two DF numbers specified are both zero.	Set up both the local DF and remote DF again by using the NX/Tools-S10V.
0x805	The number of sets of TCD information specified for a DF exceeds the limit of 95 (cases).	Review the specified sets of TCD information.
0x806	The NX program on CMU side was unable to run.	Load the system program to the target by using the NX/Tools-S10V. (Alternatively, check the CMU for any problem. If a problem is found, troubleshoot it.)
0x807		
0x843	The NX's table is missing.	Load the data of Type4 or Type5 to the target by using the NX/Tools-S10V.
0x844	The NX could not be initialized (due to a DF startup error).	Reset the CMU and re-issue sat().
0x845		
0x846		
0x847		

- Error codes (0x811 thru 0x81f) from acp()

Code	Meaning	Required user action
0x813	No TCD definition is existent for a specified DF.	Make a TCD definition(s) for the specified DF by using the NX/Tools-S10V.
0x814	A during-send register is not set for a specified TCD.	Set a during-send register for the specified TCD.
0x815	A data transmission failed due to a previously started TCD transmission still in progress.	Wait for a while and then try it again.
0x816	No TCD definition is existent for a specified DF.	Make a TCD definition(s) for the specified DF by using the NX/Tools-S10V.
0x817	A during-send register is not set for a specified TCD.	Set a during-send register for the specified TCD.
0x818	A data transmission failed due to a previously started TCD transmission still in progress.	Wait for a while and then try it again.
0x81f	A specified DF is undefined. (There is a non-matching DF setup between the ladder and the NX/Tools-S10V.)	Set up the specified DF by using the NX/Tools-S10V.

APPENDIX B REGISTERS USED BY NX/Tools-S10V

The NX/Tools-S10V system uses the following registers during execution:

<Function work registers>

	FWBFD	FWBFE	FWBFF	BD000
	<div style="background-color: #cccccc; width: 100%; height: 100%;"></div>	<div style="background-color: #cccccc; width: 100%; height: 100%;"></div>	<div style="background-color: #cccccc; width: 100%; height: 100%;"></div>	<div style="background-color: #cccccc; width: 100%; height: 100%;"></div>
	Error count (number of TCDs not received)	Error codes from acp(), sat(), and tk_acp task.(*)	Error codes from mgt task.(*)	

: These are the information set by the NX/Tools-S10V.

(\*) For details on these error codes, see APPENDIX A, “ERROR CODES.”