# Instructions for Configuring an ISO Transport Connection

## S7-300 / S7-400 Industrial Ethernet CPs

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### Question

How do you configure an ISO transport connection for data exchange between S7-300 and/or S7-400 by way of Industrial Ethernet CPs?

### Answer

Follow the instructions and notes listed in this document for a detailed answer to the above question.

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## 1 Introduction

You can use the open communication through ISO transport connections for data exchange by way of the Industrial Ethernet CPs of S7-300 and S7-400.

In this example an S7-300 is connected over the PROFINET interface of the CP343-1 on the subnetwork 172.16.0.0. The S7-400 on the other hand is connected over the GBIT interface of the CP443-1 Advanced on the subnetwork 172.16.0.0. The PROFINET interface of the CP443-1 Advanced is connected on the subnetwork 192.168.99.0.

#### **Configuration overview**

Figure 1-1 shows an overview of the configuration.



## 2 Configuration

Below we describe how to configure an ISO transport connection for sending and receiving data by way of an Industrial Ethernet CP of S7-300 and S7-400.

### 2.1 Configuring CP343-1 and CP443-1 Advanced

#### 2.1.1 Assigning IP addresses to CP343-1 and CP443-1 Advanced

The following MAC addresses and IP addresses are used in this configuration.

Table 2-1

Industrial Ethernet CP	Interface	MAC address	IP address	Subnet mask
CP343-1	PROFINET	00-0E-8C-D9-F0-1D	172.16.43.2	255.255.0.0
CP443-1 Advanced	PROFINET	-	192.168.99.121	255.255.255.0
CP443-1 Advanced	GBIT	00-0E-8C-DB-D2-98	172.16.49.99	255.255.0.0

Assign the IP addresses to CP343-1 and CP443-1 Advanced.

Follow the instructions below for assigning the IP addresses.

No.	Configuration step	Note
1.	Connect the SIMATIC Field PG on which the configuration created with STEP 7 is stored to the PROFINET interface of CP343-1. In Windows network settings → LAN (Local Area Network) of the SIMATIC Field PG you enter an IP address that is in the same subnetwork as that of CP343-1. In this example the IP address 172.16.43.100 and subnetwork mask 255.255.0.0 are used for the SIMATIC Field PG.	Eigenschaften von Internet Protocol (TCP/IP)   ? ×     Allgemein   IP-Einstellungen können automatisch zugewiesen werden, wenn das Netzwerk diese Funktion unterstützt. Werden Sie sich andernfalls an den Netzwerkadministrator, um die geeigneten IP-Einstellungen zu beziehen.        • IP-Adresse automatisch beziehen       • Folgende IP-Adresse verwenden:         IP-Adresse:      172 . 16 . 43 . 100     Subnetzmaske:      S5 . 255 . 0 . 0     Standardgateway:        Standardgateway:      172 . 16 . 0 . 1       Subnetzmaske:         PNS-Serveradresse automatisch beziehen       Polgende DNS-Serveradressen verwenden:         Bevorzugter DNS-Server:      172 . 16 . 0 . 1         Alternativer DNS-Server:      172 . 16 . 0 . 1         DtMS-Server:      172 . 16 . 0 . 1         DtMS-Server:      172 . 16 . 0 . 1         Erweitert       Erweitert
2.	In the SIMATIC Manager you open the STEP 7 project that contains the configurations of S7-300 and S7-400 between which the data is to be exchanged over an ISO transport connection. By means of the menu PLC → Edit Ethernet Node you open the "Edit Ethernet Node" dialog.	SIMATIC Manager - [ISO C:\Program Files\Siemens\Step7\s7proj\Iso]     Datei Bearbeiten Einfügen   Zielsystem Ansicht Extras Fenster Hilfe     C   C     SIMATIC 416-3   Ctrl+L     SIMATIC 315   Laden     Ctrl+L   Konfigurieren     Ctrl+L   Konfigurieren     Ctrl+L   Konfigurieren     Objekte übersetzen und laden   Laden in PG.     RAM nach ROM kopieren   Anwenderprogramm laden auf Memory Card     Auf Memory Card speichern   Ause Memory Card bolen     M7-Zielsystem verwalten   Erreinbare Teilnehmer anzeigen     Baugruppen-Identifikation ändern   Forcewerte anzeigen     Variable beobachten/steuern   Diagnose/Einstellung     PROFIBUS   PROFIBUS     Etrienbare Teilnehmer bearbeten   PG/PC zuordnen     PG/PC zuordnen   PG/PC zuordnen     PG/PC zuordnen   PG/PC zuordnen     PG/PC zuordnen   Beriebszystem aktualisieren     Beriebszystem aktualisieren   Servicedaten speichern

No.	Configuration step	Note
3.	In the "Edit Ethernet Node" dialog you click the "Browse" button and select the MAC address of CP343-1.	Ethernet-Teilnehmer   Online erreichbare Teilnehmer     MAC-Adresse:   00-0E-8C-D9-F0-1D     IP-Konfiguration einstellen   Durchsuchen     IP-Adresse:   IP-Adresse     IP-Adresse:   IP-Adresse     IP-Adresse:   IP-Adresse     IP-Adresse:   IP-Adresse     IP-Adresse von einem DHCP-Server beziehen     identifizient über   IP-Adresse     IP-Adresse   IP-Adresse     IP-Konfiguration zuweisen   IP-Konfiguration zuweisen     Berätename vergeben   IP-Konfiguration zuweisen     Rücksetzen auf Werkseinstellungen   Zyrücksetzen
4.	Enter the IP address and subnet mask of CP343-1. Click the "Assign IP Configuration" button to assign the IP address entered to CP343-1. Then click the "Close" button to close the "Edit Ethernet Node" dialog.	Schließen   Hille     Schließen   Hille     Ethernet-Teilnehmer bearbeiten   Image: Comparison of the senichbare Teilnehmer     MAC_ddresse:   00-0E-8C-03-F0-1D   Durchsuchen     IP-Konfiguration einstellen   Image: Comparison of the senichbare Teilnehmer   Image: Comparison of the senichbare Teilnehmer     IP-Konfiguration einstellen   Image: Comparison of the senichbare Teilnehmer   Image: Comparison of the senichbare Teilnehmer     IP-Konfiguration einstellen   Image: Comparison of the senichbare Teilnehmer   Image: Comparison of the senichbare Teilnehmer     IP-Konfiguration einstellen   Image: Comparison of the senichbare Teilnehmer   Image: Comparison of the senichbare Teilnehmer     IP-Adresse   Image: Comparison of the senichbare Teilnehmer   Image: Comparison of the senichbare Teilnehmer     IP-Adresse   Image: Comparison of the senichbare Teilnehmer   Image: Comparison of the senichbare Teilnehmer     IP-Adresse   Image: Comparison of the senichbare Teilnehmer   Image: Comparison of the senichbare Teilnehmer     IP-Konfiguration guweisen   Image: Comparison of the senichbare Teilnehmer   Image: Comparison of the senichbare Teilnehmer     Gerätename vergeben   Image: Comparison of the senichbare Teilnehmer   Image: Comparison of the senichbare Teilnehmer     Schließen   Image: Com
5.	Hardware Configuration of the S7- 300 station and download the configuration into the S7-300 CPU.	See Section 2.1.2.

No.	Configuration step	Note
6.	Connect the SIMATIC Field PG on which the configuration created with STEP 7 is stored to the PROFINET interface of CP443-1 Advanced. In Windows network settings → LAN (Local Area Network) of the SIMATIC Field PG you enter an IP address that is in the same subnetwork as that of CP443-1. In this example the IP address 192.168.99.100 and subnetwork mask 255.255.255.0 are used for the SIMATIC Field PG.	Eigenschaften von Internet Protocol (TCP/IP)   ? ×     Allgemein   IP-Einstellungen können automatisch zugewiesen werden, wenn das Netzwerk diese Funktion unterstützt. Wenden Sie sich andernfalls an den Netzwerk diese Funktion unterstützt. Wenden Sie sich andernfalls an den Netzwerk diese Funktion unterstützt. Wenden Sie sich andernfalls an den Netzwerk diese Funktion unterstützt. Wenden Sie sich andernfalls an den Netzwerk diese Funktion unterstützt. Wenden Sie sich andernfalls an den Netzwerk diese Funktion unterstützt. Wenden Sie sich andernfalls an den Netzwerk diese Funktion unterstützt. Wenden Sie sich andernfalls an den Netzwerk dieses verwenden:     IP-Adresse   192.168.99.100     Sybnetzmaske:   255.255.255.0     Standardgateway:   .     C   DNS-Serveradresse automatisch beziehen     IP-Sigende DNS-Server:   .     Alternativer DNS-Server:   .     Alternativer DNS-Server:   .     DK   Abbrechen
7.	Repeat configuration steps 2 to 4 to assign the IP address 192.168.99.100 and subnet mask 255.255.255.0 to CP443-1 Advanced.	
8.	Enter the assigned IP address in the Hardware Configuration of the S7- 400 station and download the configuration into the S7-400 CPU.	See section 2.1.3.

# 2.1.2 Entering the IP address of CP343-1 in the Hardware Configuration and downloading the configuration into the CPU

After you have assigned the IP address 172.16.43.2 and subnet mask 255.255.0.0 to CP343-1 you enter the assigned IP address in the Hardware Configuration.

No.	Configuration step	Note
1.	In the SIMATIC Manager you mark the SIMATIC S7 300 station and double-click "Hardware" in order to open the Hardware Configuration of the S7-300 station.	SIMATIC Manager - [ISO C:\Program Files\Siemens\Step7\s7 Datei Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe D 20 10 10 10 10 10 10 10 10 10 10 10 10 10
2.	In the Hardware Configuration of S7- 300 you double-click the PROFINET interface of CP343-1. The Properties dialog of the PROFINET interface opens.	HW Konfig - SIMATIC 300     Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe     Image: Similar
3.	In the Properties dialog of the PROFINET interface you click the "Properties" button to open the "Properties - Ethernet interface PN- IO" dialog.	Eigenschaften - cp3431 (R0/54.1)   X     Allgemein   Adressen   IP-Konfiguration   PROFINET   Synchronisation   Medenredundanz     Kurzbezeichnung:   PN-I0

No.	Configuration step	Note
4.	Activate the "Set MAC address / Use ISO protocol" function and enter the MAC address 00-0E-8C-D9-F0-1D of CP343-1. Enter the IP address 172.16.43.2 and subnet mask 255.255.0.0, which you have already assigned to CP343-1. Assign an existing subnet to CP343-1 or click the "New" button to create a new subnet. Apply the settings with "OK".	Eigenschaften - Ethernet Schnittstelle CP 343-1 (R0/S4)     Allgemein   Parameter     MAC-Adresse einstellen / ISQ-Protokoll verwenden     MAC-Adresse:   000E-8C-D9F0-1D     IP-Protokoll wird genutzt   Netzübergang     IP-Adresse:   172.16.43.2     Subnetzmaske:   255.255.0.0     Image: Subnetz indication   Router yerwenden     Adjesse:   172.16.43.2     Subnetz:   Neu     Ethernet[1]   Eigenschaften     Löschen   Löschen
5.	Save and compile the hardware configuration of the S7-300 and then load the configuration into the S7-300 CPU.	Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe     Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe     Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe     Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe     Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe     Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe     Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe     Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe     Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe     Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe     Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe     Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe     Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe     Image: Station Bearbeiten Extras Fenster Hilfen Extras Fenster Hilfen Extras Fenster Hilfen Extras Fenster Hilfe

#### 2.1.3 Entering the IP address of CP443-1 Advanced in the Hardware Configuration and downloading the configuration into the CPU

After you have assigned the IP address 192.168.99.121 and subnet mask 255.255.255.0 to CP343-1 you enter the assigned IP address in the Hardware Configuration.

No.	Configuration step	Note
1.	In the SIMATIC Manager you mark the SIMATIC S7 400 station and double-click "Hardware" in order to open the Hardware Configuration of the S7-400 station.	SIMATIC Manager - [ISO C: \Program Files\Siemens\Step7\s7]     Datei   Bearbeiten   Einfügen   Zielsystem   Ansicht   Extras   Fenster   Hife     Image: Sima and the stress of the
2.	In the Hardware Configuration of S7- 400 you double-click the PROFINET interface of CP443-1 Advanced. The Properties dialog of the PROFINET interface opens.	IMATIC 416-3     Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe     Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe     Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe     Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe     Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe     Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe     Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe     Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe     Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe     Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe     Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe     Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe     Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe     Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe     Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe     Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfen Extras Fenster Hilfen Zielsystem Ansicht Extras Fenster Ansichten Ansichten Zielsystem Ansichten Zielsystem Ansichte
3.	In the Properties dialog of the PROFINET interface you click the "Properties" button to open the "Properties - Ethernet interface PN- IO" dialog.	Eigenschaften - CP443-IGX20 (R0/54.3)   X     Allgemein   Adressen   IP-Konfiguration   PRIDFINET   Synchronisation   Medienredundenz     Kurzbezeichnung:   PNI0

No.	Configuration step	Note
4.	Enter the IP address 192.168.99.121 and the subnet mask 255.255.255.0. Assign a subnet to the PROFINET interface of CP443-1 Advanced. In this example the subnet assigned to the PROFINET interface of CP443- 1 Advanced is different to that assigned to the PROFINET interface of CP343-1. Apply the settings with "OK".	Eigenschaften - Ethernet Schnittstelle PN-I0 (R0/54.3)   X     Allgemein   Parameter     MAC-Adresse einstellen / ISQ-Protokoll verwenden     MAC-Adresse:   IP-Adresse:     IP-Adresse:   I92.168.99.121     Subnetzmaske:   255.255.255.0     C   Keinen Bouter verwenden     Adgesse:   I92.168.99.12     Subnetz:
5.	In the Hardware Configuration of S7- 400 you double-click the GBIT interface of CP443-1 Advanced. The Properties dialog of the GBIT interface opens.	DK Abbrechen Hile   Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe   Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe   Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe   Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe   Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe   Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe   Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe   Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe   Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe   Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe   Image: Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe   Image: Station Bearbeiten Extras Fenster Hilfe
6.	In the Properties dialog of the GBIT interface you click the "Properties" button to open the "Properties - Ethernet interface GBIT" dialog.	Figenschaften - GBIT - (R0/S4.1)   Allgemein   Kuzbezeichnung:   Gerätename:   GBIT   Schnittstelle   Typ:   Ethernet   Gerätenumer:   0   Adresse:   172.16.43.39   Vernetz:   ja   Eigenschaften

No.	Configuration step	Note
7.	Activate the "Set MAC address / Use ISO protocol" function and enter the MAC address 00-0E-8C-DB-D2-98 of CP443-1 Advanced. Enter the IP address 172.16.49.99 and the subnet mask 255.255.0.0. Assign the same subnet to the GBIT interface of CP443-1 Advanced as to the PROFINET interface of CP343-1. Apply the settings with "OK".	Eigenschaften - Ethernet Schnittstelle GBIT (R0/S4.1)     Allgemein   Parameter     MAC:Adresse einstellen / ISQ:Protokoll verwenden     MAC:Adresse:   00 0E-8C-D8-D2-38     IP-Adresse:   172.16.43.99     Subnetzmaske:   255.255.0.0     Mackadresse:   172.16.43.99     Subnetzmaske:   255.255.0.0     Mackadresse:   172.16.43.99     Subnetzmaske:   Netzibergang     Mackadresse:   172.16.43.99     Subnetzmaske:   Netzibergang     Mackadresse:   172.16.43.99     Subnetz:   Netzibergeng     Mex   Eigenschaften     Libhernet[1]   Eigenschaften     Löschen   Hilfe
8.	Save and compile the hardware configuration of the S7-400 and then load the configuration into the S7-400 CPU.	INATIC 416-3     Station Bearbeiten Einfügen Zielsystem Ansicht Extras Fenster Hilfe     Image: Simaric 416-3 (Konfiguration) IoT   Image: Simaric 416-3 (Konfiguration) IoT     Image: OUR2   Image: Simaric 416-3 (Konfiguration) IoT   Image: Simaric 416-3 (Konfiguration) IoT     Image: OUR2   Image: Our Algebra and Simaric Al

### 2.2 Configuring an ISO Transport Connection

Once you have completed configuration of CP343-1 and CP443-1 Advanced and have downloaded the hardware configuration into the S7-300 CPU and the S7-400 CPU, then you configure the ISO transport connection for data exchange between S7-300 and S7-400 by way of Industrial Ethernet CPs. The ISO transport connection is configured bilaterally in the S7-300 and in the S7-400.

#### 2.2.1 Configuring a specified ISO transport connection

If the S7-300 and S7-400 between which there is data exchange are configured in the same STEP 7 project, then you configure a specified ISO transport connection.

Below we describe how to configure a specified ISO transport connection for data exchange between an S7-300 and S7-400 by way of Industrial Ethernet CPs using the connection parameters below.

Connection parameters	S7-300	S7-400
Connection partners	S7-400 CPU	S7-300 CPU
Connection type	ISO transport connection	ISO transport connection
MAC address	00-0E-8C-D9-F0-1D	00-0E-8C-DB-D2-98
IP address	172.16.43.2	172.16.49.99
Connection setup	Active	Passive
ID (connection number)	1	1
LADDR (module start address)	W#16#0100	W#16#3FFA
Local TSAP (ASCI)	ISO-1	ISO-1
Local TSAP (HEX)	49.53.4F.2D.31	49.53.4F.2D.31
Partner TSAP (ASCI)	ISO-1	ISO-1
Partner TSAP (HEX)	54.43.50.2D.31	54.43.50.2D.31

No.	Configuration step	Note
1.	In the SIMATIC Manager you open the STEP 7 project that contains the configurations of S7-300 and/or S7- 400 between which the data is to be exchanged over an ISO transport connection. By means of the menu Options → Configure Network you open NetPro where you configure the ISO transport connection.	SIMATIC Manager - [ISO C: @rogram Files\Siemens\Step7is7proj\Iso]     Datei Bearbeiten Einfügen Zielsystem Ansicht   Extras Fenster Hilfe     Image: Simatic Signature   Image: Simatic Signature     Image: Signatur
2.	Mark the CPU of the SIMATIC 300 station and create a new connection by means of the menu Insert → New Connection	WetPro-[Iof (Netz) - D:\Projects\Sr2]     Netz   Bearbeten     Enflugen   Zelsystem     Ansicht   Extras     Finduent   Enflugen     Vetz   Bearbeten     Enflugen   Zelsystem     Profile   Image: Simple state     Profile   Profile     Profile   Image: Simple state     Profile   Simatric 416-3     Profile   Simatric 416-3     Image: Simatric 410-10   Files     Image: Simatric

No.	Configuration step	Note
3.	In the "Insert New Connection" dialog you select the S7-400 CPU as connection partner. Select "ISO transport connection" as the connection type. Then click the "Apply" button to open the Properties dialog of the ISO transport connection.	Neue Verbindung einfügen     Verbindungspartner     Im aktuellen Projekt     ISO     SIMATIC 416-3     CPU 416-3 PN/DP     (unspezifiziert)     Alle Broadcast-T eilnehmer     Alle Multicast-T eilnehmer     Alle Multicast-T eilnehmer     In unbekanntem Projekt     Projekt:   ISO     Station:   SIMATIC 416-3     Baugruppe:   CPU 416-3 PN/DP     Verbindung   Verbindung     Lyp:   ISO-Transportverbindung     OK   Übergehmen     Abbrechen   Hilfe
4.	In the Properties dialog of the ISO transport connection → "General" tab you determine the connection number and module start address of CP343-1 via the block parameters "ID" and "LADDR". You specify the values at the input parameters "ID" and "LADDR" when you call the functions FC5 "AG_SEND" and FC6 "AG_RECV". These functions are called in the user program of the CPU and are for sending and receiving data. Activate the function "Active connection establishment" because the S7-300 actively establishes the ISO transport connection. Double-click the "Route" button.	Eigenschaften - ISO-Transportverbindung     Optionen   Übersicht   Statusinformationen     Allgemein   Adressen   Dynamik     Lokaler Endpunkt   Bausteinparameter     ID (Hex):   0001 A050 •     Name:   ISO     Uber ©P:   CP 3431 (R0/S4)     Wegewahl   Wegewahl     IV Aktiver Verbindungsaufbau   Abbrechen
5.	In the "Route" dialog you see that the ISO transport connection is established between the MAC addresses 00-0E-8C-D9-F0-1D and 00-0E-8C-DB-D2-98, i.e. the data is exchanged between S7-300 and S7- 400 via CP343-1 and the GBIT interface of CP443-1. Close the dialog with "OK" and switch to the "Addresses" tab in the Properties dialog of the ISO transport connection.	Wegewahl   Edeal   Partner     Endpunkt:   SIMATIC 315 / CPU 315 2 DP   SIMATIC 416 3 / CPU 416 3 PN/DP     Über CP:   CP 343-1 (R0/S4)   CP 443-1 Advanced, GBIT (R0/S4)     Schnittstellentyp:   Ethernet/ISO   Ethernet/ISO     Adresse:   00-0E-8C-D9-F0-1D   00-0E-8C-D8-D2-98     Subnetz   Ethernet(1)   Ethernet(1)

No.	Configuration step	Note
6.	In the Properties dialog of the ISO transport connection → "Addresses" tab you enter the local TSAP and the partner TSAP. This defines the local connection end point in the S7-300 and the connection end point in the communication partner. In the Properties dialog of the ISO transport connection you switch to the "Options" tab.	Eigenschaften - ISO-Transportverbindung   X     Optionen   Obersicht   Statusinformationen     Allgemein   Adressen   Dynamik     Lokal   Partner     MAC (HEX):   00-0E-8C-D3-F0-1D   00-0E-8C-D8-D2-98     ISAP (ASCII):   ISO-1   ISO-1      TSAP (HEX):   49.53.4F-2D.31   49.53.4F-2D.31     TSAP-Länge:   5   5
7.	In the Properties dialog of the ISO transport connection → "Options" tab you select the "Send/Recv" mode locally in the S7-300 and in the communication partner. Apply the settings with "OK".	Eigenschaften - ISO-Transportverbindung   Allgemein Adressen   Optionen Ubersicht   Statusinformationen   Lokal Partner   Betriebsart: Send/Recv   Send/Recv Image: Send/Recv
8.	Mark the CPU of the SIMATIC 300 station. The configured ISO transport connection is now displayed in the connection table.	Image: Description - C:SProgram Filer(L.::Step7te7projUso)     Image: D:SIMATIC 315     Image:
9.	Mark the CPU of the SIMATIC 400 station. The configured ISO transport connection is now displayed in the connection table.	Image: Simple in the second

No.	Configuration step	Note
10.	Once you have completed the connection configuration, you save and compile the configuration. Mark the SIMATIC 300 station and download the configuration into the S7-300 CPU. Then mark the SIMATIC 400 station and download the configuration into the S7-400 CPU.	Image: Simple constraints   Simple constraints   Simple constraints   Simple constraints     Image: Simple constraints   Simple constraints   Simple constraints   Simple constraints     Image: Simple constraints   Simple constraints   Simple constraints   Simple constraints     Image: Simple constraints   Simple constraints   Simple constraints   Simple constraints     Image: Simple constraints   Simple constraints   Simple constraints   Simple constraints     Image: Simple constraints   Simple constraints   Simple constraints   Simple constraints     Image: Simple constraints   Simple constraints   Simple constraints   Simple constraints     Image: Simple constraints   Simple constraints   Simple constraints   Simple constraints     Image: Simple constraints   Simple constraints   Simple constraints   Simple constraints     Image: Simple constraints   Simple constraints   Simple constraints   Simple constraints     Image: Simple constraints   Simple constraints   Simple constraints   Simple constraints     Image: Simple constraints   Simple constraints   Simple constraints   Simple constraints     Image: Simple constraints   Simple constraints
11.	In the user program of the S7-300 you call the functions FC5 "AG_SEND" and FC6 "AG_RECV".	You will find the functions FC5 "AG_SEND" and FC6 "AG_RECV" in the library "SIMATIC_NET_CP $\rightarrow$ CP 300 $\rightarrow$ Blocks". At the link below is a sample program with the call of the functions FC5 "AG_SEND" and FC6 "AG_RECV" for the S7-300. http://support.automation.siemens.com/WW/view/de/17 853532
12.	In the user program of the S7-400 you call the functions FC50 "AG_LSEND" and FC60 "AG_LRECV".	You will find the functions FC50 "AG_LSEND" and FC60 "AG_LRECV" in the library "SIMATIC_NET_CP $\rightarrow$ CP 400 $\rightarrow$ Blocks". At the link below is a sample program with the call of the functions FC50 "AG_LSEND" and FC60 "AG_LRECV" for the S7-400. http://support.automation.siemens.com/WW/view/de/24 693800

#### 2.2.2 Configuring an unspecified ISO transport connection

If the S7-300 and S7-400 between which there is data exchange are configured in different STEP 7 projects, then you configure an unspecified ISO transport connection.

Below we describe how to configure an **unspecified** ISO transport connection for data exchange between an S7-300 and S7-400 by way of Industrial Ethernet CPs using the connection parameters below.

Table 2-7	
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Connection parameters	S7-300	S7-400
Connection partners	S7-400 CPU	S7-300 CPU
Connection type	ISO transport connection	ISO transport connection
MAC address	00-0E-8C-D9-F0-1D	00-0E-8C-DB-D2-98
IP address	172.16.43.2	172.16.49.99
Connection setup	Active	Passive
ID (connection number)	2	2
LADDR (module start address)	W#16#0100	W#16#3FFA
Local TSAP (ASCI)	ISO-2	ISO-3
Local TSAP (HEX)	49.53.4F.2D.32	49.53.4F.2D.33

Connection parameters	S7-300	S7-400
Partner TSAP (ASCI)	ISO-3	ISO-2
Partner TSAP (HEX)	49.53.4F.2D.33	49.53.4F.2D.32

#### Configuring an unspecified ISO transport connection for the S7-300

Follow the instructions below to configure an unspecified ISO transport connection for the S7-300.

No.	Configuration step	Note
1.	In the SIMATIC Manager you open the STEP 7 project that contains the configuration of S7-300 which is to send and receive the data over an ISO transport connection. By means of the menu Options → Configure Network you open NetPro where you configure the ISO transport connection.	SIMATIC Manager - [ISO C: Urogram Files\Siemens\Step7\s7proj\4so]     Datei Bearbeten Einfugen Zielsystem Ansicht   Extras Fenster Hilfe     Image: Simatic Alborithm State and Step 7\s7proj\4so]   Extras Fenster Hilfe     Image: Simatic Alborithm State and Step 7\s7proj\4so]   Extras Fenster Hilfe     Image: Simatic Alborithm State and Step 7\s7proj\4so]   Extras Fenster Hilfe     Image: Simatic Alborithm State and Step 7\s7proj\4so]   Extras Fenster Hilfe     Image: Simatic Alborithm State and Step 7\s7proj\4so]   Extras Fenster Hilfe     Image: Simatic Alborithm State and Step 7\s7proj\4so]   Extras Fenster Hilfe     Image: Simatic Alborithm State and Step 7\s7proj\4so]   Extras Fenster Hilfe     Image: Simatic Alborithm State and Step 7\s7proj\4so]   Extras Fenster Hilfe     Image: Simatic Alborithm State and Step 7\s7proj\4so]   Extras Fenster Hilfe     Image: Simatic Alborithm State and State a
2.	Mark the CPU of the SIMATIC 300 station and create a new connection by means of the menu Insert → New Connection	Image: Simple service of the servic

No.	Configuration step	Note
3.	In the "Insert New Connection" dialog you select the item "unspecified" as connection partner. Select "ISO transport connection" as the connection type. Then click the "Apply" button to open the Properties dialog of the ISO transport connection.	Neue Verbindungspartner     Verbindungspartner     Im aktuellen Projekt     ISO     SIMATIC 416-3     CPU 416-3 PN/DP     Unspezifiziett)     Alle Broadcast-1 eilnehmer     Alle Multicast-T eilnehmer     Alle Multicast-T eilnehmer     Alle Multicast-T eilnehmer     Station:     In unbekanntem Projekt     Beugruppe:     Verbindung     Lyp:     ISO-Transportverbindung     Vor dem Einfügen: Eigenschaften aufblenden     OK   Übergehmen     Abbrechen   Hilfe
4.	In the Properties dialog of the ISO transport connection → "General" tab you determine the block parameters "ID" and "LADDR". The block parameter ID provides the connection number. The block parameter LADDR provides the module start address of CP343-1. You specify the connection number and the module start address at the input parameters "ID" and "LADDR" respectively when you call the functions FC5 "AG_SEND" and FC6 "AG_RECV". These functions are called in the user program of the CPU and are for sending and receiving data. Activate the function "Active connection establishment" because the S7-300 actively establishes the ISO transport connection. Double-click the "Route" button.	Eigenschaften - ISO-Transportverbindung   Image: Comparison of the second sec

No.	Configuration step	Note
5.	In the "Route" dialog you see that the ISO transport connection to the communication partner is established by way of the MAC address 00-0E- 8C-D9-F0-1D, i.e. the data is exchanged with the communication partner by way of the CP343-1. Close the dialog with "OK" and switch to the "Addresses" tab in the Properties dialog of the ISO transport connection.	Wegewahl Edkal Partner   Endpunkt: SIMATIC 315 / CPU 3152 DP [unspezifizient]   Über CP: CP 343-1 (R0/S4) Image: CP 343-1 (R0/S4)   Schnittstellentyp: Ethernet/ISO Ethernet/ISO   Adresse: 00-0E-8C-DB-D2-98   Subnetz: Ethernet(1)
6.	In the Properties dialog of the ISO transport connection → "Addresses" tab you enter the MAC address of the communication partner, i.e. in this example you enter the MAC address 00-0E-8C-DB-D2-98 of CP443-1 Advanced. Then you enter the local TSAP and the partner TSAP. This defines the local connection end point in the S7- 300 and the connection end point in the communication partner. In the Properties dialog of the ISO transport connection you switch to the "Options" tab. <b>Note:</b> In the SIMATIC 300 station you enter the local TSAP of the SIMATIC S7- 400 as the partner TSAP.	Eigenschaften - ISO-Transportverbindung   Statusinformationen     Optionen   Obersicht   Statusinformationen     Allgemein   Adressen   Dynamik     Lokal   Partner     MAC (HEX):   00:0E-8C-D9-F0-1D   [00:0E-8C-D8-D2-98]     ISAP (ASCII):   ISO-2   ISO-3     TSAP (EX):   49:53:4F.2D.32   49:53:4F.2D.33     TSAP-Lange:   5   5     OK   Abbrechen   Hilfe
7.	In the Properties dialog of the ISO transport connection → "Options" tab you select the "Send/Recv" mode. Apply the settings with "OK".	Eigenschaften - ISO-Transportverbindung   Image: Comparison of the second sec

No.	Configuration step	Note
8.	Mark the CPU of the SIMATIC 300 station. The configured ISO transport connection is now displayed in the connection table.	WeiPro-[50 (Netz) - C:\Program Files\Ustp/fs/projUso]     Weize Reschem Enform. Zeloydem Anskit Extra Ferster Hiller     Ethomot(2)     Industrial Ethernet     Ethomot(2)     Industrial Ethernet     MP(1)     PROFIBUS(1)     PROFIBUS(1)     PROFIBUS(1)     PROFIBUS(1)     PROFIBUS(2)     Image: SIMATIC 315     Image: Simatic State
9.	Once you have completed the connection configuration, you save and compile the configuration. Mark the SIMATIC 300 station and download the configuration into the S7-300 CPU.	Image: Simple state sta
10.	In the user program of the S7-300 you call the functions FC5 "AG_SEND" and FC6 "AG_RECV".	You will find the functions FC5 "AG_SEND" and FC6 "AG_RECV" in the library "SIMATIC_NET_CP $\rightarrow$ CP 300 $\rightarrow$ Blocks". At the link below is a sample program with the call of the functions FC5 "AG_SEND" and FC6 "AG_RECV" for the S7-300. <u>http://support.automation.siemens.com/WW/view/de/17</u> 853532

#### Configuring an unspecified ISO transport connection for the S7-400

Follow the instructions below to configure an unspecified ISO transport connection for the S7-400.

No.	Configuration step	Note
1.	In the SIMATIC Manager you open the STEP 7 project that contains the configuration of S7-400 which is to send and receive the data over an ISO transport connection. By means of the menu Options → Configure Network you open NetPro where you configure the ISO transport connection.	SIMATIC Manager - [ISO C: VProgram Files/Siemens/Step 7/s7 proj/lso]     Datei   Bearbeken   Einfügen   Zielsystem   Ansicht   Extras   Fenster   Hife     Image: Similar Sim
2.	Mark the CPU of the SIMATIC 400 station and create a new connection by means of the menu Insert → New Connection	Image: Simple state sta

No.	Configuration step	Note
3.	In the "Insert New Connection" dialog you select the item "unspecified" as connection partner. Select "ISO transport connection" as the connection type. Then click the "Apply" button to open the Properties dialog of the ISO transport connection.	Neue Verbindung einfügen     Verbindungspartner     Im aktuellen Projekt     Iso     SIMATIC 315     CPU 315-2 DP     (unspezifiziert)     Alle Broadcast-T eilnehmer     Alle Multicast-T eilnehmer     Alle Multicast-T eilnehmer     Alle Multicast-T eilnehmer     Brojekt:     Station:     [unspezifiziert]     Baugruppe:     Verbindung     Lyp:     ISO-Transportverbindung     Vor dem Einfügen: Eigenschaften aufblenden     OK   Übergehmen     Abbrechen   Hilfe
4.	In the Properties dialog of the ISO transport connection → "General" tab you determine the block parameters "ID" and "LADDR". The block parameter ID provides the connection number. The block parameter LADDR provides the module start address of CP443-1 Advanced. You specify the connection number and the module start address at the input parameters "ID" and "LADDR" respectively when you call the functions FC50 "AG_LSEND" and FC60 "AG_LRECV". These functions are called in the user program of the CPU and are for sending and receiving data. Deactivate the function "Active connection establishment" because the S7-400 is passively involved in establishing the ISO transport connection. Double-click the "Route" button.	Eigenschaften - ISO-Transportverbindung   Image: Comparison of the compariso

No.	Configuration step	Note
5.	In the "Route" dialog you see that the ISO transport connection to the communication partner is established by way of the MAC address 00-0E- 8C-DB-D2-98, i.e. the data is exchanged with the communication partner by way GBIT interface of CP443-1 Advanced. Close the dialog with "OK" and switch to the "Addresses" tab in the Properties dialog of the ISO transport connection.	Wegewahl   Endpunkt:   SIMATIC 416-3 / CPU 416-3 PN/DP   [unspezifiziert]     Über CP:   CP 443-1 Advanced, GBIT (R0/S4)   Ethernet/ISO     Schnittstellentyp:   Ethernet/ISO   Ethernet/ISO     Adresse:   00-0E-8C-D8-D2-98   00-0E-8C-D9-F0-1D     Subnetz:   Ethernet(1)   Ethernet(1)
6.	In the Properties dialog of the ISO transport connection → "Addresses" tab you enter the MAC address of the communication partner, i.e. in this example you enter the MAC address 00-0E-8C-D9-F0-1D of CP343-1. Then you enter the local TSAP and the partner TSAP. This defines the local connection end point in the S7- 400 and the connection end point in the communication partner. In the Properties dialog of the ISO transport connection you switch to the "Options" tab. <b>Note:</b> In the SIMATIC 400 station you enter the local TSAP of the SIMATIC S7- 300 as the partner TSAP.	Eigenschaften - ISO-Transportverbindung   Image: Constraint of the status of the sta
7.	In the Properties dialog of the ISO transport connection → "Options" tab you select the "Send/Recv" mode. Apply the settings with "OK".	Eigenschaften - ISO-Transportverbindung   Image: Comparison of the second sec

No.	Configuration step	Note
8.	Mark the CPU of the SIMATIC 400 station. The configured ISO transport connection is now displayed in the connection table.	NetPro - [50 (Netz) C: 9/rogram Files/LStep/to/proj/sol     NetPro - [50 (Netz) C: 9/rogram Files/LStep/to/proj/sol     NetPro - [50 (Netz) C: 9/rogram Files/LStep/to/proj/sol     Image: Second Secon
9.	Once you have completed the connection configuration, you save and compile the configuration. Mark the SIMATIC 400 station and download the configuration into the S7-400 CPU.	Image: Simple of the second
10.	In the user program of the S7-400 you call the functions FC50 "AG_LSEND" and FC60 "AG_LRECV".	You will find the functions FC50 "AG_LSEND" and FC60 "AG_LRECV" in the library "SIMATIC_NET_CP $\rightarrow$ CP 400 $\rightarrow$ Blocks". At the link below is a sample program with the call of the functions FC50 "AG_LSEND" and FC60 "AG_LRECV" for the S7-400. http://support.automation.siemens.com/WW/view/de/24 693800