Part No. 213347-A
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# Release Notes for Symposium TAPI Service Provider for Meridian 1, release 2.3.1

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This equipment complies with Part 68 of FCC Rules. All direct connections to telephone network lines must be made using standard plugs and jacks compliant with FCC Part 68. Please note the following:

1. You are required to request service from the telephone company before you connect the unit to a network. When you request service, you must provide the telephone company with the following data:
   - When you request T1 Service, you must provide the telephone company with
     - The Facility Interface Code
       Provide the telephone company with all the codes below:
       - 04DU9-BN (1.544 MB, D4 framing format)
       - 04DU9-DN (1.544 MB, D4 framing format with B8ZF coding)
       - 04DU9-1KN (1.544 MB, ESF framing format)
       - 04DU9-1SN (1.544 MB, ESF framing format with B8ZF coding)
       - 04DU9-1ZN (1.544 MB, ANSI ESF and ZBTSI without line power)

       The telephone company will select the code it has available.
     - The Service Order Code(s) (SOC): 6.0F
     - The required Universal Service Order Code (USOC) jack: RJ48C
   - When you request 56K/64K Service, you must provide the telephone company with
     - The Facility Interface Code: 04DU5-56/64
     - The Service Order Code(s) (SOC): 6.0F
     - The required Universal Service Order Code (USOC) jack: RJ48S
   - When you request V.34 Service, you must provide the telephone company with
     - The required Universal Service Order Code (USOC) jack: RJ11C
     - The make, model number, Ringer Equivalence Number (REN), and FCC Registration number of the unit

       The REN helps you determine the number of devices you can connect to your telephone line and still have all of those devices ring when your number is called. In most, but not all, areas, the sum of the RENs of all devices should not exceed 5.0. To be certain of the number of devices you can connect to your line, you should call your local telephone company to determine the maximum REN for your calling area. This equipment must not be used on party lines or coin lines.
   - When you request ISDN “U” Interface Service, you must provide the telephone company with
     - The Facility Interface Code: 02IS5
     - The Service Order Code(s) (SOC): 6.0F
     - The required Universal Service Order Code (USOC) jack: RJ49C
   - When you request ISDN “S/T” Interface Service, you must provide the telephone company with
     - The Service Order Code(s) (SOC): 6.0N
     - The make, model number, and FCC Registration number of the NT1

       **Note:** ISDN S/T cannot be directly connected to the network.
   - When you request Primary Rate ISDN Service, you must provide the telephone company with
     - The Facility Interface Code: 04DU9-1SN (1.544 MB, ESF framing format with B8ZF coding)
     - The Service Order Code(s) (SOC): 6.0F

— The required Universal Service Order Code (USOC) jack: RJ48C

2. Your telephone company may make changes to its facilities, equipment, operations, or procedures that could affect the proper functioning of your equipment. The telephone company will notify you in advance of such changes to give you an opportunity to maintain uninterrupted telephone service.
3. If the unit causes harm to the telephone network, the telephone company may temporarily discontinue your service. If possible, they will notify you in advance, but if advance notice is not practical, you will be notified as soon as possible and will be informed of your right to file a complaint with the FCC.
4. If you experience trouble with the unit, please contact the Nortel Networks Technical Solutions Center in your area for service or repairs. Repairs should be performed only by service personnel authorized by Nortel Networks.

| | |
|---|---|
| North America | (800) 4NORTEL or (800) 466-7835 |
| EMEA | (33) (4) 92-966-968 |
| Asia Pacific | (61) (2) 9927-8800 |
| China | (800) 810-5000 |

5. You are required to notify the telephone company when you disconnect the unit from the network.

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# Preface

This Network Managers Guide provides installation, configuration, upgrading, and troubleshooting guidelines for configuring a telephony application programming interface (TAPI) server on a Windows NT* or Microsoft* Windows 2000 platform using Symposium TAPI Service Provider for Meridian 1, release 2.3.1.

## Before you begin

The *Release Notes for Symposium TAPI Service Provider for Meridian 1, release 2.3.1*, is designed to be read by system integrators, network managers, and sales engineers who have expert knowledge of the following products:

- Meridian 1 switch
- Microsoft TAPI software
- Windows NT server or Microsoft Windows 2000 server

If you are using Symposium TAPI Service Provider for Meridian 1 in a call center environment, expert knowledge of Symposium Call Center products is also a requirement.

# Text conventions

This guide uses the following text conventions:

| | |
|---|---|
| angle brackets (< >) | Indicate that you choose the text to enter based on the description inside the brackets. Do not type the brackets when entering the command.<br>Example: If the command syntax is `ping <ip_address>`, you enter `ping 192.32.10.12` |
| **`bold Courier text`** | Indicates command names and options and text that you need to enter.<br>Example: Use the **`dinfo`** command.<br>Example: Enter **`show ip`** {**`alerts`**\|**`routes`**}. |
| braces ({}) | Indicate required elements in syntax descriptions where there is more than one option. You must choose only one of the options. Do not type the braces when entering the command.<br>Example: If the command syntax is `show ip {alerts\|routes}`, you must enter either `show ip alerts` or `show ip routes`, but not both. |
| brackets ([ ]) | Indicate optional elements in syntax descriptions. Do not type the brackets when entering the command.<br>Example: If the command syntax is `show ip interfaces [-alerts]`, you can enter either `show ip interfaces` or `show ip interfaces -alerts`. |
| *italic text* | Indicates new terms, book titles, and variables in command syntax descriptions. Where a variable is two or more words, the words are connected by an underscore.<br>Example: If the command syntax is `show at <valid_route>`, *`valid_route`* is one variable and you substitute one value for it. |
| `plain Courier text` | Indicates command syntax and system output, for example, prompts and system messages.<br>Example: `Set Trap Monitor Filters` |

| | |
|---|---|
| separator ( > ) | Shows menu paths when describing nested menus.<br>Example: Protocols > IP identifies the IP sub-menu on the Protocols menu.<br>Shows overlay when describing Meridian 1 switch interface.<br>Example: > 20 identifies overlay 20 to the Meridian 1 switch. |
| vertical line ( \| ) | Separates choices for command keywords and arguments. Enter only one of the choices. Do not type the vertical line when entering the command.<br>Example: If the command syntax is `show ip {alerts\|routes}`, you enter either `show ip alerts` or `show ip routes`, but not both. |

# Related publications

For more information about the Symposium TAPI Service Provider, refer to the following documents:

- *Engineering Guidelines for Symposium TAPI Service Provider for Meridian 1, release 2.3.1*, part number 213345-A
- *Network Managers Guide for Symposium TAPI Service Provider for Meridian 1, release 2.3.1*, part number 213346-A

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# Overview

Symposium TAPI Service Provider for Meridian 1, release 2.3.1, uses a distributed client/server environment to integrate a telephone on a user's desktop with client and server-based applications. The telephone is physically connected to a Meridian 1 PBX switch but is not physically connected to a client PC. You do not need any special telephones, connectors, circuit packs, or additional wiring for the client PC.

Symposium TAPI SP for Meridian 1 is a full function service provider for the Microsoft Telephony Application Programming Interface (TAPI), releases 2.x and 3.0. Microsoft TAPI provides a set of C-language programming routines that support telephony control capabilities for central office switches.

Symposium TAPI SP software is platform vendor independent (PVI) and can be installed on any platform that supports one of the following operating systems:

- Windows NT server, release 4.0, with a minimum of service pack 6a
- Microsoft Windows 2000 server software, with a minimum of service pack 2

Installed on a server, Symposium TAPI SP supports TAPI-compliant applications running on the following client PCs:

- Windows NT workstation
- Microsoft Windows 2000 Professional
- Microsoft Windows ME
- Microsoft Windows 98
- Microsoft WIndows 95

Release 2.3.1 of Symposium TAPI SP integrates with the Meridian 1 switch in two distinct ways, depending on the type of TAPI environment required. The TAPI environments available are either a call center environment, or a knowledge worker environment. In addition, you can add networked TAPI and IVR features. When you purchase Symposium TAPI Service Provider you choose from one of the following options:

- call center environment
- direct connect for a knowledge worker environment
- call center environment with networked TAPI and IVR
- direct connect with networked TAPI and IVR

**Note:** Symposium TAPI SP, release 2.3.1, also supports the legacy Meridian Link Module. For information about upgrading to Symposium TAPI SP, release 2.3.1, in this environment, refer to your Meridian Link Module documentation, and to the *Network Manager's Guide Reference Guide for Installing, Configuring, and Maintaining the Symposium TAPI Service Provider for Meridian 1 Release 2.3*, which you can download from http://www.nortelnetworks.com.

**Warning:** Symposium TAPI Service Provider for Meridian 1 provides an interface between a Meridian 1 system and Microsoft TAPI services. Ultimate responsibility for the TAPI environment rests with Microsoft. For information refer to http://www.microsoft.com.

## Target audience

This document is written for system integrators and network managers who have expert knowledge of the following products:

- Meridian 1 switch
- Microsoft TAPI software
- Windows NT server or Microsoft Windows 2000 server

If Symposium TAPI Service Provider for Meridian 1 is to be used in a call center environment, expert of knowledge of Symposium Call Center products is also a requirement.

Do not attempt to install or configure Symposium TAPI SP unless you have received accredited training in Symposium TAPI Service Provider.

# Symposium TAPI SP architecture options

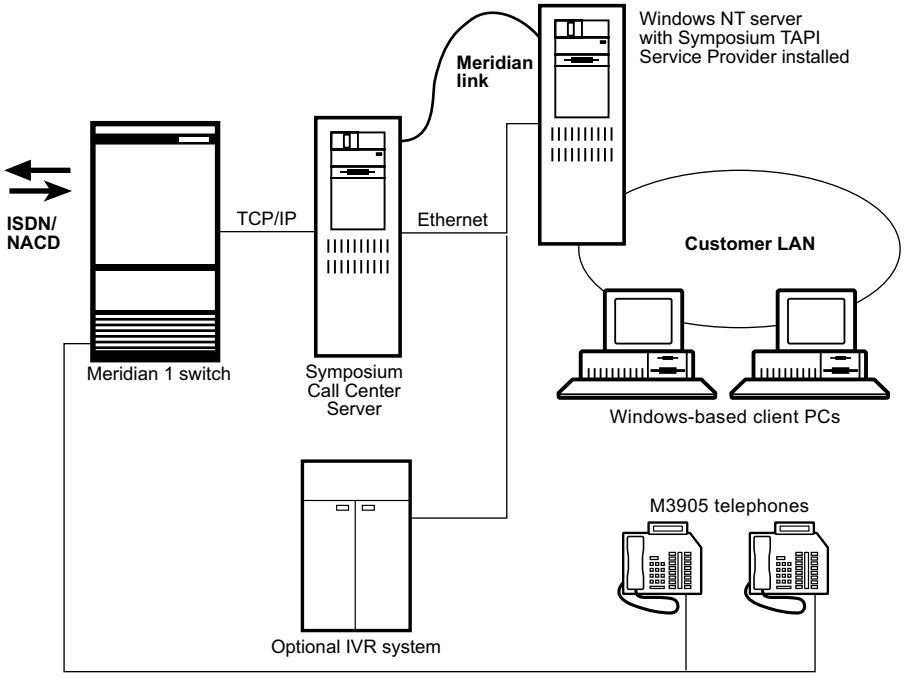
Symposium TAPI SP is a flexible application that enables a Meridian 1 switch to integrate with Microsoft TAPI services. In a call center environment the service provider delivers TAPI capabilities within a skill-based routing (SBR) environment. In a knowledge worker environment where automatic call distribution (ACD) routing is sufficient, Symposium TAPI SP delivers TAPI capabilities through a direct connection with the Meridian 1 switch. The optional networked TAPI/IVR optional feature supports networked skill-based routing (NSBR) and network ACD (NACD) in a call center environment, or just NACD in knowledge worker environment.

## Call center environment

In a call center environment Symposium TAPI Service Provider monitors TAPI ports on the Meridian 1 switch and passes information such as ANI/DNIS and CLID, via the Microsoft TAPI server, to a TAPI-compliant application on a client PC. The TAPI application on the client PC presents this information to the agent, perhaps in the form of a screenpop. If you install an IVR system in a call center, Symposium TAPI SP uses similar processes to present caller entered data (CED), such as customer account number, to an agent.

In a call center environment, Symposium TAPI SP connects to a Meridian 1 switch via the Meridian Link Services application that is installed on the Symposium Call Center Server (SCCS). (Figure 1)

**Figure 1** TAPI architecture in a call center environment




The SCCS provides skill-based routing and call center reporting services and Symposium TAPI SP adds rich computer telephony integration (CTI) features within this environment. To support installations served by the SCCS, Symposium TAPI SP links with the Meridian 1 switch via the Meridian Link Services application that is resident on the SCCS.

All Meridian 1 switches use a private, embedded LAN (E-LAN) to isolate Meridian system traffic from the customer local area network (C-LAN). In a call center, the SCCS is configured as a member of both the E-LAN and the C-LAN via separate 10/100BASE-T Ethernet ports on the server, maintaining this isolation between telephony and data traffic. The TAPI server has one 10/100 BASE-T Ethernet connection to the C-LAN, and communicates with the E-LAN via a direct connection to the SCCS.

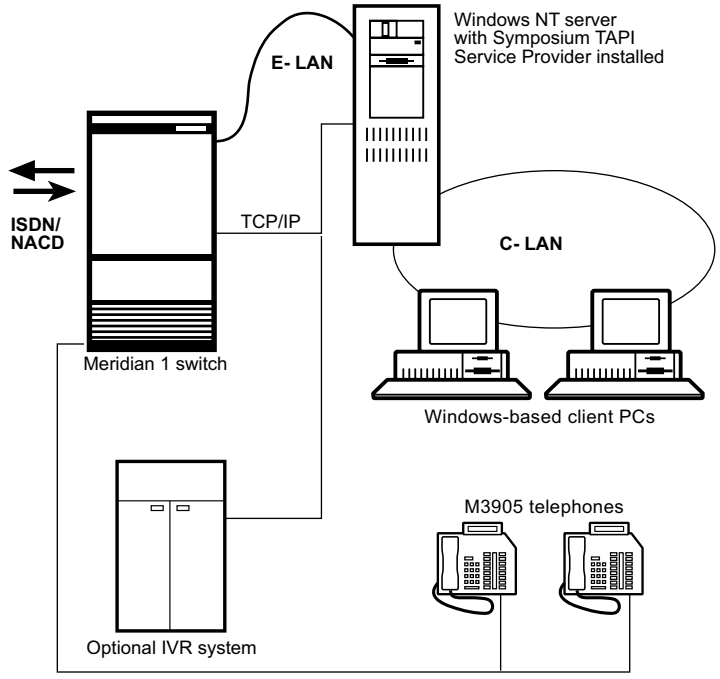
**Note:** Where fewer agents are required, Symposium TAPI Service Provider can deliver TAPI services via the Symposium Express Call Center (SECC).

## Knowledge worker environment

In a knowledge worker environment, where ACD routing is sufficient to requirements, you can configure a direct connection from Symposium TAPI SP to the Meridian 1 switch. Symposium TAPI Service Provider monitors TAPI ports on the Meridian 1 switch and passes information such as ANI/DNIS and CLID,

via the Microsoft TAPI server, to a TAPI-compliant application on the client PC. The TAPI client presents this information to the agent, perhaps in the form of a screenpop. In a knowledge worker environment Symposium TAPI SP connects directly to a Meridian 1 switch via a TCP/IP Ethernet connection. (Figure 2)

**Figure 2** TAPI direct connection architecture

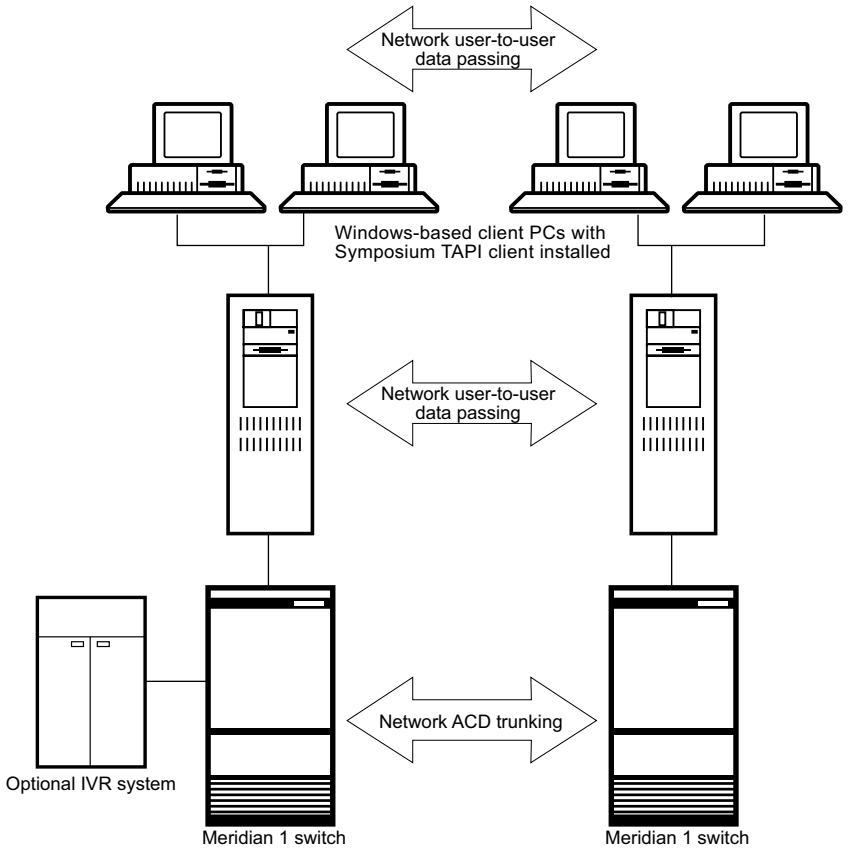



With a direct connection implementation a single Meridian 1 switch can support up to sixteen TAPI servers.

## Networked TAPI and IVR

Symposium TAPI SP provides server-to-server networking over LAN or WAN. The service provider has an open interface through which it can obtain information collected by IVR systems. IVR information is passed to TAPI-compliant applications using the standard TAPI interface. (Figure 3)

**Figure 3** TAPI system architecture supporting IVR functionality




Symposium TAPI Service Provider works transparently with multiple Windows NT or Microsoft Windows 2000 servers. This environment is commonly used for NACD with a default of 512 bytes passed with a call locally or between servers in a NACD configuration.

## Microsoft TAPI server and client

The Microsoft TAPI Server (TAPISRV) is a server service which can be accessed by clients via the MS remote service provider (RSP). On client PCs, access to the TAPISRV is provided by installing the Microsoft Windows RSP telephony module responsible for routing TAPI requests to a specific TAPI service provider.

TAPI-compliant applications on client PCs issue TAPI messages. TAPISRV communicates with the client via the LAN over a TCP/IP Ethernet connection. TAPISRV routes TAPI messages from TAPI-compliant applications on the client to Symposium TAPI SP on the TAPI server. Symposium TAPI SP converts TAPI messages to corresponding switch messages through the Meridian Link Services application installed on an SCCS, or via a direct Ethernet connection to the Meridian 1 switch. Likewise, Symposium TAPI SP converts Meridian 1 switch messages to TAPI messages for routing to client applications via TAPISRV.

## Meridian Link Services

Meridian Link Services enables an application in a host computer to use the call control and call monitoring functions of a Meridian 1 system. Symposium TAPI Service Provider extends these capabilities to TAPI-compliant applications running on client PCs in a local area network (LAN) using TCP/IP on a 10/100BASE-T Ethernet connection.

# New features in release 2.3.1 of Symposium TAPI SP

Release 2.3.1 of Symposium TAPI Service Provider for Meridian 1 provides a service upgrade of the software. Revised engineering guidelines for the product are provided, based on comprehensive testing, to ensure stable and effective delivery of TAPI services. The *Engineering Guidelines for Symposium TAPI Service Provider for Meridian 1, release 2.3.1*, part number 213345-A, includes full product vendor independent (PVI) guidelines for provisioning the TAPI server. New guidelines are also provided for the maximum size of attached call data, which is limited to 4096 bytes per call.

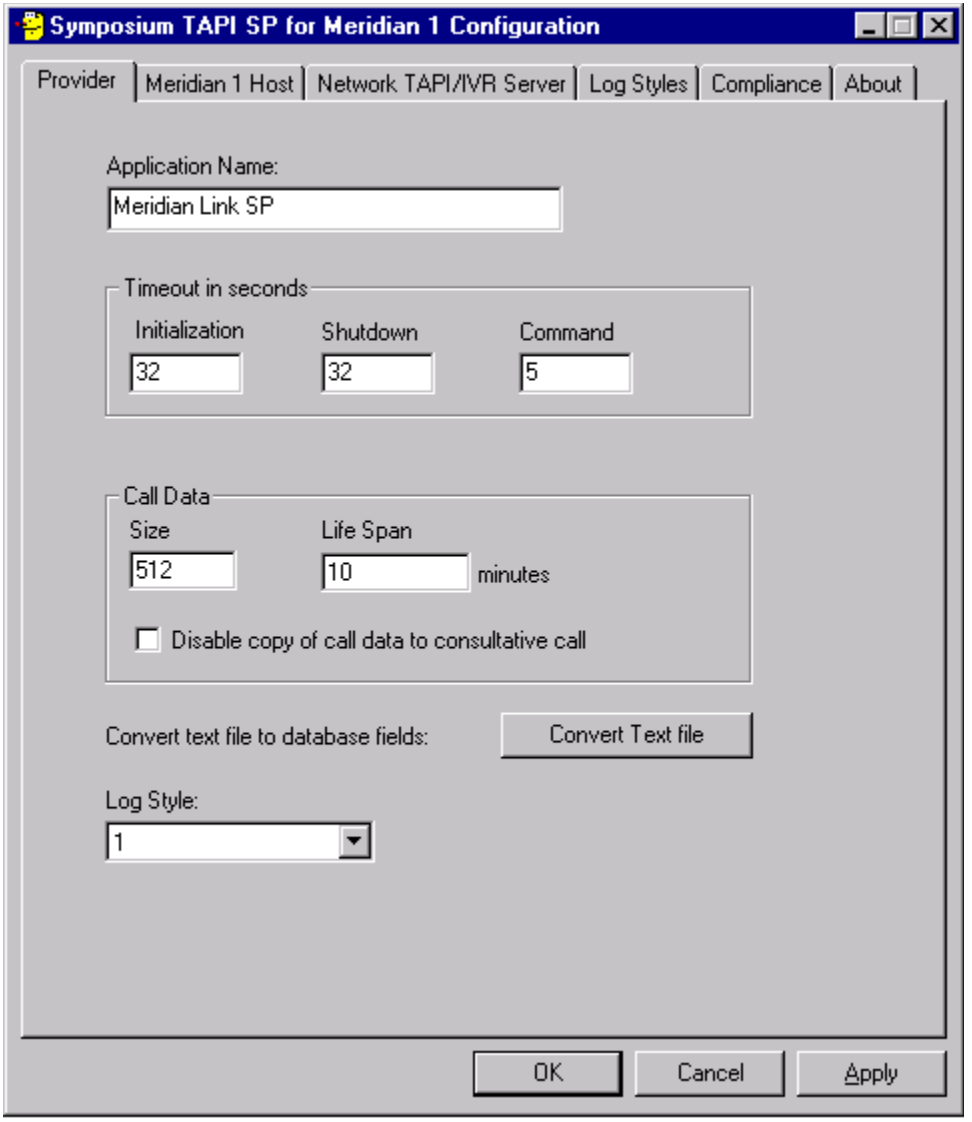
In addition to testing and revising the engineering guidelines, release 2.3.1 supports the following new features:

- support for the SAP phone
- support for the i2004 Internet telephone
- support for the i2050 software telephone
- support for the Succession Communication Server for Enterprise (CSE) 1000

## Changes in user interface

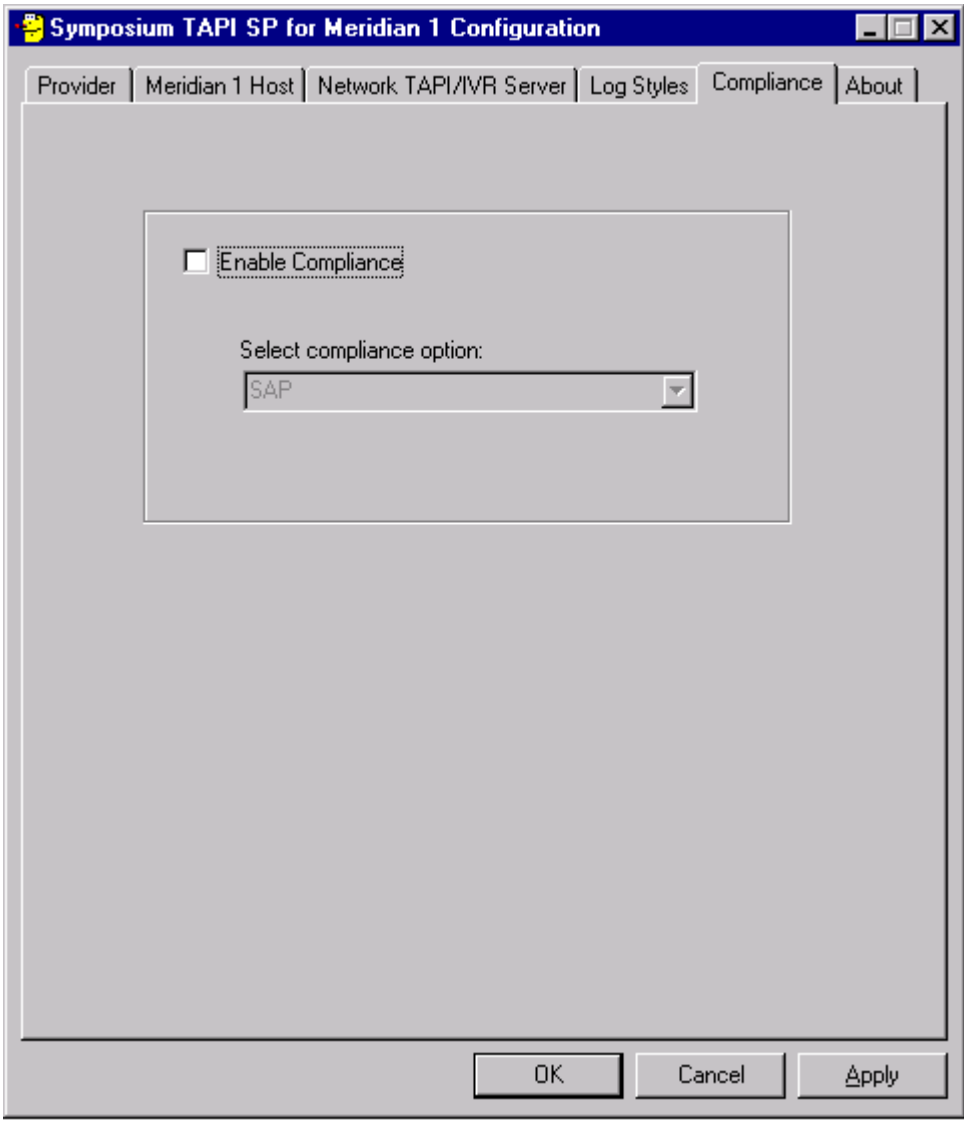
Release 2.3.1 incorporates two changes to the user interface of the configuration application. A new field is available in the provider window that allows you to disable the copying of call data with consultative calls — calls which are transferred or conferenced. (Figure 4)

**Figure 4** New field for disabling the copying of call data



A new compliance tab is available that enables you to configure SAP compliance. (Figure 5)

**Figure 5** New compliance window for enabling SAP compliance



## Earlier releases of Symposium TAPI SP

In addition to the new features available with Symposium TAPI Service Provider for Meridian 1, release 2.3.1, the software incorporates the capabilities provided in earlier releases:

- release 1.0 provided the following features:
  - comprehensive support of Meridian 1 telephone set and agent functions
  - coordinated screen transfer
  - an open interface for integration with IVR systems
  - sophisticated applications-based call routing
  - support for Meridian Link 5 call processing features
- release 2.0 provided Direct Connect connectivity to the Meridian 1 switch without a Meridian Link module
- release 2.1 provided the following additional features
  - the rainbow dongle, used by release 2.0, was replaced
  - support for Agent Walkaway and Not Ready without Disconnect features
  - minor IVR enhancements
- release 2.2 provided the following additional features:
  - further IVR enhancements
  - link loss recovery capability
  - Windows Service Pack 5 compatibility
  - an improved installer
- release 2.3 provided the following additional features:
  - Microsoft Windows 2000 compatibility
  - Windows NT Service Pack 6 and 6a compatibility
  - support for the M3900 series telephone sets
  - a version utility
  - an enhanced configuration interface
  - an enhanced logger utility

Symposium TAPI Service Provider for Meridian 1, release 2.3.1 also includes all of the features provided with product enhancement packages (PEPs) for release 2.3 of the software, up to and including release 2.3.0.21.

# Change requests resolved in release 2.3.1.2

Release 2.3.1.2 of Symposium TAPI SP fixes a number of problems that existed in earlier releases:

- General enhancements:
  - SAP compliance can be enabled with the addition of a compliance tab to the configuration application.
  - The IVR attached data interface is more robust.
  - Symposium TAPI SP no longer fails when the IVR system attaches null data.
  - Call data can be transferred with manual network call transfers.
  - Copying of call data to consultative calls can be disabled within the provider tab of the configuration utility.
  - An improvement in the dynamic database ensures that real-time changes to TAPI devices no longer have inconsistent device IDs.
  - The current release of Symposium TAPI SP has improved semaphore management to prevent excessive CPU utilization.
  - Frequently used linked lists are converted to Maps.
- Q00388071 — The current release of Symposium TAPI SP operates on servers with up to four CPUs. Earlier releases did not load on servers with multiple CPUs.
- Q00387910 — Call data size is now limited to a maximum of 4096 bytes for both IVR data and lineSetCallData.
- Q00370481 — Symposium TAPI SP no longer drops IVR messages on the IVR interface when connected to an IPML server.
- Q00370080 — The Symposium TAPI SP database now includes support for M39XX, i2004, and i2050 telephone sets. The text import utility also supports these telephone sets.
- Q00370205 — The text import utility accepts telephone sets configured with BFTN.
- Q00388623 — Network TAPI with IVR data causes the TAPI server to saturate when CPU usage is at 100 per cent.

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