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# **CTNG™ v1.0**

## **Installation and Administration Guide**

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## CTNG™ Version 1.0 Installation and Customization Guide

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## Introduction

### Overview

#### ***What Is the CTNG?***

The CTNG is a software module that allows a computer to interact with a PABX using an interface based on CSTA. The software module is not a complete application that can be used directly, but is rather a means for writing customized applications. The CTNG consists of routines for managing CSTA objects, and performing services based on the CSTA Phase I standard.

#### ***What Is CSTA?***

CSTA stands for Computer-Supported Telecommunications Applications and is a standard for interconnecting general purpose computers with telephony exchanges. The purpose of CSTA is to enhance the functionality of both the computers and the telephony exchange. This is achieved by allowing them to use the services provided by the other part, without significantly changing or redesigning any of them.

CSTA defines the interact mechanisms between computers and telephony exchanges independently of their physical implementation. This makes it possible for any computer to connect and interact with any exchange, providing that both support CSTA.

#### ***About This Document***

This document is a guide for how to install the CTNG template library service.

#### ***What You Need To Know?***

In order to install CTNG you need to have experience in administering operating system under which CTNG will be installed.

#### ***Other Recommended Reading***

**CTNG10RM** IPTC AB, CTNG v1.0 Reference Manual

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## Installation Guide

### Kit Contents

The installation media shall contain the following files:

<b>CTNG.EXE</b>	- service executable
<b>CTNG10INST.PDF</b>	- this document; CTNG v1.0 Installation Guide
<b>CTGN10RM.PDF</b>	- CTNG v1.0 Reference Manual
<b>CTNG10PG.PDF</b>	- CTNG v1.0 Programmer's (User's) Guide
<b>Samples</b>	- folder containing sample programs

## System Requirements

### Software Requirements

The CTNG library is designed to be deployed under following operating systems:

1. Microsoft Windows NT 4.0 (Service Pack 6a or later), or
2. Microsoft Windows 2000 (Service Pack 2 or later)
3. Microsoft Windows XP

The CTNG library requires PABX with CSTA compliant proxy/gateway software available on the network.

The following CSTA proxy/gateway systems are supported:

1. **AL40**: Ericsson Application Link 4.0 with ASB 50104 R7, R8 (MD110 BC10/11)
2. **AL30**: Ericsson Application Link 3.02 with ASB 50104 R6 (MD110 BC9)

### Hardware Requirements

CTNG service allocates approximately 100 kBy of the memory per monitored device.

### Communications Protocol

CTNG uses TCP/IP stream sockets for connection to CSTA proxy/gateway.

When using TCP/IP stream sockets, there are no message boundaries in the protocol; therefore, it is necessary to give the length of each packet. As suggested by ECMA, a two byte header field is used to contain the length of the TCP/IP packet. For example, if the following two fictitious data packets are to be transmitted:

```
0x10 0x20 0x30 0x40
0xA0 0xB0 0xC0
```

It is necessary to add 2 bytes at the beginning of each packet:

```
0x00 0x04 0x10 0x20 0x30 0x40 (6 bytes to transmit)
0x00 0x03 0xA0 0xB0 0xC0 (5 bytes to transmit)
```

Because there are no message boundaries, the complete byte stream would flow out of the socket thus:

```
0x00 0x04 0x10 0x20 0x03 0x40 0x00 0x03 0xA0 0xB0 0xC0
```

## Installation Procedure

To install CTNG as NT service, following steps should be performed:

1. Copy CTNG.EXE to desired target directory (e.g. %systemroot%\System32)
2. Execute "**CTNG.exe /Install**"

To install CTNG as out-of-process COM server, following steps should be performed:

3. Copy CTNG.EXE to desired target directory (e.g. %systemroot%\System32)
4. Execute "**CTNG.exe /RegServer**"

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## Un-installation Procedure

To uninstall CTNG, following steps should be performed:

1. Remove all run-time references to CTNG objects
2. Execute “**CTNG.exe /Remove**”
3. Optionally remove CTNG.EXE file from the file system

## Reinstalling and Upgrading CTNG

To reinstall, upgrade or change installation type (NT service or out-of-process COM server) of CTNG, following steps should be performed:

1. Remove all run-time references to CTNG objects
2. Execute “**CTNG.exe /Remove**”
3. Copy over CTNG.exe new executable image
4. Execute “**CTNG.exe /Install**” or “**CTNG.exe /RegServer**”, depending on whether NT service or out-of-process COM server mode is desired.

## Limits and Other Important Values

Limitations of the system are imposed by limitations of operating system and CSTA proxy/gateway.

## Release Notes

### CSTA Compliance

CTNG is CSTA Phase I compliant, and it fully supports Ericsson AL40 and AL30. For the CSTA Protocol Implementation Conformance Statement see chapter “**Error! Reference source not found.**” on page **Error! Bookmark not defined.**

Current version of CTNG has also a skeleton interface for the CSTA Phase II/III features. However, CSTA Phase II is scheduled to be supported in CTNG v2.0, and Phase III is scheduled to be supported in CTNG v3.0.

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## Scripting Safety Issues

The CTNG service uses the following strategy advised by Microsoft, to self register as a control safe for scripting and initializing. Controls used in Web pages should be marked as safe for scripting and safe for initializing if they are in fact safe. A safe control does not perform disk IO or access the memory or registers of a machine directly.

Controls can be marked as safe for scripting and safe for initializing via the registry. Modify DllRegisterServer to add entries similar to the following to mark the control as safe for scripting and persistence in the registry. The ActiveX Base Control sample, available from [www.microsoft.com](http://www.microsoft.com), contains helper functions for adding the necessary keys to the registry. An alternative method is to implement IObjectSafety.

GUIDs must be defined (Globally Unique Identifiers) for the control to mark it safe for scripting and for persistence. Controls that can be safely scripted will contain a registry entry similar to the following:

```
HKEY_CLASSES_ROOT\Component Categories\  
{7DD95801-9882-11CF-9FA9-00AA006C42C4}
```

Controls that can be safely initialized from persistent data are marked safe for persistence with a registry entry similar to:

```
HKEY_CLASSES_ROOT\Component Categories\  
{7DD95802-9882-11CF-9FA9-00AA006C42C4}
```

Add entries similar to the following (substituting control's class ID in place of <XXX>) to associate your keys with the following class ID:

```
HKEY_CLASSES_ROOT\CLSID\<XXX>\Implemented Categories\  
{7DD95801-9882-11CF-9FA9-00AA006C42C4}
```

```
HKEY_CLASSES_ROOT\CLSID\<XXX>\Implemented Categories\  
{7DD95802-9882-11CF-9FA9-00AA006C42C4}
```

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## Event Logging

This chapter describes how to use CTNG event logging feature to monitor, trace or debug CTNG network.

### When to Use CTNG Event Logging

Using CTNG event logging you can monitor use of the CTNG server and its communication with the switch and clients. CTNG events inform you of what is happening on the CTNG server. For example, CTNG logs an event to indicate when the CTNG server software is started or when a link is stopped, or when a switching function service is requested, etc. Events can also indicate when there may be problems.

CTNG events are logged to

- ?? Windows NT Event Viewer
- ?? CTNG Log File

## Application Event Log

CTNG startup/shutdown and severe events are logged to the Windows NT Event Viewer.

### Classes of Events

There are three classes of CTNG application event log event messages:

- ?? **Informative Event Messages**
- ?? **Warning Event Messages**
- ?? **Error Event Messages**

## CTNG Log File

More detailed events are logged to CTNG Log file.

### Classes of Events

There are five classes of CTNG log file event messages:

- ?? **Informative (Trace) Messages**
- ?? **Warning Event Messages**
- ?? **Error Event Messages**
- ?? **System Error Return Codes Descriptions**
- ?? **ODBC Event Messages**