Bellcore

Bell Communications Research

Service Negotiation Support (SNS)

Contract Specifications Guide

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Service Negotiation Support (SNS)
Contract Specifications Guide
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Preface

This document is intended for personnel who write the software to invoke the contracts that are submitted to SNS and to interpret the results that are returned by SNS. It is assumed that the reader is familiar with the Flexible Computer Interface Form (FCIF) format and the Provisioning PLATFORM and understands basic Centrex and Integrated Services Digital Network (ISDN) terminology.

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1. Introduction and Documentation Index

The Service Negotiation Support (SNS) building block is a processing layer building block (PLBB) that handles the network-related negotiation functions. In accordance with OSCA^{TM} architecture guidelines, these functions are defined in terms of *contracts* that specify how other systems (e.g., a service negotiation user layer building block, SN ULBB, or account-based negotiation system, ABNS) interact with SNS to request negotiation assistance. This document contains the specifications for the contracts that are available in the SNS Release 2.0. It first explains the purpose of each contract and its associated processing, and then describes the contract interfaces.

This document is organized into six sections and six appendixes.

Section 1 — "Introduction and Documentation Index"

Section 2 — "SNS Contracts" describes the structure of the SNS contract set.

Section 3 — "SNS Contracts: FCIF Messages" provides an overview of the FCIF message structure of the SNS contracts.

Section 4 — "Negotiation Stand-Alone Contracts" presents a detailed explanation of the sections in the negotiation stand-alone contracts.

Section 5 — "Negotiation Dialogue Contracts" provides a detailed discussion of the sections in the negotiation dialogue contracts.

Section 6 — "System Administration Table Maintenance Contracts" presents an examination of the sections in the table maintenance contracts.

Appendix A — "FCIF Overview" reviews the basic rules for structuring statements in the FCIF language.

Appendix B — "SNS FCIF Tag Descriptions" lists and describes all FCIF tags used by SNS.

Appendix C — "Rules for the ADDR Data Aggregate" explains the rules for the different types of input address.

Appendix D — "SNS Return Codes" provides information on the return codes that may appear in the response messages of SNS contracts.

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Appendix E — "SNS Contract Examples" shows examples of request and response messages.

Appendix F — "Guide to Acronyms" lists and defines the major acronyms used in this document.

In addition to this *Service Negotiation Support (SNS) Contract Specifications Guide,* there are several other Bellcore documents that support SNS. These documents are:

1. *Service Negotiation Support (SNS) System Administration Guide,* BR 007-560-405, covers application installation, security, recovery, troubleshooting, and other topics.

2. *Service Negotiation Support (SNS) Database Administration Guide,* BR 007-560-406, describes the SNS databases and explains database installation, recovery, and maintenance.

3. *PREMIS/NMAG Application Guide,* BR 007-560-408, explains the procedures for working with the Maintenance SVA screen and for producing reports.

4. *PREMIS/NMAG Database Administration Guide,* BR 007-560-409, describes the PREMIS system marketing database area and provides the physical data specifications for the area and the records.

2. SNS Contracts

SNS is an OSCA processing layer building block (PLBB). In accordance with the OSCA architecture building block principles, interactions between SNS and other building blocks are defined by contracts. A diagram of the SNS 2.0 contract set is presented in Figure 2-1. This contract set is divided into two main groups: *negotiation* contracts and *system administration* contracts. The Negotiation contracts support the negotiation process. The System Administration contracts support database table maintenance.

SNS Contracts

Negotiation — System Administration

Dialogue		Stand–Alone		Table Maintenance	
Inquiry	**Update**	**Inquiry**	**Update**	**Inquiry**	**Update**
SNSNEG*	SNSNEG*	INQSAG	UPDTNL	INQTNL	MTCTNL
RTRVSR	SVCSPC	INQPMI	UPDRSV	INQNED	MTCNED
	ORDCMP	INQNEI		INQCAT	MTCCAT
	HOLDSR	INQLAI		INQFPK	MTCFPK
		INQCHG		INQCPE	MTCHNT
					MTCCPE
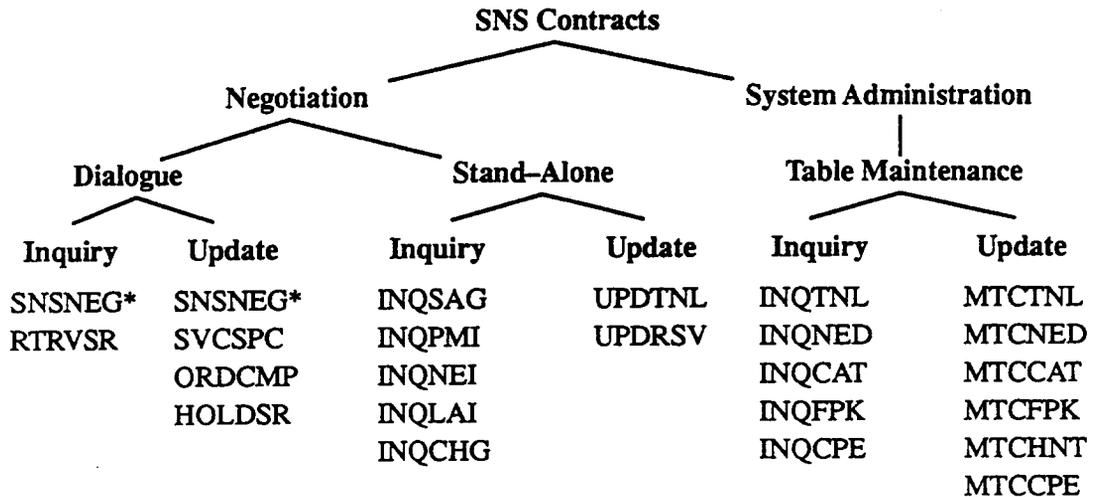
*Can be either Inquiry or Update, depending on input section

Figure 2-1. SNS 2.0 Contract Set

2.1 Negotiation Contracts

Within the negotiation contract subset, a contract is classified as *stand-alone* or *dialogue*. To understand the difference between stand-alone contracts and dialogue contracts it is important to understand the concept of an SNS session. A session represents a set of activities that are performed to process one or more related contract invocations. Each session is uniquely identified by a session identifier that must appear in all incoming messages for the session. The absence of the session identifier triggers a new session to be *established* in SNS. When this happens, a session identifier is assigned. As SNS processes the contract, it retains important session data that tracks the history of events that have occurred in the session. If the session is *suspended*, SNS saves the session data so that it is available when the session is later *resumed*. Session data is eventually purged from SNS when the session is *terminated*.

A key difference between stand-alone and dialogue contracts is the session lifespan and when session termination occurs.

- When a stand-alone contract is invoked, SNS always establishes a new session to handle the request. SNS may suspend and resume the session when interactions with other systems (e.g., PREMIS and LFACS) are involved. However, the session is immediately terminated after the contract is processed and a response returned to the contract invoker. As a result, there is no history of the request in SNS once it is complete. A stand-alone contract, therefore, is always processed independently of other contracts.

- By contrast, SNS creates a new session for a dialogue contract only the first time that it is invoked to start a negotiation dialogue. The same session handles all subsequent dialogue contract invocations related to the negotiation. After SNS processes a dialogue contract, it may suspend the session, thereby allowing the dialogue to continue at some later point in time. Session data is therefore available throughout the dialogue to provide a history of the negotiation. This data is valuable in handling subsequent requests. SNS does not terminate the session until the negotiation is complete. When the session is terminated, the negotiation dialogue ends.

To summarize, the extended duration of the session allows dialogue contracts to be tied to a particular negotiation in SNS for the duration of that negotiation. Stand-alone contracts, on the other hand, are treated as independent and isolated requests because the session ceases to exist after the contract is processed.

2.1.1 Negotiation Contract Usage

Although stand-alone and dialogue contracts provide some overlapping functionality, they are designed to complement each other. Each contract is

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intended to be used at a different stage in the negotiation, under different circumstances. The following sections describe the stand-alone and dialogue contracts and place each in a probable negotiation stage. However, the sequence of contracts is flexible, and stand-alone and dialogue contracts can be combined in whatever order the contract invoker chooses.

2.1.1.1 Stand-Alone Negotiation Contracts

There are seven stand-alone contracts:

- Street Address Validation Inquiry (INQSAG)
- Network Element Inquiry (INQNEI)
- Product Marketing Inquiry (INQPMI)
- Change in Service Inquiry (INQCHG)
- Loop Availability Inquiry (INQLAI)
- Loop Reservation Update (UPDRSV)
- TN List Selection/Return (UPDTNL)

Certain stand-alone contracts are useful in the early fact finding stages of the negotiation when the negotiator narrows down what service/product the customer is interested in ordering. Stand-alone contracts support various activities that the negotiator may need to perform at this stage of the negotiation:

- Identify a customer's location and local serving office (INQSAG)
- Determine network elements (e.g., switches) in a customer's local serving office (INQNEI)
- Determine product availability at a customer's location (INQPMI)
- Determine loop availability at a customer's location (INQLAI)
- Determine whether a customer's working service can be regraded using existing outside plant facilities (INQCHG).

Following the preliminary fact finding, the actual negotiation of the service takes place to gather the data needed to order the requested service/product. At this time, the customer may need new telephone numbers (TNs). The UPDTNL contract is available to select TNs from the local TNLIST database in SNS. UPDTNL can also be used to return unused TNs, so that valuable TN resources are not wasted. However, this responsibility is left to the TN selector.

After the customer has placed an order, the UPDRSV contract may be invoked to perform a loop reservation. Should the customer cancel the order, the loop reservation can be removed using the same contract. UPDRSV is also used to modify a loop reservation, in the event the customer requests a change.

2.1.1.2 Negotiation Dialogue

The goal of the negotiation dialogue in SNS is to provide the negotiation-based data needed by the provisioning processes to produce a service request. Dialogue contracts are used to negotiate the specific details of the customer's service, based on network availability. SNS supports negotiations of locally switched Digital Centrex services provided from the AT&T 5ESS® and Northern Telecom DMS®-100 switches. Dialogue contracts also support automated network resource management. This added capability alleviates the need for BCCs to engineer and build this logic into their account-based negotiation systems or service negotiation user layer building blocks (ULBBs).

2.1.1.2.1 Line Negotiation Support in SNS

During a negotiation dialogue, SNS provides network data and resources to assist in the negotiation of Digital Centrex lines and groups. All interactions with SNS to obtain this data are performed on a *service request* basis. A service request corresponds to one of the following negotiation activities:

- *Add line(s)* to an existing Digital Centrex service

- *Change* an existing customer's Digital Centrex service.

At the time the service request is established in SNS, critical service request data must also be provided so that SNS can determine what network resources are involved. The negotiation activity dictates what kind of additional data is needed. All subsequent network-related activities performed in SNS for this service request rely on this data. A service request modification must be made in SNS whenever a change in service request data occurs, in case different network resources are involved.

A new service request triggers certain preliminary activities that set the stage for the remainder of the negotiation. First, SNS assigns a Service Request Number (SRN) to identify the service request. Subsequent processing depends on the type of negotiation activity being performed. Network element determination is an important step in the creation of a new service request. For a Digital Centrex

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customer, SNS determines the serving network element (e.g., switch) based on the customer's main Centrex TN. The customer's serving network element influences network availability and network resource selection.

During the negotiation of the service request, the negotiator may need access to network data. SNS supports various network data inquiries to assist the negotiator in determining network availability and compatibility. SNS also supports an additional inquiry that provides the in-service view of a series completion hunt group.

As a provider of network data during the negotiation process, SNS not only supplies this data when requested, but also determines whether previously requested data is still usable. Whenever a modification is made to the original service request data, SNS presents a warning if network data provided earlier may no longer be pertinent. Alerting the invoking building block when these situations occur assists in "salvaging" as much of the negotiation as possible without jeopardizing the integrity of the data being used. It also reduces the likelihood that inaccurate information will be used during the negotiation.

SNS selects and manages TN resources on behalf of the negotiator. In a negotiation dialogue, TNs are specifically chosen for the service request and are not meant to be used in any other negotiation. Enhanced management of TN resources, not provided by stand-alone contracts, is also supported. SNS keeps track of selected TNs for this purpose. If the service request data is later modified, SNS can determine whether the TNs already selected are still capable of being used. SNS has the knowledge to make this decision, based on its internal selection algorithms which rely on the session history. This ensures that the appropriate resources will be used on the eventual service specification and included on the ultimate service order.

The negotiator may *cancel* the service request in SNS, provided service orders have not yet been issued. Upon cancellation, SNS returns all TNs selected for the service request. The service request is then removed from SNS. If service orders have already been issued, the service request cannot be canceled. In this situation, SNS waits for the cancellation pass of the order instead. (This is discussed in greater detail in the "Order Completion and Cancellation Activities in SNS" section below.) Eventually, when SNS receives the order cancellation, it will perform the necessary clean-up activities.

2.1.1.2.2 Service Specification Activities in SNS

Once the Centrex line negotiation is complete and the requested service has been confirmed with the customer, a service specification is passed to SNS. In SNS 2.0, only a minimal set of service specification data is needed to identify any service orders that were issued in the negotiation. It is important to establish the

relationship between service order and negotiation dialogue, so that the completed order(s) can be related back to the appropriate session.

2.1.1.2.3 Order Completion and Cancellation Activities in SNS

SNS is notified of post-completion and cancellation orders so that it can maintain the TNLIST database and clean up negotiation dialogues that have completed. On a successful order completion, SNS updates the in-service views of series completion hunt groups stored in the TNLIST database. If all orders associated with the negotiation dialogue have been completed (or were canceled), SNS returns any unused network resources. The session and its related data are also purged. This concludes the negotiation dialogue.

2.1.1.2.4 Session Support in SNS

A negotiation dialogue may involve multiple contacts with the customer over an extended period of time. The negotiator may interrupt the negotiation dialogue and *hold* the service request data in SNS so that it can be *retrieved* at a future point (e.g., to complete the negotiation or correct the negotiation data). This option is available to those building blocks (e.g., service negotiation ULBB) that might not have a permanent data store facility. SNS serves as a data repository by holding the negotiation data. When negotiation of the service request is resumed, this data can be retrieved from SNS to restore the environment. The negotiator can then continue negotiating the service request or correct/cancel any issued orders.

2.1.1.2.5 Dialogue Contracts

Five contracts support the negotiation dialogue:

1. The *Line Negotiation Support* contract (SNSNEG) is a multi-purpose contract that assists in negotiating Digital Centrex lines and groups. This contract provides the following capabilities.

    *   Service Request Administration: Establish, modify or cancel a service request.

    *   Network Data Inquiries: Assist the negotiator in determining network availability and compatibility for a service request, and provide in-service views of series completion hunt groups in the TNLIST database.

    *   Network Resource Selection: Select/return TNs for a service request.

    The *Line Negotiation Support* contract is designed so that the Bellcore Client Companies (BCCs) can pick and choose which request(s) to use in their negotiation flows when it is appropriate to do so.

2. An abridged version of the *Service Specification* contract (SVCSPC) is provided in SNS 2.0 to identify the associated service orders issued during the negotiation dialogue.

3. The *Hold* contract (HOLDSR) supports the capability to put the negotiation dialogue on hold and save the service request data in SNS. This data can be used later to restore the session when the negotiation dialogue is resumed.

4. The *Retrieve* contract (RTRVSR) supports the capability to retrieve the service request data previously held in SNS (via the *Hold* contract) and to take the negotiation dialogue off hold.

5. In addition to these four contracts that are used during the negotiation, SNS also supports an additional *Order Completion* contract (ORDCMP) that follows the negotiation and effectively ends the negotiation dialogue. This contract, which is invoked on an order basis, signifies the completion or cancellation of an order. As orders associated with a negotiation dialogue complete, SNS updates the TNLIST database in-service views. If all orders have completed, SNS also returns all unused network resources selected for this negotiation. The session and its related data are purged, thereby ending the negotiation dialogue.

2.2 System Administration Contracts

Within the system administration contract subset, all contracts are classified as *Table Maintenance*. Table Maintenance contracts can be one of two types, inquiry or update. The difference between inquiry contracts and update contracts is that only update contracts alter the contents of the database tables. An inquiry contract accesses the database tables and returns the data being requested to the contract invoker. An update contract provides the means to alter the contents of database tables through build, remove, and change functions.

2.2.1 Table Maintenance Inquiry Contracts

There are five inquiry contracts:

1. Inquiry of TNLIST data (INQTNL)

2. Inquiry of Feature Group Catalog, Feature Catalog, and Name Description data (INQCAT)

3. Inquiry of Network Element and Switch Parameter data or Switch Feature Exception data (INQNED)

4. Inquiry of CPE data (INQCPE)

5. Inquiry of Feature Package data (INQFPK)

Inquiry contracts are useful to verify information already stored in the database tables and to retrieve stored data for use as models to create new table entries. Inquiry activities that the maintenance personnel may need to perform include, but are not limited to:

- Obtain a list of all telephone numbers within a Centrex Group status (INQTNL)

- Obtain a list of all features and related service information including description names for a specified switch type/generic (INQCAT)

- Obtain a list of attributes associated with a specific CPE (INQCPE)

- Obtain a list of all features under a specific feature package (INQFPK)

- Obtain a list of all feature exceptions at a switch (INQNED).

These inquiries may then be followed by additional maintenance activity to effect changes to the database tables.

2.2.2 Table Maintenance Update Contracts

The table maintenance update contracts support the build, remove, and change functions for the database tables. The update contracts can be used by maintenance personnel to perform the following operations:

- Build, remove, or change data associated with a TNLIST Group (MTCTNL)

- Build, remove, or change Series Completion Hunt Groups and their associated telephone numbers (MTCHNT)

- Change Feature Group Catalog data, Feature Catalog data, and Name Description data (MTCCAT)

- Build, remove, or change data associated with Customer Premises Equipment (MTCCPE)

- Build, remove, or change Feature Packages and their associated data (MTCFPK)

- Build, remove, or change Network Element data (MTCNED)

- Build, remove, or change Switch Feature Exception data (MTCNED).

Data stored in the database tables through table maintenance update contracts is used to aid the service negotiation process and to enable the negotiator to perform telephone number selection.

3. SNS Contracts: FCIF Messages

All SNS contracts are defined using the Flexible Computer Interface Form (FCIF) format. (See Appendix A for general specifications for the FCIF syntax.)

The contract data in an FCIF message is a string of ASCII characters. The FCIF sections and data aggregates logically group the data.

- An FCIF section is the first level of logical data groupings in the FCIF message. The allowable sections that may appear in each message depend upon the contract and the message type (request or response).

- Within the FCIF section, one or more FCIF tag/value pairs and/or data aggregates may appear.

    - A *tag* is the only item that may contain a data *value*.

        Although FCIF does not impose a restriction on the length of a tag name, SNS limits tag names to eight characters. Appendix B provides a description of the tags defined for the SNS 2.0 contracts.

    - A data *aggregate* is used to logically group data items within an FCIF section (or data aggregate in a nested situation).

Special FCIF delimiters (* { } % ; =) are used to delineate the start and end of FCIF sections, tags, values, and aggregates in the FCIF message.

Since a contract is defined in FCIF, it is understood that the messages adhere to the FCIF rules explained in Appendix A, unless otherwise stated. The contract definition specifies how a "valid" message should be constructed for a particular contract and thereby imposes an *additional* set of constraints on the message, over and above the standard FCIF rules.

3.1 SNS Contract Design

SNS contracts use common conventions to promote consistency across contracts. In general, SNS contracts consist of two types of FCIF messages:

- The first is a "Request" message from the contract invoker to SNS. This message *invokes* an SNS contract and contains the data needed to process that contract.

- The second is a related "Response" message from SNS back to the contract invoker or some other pre-determined destination. This message indicates the results of processing the contract.

Each request and response message is further divided into FCIF sections. The FCIF sections defined for a message can be categorized into the following two types:

- *Message header* sections contain environment-related data that is administrative in nature. When such a header appears in an FCIF message, its scope is the *entire* message.

    The same header sections are defined for all SNS contracts: control header, *PLHDR, *UMSG, and *SNSHDR sections. The control header section must appear first followed by the *PLHDR section. The remaining sections can appear in any order.

- *Contract data* sections contain the data related to the specific function(s) that the contract supports.

    - In a request message, a contract data section contains the data required to invoke the specific activity. Depending upon the contract, it may contain one or more requests.

    - In a response message, a contract data section contains the results of processing each request that appeared in the original request message.

    Multiple contract data sections are defined for some contracts.

3.1.1 Contract Input Request Message

SNS request messages contain a combination of message header and contract data FCIF sections that serve as the contract input. Each contract interface specifies which FCIF sections may be included in the request message. The tags and data aggregates that comprise each section are also identified in the interface specification.

Contract data sections contain one or more requests that conform to the same basic structure. Typically, control information is provided in a CTL aggregate, which identifies the function to be performed. The ACL aggregate contains the action line data needed to process the request. At times, two ACL aggregates are needed so that both an *old* view and a *new* view of the data can be supplied. When more than one request is allowed in a section, the data for each request is grouped in a REC aggregate.

3.1.2 Contract Output Response Message

After SNS processes a request, it may send a response message. This message provides important information about whether SNS was successful in performing the requested function(s).

Like the request message, the response message contains a combination of message header and contract data FCIF sections. Typically, SNS returns the original input request data, supplemented with additional return codes that

identify the processing conditions that were encountered. In many cases, SNS also returns additional output data that was either specifically requested or that is useful in handling an error.

SNS uses various means of conveying information to the contract invoker to indicate whether it was successful in performing the requested activity. Depending upon what situations were encountered, SNS may provide information in various locations in the response message.

- Fatal error conditions are identified in the *UMSG section.

- In a negotiation dialogue, service request timing problems are identified in the *SNSHDR section. In this situation, SNS does *not* attempt to continue processing any of the negotiation requests in the message.

- Status conditions related to processing the request are returned in the appropriate contract data section.

3.1.2.1 SNS Return Codes

Return codes are placed in the response message to indicate whether SNS was successful in processing a contract. One or more return codes may be embedded within the *SNSHDR or contract data section to identify one or more processing conditions. They are provided so that the invoking building block can analyze what happened in SNS and perform the necessary actions.

Each return code consists of two elements:

- The *tag name* identifies the type of processing condition encountered. Return code tag names are limited to eight characters in length and always end with the characters "RC." For example, the IERC tag name represents an input error condition.

- The *value* conveys the meaning of the return code. The value consists of three numeric characters and an optional suffix, which is appended to the value (e.g., 102-1). The suffix is useful when there are variations in processing conditions.

The placement of the return code within the FCIF message must also be taken into consideration when analyzing the return code. Its meaning is dependent on the FCIF section in which it appears, since a return code may appear in different FCIF sections.

Return codes are *not* meant to function as user error codes. SNS, as a PLBB, makes no assumptions about how return code information is displayed to the end user (if at all). Such presentation issues are left strictly to the service negotiation ULBB.

3.2 FCIF Message Conventions Used in This Document

The FCIF messages shown in this document contain various data items — tags and data aggregates (logical groupings of data items) — that may appear in each SNS contract section. Tags and aggregates that exist at the same level in the FCIF hierarchy are not expected to be sequenced in any particular order, unless specifically stated. Similarly, FCIF sections are not guaranteed to appear in any particular order, unless specifically stated. In an actual FCIF message, the sequence of sections, tags, and aggregates may *not* match the order in which they are presented in this document.

The following conventions are used in the FCIF messages in this document:

- The left column contains the actual FCIF specification. It identifies the FCIF section, tag, or aggregate name and the accompanying FCIF delimiters. Note that, in the actual FCIF message, all SNS tag names are in *upper* case only.

- A data aggregate name is followed by an open curly bracket ({). A close curly bracket (}) will appear on a line by itself at the end of the aggregate.

- Tag names are followed by an equal sign, three dots, and a semicolon (= ...;). In an actual FCIF message, a value would appear in place of the three dots. When a specific value is required for a tag, the value is shown in the left column. When there is a set of valid values for a tag, the valid code set is identified in angled brackets, e.g., < A,B >, in the right column. (See Appendix B, "SNS FCIF Tag Descriptions," for more information on tags.)

- Data items that belong to an aggregate are shown directly below the data aggregate and are indented. When the data items associated with an aggregate are not shown, a series of dots (...) is used to represent them.

- The right column contains the aggregate name or a text description of the tag.

- A tag is required, unless denoted optional or conditional. This information is provided in square brackets in the right column. The following table shows the optional and conditional notation for tags.

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Table 3-1. FCIF Tag Notation

FCIF Notation	Description
[opt]	Tag is always optional.
[opt when ...]	Tag is an option only under certain circumstances. Otherwise, tag is not applicable.
[conditional - required when ...]	Tag is conditionally required under certain circumstances. Otherwise, tag is not applicable.

- The determination of whether an aggregate is required or optional depends on the data items that make up the aggregate. An aggregate that consists of all optional data items is itself considered optional, unless otherwise stated. On the other hand, an aggregate that consists of at least one required data item is considered required, *unless* specifically denoted optional. (The square bracket FCIF notation described above is also used for data aggregates.)

- When a tag or aggregate may appear multiple times, this is denoted by curly brackets, e.g., {1-N}.

- The FCIF messages shown in this document present each aggregate name and tag on a line by itself, with tags indented under the aggregate to which they belong. This format is provided for readability purposes only. Actual FCIF messages do not have the new-line and indented format.

The following sections describe the FCIF header sections that may be used by all SNS contracts. These sections are: Control, Platform Header, User Message, and SNS Header. Section 4 in this document explains the FCIF message sections that apply specifically to the negotiation stand-alone contracts. Section 5 presents the FCIF sections included in the negotiation dialogue contracts. Section 6 describes the FCIF sections that pertain to the system administration table maintenance contracts. (Sample FCIF messages can be found in Appendix E.)

3.3 FCIF Header Sections

This section explains the structure of the FCIF header sections that are defined in every SNS contract.

3.3.1 FCIF Control Section

All FCIF messages **must** begin with an FCIF Control Section (FCIF Header). This FCIF header is actually an unnamed FCIF section that consists of a single tag/value pair. In a request message, the name of the tag is C1. In a response message, the tag name is C2. Thus, the header is commonly referred to as the *C1 or *C2 header. The value associated with the tag has a fixed field format and a length of 64 characters. Not all fields defined in the header are used.

Position	Data
1-3	Tag
4-5	Delimiter (=)
6-11	Contract Name
12-27	Service Request Number (SRN)/Session ID
28-33	Unused
34-41	Origin
42-49	Destination
50-57	Unused
58	SNS Entity ID
59	Solicited/Unsolicited Indicator
60	Transaction Priority
61	Unused
62	Message Format Indicator
63-64	Terminators (;%)

The following fields in the header are used in each contract message:

- Tag — For messages coming into SNS, this field has a value of "*C1". For messages going back to the contract invoker, this field has a value of "*C2".

- Contract Name — This field identifies the contract being invoked in SNS.

    The contract names for the negotiation stand-alone contracts are:

Table 3-2. Negotiation Stand-Alone Contract Names

Contract Name	Description
INQSAG	Street Address Validation
INQPMI	Producting Marketing Inquiry
INQNEI	Network Element Inquiry
INQLAI	Loop Availability Inquiry
INQCHG	Change in Service Inquiry
UPDTNL	TN List Selection/Return
UPDRSV	Loop Reservation

The contract names for the negotiation dialogue contracts are:

Table 3-3. Negotiation Dialogue Contract Names

Contract Name	Description
SNSNEG	Line Negotiation Support
SVCSPC	Service Specification
HOLDSR	Hold
RTRVSR	Retrieve
ORDCMP	Order Completion

The contract names for the system administration table maintenance
contracts are:

Table 3-4. Table Maintenance Contract Names

Contract Name	Description
INQTNL	TN Data Inquiry
INQNED	Switch-Related Data Inquiry
INQCAT	Catalog Data Inquiry
INQFPK	Feature Package Data Inquiry
INQCPE	CPE Data Inquiry
MTCTNL	TN Data Maintenance
MTCNED	Switch-Related Data Maintenance
MTCCAT	Catalog Data Maintenance
MTCFPK	Feature Package Data Maintenance
MTCHNT	Hunt Group Maintenance
MTCCPE	CPE Data Maintenance

• Service Request Number (SRN)/Session ID — This field contains the service
request number for negotiation dialogue contracts and the session ID for
negotiation stand-alone contracts. This field is not applicable to system
administration table maintenance contracts and should be left blank.

The unique *service request number (SRN)* identifies the service request.
When the service request is initially established in SNS via the SNSNEG
contract, this field should be left blank in the *C1 header. When SNS
responds, it populates the *C2 header with the new SRN. If the service
request was successfully established in SNS, this SRN should be supplied in
the *C1 header of all subsequent SNSNEG, SVCSPC, HOLDSR, and
RTRVSR contract invocations related to this service request. If the service
request was *not* established in SNS, the SRN is returned for debugging
purposes only.

When the ORDCMP contract is invoked, the SRN may be left blank if
unknown. In this case, SNS derives the SRN based on the order identifier.
If the order is not associated with a negotiation dialogue in SNS, a new SRN
is assigned.

The *session ID* is the unique identifier of the negotiation stand-alone session.
The contract invoker should *always* leave this field blank in the *C1 header.
When SNS responds, it populates the *C2 header with the new session ID.
This data is supplied for debugging purposes only.

- Origin — For messages coming into SNS, this field identifies the contract invoker. For messages going back to the contract invoker, this field has a value of "SNS."

- Destination — For messages coming into SNS, this field has a value of "SNS". For outgoing messages, this field identifies the destination to which the response message is to be routed. Response messages for all SNS contracts, except the ORDCMP contract, are returned to the contract originator. Consequently, this field contains the originator identified in the *C1 header of the request message. On the other hand, ORDCMP response messages are not routed back to the contract originator. Instead, these messages are always routed to a pre-determined ORDERERR destination.

  Note that for proper routing, the destination returned in the *C2 header must exist in the Output Handler Destination Table.

- SNS Entity ID — This optional field indicates the SNS entity that should process this transaction.

- Solicited/Unsolicited Indicator — For messages coming into SNS, this field has a value of "U." For messages going back to the contract originator, this field has a value of "S."

- Transaction Priority — This optional field indicates the priority level at which SNS should process this transaction.

- Message Format Indicator — This field always has a value of the numeric character zero (0).

3.4 Platform Header (*PLHDR) Section

The *PLHDR section is defined by the Provisioning PLATFORM and contains the information needed to perform security authorization checking and debugging. This section always immediately follows the control header in the FCIF message. Only those tags and options that are typically used in SNS are documented here. They include:

```
*PLHDR{
     USERID...;          User ID
     LCLID...;           Local ID < APP >
     DEBUG...;           Debugging flag [opt] < :FFF >
```

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TSO...;	TSO data set [opt] < Y, TSO data set name, DD:XXX >
SUBSYS...;	Subsystem [opt] < OH >
DUMP...;	Dump flag [opt] < YES >
DLI...;	DLI flag [opt] < ALL >

}%

The USERID tag, which is required, identifies the end user (e.g., login ID) who initiated the request.

The LCLID tag (correlation code) is required for SNS to link to other non-MVS system applications and must always be set to "APP."

The remaining tags are optional and are used in conjunction with PLATFORM tracing facilities:

* The DEBUG tag turns on debugging and indicates the level of debugging output to be generated. A DEBUG value of ":FFF" is recommended to obtain the maximum amount of trace information.

* The TSO tag identifies the TSO data set to which the debugging output should be sent (when debugging is turned on).

  — When TSO is set to "Y," SNS allocates a file, USERID.DEBUG.

  — When TSO is set to a data set name, SNS allocates the specified data set name.

  — When TSO is set to DD:XXX (in which XXX is the DDNAME), SNS allocates the specified DDNAME.

  If the TSO tag is not specified, the debugging output defaults to the user terminal.

* The SUBSYS tag identifies the subsystem for which additional trace output is desired. Presently, "OH" (Output Handler) is the only subsystem option used by SNS.

* The DUMP tag causes a full system dump to occur when an error condition occurs in SNS.

* The DLI tag activates IMS DB/DC debugging. When DLI is set to "ALL", both IO and DB output are provided.

For additional information on debugging, refer to the "Troubleshooting" section of the *Service Negotiation Support (SNS) System Administration Guide*.

3.5 User Message (*UMSG) Section

The *UMSG section contains informational text that is related to fatal error conditions encountered by SNS or the PLATFORM's Immediate Message Poster (IMP), which controls processing flow for all FCIF messages entering SNS.

The data items for the *UMSG section are:

```
REC{                        Record
   MSGTEXT = ...;           Message text
}
```

The MSGTEXT tag identifies the fatal error. The following messages may be returned:

Contract failed — Security not authorized

Contract failed — no entry in CONTRACT PGM MAP table

Contract failed — invalid mode in CONTRACT PGM MAP table

Contract failed — no entry in EXEC-ALIAS table

Contract failed — could not open memory file

Contract failed — could not run contract program

Contract failed — SNS encountered an internal program error and was unable to continue processing.

Contract failed — SNS encountered syntax errors in parsing the request message.

Contract failed — SNS could not find this session in its Session Database.

Contract failed — SNS could not find the destination for the message.

The *UMSG section is returned to the contract invoker only when SNS encounters an error while processing the original contract request. See the subsection titled "Exceptions to FCIF Message Structure Guidelines" in this section and "SNS Exception Handler" in the *Service Negotiation Support (SNS) System Administration Guide.*

3.5.1 SNS Header (*SNSHDR) Section

The *SNSHDR section contains information relevant to the entire message.

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3.5.1.1 *SNSHDR Section: Request Message

The *SNSHDR may contain information needed by the invoking building block to continue processing the corresponding response message. ECHO and VDATA are optional tags supplied in the input message for this purpose. In most contracts, the *SNSHDR section is optional. However, the SNSNEG contract requires that the *SNSHDR be provided with the input date and time that the contract was invoked.

Data items for the *SNSHDR section in a *request* message are:

```
*SNSHDR{                 SNS Header
    ECHO =...;           Echo data [opt]
    VDATA =...;          Variable data [opt]
    IDATE{               Input date [conditional - required in SNSNEG
                         contract]
        MONTH =...;      Input month
        DAY =...;        Input day
        YEAR =...;       Input year
    }                    End IDATE aggregate
    ITIME{               Input time [conditional - required in SNSNEG
                         contract]
        HOUR =...;       Input hour
        MIN =...;        Input minutes
        SEC =...;        Input seconds
    }                    End ITIME aggregate
}%                       End *SNSHDR section
```

3.5.1.2 *SNSHDR Section: Response Message

On output, SNS always returns the *SNSHDR as it was originally received on input. These data items are identified in regular typeface. In addition, for negotiation dialogue contracts SNS may return the additional response data shown below in bold typeface.

```
*SNSHDR{                 SNS Header
    ECHO =...;           Echo data [opt]
    VDATA =...;          Variable data [opt]
    IDATE{               Input date [conditional - required in SNSNEG
                         contract]
        MONTH =...;      Input month
```

```
        DAY = ...;              Input day
        YEAR = ...;             Input year
}                               End IDATE aggregate
ITIME{                          Input time [conditional - required in SNSNEG
                                contract]
        HOUR = ...;             Input hour
        MIN = ...;              Input minutes
        SEC = ...;              Input seconds
}                               End ITIME aggregate

SNRC = ...;                     Service negotiation return code {0-1}
DATE{                           Date
        MONTH = ...;            Month
        DAY = ...;              Day
        YEAR = ...;             Year
}                               End DATE aggregate
TIME{                           Time
        HOUR = ...;             Hour
        MIN = ...;              Minutes
        SEC = ...;              Seconds
}                               End TIME aggregate
}%                              End *SNSHDR section
```

SNS also returns a date/time stamp that indicates when the output message was formatted. This information is not returned when a fatal error is encountered.

For negotiation dialogue contracts, if SNS encounters a service request timing problem that prevents it from processing the entire contract, it also returns an SNS return code (SNRC) that identifies the problem. The possible values associated with the SNRC tag are:

SNRC   Error condition

001   A service request was not established in SNS.
002   A date/time stamp was not provided on input, but is required.
003   The input date/time stamp is invalid.

004   The service request was modified *after* this contract was invoked. Note that this condition is highly unlikely. However, when it occurs, SNS will not process the negotiation request(s) since different network resources may be involved.

005   A service request has already been established in SNS. The modify option should be used instead.

3.6 Exceptions to FCIF Message Structure Guidelines

If SNS encounters a fatal error condition while processing a request, it reports the problem to the error destination specified in the Output Handler Destination table.† This information is available to a system administrator, who can investigate the problem and take the appropriate course of action.

In certain situations, SNS notifies the contract invoker of the error condition. If SNS encounters an error while processing the original request from the contract invoker, it returns a response message back to the contract invoker with an indication of the problem. In this case, the response message contains the original request section (e.g., *C1, *RSNS, *ROSP, *RTNL) received on input, rather than the usual response section (e.g., *C2, *SNSR, *OSPR, *TNLR) that is returned under normal circumstances.

However, there are circumstances in which SNS is not able to provide this notification. If SNS encounters an error while processing a response from PREMIS or LFACS, it does not return a response to the contract invoker or perform its usual "clean-up" procedures (e.g., terminate the session). Furthermore, SNS is not able to notify the contract invoker of any updates that were made to LFACS.‡

---

† See the *Service Negotiation Support (SNS) System Administration Guide* for more information on the Output Handler Destination table.

‡ This is in conformance with the OSCA Contract Principle regarding "No Contract Accessibility Assumptions."

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4. Negotiation Stand-Alone Contracts

The following stand-alone contracts assist in the negotiation of locally switched Digital Centrex and ISDN services:

- Street Address Validation Inquiry (INQSAG) — Determines whether a street address is valid in the SAG (Street Address Guide).

- Network Element Inquiry (INQNEI) — Identifies the network elements in the wire center associated with a street address.

- Product Marketing Inquiry (INQPMI) — Obtains product marketing information for a street address.

- Change in Service Inquiry (INQCHG) — Determines whether an existing circuit can support a regrade in service.

- Loop Availability Inquiry (INQLAI) — Determines whether a specified number of spare loops is available to support a particular product.

- Loop Reservation (UPDRSV) — Places or edits loop reservations.

- TN List Selection/Return (UPDTNL) — Selects or returns telephone numbers (TNs) associated with a regular Centrex group.

These contracts can be divided into three groups, based on their functions and FCIF message structure: Service Negotiation Support, Outside Plant, and TN List Selection and Return.

4.1 Service Negotiation Support Contracts

The Service Negotiation Support contracts assist the negotiator in inquiring about network availability. These contracts are INQSAG, INQNEI, INQPMI, and INQCHG. The structure of these contracts is outlined below.

A Service Negotiation Support contract contains a Service Negotiation Support Request FCIF message and a Service Negotiation Support Response FCIF message. The Service Negotiation Support Request FCIF message consists of the following sections†:

---

† The message sections are explained in detail later in this section.

*C1 section	Control Header section
*PLHDR section	Provisioning PLATFORM Header section
*SNSHDR section (optional)	SNS Header section
*RSNS section	Service Negotiation Support Request section

The Service Negotiation Support Response FCIF message consists of the
following sections:

*C2 section	Control Header section
*PLHDR section	Provisioning PLATFORM Header section
*UMSG section (optional)	User Message section
*SNSHDR section (optional)	SNS Header section
*SNSR section	Service Negotiation Support Response section

4.2 Outside Plant Contracts

The Outside Plant contracts determine spare loop availability and perform loop
reservation updates. These contracts are INQLAI and UPDRSV. The structure
of these contracts is outlined below.

An Outside Plant Contract contains an Outside Plant Request FCIF message
and an Outside Plant Response FCIF message. The Outside Plant Request
FCIF message consists of the following sections:

*C1 section	Control Header section
*PLHDR section	Provisioning PLATFORM Header section
*SNSHDR section (optional)	SNS Header section
*ROSP section	Outside Plant Request section

The Outside Plant Response FCIF message consists of the following sections:

*C2 section	Control Header section
*PLHDR section	Provisioning PLATFORM Header section
*UMSG section (optional)	User Message section
*SNSHDR section (optional)	SNS Header section
*OSPR section	Outside Plant Response section

4.3 TN List Selection/Return Contract

The TN List Selection and Return contract, UPDTNL, supports the selection of Centrex TNs from an available pool and the return of selected TNs back to the pool. The structure of this contract is outlined below.

A TN List Selection/Return Contract contains a TN List Selection/Return Request FCIF message and a TN List Selection/Return Response FCIF message. The TN List Selection/Return Request FCIF message consists of the following sections:

*C1 section	Control Header section
*PLHDR section	Provisioning PLATFORM Header section
*SNSHDR section (optional)	SNS Header section
*RTNL section	TN List Selection/Return Request section

The TN List Selection/Return Response FCIF message consists of the following sections:

*C2 section	Control Header section
*PLHDR section	Provisioning PLATFORM Header section
*UMSG section (optional)	User Message section
*SNSHDR section (optional)	SNS Header section
*TNLR section	TN List Selection/Return Response section

Section 3 in this document describes the structure of the *C1, *C2, *PLHDR, *SNSHDR, and *UMSG sections. The remainder of this section explains the FCIF sections that are specific to the negotiation stand-alone contracts. (A description of each FCIF tag can be found in Appendix B.)

4.4 Request for Service Negotiation Support (*RSNS) Section

The *RSNS section is required in the request message of each of the following
Service Negotiation Support contracts:

- Street Address Validation Inquiry (INQSAG)

- Network Element Inquiry (INQNEI)

- Product Marketing Inquiry (INQPMI)

- Change in Service Inquiry (INQCHG)

4.4.1 General *RSNS Section Format

A listing of all possible data items that could appear in the *RSNS section
appears below. The data items listed below may be required, conditional or
optional. Specific details about each data item are provided in the subsequent
sections that describe each of the above contracts.

The data items for the *RSNS section are:

```
*RSNS{
  SVCLOC{                    Service location
    ACL{                     Action line
      SAGA = ...;            SAG area
      ZIP = ...;             Zip code
      ADDR{                  Address
        BADR{                Basic address
          BAD = ...;         Basic address designation
          AHN = ...;         Assigned house number
          STR = ...;         Street Name
          CNA = ...;         Community name
          STN = ...;         State name
        }
        SUPL{                Supplemental address
          SID = ...;         Structure ID
          STYP = ...;        Structure type
          EID = ...;         Elevation ID
          ETYP = ...;        Elevation type
          UID = ...;         Unit ID
          UTYP = ...;        Unit type
```

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```
            }
         }
      }
   }

   CTL{                          Control data
      CTC = ...;                 Control code
      INQOPT = ...;              Inquiry option
      SVCTYP = ...;              Service type
   }


   ACL{                          Action line {0-1}
      MAINTN{                    Main TN
         NPA = ...;              Main NPA
         NXX = ...;              Main NXX
         LINE = ...;             Main line
      }
      PROD = ...;                Product name
      MADN = ...;                MADN flag
      FO = ...;                  Foreign office indicator
      WC = ...;                  Wire center
      TN{                        Telephone number
         NPA = ...;              NPA
         NXX = ...;              NXX
         LINE = ...;             Line
      }
      CLS = ...;                 CLCI^{TM} serial number
      DPA = ...;                 Different premises address identifier
      CKL = ...;                 Circuit location identifier
      SIG = ...;                 Signaling OEC
   }

}%
```

COMMON LANGUAGE is a registered trademark and CLCI, CLEI, CLFI, and CLLI are trademarks of Bellcore.

The SVCLOC aggregate contains the living unit address that identifies the service location at which negotiation activity is to be performed. Appendix C provides additional information on how address data is passed in SNS contracts.

The CTL aggregate contains control information that indicates the type of processing that SNS should perform. It corresponds to the contract name in the FCIF control header. In particular, the control code (CTC) indicates the processing mode. The *inquiry* mode (CTC = I) is the only processing mode currently supported.

In the inquiry mode, the inquiry option (INQOPT) in the CTL aggregate identifies the type of inquiry to be performed:

- Street Address Validation Inquiry (INQOPT = SAG)

- Network Element Inquiry (INQOPT = NEI)

- Product Marketing Inquiry (INQOPT = PMI)

- Negotiation Inquiry (INQOPT = NEG)

The CTL aggregate may also contain the SVCTYP tag, which further identifies the type of service negotiation *inquiry* to be performed when INQOPT = NEG.

The ACL aggregate contains the specific information required to perform the requested inquiry. The information that SNS requires in each ACL aggregate varies, depending upon the INQOPT, SVCTYP, and CTC data that appear in the CTL aggregate.

The following subsections explain how the *RSNS section should be constructed, based on the type of Service Negotiation Support contract.

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4.4.2 *RSNS Section Format: Street Address Validation Inquiry (INQSAG)

SNS uses the information provided in the *RSNS section of the INQSAG request message to determine whether the input street address falls within an address range in the PREMIS SAG.

> As a reminder:
>
> The *RSNS section is one section in the INQSAG request message. The structure of the sections in the INQSAG request is as follows:
>
> > *C1 section
> > *PLHDR section
> > *SNSHDR section
> > *RSNS section.

The following data items may appear in the *RSNS section:

```
*RSNS{
    SVCLOC{                 Service location
        ACL{                Action line
            SAGA = ...;     SAG area† [conditional — required if ZIP not
                            specified]
            ZIP = ...;      Zip code† [conditional — required if SAGA not
                            specified]
            ADDR{           Address
                BADR{       Basic address
                    BAD = ...;   Basic address designation [opt]
                    AHN = ...;   Assigned house number [opt]
                    STR = ...;   Street name or descriptive address
                    CNA = ...;   Community name† [opt]
                    STN = ...;   State name† [opt]
                }
            }
        }
    }
}
```

---

† The *first* time an address is validated, either SAGA *or* ZIP is required, and CNA and STN are optional. Once the address is determined to be valid, all subsequent contracts involving this address *should* contain the CNA, STN, SAGA, and ZIP obtained from the initial validation, along with the primary address information.

```
CTL{                          Control data
  CTC = I;                    Control code
  INQOPT = SAG;               Inquiry option
  }
}%
```

4.4.2.1 SNS Processing of INQSAG

Upon receiving an INQSAG request, SNS generates an APPVAL request to the PREMIS (Premises Information System) system to SAG-validate the input street address. If the street address is valid, PREMIS identifies the PREMIS wire center (WC) and supplies additional SAG and street-address-related information (e.g., primary street address). Otherwise, PREMIS may provide street address menu data to assist the negotiator in identifying the proper street address.

4.4.3 *RSNS Section Format: Network Element Inquiry (INQNEI)

SNS uses the information provided in the *RSNS section of the INQNEI request message to validate the input street address against the PREMIS SAG and to determine the network elements that exist in the associated wire center. If a MAINTN is specified, SNS identifies only the network element serving the customer, when this information is available in the SNS TNLIST database.

> As a reminder:
>
> The *RSNS section is one section in the INQNEI request message. The structure of the sections in the INQNEI request is as follows:
>
> > *C1 section
> > *PLHDR section
> > *SNSHDR section
> > *RSNS section.

The following data items may appear in the *RSNS section:

```
*RSNS{
    SVCLOC{              Service location
        ACL{             Action line
            SAGA = ...;  SAG area† [conditional − required if ZIP not
                         specified]
            ZIP = ...;   Zip code† [conditional − required if SAGA not
                         specified]
```

---

† The *first* time an address is validated, either SAGA *or* ZIP is required, and CNA and STN are optional. Once the address is determined to be valid, all subsequent contracts involving this address *should* contain the CNA, STN, SAGA, and ZIP obtained from the initial validation, along with the primary address information.

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```
ADDR{                        Address
    BADR{                    Basic address
        BAD = ...;           Basic address designation [opt]
        AHN = ...;           Assigned house number [opt]
        STR = ...;           Street name or descriptive address
        CNA = ...;           Community name† [opt]
        STN = ...;           State name† [opt]
    }
    }
    }
}


CTL{                         Control data
    CTC = I;                 Control code
    INQOPT = NEI;            Inquiry option
}


ACL{                         Action line
    MAINTN{                  Main TN [opt]
        NPA = ...;           Main NPA
        NXX = ...;           Main NXX
        LINE = ...;          Main line
    }
    }
}%
```

4.4.3.1 SNS Processing of INQNEI

Upon receiving an INQNEI request, SNS generates an APPSVA request to
PREMIS to SAG-validate the input street address, as described in the INQSAG
contract. In addition, if the address is SAG-valid, PREMIS identifies network
elements located in the associated wire center. If a Centrex customer is specified
in the input request, SNS determines the network element that serves that
particular customer if this information is available in the SNS TNLIST database.
SNS also supplies network element characteristics (e.g., switch type and generic),
when available.

---

† The *first* time an address is validated, either SAGA *or* ZIP is required, and CNA and STN are
optional. Once the address is determined to be valid, all subsequent contracts involving this
address *should* contain the CNA, STN, SAGA, and ZIP obtained from the initial validation,
along with the primary address information.

4.4.4 *RSNS Section Format: Product Marketing Inquiry (INQPMI)

SNS uses the information provided in the *RSNS section of the INQPMI request message to validate the input street address and to perform either of the following inquiries:

- Determine whether a particular product is marketed at the specified street address.

- Determine all products that are marketed at the specified street address (PROD = ALL).

In both cases, SNS provides a list of network elements that are capable of supporting each product. If a MAINTN is specified, SNS provides only product marketing information relevant to the network element serving the customer, when this information is available in the SNS TNLIST database. Foreign Office data is not returned unless the value of the Foreign Office indicator (FO) is Y † and the product is not found or is embargoed in the Local Serving Office.

> As a reminder:
>
> The *RSNS section is one section in the INQPMI request message. The structure of the sections in the INQPMI request is as follows:
>
>   *C1 section
>   *PLHDR section
>   *SNSHDR section
>   *RSNS section.

---

† In the case of an INQPMI request, FO assumes a value of Y unless specified otherwise.

The following data items may appear in the *RSNS section:

```
*RSNS{
    SVCLOC{                     Service location
        ACL{                    Action line
            SAGA = ...;         SAG area† [conditional — required if ZIP not
                                specified]
            ZIP = ...;          Zip code† [conditional — required if SAGA not
                                specified]
            ADDR{               Address
                BADR{           Basic address
                    BAD = ...;  Basic address designation [opt]
                    AHN = ...;  Assigned house number [opt]
                    STR = ...;  Street name or descriptive address
                    CNA = ...;  Community name† [opt]
                    STN = ...;  State name† [opt]
                }
            }
        }
    }

    CTL{                        Control data
        CTC = I;                Control code
        INQOPT = PMI;           Inquiry option
    }
```

---

† The *first* time an address is validated, either SAGA *or* ZIP is required, and CNA and STN are optional. Once the address is determined to be valid, all subsequent contracts involving this address *should* contain the CNA, STN, SAGA, and ZIP obtained from the initial validation, along with the primary address information.

```
ACL{                        Action line
    PROD = ...;             Product name  < ALL, specific product >
    FO = ...;               Foreign office indicator [opt]  < Y,N >
    MAINTN{                 Main TN [opt]
        NPA = ...;          Main NPA
        NXX = ...;          Main NXX
        LINE = ...;         Main line
    }
  }
}%
```

4.4.4.1 SNS Processing of INQPMI

Upon receiving an INQPMI request, SNS generates a request to SAG-validate the input street address, as described in the INQSAG contract.

If a single product is specified on input, an attempt is made to determine if the specified product is being marketed at the input street address. If product = ALL, then all products available at that address are identified. In addition, the network element(s) (e.g. switch(es)) capable of supporting the product(s) is/are identified.

If the product is not found or is embargoed in the Local Serving Office, then the value of the Foreign Office Indicator is checked. If this value is Y (For the INQPMI request, the Foreign Office indicator assumes a default value of Y unless explicitly assigned a value of N on input), then the Foreign Office(s) are searched for the product(s) that are not found or are embargoed in Local Serving Office.

If a Main Account TN is not provided on input, all the information identified above is returned.

If a Main Account TN is specified on input, an attempt is made to map it to a network element in the SNS reference database. If the mapping is successful, an attempt is made to find the above network element among the network elements identified as being capable of supporting the product. If the search is successful, information about the network element and the product(s) it serves is returned.

4.4.5 *RSNS Section Format: Change in Service Inquiry (INQCHG)

SNS uses the information provided in the *RSNS section of the INQCHG
request message to determine whether the specified product is available at the
service address associated with an existing circuit. There are two parts to this
inquiry: switch compatibility and loop compatibility. Switch compatibility is
optional and can be bypassed by providing a wire center on input.

- Switch Compatibility: SNS validates the input street address. If product
  marketing information is available, SNS also determines whether the product
  is marketed at the specified address. If a main TN is provided and it can be
  mapped to a serving network element, SNS determines product availability
  for that network element. Foreign Office data is not returned unless the
  Foreign Office indicator (FO) is set to Y (unless explicitly set to Y on input,
  FO assumes a default value of N) and the product is not found or is
  embargoed in the Local Serving Office

- Loop Compatibility: SNS determines the loop transmission requirements,
  based on the values of the FO indicator, the MADN indicator,† if provided,
  and the product. An attempt is then made to determine whether the existing
  loop (identified by either a TN *or* CLS circuit identifier and an optional DPA
  or CKL circuit termination identifier) is associated with the specified service
  address and whether it can support the regrade in service based on the loop
  transmission requirements.

---

† If FO and MADN are both set to Y on input, MADN will be reset to N. If the user wishes
for the MADN indicator to take on a value of Y, FO must be explicitly set to N on input.

As a reminder:

The *RSNS section is one section in the INQCHG request message. The structure of the sections in the INQCHG request is as follows:

    *C1 section
    *PLHDR section
    *SNSHDR section
    - *RSNS section.

The following data items may appear in the *RSNS section:

*RSNS{

SVCLOC{	Service location
ACL{	Action line
SAGA = ...;	SAG area† [conditional — required if ZIP not specified]
ZIP = ...;	Zip code† [conditional — required if SAGA not specified]
ADDR{	Address
BADR{	Basic address
BAD = ...;	Basic address designation [opt]
AHN = ...;	Assigned house number [opt]
STR = ...;	Street name or descriptive address
CNA = ...;	Community name† [opt]
STN = ...;	State name† [opt]
}	
SUPL{	Supplemental address
SID = ...;	Structure ID [opt]
STYP = ...;	Structure type [opt]
EID = ...;	Elevation ID [opt]

---

† The *first* time an address is validated, either SAGA *or* ZIP is required, and CNA and STN are optional. Once the address is determined to be valid, all subsequent contracts involving this address *should* contain the CNA, STN, SAGA, and ZIP obtained from the initial validation, along with the primary address information.

```
                ETYP = ...;      Elevation type [opt]
                UID = ...;       Unit ID [opt]
                UTYP = ...;      Unit type [opt]
            }
          }
        }
      }

  CTL{                           Control data
     CTC = I;                    Control code
     INQOPT = NEG;               Inquiry option
     SVCTYP = C;                 Service type
  }

  ACL{                           Action line
     PROD = ...;                 Product name
     MAINTN{                     Main TN [opt]
         NPA = ...;              Main NPA
         NXX = ...;              Main NXX
         LINE = ...;             Main line
     }
     MADN = ...;                 MADN flag [opt] < Y >
     FO = ...;                   Foreign office indicator [opt] < Y,N >
     WC = ...;                   Wire center [opt]
     TN{                         Telephone number [conditional − required if CLS
                                 not specified]
         NPA = ...;              NPA
         NXX = ...;              NXX
         LINE = ...;             Line
     }
     CLS = ...;                  CLCI serial number [conditional − required if TN
                                 not specified]
     DPA = ...;                  Different premises address identifier [opt]
     CKL = ...;                  Circuit location identifier [opt]
     SIG = ...;                  Signaling OEC [opt − default = L] < L, G or B >
  }
}%
```

4.4.5.1 SNS Processing of INQCHG

There are two parts to this inquiry: switch compatibility and loop compatibility. Switch compatibility is optional and can be bypassed by providing a wire center on input.

Switch Compatibility: On receiving an INQCHG request, SNS generates a request to SAG-validate the input street address and determine product availability, as described in the INQPMI contract.

Foreign Office data is not returned unless the value of the Foreign Office indicator (FO) is **Y** (for the INQCHG request, FO assumes a default value of **N** unless explicitly set to **Y** on input) and the product is not found or is embargoed in the Local Serving Office. If a main TN is provided on input, an attempt is made to map it to a network element and product availability is determined for that network element. If the specified product is not available, the loop compatibility portion of the processing is bypassed and the above results are returned to the requesting system in a response.

Loop Compatibility: SNS determines the loop transmission requirements (based on the values of the Foreign Office indicator, the MADN indicator,† if provided, and the product) needed to support the service regrade (Centrex). Next, the living unit address and circuit identifier are validated and any discrepancies found are reported to SNS. Otherwise, the working circuit currently assigned to the customer is examined to determine if the loop facilities meet the transmission requirements.

---

† If FO and MADN are both set to Y on input, MADN will be reset to N. If the user wishes for the MADN indicator to take on a value of Y, FO must explicitly be set to N on input.

4.5 Service Negotiation Support Response (*SNSR) Section

The *SNSR section returned in the response message indicates the results of the Service Negotiation Support inquiry contract. It may contain address and network-related information, as well as identify errors and discrepancies.

4.5.1 General *SNSR Section Format

The data items† for the *SNSR section are shown in the following general format. The items shown in regular typeface reflect the data provided in the original request (*RSNS section). The original input data from the *RSNS section of the request message is always provided in the corresponding *SNSR section of the response message. (The original input data shown in this general format does not indicate multiple occurrences of data items, since that depends on the information provided in the request message.) The items shown in bold typeface represent the response data that SNS supplies. The first group of response data — from IERC through LPRC — includes the CTL aggregate return codes. The second group of response data — from SAGAM through CKTM — shows the additional data aggregates that may appear in the *SNSR section.‡ The return codes and the additional data aggregates are explained in the sections that follow the general format.

> As a reminder:
>
> The *SNSR section is one section in the response message. The structure of the sections in the response message is as follows:
>
>   *C2 section
>   *PLHDR section
>   *SNSHDR section
>   *SNSR section.

---

† Data items shown in the *general* section format do not indicate whether they are optional, conditional or required. This information is supplied in the subsequent sections.

‡ In an actual *SNSR section, each of these additional data aggregates would have data items under it. These data items are not shown in the general format; however, they are explained in subsequent sections.

```
*SNSR{
  SVCLOC{                       Service location
    ACL{                        Action line
      SAGA = ...;               SAG area
      ZIP = ...;                Zip code
      ADDR{                     Address
        BADR{                   Basic address
          BAD = ...;            Basic address designation
          AHN = ...;            Assigned house number
          STR = ...;            Street name
          CNA = ...;            Community name
          STN = ...;            State name
        }
        SUPL{                   Supplemental address
          SID = ...;            Structure ID
          STYP = ...;           Structure type
          EID = ...;            Elevation ID
          ETYP = ...;           Elevation type
          UID = ...;            Unit ID
          UTYP = ...;           Unit type
        }
      }
    }
  }

  CTL{                          Control data
    CTC = ...;                  Control code
    INQOPT = ...;               Inquiry option
    SVCTYP = ...;               Service type

    IERC = ...;                 Input error return code {0-N}, where N = the
                                number of input errors detected
    SARC = ...;                 Street address return code {0-1}
    LURC = ...;                 Living unit return code {0-1}
    NERC = ...;                 Network element return code {0-P}, where P =
                                the number of network element conditions to
                                report
```

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```
    PMRC = ...;                     Product marketing return code {0-M}, where M
                                    = the number of product marketing conditions to
                                    report
    LPRC = ...;                     Loop return code {0-1}
}


ACL{                                Action line {0-1}
    MAINTN{                         Main TN
        NPA = ...;                  Main NPA
        NXX = ...;                  Main NXX
        LINE = ...;                 Main line
    }
    PROD = ...;                     Product name
    MADN = ...;                     MADN flag
    FO = ...;                       Foreign office indicator
    WC = ...;                       Wire center
    TN{                             Telephone number
        NPA = ...;                  NPA
        NXX = ...;                  NXX
        LINE = ...;                 Line
    }
    CLS = ...;                      CLCI serial number
    DPA = ...;                      Different premises address identifier
    CKL = ...;                      Circuit location identifier
    SIG = ...;                      Signaling OEC
}


SAGAM{                              SAGA menu {0-1}
}
STRM{                               Street name menu {0-1}
}
DESCRIPM{                           Descriptive name menu {0-1}
}
ARGM{                               Address range menu {0-1}
}
ADDRM{                              Address menu {0-1}
}
STRARGM{                            Street name/address range menu {0-1}
}
```

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```
BADRM{                        Basic address menu {0-1}
}
PARDESCRIP{                   Descriptive partial match {0-1}
}
STRINFO{                      Street address information {0-1}
}
SAGINFO{                      SAG information {0-1}
}
LUINFO{                       LU information {0-1}
}
SIMSTRPT{                     Similar street report {0-1}
}
LUM{                          Living unit menu {0-1}
}
NEINFO{                       Network element information {0-1}
}
PMINFO{                       Product market information {0-1}
}
CKTM{                         Circuit menu {0-1}
}
}%
```

4.5.2 CTL Aggregate Return Codes

There are six return codes that may be included with the CTL aggregate data. In the general format above, they are shown in bold typeface under the CTL aggregate. These return codes are:

- *Input Error Return Code*

  The contract invoker is responsible for providing SNS with a valid Service Negotiation Support request message that conforms to the specifications outlined in this document. However, if SNS detects a critical *input error* condition that prevents it from continuing its processing, it notifies the contract invoker of the problem via the IERC tag. The value associated with the tag indicates the error condition. This tag may appear multiple times for multiple input errors.

- *Street Address Return Code*

  The SARC tag indicates the validity of the street address provided on input. It is produced whenever the Service Negotiation Support contract involves a request to PREMIS to SAG-validate the input street address.

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- *Living Unit Return Code*

  The LURC tag indicates the validity of the living unit address sent to LFACS. It is produced whenever an INQCHG contract involves a request to LFACS (*except* when loop transmission requirements could not be determined).

- *Network Element Return Code*

  The NERC tag indicates whether network elements were identified for a SAG-valid input street address. It is produced on an INQNEI contract only and may appear multiple times.

- *Product Marketing Return Code*

  The PMRC tag indicates product marketing conditions at a SAG-valid input street address. It is produced on an INQPMI or INQCHG contract only and may appear multiple times.

- *Loop Return Code*

  The LPRC tag indicates the results of *loop processing* in LFACS. It is produced on an INQCHG contract only.

The specific return codes that may appear in the *SNSR section depend on the type of contract. Table 4-1 shows which return codes are possible for each of the four Service Negotiation Support contracts. (Refer to Appendix D for a description of each return code value.)

Table 4-1. Service Negotiation Support Contract Return Codes

Contract	IERC	SARC	LURC	LPRC	PMRC	NERC
INQSAG	X	X				
INQNEI	X	X				X
INQPMI	X	X			X	
INQCHG	X	X	X	X	X	

4.5.3 Additional Data Aggregates Provided in *SNSR Section

There are 16 additional data aggregates that may appear in the *SNSR section. In the general format shown previously, they appear in bold typeface at the end of the *SNSR section. These additional data aggregates are included only when specific return codes and values appear in the CTL aggregate. Table 4-2 shows the relationships between return code values and additional data aggregates. The individual data items that would appear with the additional data aggregates are described in the sections that follow the table.

Table 4-2. *SNSR CTL Return Codes and Related Data Aggregates

Return Code	Value	Related Data Aggregate
SARC	010	SAGAM
SARC	004	STRM
SARC	006	DESCRIPM
SARC	007,014	ARGM
SARC	008	ADDRM
SARC	009	STRARGM
SARC	012,013	BADRM
SARC	013	PARDESCRIP
SARC	> 100	SAGINFO
SARC	102-106	STRINFO
LURC	004	SIMSTRPT
LURC	003	LUM
LURC	002	LUINFO
NERC	002,004	NEINFO
PMRC	001,001-1, 003,003-1, 004,004-1 006,006-1, 010,010-1	PMINFO
LPRC	002	CKTM

4.5.3.1 *SNSR Section Format: SAG Area Menu

The following identifies the *SNSR data items returned when the input zip code is associated with multiple SAG Areas and SAGA was not provided on input. A SAGAM aggregate is returned when the following return code appears in the CTL aggregate:

SARC = 010.

```
SAGAM{                    SAGA menu
      SAGA = ...;          SAG area {1 - N}
}
```

In the SAGA line, "N" is the number of SAGAs found in PREMIS that are associated with the input zip code.

4.5.3.2 *SNSR Section Format: Street Name Menu for More than One Partial Match

The following identifies the *SNSR data items returned when more than one partial match is found on the input street name. An STRM aggregate is returned when the following return code appears in the CTL aggregate:

SARC = 004.

```
STRM{                     Street name menu
      SIMSTR{             Similar street name {2-N}, where N = the number
                          of streets that partially match the input street name
            STR = ...;    Street name
            ARG{          Address range
                  LHV = ...;    Low house number value
                  HHV = ...;    High house number value
                  RGIN = ...;   Range indicator
            }
            CNA = ...;    Community name
            STN = ...;    State name
            ZIP = ...;    Zip code [opt]
      }
}
```

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4.5.3.3 *SNSR Section Format: Descriptive Name Menu for More than One Partial Match

The following identifies the *SNSR data items returned when more than one partial match is found on the input descriptive. A DESCRIPM aggregate is returned when the following return code appears in the CTL aggregate:

SARC = 006.

DESCRIPM{	Descriptive name menu
SIMDESCRIP{	Similar descriptive name {2-N}, where N = the number of SNS descriptive addresses that partially match the descriptive address input
DESCRIP = ...;	Descriptive address
BAD = ...;	Basic address designation
AHN = ...;	Assigned house number
STR = ...;	Street name
CNA = ...;	Community name
SRMK1 = ...;	SAG remark 1 [opt]
SRMK2 = ...;	SAG remark 2 [opt]
SRMK3 = ...;	SAG remark 3 [opt]
}	
}	

4.5.3.4 *SNSR Section Format House Number/AHN Number Menu

The following identifies the *SNSR data items returned when particular address verification errors have been determined. An ARGM aggregate is returned when one of the following return codes appears in the CTL aggregate:

SARC = 007 or 014.

```
ARGM{                          Address range menu
    ARGDA{                     Address range data {1 - N}, where N = the number
                               of all valid address ranges for the input street name
        ARG{                   Address range
            LHV = ...;         Low house number value
            HHV = ...;         High house number value
            RGIN = ...;        Range indicator
        }
        CNA = ...;             Community name
        STN = ...;             State name
        ZIP = ...;             Zip code [opt]
    }
}
```

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4.5.3.5 *SNSR Section Format: Address Duplicated (Community/State Menu)

The following identifies the *SNSR data items returned when the address is duplicated in more than one community/state. An ADDRM aggregate is returned when the following return code appears in the CTL aggregate:

SARC = 008.

```
ADDRM{                          Address menu
        ADDRDA{                 Address data {2 - N} where N = the number of
                                duplicate SAG records for the input address
            CNA = ...;          Community name
            CNA1 = ...;         Alternate community name 1 [opt]
            CNA2 = ...;         Alternate community name 2 [opt]
            STN = ...;          State name
            ZIP = ...;          Zip code
            ARG{                Address range
                LHV = ...;      Low house number value
                HHV = ...;      High house number value
                RGIN = ...;     Range indicator
            }
        }
}
```

A community name value may occur as a primary community for one address area and as an alternate community for another address area. Since these address areas may contain duplicate basic addresses, SNS needs to be alerted when a Request for Service Negotiation Support (*RSNS) contains a community name derived from this menu. Therefore, PREMIS has inserted the string $$$ at the beginning of each CNA value on this menu. The contract invoker must return this string ($$$) to SNS in the CNA value on any subsequent request to provide community uniqueness and to avoid receiving the ADDRM menu again.

4.5.3.6 *SNSR Section Format: Street Name/Address Range Menu

The following identifies the *SNSR data items returned when a particular address verification error has been determined. A STRARGM aggregate is returned when the following return code appears in the CTL aggregate:

SARC = 009.

```
STRARGM{                    Street name/address range menu
    SIMSTR{                 Similar street name {1 - N}, where N = the number
                            of street names that partially match the input street
                            name
        STR = ...;          Street name
        ARG{                Address range
            LHV = ...;      Low house number value
            HHV = ...;      High house number value
            RGIN = ...;     Range indicator
        }
        CNA = ...;          Community name
        STN = ...;          State name
        ZIP = ...;          Zip code [opt]
    }
}
```

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4.5.3.7 *SNSR Section Format: Select Basic Address Menu

The following identifies the *SNSR data items returned when more than one basic address is associated with the input descriptive. A BADRM aggregate is returned when one of the following return codes appears in the CTL aggregate:

SARC = 012 or 013.

```
BADRM{                          Basic address menu
      BADRDA{                   Basic address data {2 - N}, where N = the number
                                of basic addresses that are associated with the input
                                descriptive address
          BAD = ...;            Basic address designation† [opt]
          AHN = ...;            Assigned house number† [opt]
          STR = ...;            Street name
          CNA = ...;            Community name
          SRMK1 = ...;          SAG remark 1 [opt]
          SRMK2 = ...;          SAG remark 2 [opt]
          SRMK3 = ...;          SAG remark 3 [opt]
      }
}
```

---

† Only a BAD or an AHN will be output as part of the basic address data.

4.5.3.8 *SNSR Section Format: Partial Match on Descriptive

The following identifies the *SNSR data items returned when an exact match is not found on the input descriptive and only one partial match is found, but more than one basic address is associated with it.

A PARDESCRIP aggregate is returned when the following return code appears in the CTL aggregate:

SARC = 013.

```
PARDESCRIP{              Descriptive partial match
    PSAGA = ...;          PREMIS SAG area
    PADR{                 PREMIS address area
        BADR{             Basic address
            STR = ...;    Street name
        }
    }
}
```

4.5.3.9 *SNSR Section Format: Similar Street Report

The following identifies the *SNSR data items returned when a street address verification error occurs in LFACS and more than one partial match is found. A SIMSTRPT aggregate is returned when the following return code appears in the CTL aggregate:

LURC = 004.

```
SIMSTRPT{                  Similar street report
    TEXT = ...;            Similar street report text
}
```

4.5.3.10 *SNSR Section Format: Living Unit Menu

The following identifies the *SNSR data items returned when a living unit verification error occurs in LFACS and a neighborhood report of nearby living units is provided. A LUM aggregate is returned when the following return code appears in the CTL aggregate:

LURC = 003.

```
LUM{                       Living unit menu
    TEXT = ...;            Living unit report text
}
```

4.5.3.11 *SNSR Section Format: SAG Information

The following identifies the *SNSR SAG-related data items returned for a SAG-valid input street address. A SAGINFO aggregate is returned when any of the following return codes appears in the CTL aggregate:

SARC = all return codes greater than 100.

```
SAGINFO{                     SAG information
    SAGA = ...;              SAG area
    CNA1 = ...;              Alternate community name 1 [opt]
    CNA2 = ...;              Alternate community name 2 [opt]
    ALT = ...;               Alternate address [opt]
    DESCRIP = ...;           Descriptive address [opt]
    EXCH = ...;              Exchange
    WC = ...;                Wire center
    RTZ = ...;               Rate zone [opt]
    TAR = ...;               Tax area [opt]
    ZIP = ...;               Zip code [opt]
    NPA = ...;               NPA
    TELF = ...;              Telephone features [opt]
    BO = ...;                Business office [opt]
    DIR = ...;               Directory [opt]
    PD = ...;                Plant district [opt]
    PC = ...;                Phone center [opt]
    CO = ...;                Central office [opt]
    LCL = ...;               Local geographic area information [opt]
    SRMK1 = ...;             SAG remark 1 [opt]
    SRMK2 = ...;             SAG remark 2 [opt]
    SRMK3 = ...;             SAG remark 3 [opt]
    CNA = ...;               Community name
    CNARQ = ...;             Community name required indicator [opt]
    STN = ...;               State name
    STNRQ = ...;             State name required indicator [opt]
}
```

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4.5.3.12 *SNSR Section Format: Modified Street Information

The following identifies the *SNSR data items returned when the input street address was "modified" to find a match in PREMIS. It identifies the *primary* street address found in PREMIS. A STRINFO aggregate is returned when any of the following return codes appears in the CTL aggregate:

SARC = 102 through 106.

```
STRINFO{                    Street address information
    STRADR{                 Street address
        BADR{               Basic address
            BAD=...;         Basic address designation† [opt]
            AHN=...;         Assigned house number† [opt]
            STR=...;         Street name
        }
    }
}
```

---

† A BAD or an AHN will always be output as part of the basic address data.

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4.5.3.13 *SNSR Section Format: Modified Living Unit Information

The following identifies the *SNSR data items returned when the PREMIS (or input) street address and/or input SUPL were modified to find a living unit match in LFACS. A LUINFO aggregate is returned when the following return code appears in the CTL aggregate:

LURC = 002.

```
LUINFO{                      Living unit information
    LUADR{                   Living unit address
        BADR{                Basic address
            BAD = ...;       Basic address designation
            AHN = ...;       Assigned house number
            STR = ...;       Street name
            CNA = ...;       Community name
            STN = ...;       State name
        }
        SUPL{                Supplemental address
            SID = ...;       Structure ID
            STYP = ...;      Structure type
            EID = ...;       Elevation ID
            ETYP = ...;      Elevation type
            UID = ...;       Unit ID
            UTYP = ...;      Unit type
        }
    }
}
```

4.5.3.14 *SNSR Section Format: Network Element Information

The following identifies the *SNSR data items returned once SNS has determined the network elements that exist in the wire center associated with the input street address. If a MAINTN was specified on input, SNS identifies only the network element serving the customer, when this information is available in the TNLIST database.

A NEINFO aggregate is returned when one of the following return codes appears in the CTL aggregate:

NERC = 002 or 004.

```
NEINFO{                    Network element information
    SOD{                   Serving office data
        NE{                Network element {1 - N}, where N = the number
                           of network elements that exist in the wire center
                           associated with the street address OR where N = 1
                           to identify the network element serving a particular
                           customer
            CLLI=...;       Network element CLLI code
            NETYP=...;      Network element type [opt]
            NEGEN=...;      Network element generic [opt]
        }
    }
}
```

4.5.3.15 *SNSR Section Format: Product Marketing Information

The following identifies the *SNSR data items returned once SNS has: (1) determined that a specific product is marketed at a street address, or (2) found all products that are marketed at a street address. It also contains information about the network elements capable of providing each product. If a MAINTN was specified on input, SNS filters the information pertinent to that customer only (when possible).

A PMINFO aggregate is returned when any of the following return codes appears in the CTL aggregate:

PMRC = 001, 001-1, 003, 003-1, 004, 004-1, 006, 006-1, 010 and 010-1.

Serving office data (SOD) is supplied only when PMRC = 001, 001-1, 003, 003-1, 006, 006-1.

Foreign office data (FOD) is supplied only under the following conditions: (1) a particular product and FO were specified on input and the PMRC = 004, 004-1, or (2) PROD = ALL and FO were specified on input and the PMRC = 010, 010-1.

```
PMINFO{                    Product market information
    SOD{                   Serving office data {0-1}
        MKTPROD{           Marketed product {1 - K}, where K = the number
                           of products marketed at the address OR where K =
                           1 when a specific product is specified on input
            PROD = ...;    Product name
            EMB{           Embargo data {1 - 2} [opt]
                EMBLVL = ...;    Embargo level < GSG,RNG >
                RELDATE{        Relief date {0-1}
                    YEAR = ...;     Year
                    MONTH = ...;    Month
                    DAY = ...;      Day
                }
                EMBRMK = ...;   Embargo reason
            }
            NE{            Network element {1 - M}, where M = the number
                           of network elements in the serving office that can
                           provide the service
                CLLI = ...;     Network element CLLI code
                NETYP = ...;    Network element type [opt]
```

```
        NEGEN = ...;          Network element generic [opt]
        EMBFLG = ...;         Embargo Flag < Y >
        RELDATE{             Relief date {0-1}
            YEAR = ...;       Year
            MONTH = ...;      Month
            DAY = ...;        Day
        }
        EMBRMK = ...;        Embargo reason
        }
    }
}
FOD{                          Foreign Office Data {1 - N} where N = the
                             number of foreign offices that can provide the
                             specified product
    WC = ...;                Wire center
    TTA = ...;               Terminating traffic area
    MKTPROD{                 Marketed product {1 - P} where P = the number
                             of available products supported by the foreign
                             office
        PROD = ...;          Product Name
        NE{                  Network element {1 - R}, where R = the number
                             of network elements in the serving office that can
                             provide the service
            CLLI = ...;       Network element CLLI code
            NETYP = ...;      Network element type [opt]
            NEGEN = ...;      Network element generic [opt]
            EMBFLG = ...;     Embargo Flag < Y >
            RELDATE{         Relief date {0-1}
                YEAR = ...;   Year
                MONTH = ...;  Month
                DAY = ...;    Day
            }
            EMBRMK = ...;    Embargo reason
        }
    }
    }
}
```

4.5.3.16 *SNSR Section Format: Circuit Menu

The following identifies the *SNSR data items returned when a circuit ID discrepancy occurs. A CKTM aggregate is returned when the following return code appears in the CTL aggregate:

LPRC = 002.

```
CKTM{                    Circuit menu
     TEXT = ...;          Circuit report text
}
```

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4.6 Request for Outside Plant (*ROSP) Section

The *ROSP section is required in the request message of each Outside Plant contract:

* Loop Availability Inquiry (INQLAI)

* Loop Reservation Update (UPDRSV).

4.6.1 General *ROSP Section Format

The data items† for the *ROSP section are:

```
*ROSP{
  SVCLOC{                Service location
    ACL{                 Action line
      SAGA = ...;        SAG area
      ZIP = ...;         Zip code
      ADDR{              Address
        BADR{            Basic address
          BAD = ...;     Basic address designation
          AHN = ...;     Assigned house number
          STR = ...;     Street name or descriptive address
          CNA = ...;     Community name
          STN = ...;     State name
        }
        SUPL{            Supplemental address
          SID = ...;     Structure ID
          STYP = ...;    Structure type
          EID = ...;     Elevation ID
          ETYP = ...;    Elevation type
          UID = ...;     Unit ID
          UTYP = ...;    Unit type
        }
      }
}
```

---

† Data items shown in the *general* section format do not indicate whether they are optional, conditional, or required. This information is supplied in the subsequent sections.

```
        }
    }

    CTL{                        Control data
        CTC = ...;              Control code
    }

    ACL{                        Action line {1-2}
        ACT = ...;              Action code
        PROD = ...;             Product name
        MADN = ...;             MADN flag
        FO = ...;               Foreign office indicator
        WC = ...;               Wire center
        NUMLP = ...;            Number of loops
        ACCT = ...;             Customer account
        MKSEG = ...;            Market segment indicator
        TN{                     Telephone number
            NPA = ...;          NPA
            NXX = ...;          NXX
            LINE = ...;         Line
        }
        CLS = ...;              CLCI serial number
        DPA = ...;              Different premises address identifier
        CKL = ...;              Circuit location identifier
        PFO = ...;              Planned facilities order
        SO = ...;               Service order
        SIG = ...;              Signaling OEC
        RSVDATE{                Reservation due date
            YEAR = ...;         Year
            MONTH = ...;        Month
            DAY = ...;          Day
        }
        RSVRMK = ...;           Reservation remark
        NOTICE = ...;           Conference notice indicator
    }

}%
```

The SVCLOC aggregate contains the living unit address that identifies the service location at which negotiation activity is to be performed. Appendix C provides additional information on how address data is passed in SNS contracts.

The CTL aggregate contains control information. In particular, the control code (CTC) is used to determine the type of loop activity to be performed:

- Inquire about spare loop availability (CTC = I)

- Establish/build a loop reservation (CTC = B)

- Change a loop reservation (CTC = C)

- Remove a loop reservation (CTC = R)

The ACL aggregate contains the specific information required to perform the loop inquiry or reservation update. The information that SNS requires in each ACL aggregate varies, depending upon the CTC that appears in the CTL aggregate.

On a loop reservation update, the action code (ACT) within the ACL aggregate identifies the type of ACL: old or new. The following types of ACLs are required, based on the CTC value:

- When CTC = B, only a new ACL is required.

- When CTC = C, both an old and a new ACL are required.

- When CTC = R, only an old ACL is required.

The following subsections explain how the *ROSP section should be constructed, depending on the type of control data provided in the CTL aggregate.

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4.6.2 *ROSP Section Format: Loop Availability Inquiry (INQLAI)

SNS uses the information provided in the *ROSP section of the INQLAI request message to determine whether a specified number of loops are available to support a particular product at a service location. If the WC is not specified in the input request, SNS determines it by validating the street address in PREMIS. Once the WC is known, SNS determines the loop transmission requirements based on the product, MADN indication, and whether or not the service is locally switched (specified by the foreign office indicator FO on input).† SNS then uses this information to inquire about spare loops in LFACS. ACCT and MKSEG are other optional criteria that LFACS may consider when identifying spare loops.

> As a reminder:
>
> The *ROSP section is one section in the INQLAI request message. The structure of the sections in the INQLAI request is as follows:
>
>   *C1 section
>   *PLHDR section
>   *SNSHDR section
>   *ROSP section.

---

† If FO and MADN are both set to Y on input, MADN will be reset to N. If the user wishes for the MADN indicator to take on a value of Y, FO must be explicitly set to N on input.

The following data items may appear in the *ROSP section:

*ROSP{

SVCLOC{	Service location
ACL{	Action line
SAGA = ...;	SAG area† [conditional — required if ZIP not specified]
ZIP = ...;	Zip code† [conditional — required if SAGA not specified]
ADDR{	Address
BADR{	Basic address
BAD = ...;	Basic address designation [opt]
AHN = ...;	Assigned house number [opt]
STR = ...;	Street name or descriptive address
CNA = ...;	Community name† [opt]
STN = ...;	State name† [opt]
}	
SUPL{	Supplemental address
SID = ...;	Structure ID [opt]
STYP = ...;	Structure type [opt]
EID = ...;	Elevation ID [opt]
ETYP = ...;	Elevation type [opt]
UID = ...;	Unit ID [opt]
UTYP = ...;	Unit type [opt]
}	
}	
}	
}	

CTL{	Control data
CTC = I;	Control code
}	

---

† The *first* time an address is validated, either SAGA *or* ZIP is required, and CNA and STN are optional. Once the address is determined to be valid, all subsequent contracts involving this address *should* contain the CNA, STN, SAGA, and ZIP obtained from the initial validation, along with the primary address information.

```
ACL{                      Action line
    PROD = ...;           Product name
    MADN = ...;           MADN flag [opt]  < Y >
    FO = ...;             Foreign office indicator [opt]  < Y >
    WC = ...;             Wire center [opt]
    NUMLP = ...;          Number of loops
    SIG = ...;            Signaling OEC [opt  −  default  =  L]  < L, G or B >
    ACCT = ...;           Customer account [opt]
    MKSEG = ...;          Market segment indicator [opt]  < R, P, M, C, G, I, or A >
}
}%
```

4.6.2.1 SNS Processing of INQLAI

Upon receiving an INQLAI request, SNS generates an APPVAL request to
PREMIS to SAG-validate the input address, as described in the INQSAG
contract (unless the WC is provided in the input request). SNS determines the
loop transmission requirements (based on the values of the product, the Foreign
Office indicator and the MADN indicator,† if provided) needed to support the
requested product. Using this information, SNS generates an INQRES request
to LFACS to determine whether the requested number of spare loops exists. As
part of its processing, LFACS also validates the living unit address and identifies
address discrepancies.

---

† If FO and MADN are both set to Y on input, MADN will be reset to N. If the user wishes
for the MADN indicator to take on a value of Y, FO must be explicitly set to N on input.

4.6.3 *ROSP Section Format: Build Loop Reservation (UPDRSV)

SNS uses the information provided in the *ROSP section of the UPDRSV request message to establish a reservation for a specified number of loops capable of supporting a particular product at a service location. If the WC is not specified in the input request, SNS determines it by validating the street address in PREMIS. Once the WC is known, SNS determines the loop transmission requirements based on the product, MADN, and whether or not the service is locally switched (specified by the foreign office indicator FO on input).† SNS then establishes a loop reservation in LFACS.

A loop reservation may be established at a living unit, using any *one* of the following reservation keys:

- A single loop can be reserved for an individual circuit, identified by either a TN *or* a CLS circuit identifier. A DPA *or* CKL circuit termination identifier is optional.

- Any number of loops can be reserved for a planned facilities order (PFO).

- Any number of loops can be reserved for a service order (SO).

When multiple reservations are established with the same reservation key, it is recommended that they apply to loops with the same transmission requirements. Should any subsequent modifications be made to the reservation, LFACS replaces or removes the most recently reserved loops first. It does NOT take the loop transmission requirements into account when identifying these loops.

The ACCT and MKSEG data items are other optional criteria that LFACS may consider when reserving loops. If the NOTICE indicator is set, LFACS sends a confirmation notice to impacted organizations.

---

† If FO and MADN are both set to Y on input, MADN will be reset to N. If the user wishes for the MADN indicator to take on a value of Y, FO must be explicitly set to N on input.

As a reminder:

The *ROSP section is one section in the UPDRSV request message. The structure of the sections in the UPDRSV request is as follows:

    *C1 section
    *PLHDR section
    *SNSHDR section
    *ROSP section.

The following data items may appear in the *ROSP section:

*ROSP{

SVCLOC{	Service location
ACL{	Action line
SAGA = ...;	SAG area† [conditional − required if ZIP not specified]
ZIP = ...;	Zip code† [conditional − required if SAGA not specified]
ADDR{	Address
BADR{	Basic address
BAD = ...;	Basic address designation [opt]
AHN = ...;	Assigned house number [opt]
STR = ...;	Street name or descriptive address
CNA = ...;	Community name† [opt]
STN = ...;	State name† [opt]
}	
SUPL{	Supplemental address
SID = ...;	Structure ID [opt]
STYP = ...;	Structure type [opt]
EID = ...;	Elevation ID [opt]

---

† The *first* time an address is validated, either SAGA *or* ZIP is required, and CNA and STN are optional. Once the address is determined to be valid, all subsequent contracts involving this address *should* contain the CNA, STN, SAGA, and ZIP obtained from the initial validation, along with the primary address information.

```
              ETYP = ...;    Elevation type [opt]
              UID = ...;     Unit ID [opt]
              UTYP = ...;    Unit type [opt]

          }
       }
    }
}


CTL{                         Control data
   CTC = B;                  Control code
}


ACL{                         New action line
   ACT = N;                  Action code
   PROD = ...;               Product name
   MADN = ...;               MADN flag [opt] < Y >
   FO = ...;                 Foreign office indicator [opt] < Y >
   WC = ...;                 Wire center [opt]
   NUMLP = ...;              Number of loops [conditional — required when PFO or
                             SO specified]
   ACCT = ...;               Customer account [opt]
   MKSEG = ...;              Market segment indicator [opt] < R, P, M, C, G, I, or A >
   TN{                       Telephone number [conditional — required if CLS, PFO
                             or SO not specified]

       NPA = ...;            NPA
       NXX = ...;            NXX
       LINE = ...;           Line
   }
   CLS = ...;                CLCI serial number [conditional — required if TN, PFO,
                             or SO not specified]
   DPA = ...;                Different premises address identifier [opt]
   CKL = ...;                Circuit location identifier [opt]
   PFO = ...;                Planned facilities order [conditional — required if TN,
                             CLS, or SO not specified]
   SO = ...;                 Service order [conditional — required if TN, CLS, or PFO
                             not specified]
   SIG = ...;                Signaling OEC [opt — default = L] < L, G or B >
   RSVDATE{                  Reservation due date
       YEAR = ...;           Year
```

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```
        MONTH = ...;        Month
        DAY = ...;          Day
    }
    RSVRMK = ...;           Reservation remark [opt]
    NOTICE = ...;           Confirmation notice indicator [opt]
    }
}%
```

4.6.3.1 SNS Processing of UPDRSV for Build

Upon receiving a UPDRSV request, SNS generates an APPVAL request to
PREMIS to SAG-validate the input address, as described in the INQSAG
contract (unless the WC is provided in the input request). If the PREMIS SAG
validation is successful, SNS uses the PREMIS primary street address to
construct the living unit address. Otherwise, SNS uses the input street address.
In either case, SNS uses the input supplemental address data (LOC) to construct
the living unit address. SNS then generates the following UPDRES request to
LFACS for this living unit:

- Establish a loop reservation

  SNS determines the loop transmission requirements (based on the values of
  the product, the Foreign Office indicator and the MADN indicator,† if
  provided) needed to support the requested ISDN or Centrex product and
  then generates a request to LFACS to reserve one or more loops.

---

† If FO and MADN are both set to Y on input, MADN will be reset to N. If the user wishes
for the MADN indicator to take on a value of Y, FO must be explicitly set to N on input.

4.6.4 *ROSP Section Format: Remove Loop Reservation (UPDRSV)

SNS uses the information provided in the *ROSP section of the UPDRSV request message to remove a loop reservation established earlier in LFACS. If the WC is not specified in the input request, SNS determines it by validating the street address in PREMIS. Once the WC is known, SNS removes the loop reservation in LFACS, based on the reservation key used to initially build the reservation. If NUMLP is not provided in the old ACL, LFACS assumes that the entire reservation is to be removed. If the NUMLP provided in the old ACL exceeds the actual number of loops reserved in LFACS, LFACS removes the reservations on those found. (In LFACS 18.6, however, none of the loop reservations are removed). It should also be noted that LFACS removes reservations on the loops most *recently* reserved. If the NOTICE indicator is set, LFACS sends a confirmation notice to impacted organizations.

> As a reminder:
>
> The *ROSP section is one section in the UPDRSV request message. The structure of the sections in the UPDRSV request is as follows:
>
> > *C1 section
> > *PLHDR section
> > *SNSHDR section
> > *ROSP section.

The following data items may appear in the *ROSP section:

*ROSP{

SVCLOC{	Service location
ACL{	Action line
SAGA = ...;	SAG area† [conditional — required if ZIP not specified]
ZIP = ...;	Zip code† [conditional — required if SAGA not specified]
ADDR{	Address
BADR{	Basic address
BAD = ...;	Basic address designation [opt]
AHN = ...;	Assigned house number [opt]
STR = ...;	Street name or descriptive address
CNA = ...;	Community name† [opt]
STN = ...;	State name† [opt]
}	
SUPL{	Supplemental address
SID = ...;	Structure ID [opt]
STYP = ...;	Structure type [opt]
EID = ...;	Elevation ID [opt]
ETYP = ...;	Elevation type [opt]
UID = ...;	Unit ID [opt]
UTYP = ...;	Unit type [opt]
}	
}	
}	
}	
CTL{	Control data
CTC = R;	Control code

---

† The *first* time an address is validated, either SAGA *or* ZIP is required, and CNA and STN are optional. Once the address is determined to be valid, all subsequent contracts involving this address *should* contain the CNA, STN, SAGA, and ZIP obtained from the initial validation, along with the primary address information.

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```
    }

    ACL{                          Old action line
        ACT = O;                  Action code
        TN{                       Telephone number [conditional − required if CLS,
                                  PFO, or SO not specified]
              NPA = ...;          NPA
              NXX = ...;          NXX
              LINE = ...;         Line
        }
        CLS = ...;                CLCI serial number [conditional − required if TN,
                                  PFO, or SO not specified]
        DPA = ...;                Different premises address identifier [opt]
        CKL = ...;                Circuit location identifier [opt]
        PFO = ...;                Planned facilities order [conditional − required if
                                  TN, CLS, or SO not specified]
        SO = ...;                 Service order [conditional − required if TN, CLS,
                                  or PFO not specified]
        NUMLP = ...;              Number of loops [opt]
    }
}%
```

4.6.4.1 SNS Processing of UPDRSV for Remove

Upon receiving a UPDRSV request, SNS generates an APPVAL request to
PREMIS to SAG-validate the input address, as described in the INQSAG
contract (unless the WC is provided in the input request). If the PREMIS SAG
validation is successful, SNS uses the PREMIS primary street address to
construct the living unit address. Otherwise, SNS uses the input street address.
In either case, SNS uses the input supplemental address data (LOC) to construct
the living unit address. SNS then generates the following UPDRES request to
LFACS for this living unit:

* Remove a loop reservation

    SNS generates a request to LFACS to remove a reservation established
    previously on one or more loops.

4.6.5 *ROSP Section Format: Change Loop Reservation (UPDRSV)

SNS uses the information provided in the *ROSP section of the UPDRSV request message to change a loop reservation established earlier in LFACS. If the WC is not specified in the input request, SNS determines it by validating the input street address in PREMIS. Once the WC is known, SNS changes the loop reservation in LFACS, based on the reservation key used to initially build the reservation. SNS requires enough information about the original reservation so that LFACS can remove it (in the same manner as in removing a loop reservation) and then establish the new one (in the same manner as in building a loop reservation). If NUMLP is not provided in the old ACL, LFACS assumes that the entire reservation is to be removed. If the NUMLP provided in the old ACL exceeds the actual number of loops reserved in LFACS, LFACS removes the reservations on those found. (In LFACS 18.6, however, none of the loop reservations are removed). It should also be noted that LFACS removes reservations on loops most *recently* reserved. If the NOTICE indicator is set, LFACS sends a confirmation notice to impacted organizations.

> As a reminder:
>
> The *ROSP section is one section in the UPDRSV request message. The structure of the sections in the UPDRSV request is as follows:
>
> > *C1 section
> > *PLHDR section
> > *SNSHDR section
> > *ROSP section.

The following data items may appear in the *ROSP section:

*ROSP{

SVCLOC{	Service location
ACL{	Action line
SAGA = ...;	SAG area† [conditional — required if ZIP not specified]
ZIP = ...;	Zip code† [conditional — required if SAGA not specified]
ADDR{	Address
BADR{	Basic address
BAD = ...;	Basic address designation [opt]
AHN = ...;	Assigned house number [opt]
STR = ...;	Street name or descriptive address
CNA = ...;	Community name† [opt]
STN = ...;	State name† [opt]
}	
SUPL{	Supplemental address
SID = ...;	Structure ID [opt]
STYP = ...;	Structure type [opt]
EID = ...;	Elevation ID [opt]
ETYP = ...;	Elevation type [opt]
UID = ...;	Unit ID [opt]
UTYP = ...;	Unit type [opt]
}	
}	
}	
}	
CTL{	Control data
CTC = C;	Control code
}	

---

† The *first* time an address is validated, either SAGA *or* ZIP is required, and CNA and STN are optional. Once the address is determined to be valid, all subsequent contracts involving this address *should* contain the CNA, STN, SAGA, and ZIP obtained from the initial validation, along with the primary address information.

```
ACL{                        Old action line
    ACT = O;                Action code
    TN{                     Telephone number [conditional — required if CLS, PFO,
                            or SO not specified]

        NPA = ...;          NPA
        NXX = ...;          NXX
        LINE = ...;         Line
    }
    CLS = ...;              CLCI serial number [conditional — required if TN, PFO,
                            or SO not specified]
    DPA = ...;              Different premises address identifier [opt]
    CKL = ...;              Circuit location identifier [opt]
    PFO = ...;              Planned facilities order [conditional — required if TN,
                            CLS, or SO not specified]
    SO = ...;               Service order [conditional — required if TN, CLS, or PFO
                            not specified]
    NUMLP = ...;            Number of loops [opt]
    WC = ...;               Wire center [opt]
    NOTICE = ...;           Confirmation notice indicator [opt]
}
ACL{                        New action line
    ACT = N                 Action code
    PROD = ...;             Product name
    MADN = ...;             MADN flag [opt]  < Y >
    FO = ...;               Foreign office indicator [opt]  < Y >
    NUMLP = ...;            Number of loops [conditional — required when PFO or
                            SO specified]
    ACCT = ...;             Customer account [opt]
    MKSEG = ...;            Market segment indicator [opt]  < R, P, M, C, G, I, or A >
    TN{                     Telephone number [conditional — required if CLS, PFO,
                            or SO not specified]

        NPA = ...;          NPA
        NXX = ...;          NXX
        LINE = ...;         Line
    }
    CLS = ...;              CLCI serial number [conditional — required if TN, PFO,
                            or SO not specified]
    DPA = ...;              Different premises address identifier [opt]
    CKL = ...;              Circuit location identifier [opt]
```

PFO = ...;	Planned facilities order [conditional — required if TN, CLS, or SO not specified]
SO = ...;	Service order [conditional — required if TN, CLS, or PFO not specified]
SIG = ...;	Signaling OEC [opt — default = L] < L, G or B >
RSVDATE{	Reservation due date
YEAR = ...;	Year
MONTH = ...;	Month
DAY = ...;	Day
}	
RSVRMK = ...;	Reservation remark [opt]

}
}%

4.6.5.1 SNS Processing of UPDRSV for Change

Upon receiving a UPDRSV request, SNS generates an APPVAL request to PREMIS to SAG-validate the input address, as described in the INQSAG contract (unless the WC is provided in the input request). If the PREMIS SAG validation is successful, SNS uses the PREMIS primary street address to construct the living unit address. Otherwise, SNS uses the input street address. In either case, SNS uses the input supplemental address data (LOC) to construct the living unit address. SNS then generates the following UPDRES request to LFACS for this living unit:

• Change a loop reservation

SNS generates a request to LFACS to remove a loop reservation established previously and establish a new reservation (as described above).

4.7 Outside Plant Response (*OSPR) Section

The *OSPR section returned in the response message indicates the results of the INQLAI or UPDRSV contracts. It may contain address and network-related information, as well as identify errors and discrepancies.

4.7.1 General *OSPR Section Format

The data items† for the *OSPR section are shown in the following general format. The items shown in regular typeface reflect the data provided in the original request (*ROSP section). The original input data from the *ROSP section of the request message is always provided in the corresponding *OSPR section of the response message. (The original input data shown in this general format does not indicate multiple occurrences of data items, since that depends on the information provided in the request message.) The items shown in bold typeface represent the response data that SNS supplies. The first group of response data — from IERC through LPRC — includes the CTL aggregate return codes. The second group of response data — from SAGAM through LPINFO — shows the additional data aggregates that may appear in the *OSPR section.‡ The return codes and the additional data aggregates are explained in the sections that follow the general format.

> As a reminder:
>
> The *OSPR section is one section in the response message. The structure of the sections in the response message is as follows:
>
> * *C2 section
> * *PLHDR section
> * *SNSHDR section
> * *OSPR section.

---

† Data items shown in the *general* section format do not indicate whether they are optional, conditional or required. This information is supplied in the subsequent sections.

‡ In an actual *OSPR section, each of these additional data aggregates would have data items under it. These data items are not shown in the general format; however, they are explained in subsequent sections.

```
*OSPR{
  SVCLOC{                           Service location
    ACL{                            Action line
      SAGA = ...;                   SAG area
      ZIP = ...;                    Zip code
      ADDR{                         Address
        BADR{                       Basic address
          BAD = ...;                Basic address designation
          AHN = ...;                Assigned house number
          STR = ...;                Street name
          CNA = ...;                Community name
          STN = ...;                State name
        }
        SUPL{                       Supplemental address
          SID = ...;                Structure ID
          STYP = ...;               Structure type
          EID = ...;                Elevation ID
          ETYP = ...;               Elevation type
          UID = ...;                Unit ID
          UTYP = ...;               Unit type
        }
      }
    }
  }

  CTL{                              Control data
    CTC = ...;                      Control code

    IERC = ...;                     Input error return code {0-N}, where N = the
                                    number of input errors detected
    SARC = ...;                     Street address return code {0-1}
    LURC = ...;                     Living unit return code {0-1}
    LPRC = ...;                     Loop return code {0-1}
  }

  ACL{                              Action line {1-2}
    ACT = ...;                      Action code
    PROD = ...;                     Product name
    MADN = ...;                     MADN flag
```

FO = ...;	Foreign office indicator [opt] < Y >
WC = ...;	Wire center
NUMLP = ...;	Number of loops
ACCT = ...;	Customer account
MKSEG = ...;	Market segment indicator
TN{	Telephone number
NPA = ...;	NPA
NXX = ...;	NXX
LINE = ...;	Line
}	
CLS = ...;	CLCI serial number
DPA = ...;	Different premises address identifier
CKL = ...;	Circuit location identifier
PFO = ...;	Planned facilities order
SO = ...;	Service order
SIG = ...;	Signaling OEC [opt − default = L] < L, G or B >
RSVDATE{	Reservation due date
YEAR = ...;	Year
MONTH = ...;	Month
DAY = ...;	Day
}	
RSVRMK = ...;	Reservation remark
NOTICE = ...;	Conference notice indicator
}	
SAGAM{	SAGA menu {0-1}
}	
STRM{	Street name menu {0-1}
}	
DESCRIPM{	Descriptive name menu {0-1}
}	
ARGM{	Address range menu {0-1}
}	
ADDRM{	Address menu {0-1}
}	
STRARGM{	Street name address range menu {0-1}
}	
BADRM{	Basic address menu {0-1}
}	

```
    PARDESCRIP{              Descriptive partial match {0-1}
    }
    SIMSTRPT{               Similar street report {0-1}
    }
    SAGINFO{                SAG information {0-1}
    }
    STRINFO{                Street address information {0-1}
    }
    LUM{                    Living unit menu {0-1}
    }
    LUINFO{                 Living unit information {0-1}
    }
    LPINFO{                 Loop information {0-1}
    }
}%
```

4.7.2 CTL Aggregate Return Codes

There are four return codes that may be included with the CTL aggregate data. In the general format above, they are shown in bold typeface under the CTL aggregate. These return codes are:

- *Input Error Return Code:*

  The contract invoker is responsible for providing SNS with a valid Outside Plant request message that conforms to the specifications outlined in this document. However, if SNS detects a critical *input error* condition that prevents it from continuing its processing, it notifies the contract invoker of the problem via the IERC tag. The value associated with the tag indicates the error condition. This tag may appear multiple times to identify multiple input errors.

- *Street Address Return Code:*

  The SARC tag indicates the validity of the street address provided on input. It is produced whenever the Outside Plant contract involves a request to PREMIS to SAG-validate the input street address.

- *Living Unit Return Code:*

  The LURC tag indicates the validity of the living unit address sent to LFACS. It is produced whenever the Outside Plant contract involves a request to LFACS.

- *Loop Return Code:*

  The LPRC tag indicates the results of the loop inquiry or loop reservation.

Refer to Appendix D for a description of each return code. (Some return codes are not applicable to all loop activities).

4.7.3 Additional Data Aggregates Provided in *OSPR Section

There are fourteen additional data aggregates that may appear in the *OSPR section. In the general format shown previously, they appear in bold typeface at the end of the *OSPR section. These additional data aggregates are included only when specific return codes and values appear in the CTL aggregate. Table 4-3 shows the relationships between return code values and additional data aggregates. The individual data items that would appear with the additional data aggregates are described in the sections that follow the table.

Table 4-3. *OSPR CTL Return Codes and Related Data Aggregates

Return Code	Value	Related Data Aggregate
SARC	010	SAGAM
SARC	004	STRM
SARC	006	DESCRIPM
SARC	007,014	ARGM
SARC	008	ADDRM
SARC	009	STRARGM
SARC	012,013	BADRM
SARC	013	PARDESCRIP
SARC	> 100	SAGINFO
SARC	102-106	STRINFO
LURC	004	SIMSTRPT
LURC	003	LUM
LURC	002	LUINFO
LPRC	101,102, 201,202	LPINFO

4.7.3.1 *OSPR Section Format: SAG Area Menu

The data items in the SAGAM aggregate of the *OSPR section are identical to those in the SAGAM aggregate of the *SNSR section. (See the description of the *SNSR section in this document.)

4.7.3.2 *OSPR Section Format: Street Name Menu for More than One Partial Match

The data items in the STRM aggregate of the *OSPR section are identical to those in the STRM aggregate of the *SNSR section. (See the description of the *SNSR section in this document.)

4.7.3.3 *OSPR Section Format: Descriptive Name Menu for More than One Partial Match

The data items in the DESCRIPM aggregate of the *OSPR section are identical to those in the DESCRIPM aggregate of the *SNSR section. (See the description of the *SNSR section in this document.)

4.7.3.4 *OSPR Section Format: House Number/AHN Number Menu

The data items in the ARGM aggregate of the *OSPR section are identical to those in the ARGM aggregate of the *SNSR section. (See the description of the *SNSR section in this document.)

4.7.3.5 *OSPR Section Format: Address Duplicated (Community/State Menu)

The data items in the ADDRM aggregate of the *OSPR section are identical to those in the ADDRM aggregate of the *SNSR section. (See the description of the *SNSR section in this document.)

4.7.3.6 *OSPR Section Format: Street Name/Address Range Menu

The data items in the STRARGM aggregate of the *OSPR section are identical to those in the STRARGM aggregate of the *SNSR section. (See the description of the *SNSR section in this document.)

4.7.3.7 *OSPR Section Format: Select Basic Address Menu

The data items in the BADRM aggregate of the *OSPR section are identical to those in the BADRM aggregate of the *SNSR section. (See the description of the *SNSR section in this document.)

4.7.3.8 *OSPR Section Format: Partial Match on Descriptive

The data items in the PARDESCRIP aggregate of the *OSPR section are identical to those in the PARDESCRIP aggregate of the *SNSR section. (See the description of the *SNSR section in this document.)

4.7.3.9 *OSPR Section Format: Living Unit Menu

The data items in the LUM aggregate of the *OSPR section are identical to those in the LUM aggregate of the *SNSR section. (See the description of the *SNSR section in this document.)

4.7.3.10 *OSPR Section Format: Similar Street Report

The data items in the SIMSTRPT aggregate of the *OSPR section are identical to those in the SIMSTRPT aggregate of the *SNSR section. (See the description of the *SNSR section in this document.)

4.7.3.11 *OSPR Section Format: SAG Information

The following identifies the *OSPR SAG-related data items returned for a valid input street address. A SAGINFO aggregate is returned for any of the following return codes in the CTL aggregate:

SARC = all return codes greater than 100.

```
SAGINFO{                  SAG information
    SAGA = ...;           SAG area
    CNA1 = ...;           Alternate community name 1 [opt]
    CNA2 = ...;           Alternate community name 2 [opt]
    ALT = ...;            Alternate address [opt]
    DESCRIP = ...;        Descriptive address [opt]
    WC = ...;             Wire center
    ZIP = ...;            Zip code [opt]
    CNA = ...;            Community name
    CNARQ = ...;          Community name required indicator [opt]
    STN = ...;            State name
    STNRQ = ...;          State name required indicator [opt]
}
```

4.7.3.12 *OSPR Section Format: Modified Street Information

The data items in the STRINFO aggregate of the *OSPR section are identical to those in the STRINFO aggregate of the *SNSR section. (See the description of the *SNSR section in this document.)

4.7.3.13 *OSPR Section Format: Modified Living Unit Information

The data items in the LUINFO aggregate of the *OSPR section are identical to those in the LUINFO aggregate of the *SNSR section. (See the description of the *SNSR section in this document.)

4.7.3.14 *OSPR Section Format: Successful Loop Inquiry

The following identifies the *OSPR data items returned when the loop inquiry is partially successful. This type of *OSPR is returned for any of the following return codes in the CTL aggregate:

LPRC = 101 and 102.

```
LPINFO{                        Loop information
    NUMSP = ...;               Number of spare loops
    NUMCF = ...;               Number of connected facilities
}
```

4.7.3.15 *OSPR Section Format: Successful Loop Reservation

The following identifies the *OSPR data items returned when the loop
reservation is partially successful. This type of *OSPR is returned for any of the
following return codes in the CTL aggregate:

LPRC = 201 and 202.

```
LPINFO{                        Loop information
    NUMRSV = ...;              Number of reserved loops
    NUMCF = ...;               Number of connected facilities
}
```

4.8 Request for TN List Selection/Return (*RTNL) Section

The *RTNL section is required in the request message of the TN List Selection/Return contract (UPDTNL). It contains the data needed to *select* or *return* TNs from a TN list established for a regular Centrex group.

4.8.1 General *RTNL Section Format

The data items† for the *RTNL section are:

```
*RTNL{
   CTL{                     Control data
      TNACT = ...;          TN activity
   }

   ACL{                     Action line
      MAINTN{               Main TN
         NPA = ...;         Main NPA
         NXX = ...;         Main NXX
         LINE = ...;        Main line
      }
      SPTN{                 Specified TN {0-1}
         TN{                Telephone number
            NPA = ...;      NPA
            NXX = ...;      NXX
            LINE = ...;     Line
         }
         TNRNG{             TN range
            NPA = ...;      NPA
            NXX = ...;      NXX
            LOLN = ...;     Low line
            HILN = ...;     High line
         }
      }
```

---

† Data items shown in the *general* section format do not indicate whether they are optional, conditional, or required. This information is supplied in the subsequent sections.

```
UNSPTN{                        Unspecified TN {0-1}
    NUMTN = ...;               Number of TNs
    CON = ...;                 Consecutive indicator < Y = Yes>
    NPA = ...;                 NPA
    NXX = ...;                 NXX
}
}
}%
```

The CTL aggregate identifies certain control information. In particular, the TN activity code (TNACT) is used to determine the type of activity to be performed:

- Select TNs (TNACT = S)

- Return TNs (TNACT = R).

The ACL aggregate contains the specific information required to perform the TN list activity. The information that SNS requires in each ACL aggregate varies, depending upon the TNACT code that appears in the CTL aggregate. The following subsections explain how the *RTNL section should be constructed.

4.8.2 *RTNL Section Format: Selection of Non-Specific TNs

SNS uses the information provided in the *RTNL section to select non-specific TNs associated with a regular Centrex group. For an existing Centrex customer, a main TN (MAINTN) should be specified on input so that SNS can *derive* the Centrex group to which it belongs. In the TNLIST database, each regular Centrex group is associated with a main TN. If SNS does not find that the MAINTN is a main TN associated with a Centrex group in TNLIST, SNS instead derives the group based on its existence in a TN list.

When a number of TNs is requested for selection, the *RTNL may optionally indicate whether the TNs should be selected from a particular NPA-NXX and/or whether the selected TNs should be consecutive.

As a reminder:

The *RTNL section is one section in the UPDTNL request message. The structure of the sections in the UPDTNL request is as follows:

 *C1 section
 *PLHDR section
 *SNSHDR section
 *RTNL section.

The following data items may appear in the *RTNL section:

```
*RTNL{

    CTL{                    Control data
        TNACT = S;          TN activity
    }


    ACL{                    Action line
        MAINTN{             Main TN
            NPA = ...;      Main NPA
            NXX = ...;      Main NXX
            LINE = ...;     Main line
        }
        UNSPTN{             Unspecified TN
            NUMTN = ...;    Number of TNs to select
            CON = ...;      Consecutive indicator < Y = Yes> [opt]
            NPA = ...;      NPA [conditional — required if NXX specified]
            NXX = ...;      NXX [conditional — required if NPA specified]
        }
    }
}%
```

4.8.3 *RTNL Section Format: TN Return

SNS uses the information provided in the *RTNL section to return TNs back to the original list from which they were selected. The *RTNL may identify these TNs as individual TNs or as ranges of TNs. Return on a range basis is only meant to minimize the amount of data provided in the input request.

> As a reminder:
>
> The *RTNL section is one section in the UPDTNL request message. The structure of the sections in the UPDTNL request is as follows:
>
> *C1 section
> *PLHDR section
> *SNSHDR section
> *RTNL section.

The following data items may appear in the *RTNL section:

```
*RTNL{

    CTL{                    Control data
        TNACT = R;          TN activity
    }

    ACL{                    Action line
        SPTN{               Specified TN
            TN{             Telephone number {0-N}, where N = the number
                            of individual TNs to return
                NPA = ...;  NPA
                NXX = ...;  NXX
                LINE = ...; Line
            }
            TNRNG{          TN range {0-N}, where N = the number of TN
                            ranges to return
                NPA = ...;  NPA
                NXX = ...;  NXX
                LOLN = ...; Low line
                HILN = ...; High line
            }
        }
    }
}%
```

4.9 TN List Selection/Return Response (*TNLR) Section

The *TNLR section returned in the response message indicates the results of the TN selection or return activity in the UPDTNL request message. It may also identify errors and discrepancies.

4.9.1 General *TNLR Section Format

The data items† for the *TNLR section are shown in the following general format. The items shown in regular typeface reflect the data provided in the original request (*RTNL section). The original input data from the *RTNL section of the request message is always provided in the corresponding *TNLR section of the response message. (The original input data shown in this general format does not indicate multiple occurrences of data items, since that depends on the information provided in the request message.) The items shown in bold typeface represent the response data that SNS supplies. The first group of response data − from IERC to TNRC − includes the CTL aggregate return codes. The second group of response data − from TNGRPINFO through SPTNINFO − shows the additional data aggregates that may appear in the *TNLR section.‡ The return codes and the additional data aggregates are explained in the sections that follow the general format.

> As a reminder:
>
> The *TNLR section is one section in the response message. The structure of the sections in the response message is as follows:
>
> > *C2 section
> > *PLHDR section
> > *SNSHDR section
> > *TNLR section.

---

† Data items shown in the *general* section format do not indicate whether they are optional, conditional or required. This information is supplied in the subsequent sections.

‡ In an actual *TNLR section, each of these additional data aggregates would have data items under it. These data items are not shown in the general format; however, they are explained in subsequent sections.

```
*TNLR{

  CTL{                            Control data
    TNACT = ...;                  TN activity

    IERC = ...;                   Input error return code {0-N}, where N = the
                                  number of input errors detected
    TNRC = ...;                   TN return code {0-1}
  }

  ACL{                            Action line
    MAINTN{                       Main TN
      NPA = ...;                  Main NPA
      NXX = ...;                  Main NXX
      LINE = ...;                 Main line
    }
    SPTN{                         Specified TN {0-1}
      TN{                         Telephone number
        NPA = ...;                NPA
        NXX = ...;                NXX
        LINE = ...;               Line
      }
      TNRNG{                      TN range
        NPA = ...;                NPA
        NXX = ...;                NXX
        LOLN = ...;               Low line
        HILN = ...;               High line
      }
    }
    UNSPTN{                       Unspecified TN {0-1}
      NUMTN = ...;                Number of TNs
      CON = ...;                  Consecutive indicator <Y = Yes>
      NPA = ...;                  NPA
      NXX = ...;                  NXX
    }
  }

  TNGRPINFO{                      TN group information {0-1}
  }
```

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```
UNSPTNINFO{            Unspecified TN information {0-1}
}
SPTNINFO{              Specified TN information {0-1}
}
}%
```

4.9.2 CTL Aggregate Return Codes

There are two return codes that may be included with the CTL aggregate data. In the general format above, they are shown in bold typeface under the CTL aggregate. These return codes are:

- *Input Error Return Code:*

  The contract originator is responsible for providing SNS with a valid TN List Selection/Return request message that conforms to the specifications outlined in this document. However, if SNS detects a critical *input error* condition that prevents it from continuing its processing, it notifies the originator of the problem via the IERC tag. The value associated with the tag indicates the error condition. This tag may appear multiple times to identify multiple input errors.

- *TN Return Code:*

  The TNRC tag indicates the results of the TN selection or return.

Refer to Appendix D for a description of each return code. (Some return codes are not applicable to all TN activity types).

4.9.3 Additional Data Aggregates Provided in *TNLR Section

There are three additional data aggregates that may appear in the *TNLR section. In the general format shown previously, they appear in bold typeface at the end of the *TNLR section. These additional data aggregates are included only when specific values of the TNRC return code appear in the CTL aggregate. Table 4-4 shows the relationships between TNRC values and additional data aggregates. The individual data items that would appear with the additional data aggregates are described in the sections that follow the table.

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Table 4-4. TNRC Values and Related Data Aggregates

TNRC Value	Related Data Aggregate
104-1, 105-1, 106-1	TNGRPINFO
104, 104-1, 106, 106-1, 107, 107-1, 108, 108-1	UNSPTNINFO
202	SPTNINFO

4.9.3.1 *TNLR Section Format: TN Group Information

The following identifies the *TNLR data items returned when the input MAINTN differs from the main TN of the regular Centrex group to which the input TN belongs.

A TNGRPINFO aggregate is returned for any of the following return codes in the CTL aggregate:

TNRC = 104-1, 105-1 and 106-1.

```
TNGRPINFO{                    TN group information
    MAINTN{                   Main TN
        NPA = ...;            Main NPA
        NXX = ...;            Main NXX
        LINE = ...;           Main line
    }
}
```

4.9.3.2 *TNLR Section Format: TN Selection of Unspecified TNs

The following identifies the *TNLR data items returned to indicate the results of the TN selection when particular TNs were not specified. An UNSPTNINFO aggregate is returned for any of the following return codes in the CTL aggregate:

TNRC = 104, 104-1, 106, 106-1, 107, 107-1, 108, and 108-1.

```
UNSPTNINFO{                   Unspecified TN information
    TNS{                      Successful TNs
        NUMSEL = ...;         Number of TNs selected
        TN{                   Telephone number {0-N}, where N = the number
                              of non-consecutive TNs selected
            NPA = ...;        NPA
```

```
        NXX = ...;              NXX
        LINE = ...;             Line
    }
    TNRNG{                      TN range {0-N}, where N = the number of groups
                                of consecutive TNs selected
        NPA = ...;              NPA
        NXX = ...;              NXX
        LOLN = ...;             Low line
        HILN = ...;             High line
    }
  }
}
```

4.9.3.3 *TNLR Section Format: TN Return Information

The following identifies the *TNLR data items supplied when the TN return was only partially successful. An SPTNINFO aggregate is returned when the following return code appears in the CTL aggregate:

TNRC = 202.

```
SPTNINFO{                       Specified TN information
    TNS{                        Successful TNs
        NUMRET = ...;           Number of TNs returned
        TN{                     Telephone number {0-N}, where N = the number
                                of individual specified TNs that were returned
            NPA = ...;          NPA
            NXX = ...;          NXX
            LINE = ...;         Line
        }
        TNRNG{                  TN range {0-N}, where N = the number of
                                specified TNs that were returned, grouped in ranges
                                (these ranges may not match the ranges in the
                                original request)
            NPA = ...;          NPA
            NXX = ...;          NXX
            LOLN = ...;         Low line
            HILN = ...;         High line
        }
    }
```

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```
TNERR{                    TN error
   TN{                    Telephone number {0-N}, where N = the number
                          of individual TNs that could not be returned
      NPA = ...;          NPA
      NXX = ...;          NXX
      LINE = ...;         Line
   }
   TNRNG{                 TN range {0-N}, where N = the number of TNs
                          that could not be returned, in terms of ranges
      NPA = ...;          NPA
      NXX = ...;          NXX
      LOLN = ...;         Low line
      HILN = ...;         High line
   }
}
}
```

5. Negotiation Dialogue Contracts

This section presents the five negotiation dialogue contracts defined to support Digital Centrex negotiations in the SNS Release 2.0. These dialogue contracts are:

- Line Negotiation Support Contract (SNSNEG) — Assists in service request administration, network data inquiries, and TN selection and return

- Service Specification Contract (SVCSPC) — Identifies associated service orders issued during the negotiation dialogue

- Order Completion Contract (ORDCMP) — Processes the completed order and ends the negotiation dialogue

- Hold Contract (HOLDSR) — Places a negotiation dialogue on hold and saves current service request data

- Retrieve Contract (RTRVSR) — Retrieves service request data that was placed on hold.

This section describes the FCIF structure of the negotiation dialogue contracts and explains the FCIF sections that are specific to the negotiation dialogue contracts. The FCIF sections that are common to all SNS contracts — *C1, *C2, *PLHDR, *SNSHDR, and *UMSG — are presented in Section 3 in this document.

5.1 Line Negotiation Support Contract (SNSNEG)

The Line Negotiation Support contract supports the negotiation of Digital Centrex lines and groups involved in a service request. This contract consists of a request message and a response message. The FCIF sections in the request message are as follows:

*C1	Control Header section
*PLHDR	Provisioning Platform Header section
*SNSHDR	SNS Header section
*RSRA	Request for Service Request Administration section (optional)
*RNDI	Request for Network Data Inquiry section (optional)
*RTNI	Request for TNLIST Inventory section (optional)

NOTE

The *SNSHDR is required in the request message since the contract invoker must supply the date and time. The use of this data is described later.

The FCIF sections in the response message are as follows:

*C2	Control Header section
*PLHDR	Provisioning Platform Header section
*UMSG	User Message section (optional)
*SNSHDR	SNS Header section
*SRAR	Service Request Administration Response section (optional)
*NDIR	Network Data Inquiry Response section (optional)
*TNIR	TNLIST Inventory Response section (optional)

5.1.1 Line Negotiation Support Contract: Request Message

This contract is designed so that multiple requests may be initiated in one contract invocation (request message). These requests are structured in terms of the following FCIF sections:

- The *RSRA section is used to trigger a Service Request Administration activity in SNS:

  - Establish a service request.

  - Modify a service request.

  - Cancel a service request.

  Based on the type of negotiation, SNS derives data from the service request (e.g., serving network element) that is used for all subsequent requests pertaining to this session.

- The *RNDI section is used to request one or more Network Data Inquiries.

- The *RTNI section is used to request one or more TNLIST Inventory Updates.

Once a service request has been established in SNS, network data inquiries and network resource updates may be requested for this negotiation. It is possible to "couple" them along with a service request administration activity, provided the service request is not being canceled. However, if the service request administration activity is unsuccessful, SNS will *not* attempt to process the other requests in the message, since these requests are dependent upon the service request data.

With one exception, SNS does not impose any restrictions on *when* SNSNEG contracts can be invoked. (This exception is described later.) The contract is designed to support asynchronous invocations. The input date/time stamp supplied in the *SNSHDR is used to detect service request timing problems that may arise on rare occasions. By comparing this date/time stamp to the date and time that the service request was established or last modified, SNS can determine whether to continue processing the contract against the current service request data. Any "pending" requests sent before the last service request administration activity will not be completed (in case the data they rely on has been modified). There is one situation that does, however, impose a restriction. The contract invoker is expected to *wait* for the response to a service request administration activity before submitting any subsequent requests. The invoker should wait for a confirmation that the update did in fact take place. Otherwise, it would be ambiguous what service request data was actually in effect at the time subsequent requests were processed.

When SNS receives multiple network inquiries and/or network resource update requests in a message, it processes each request independently. Only one response message is returned when all requests have been processed.

5.1.1.1 Request for Service Request Administration (*RSRA) Section

The *RSRA section contains the data needed to perform a service request administration activity. When the Line Negotiation Support contract is invoked, SNS processes this type of request first, if one exists in the request message.

5.1.1.1.1 General *RSRA Section Format

The data items† for the *RSRA section are:

*RSRA{	Request for Service Request Administration
CTL{	Control data
SROPT = ...;	Service request option
	< E = Establish,M = Modify,C = Cancel>
}	End CTL aggregate
ACL{	Action line
NEGACT = ...;	Negotiation activity < A = Add Line(s),
	C = Change existing service>
MAINTN{	Main Centrex TN
NPA = ...;	NPA
NXX = ...;	NXX
LINE = ...;	Line number
}	End MAINTN aggregate
CUST = ...;	Customer name
SA{	Service address
SAGA = ...;	SAG area
ZIP = ...;	ZIP code
ADDR{	Address
BADR{	Basic address
BAD = ...;	Basic address designation
AHN = ...;	Assigned house number
STR = ...;	Street name
CNA = ...;	Community name
STN = ...;	State name
}	End BADR aggregate

---

† Data items shown in the *general* section format do not indicate whether they are optional, conditional, or required. This information is supplied in the subsequent sections.

```
        SUPL{                Supplemental address data (LOC)
             STYP = ...;     Structure type
             SID = ...;      Structure ID
             ETYP = ...;     Elevation type
             EID = ...;      Elevation ID
             UTYP = ...;     Unit type
             UID = ...;      Unit ID
          }                  End SUPL aggregate
        }                    End ADDR aggregate
      }                      End SA aggregate
      SERVICE = C;           Type of service - Digital Centrex
      PROD = ...;            Product
      CONFIRM = ...;         Confirmation to continue modification and
                             return selected inventory < Y = Yes >
    }                        End ACL Aggregate
}%                           End *RSRA section
```

The CTL aggregate identifies certain control information. In particular, the service request option (SROPT) is used to determine the type of activity to be performed:

- Establish a service request (SROPT = E)

- Modify a service request (SROPT = M)

- Cancel a service request (SROPT = C).

The ACL aggregate contains the specific information required to perform the service request administration activity. The information that SNS requires in each ACL aggregate varies, depending upon the SROPT code that appears in the CTL aggregate. The following subsections explain how the *RSRA section should be constructed.

5.1.1.1.2 *RSRA Format: Establish Service Request

This request establishes a service request to add Digital Centrex lines or to change an existing Digital Centrex customer's service (e.g., line features). SNS determines the network element associated with the customer's Centrex group, based on the main TN provided on input. For better efficiency, the main TN of the Centrex group should be specified. If, however, the main Centrex TN is unknown, a TN within the Centrex group may be provided instead.

- If successful, all subsequent requests for this service request are based on this serving network element and service request data (unless modified).

- If unsuccessful, SNS does not establish the service request, since it is unable to provide further assistance.

*RSRA{	Request for Service Request Administration
CTL{	Control data
SROPT = E;	Service request option - establish service request
}	End CTL aggregate
ACL{	Action line
NEGACT = ...;	Negotiation activity < A = Add Line(s), C = Change existing service >
MAINTN{	Main Centrex TN
NPA = ...;	NPA
NXX = ...;	NXX
LINE = ...;	Line number
}	End MAINTN aggregate
CUST = ...;	Customer name [opt]
SA{	Service address
SAGA = ...;	SAG area [conditional - required if ZIP not specified]
ZIP = ...;	ZIP code [conditional - required if SAGA not specified]
ADDR{	Service address
BADR{	Basic address
BAD = ...;	Basic address designation [conditional - required if AHN not specified]
AHN = ...;	Assigned house number [conditional - required if BAD not specified]
STR = ...;	Street name
CNA = ...;	Community name [opt]
STN = ...;	State name [opt]
}	End BADR aggregate
SUPL{	Supplemental address data (LOC) [opt]
STYP = ...;	Structure type [opt]
SID = ...;	Structure ID [opt]
ETYP = ...;	Elevation type [opt]
EID = ...;	Elevation ID [opt]
UTYP = ...;	Unit type [opt]
UID = ...;	Unit ID [opt]

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```
        }                       End SUPL aggregate
      }                         End ADDR aggregate
    }                           End SA aggregate
    SERVICE = C;                Type of service - Digital Centrex
    PROD = ...;                 Product [opt]
  }                             End ACL aggregate
}%                              End *RSRA section
```

5.1.1.1.3 *RSRA Format: Modify Service Request

This request modifies a service request established earlier in SNS.† The modification request should include the new service request data along with the original data that has not changed. The only difference in the FCIF message format is the use of the *modify* service request option (SROPT = M). The type of service and negotiation activity must remain the same. A change to this type of information requires a cancellation of the existing service request and the establishment of a brand new service request.

When SNS receives a service request modification, it performs the processing that was described in the original request. If the modification results in a different Centrex group and TNs have already been selected, one of the following scenarios occurs:

- SNS does not proceed with the modification until it receives a confirmation (CONFIRM = Y) that the selected TNs should be returned. When SNS receives this confirmation, it first returns the TNs and then proceeds with the modification.

- SNS does not proceed with the modification if it results in a different network element, and service orders have already been issued based on the original network element. In this case, the service orders should be canceled and a brand new service request should be established.

Whenever a modification is successful, SNS indicates what other impacts the modification *may* have had on the negotiation. In this way, SNS alerts the contract invoker that data provided earlier may no longer be pertinent. SNS provides a warning when these situations occur, thereby allowing the negotiator to reuse as much of the negotiation as possible.

---

† The service request to be modified is identified by the service request number in the *C1 header.

5.1.1.1.4 *RSRA Format: Cancel Service Request

This request cancels the service request in SNS. In doing so, SNS also returns any selected inventory.

```
*RSRA{                    Request for Service Request Administration
    CTL{                  Control data
        SROPT = C;        Service request option- cancel service request
    }                     End CTL aggregate
}%                        End *RSRA section
```

5.1.1.2 Request for Network Data Inquiry (*RNDI) Section

The *RNDI section contains the data needed to perform a network data inquiry to obtain:

- Customer system data

- Network element characteristics

- Feature package information

- Feature group information

- In-service view of a series completion hunt group

- Customer premises equipment information

5.1.1.2.1 General *RNDI Section Format

The data items† for the *RNDI section are:

```
*RNDI{                    Request for Network Data Inquiry
    REC{                  Record {1-N}, where N equals the number of
                          Network Data Inquiry Requests
        CTL{              Control data
```

---

† Data items shown in the *general* section format do not indicate whether they are optional, conditional, or required. This information is supplied in the subsequent sections.

```
          NDIOPT = ...;              Network data inquiry option:
                                     < CUST = Customer System Data,
                                       NE = Network Element Characteristics,
                                       FPKG = Feature Package,
                                       FGRP = Feature Group,
                                       SCH = Series Completion Hunt Group In-
                                       Service View,
                                       CPE = Customer Premises Equipment >
      }                              End CTL Aggregate
      ACL{                           Action line
          ALL = ...;                 All information  < Y = Yes >
          FGRP = ...;                Feature group name
          FPKG = ...;                Feature package name
          TN{                        Telephone number (lead or pilot)
              NPA = ...;             NPA
              NXX = ...;             NXX
              LINE = ...;            Line number
          }                          End TN aggregate
          SET{                       CPE set
              CPEMAN = ...;          CPE manufacturer
              CPEMOD = ...;          CPE model
          }                          End CPE set aggregate
      }                              End ACL aggregate
  }                                  End REC aggregate
}%                                   End *RNDI section
```

Each record aggregate within the *RNDI section corresponds to a specific
request and contains the data needed to process that request. The NDIOPT tag
indicates which Network Data Inquiry option is being invoked. Only one option
may be specified per record. However, multiple requests (REC aggregates) are
allowed. The following sections describe the appropriate input data for each
type of network data inquiry request.

5.1.1.2.2 *RNDI Format: Customer System Data Request

This request obtains the default customer system data for a Centrex group.

```
*RNDI{                             Request for Network Data Inquiry
   REC{                            Record
       CTL{                        Control data
```

```
            NDIOPT = CUST;    Customer system data option
         }                    End CTL Aggregate
      }                       End REC aggregate
}%                            End *RNDI section
```

5.1.1.2.3 *RNDI Format: Network Element Characteristics Request

This request obtains the characteristics of the serving network element.

```
*RNDI{                       Request for Network Data Inquiry
   REC{                      Record
      CTL{                   Control data
         NDIOPT = NE;        Network element characteristics option
      }                      End CTL aggregate
   }                         End REC aggregate
}%                           End *RNDI section
```

5.1.1.2.4 *RNDI Format: Feature Package Information Request

This request obtains feature package information, based on the requested product.

One of the following options may be requested:

- Provide a "list" of feature packages that can be offered to the customer. The optional FPKG and ALL tags are not specified on input.

- Obtain a description of a particular feature package. SNS identifies features associated with the specified feature package. The optional FPKG tag is specified on input.

- Provide all of the above feature package information. For each feature package available for the product, SNS identifies the features associated with each feature package. The optional ALL tag is specified on input.

```
*RNDI{                       Request for Network Data Inquiry
   REC{                      Record {1-N}, where N = the number of feature
                             package requests
      CTL{                   Control data
         NDIOPT = FPKG;      Feature package option
      }                      End CTL aggregate
      ACL{                   Action line
```

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```
        FPKG = ...;          Feature package name [opt]
        ALL = Y;             All feature package information [opt]
     }                       End ACL aggregate
   }                         End REC aggregate
}%                           End *RNDI section
```

5.1.1.2.5 *RNDI Format: Feature Group Information Request

This request performs one of two functions:

1. Identify the feature groups that can be offered to the Digital Centrex customer, based on the customer's serving network element type and generic. The optional FGRP tag is not specified on input.

2. Identify the sub-features associated with the specified feature group that are actually available in the customer's serving network element. The optional FGRP tag is specified on input.

```
*RNDI{                       Request for Network Data Inquiry
    REC{                     Record {1-N}, where N = the number of
                             feature group requests
        CTL{                 Control data
            NDIOPT = FGRP;   Feature group option
        }                    End CTL aggregate
        ACL{                 Action line
            FGRP = ...;      Feature group name [opt]
        }                    End ACL aggregate
    }                        End REC aggregate
}%                           End *RNDI section
```

5.1.1.2.6 *RNDI Format: Series Completion Hunt Group In-Service View Request

This request determines the members of a series completion hunt group.

```
*RNDI{                       Request for Network Data Inquiry
    REC{                     Record {1-N}, where N = the number of SCH
                             requests
        CTL{                 Control data
```

```
          NDIOPT = SCH;    . Series completion hunt group in-service view
                             option
      }                      End CTL aggregate
      ACL{                   Action line
          TN{                Lead telephone number
              NPA = ...;     NPA
              NXX = ...;     NXX
              LINE = ...;    Line number
          }                  End TN aggregate
      }                      End ACL aggregate
   }                         End REC aggregate
}%                           End *RNDI section
```

5.1.1.2.7 *RNDI Format: CPE Information Request

This request performs one of two functions:

1. Identify the customer premises equipment that is compatible with the customer's serving network element. The SET aggregate is not specified on input.

2. Describe a particular CPE. The SET aggregate is specified on input.

```
*RNDI{                       Request for Network Data Inquiry
    REC{                     Record {1-N}, where N = the number of
                             CPE requests
        CTL{                 Control data
            NDIOPT = CPE;    Customer premises equipment option
        }                    End CTL aggregate
        ACL{                 Action line
            SET{             CPE set [opt]
                CPEMAN = ...;  CPE manufacturer
                CPEMOD = ...;  CPE model
            }                End SET aggregate
        }                    End ACL aggregate
    }                        End REC aggregate
}%                           End *RNDI section
```

5.1.1.3 Request for TN List Inventory (*RTNI) Section

The *RTNI section contains the data needed to perform one or more TNLIST inventory updates to select or return TNs.

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5.1.1.3.1 General *RTNI Section Format

The data items† for the *RTNI section are:

```
*RTNI{                          Request for TNLIST Inventory
    REC{                        Record {1-N}, where N = the number of
                                TN list inventory requests
        CTL{                    Control data
            TNACT = ...;        TN activity  < S = Select,R = Return >
        }                       End CTL aggregate
        ACL{                    Action line
            SPTN{               Specified TN(s)
                TN{             Telephone number
                    NPA = ...;  NPA
                    NXX = ...;  NXX
                    LINE = ...; Line number
                }               End TN aggregate
                TNRNG{          TN range
                    NPA = ...;  NPA
                    NXX = ...;  NXX
                    LOLN = ...; Low line number
                    HILN = ...; High line number
                }               End TNRNG aggregate
            }                   End SPTN aggregate
            UNSPTN{             Unspecified TN(s)
                NUMTN = ...;    Number of TNs
                CON = ...;      Consecutive indicator < Y = Yes >
                NPA = ...;      NPA
                NXX = ...;      NXX
                ALLTN = ...;    All TNs required flag < N = No >
            }                   End UNSPTN aggregate
        }                       End ACL aggregate
    }                           End REC aggregate
}%                              End *RTNI section
```

---

† Data items shown in the *general* section format do not indicate whether they are optional, conditional, or required. This information is supplied in the subsequent sections.

Each REC aggregate corresponds to an individual TNLIST inventory request and contains the data needed to process that request.

The CTL aggregate within each record identifies certain control information. In particular, the TN activity code (TNACT) is used to determine the type of activity to be performed:

- Select TNs (TNACT = S)

- Return TNs (TNACT = R).

The ACL aggregate contains the specific information required to perform the TNLIST activity. The information that SNS requires in each ACL aggregate varies, depending upon the TNACT code that appears in the CTL aggregate. In the case of TN selection, *either* specific TNs *or* non-specific TNs may be requested in each REC aggregate. The following subsections explain how the *RTNI section should be constructed.

5.1.1.3.2 *RTNI Section Format: Selection of Non-Specific TNs

This request selects non-specific TNs for a customer. A request may optionally indicate whether the TNs should be selected from a particular NPA-NXX or the TNs should be consecutive.

If all of the requested TNs are not available for selection, SNS does not select any TNs for the request, *unless* all TNs are not required (ALLTN = N). In this case, SNS selects the smaller subset of TNs that are available to partially fulfill the request.

*RTNI{	Request for TNLIST Inventory
REC{	Record {1-N}, where N = the number of TNlIST inventory requests
CTL{	Control data
TNACT = S;	TN selection activity
}	End CTL aggregate
ACL{	Action line
UNSPTN{	Unspecified TN(s)
NUMTN = ...;	Number of TNs
CON = ...;	Consecutive indicator < Y = Yes> [opt]
NPA = ...;	NPA [opt - required if NXX specified]
NXX = ...;	NXX [opt - required if NPA specified]
ALLTN = ...;	All TNs required flag < N = No> [opt]
}	End UNSPTN aggregate

```
        }                      End ACL aggregate
     }                         End REC aggregate
}%                             End *RTNI section
```

5.1.1.3.3 *RTNI Section Format: Selection of Specific TNs

This request selects specific TNs for a customer. These TNs may be identified as individual TNs or as ranges of TNs. Selection on a range basis is meant to minimize the amount of data provided in the input request. (It has no bearing on the TN selection algorithm.)

If all of the requested TNs are not available for selection, SNS selects those TNs that can be selected.

```
*RTNI{                         Request for TNLIST Inventory
    REC{                       Record {1-N}, where N = the number of
                               TNLIST inventory requests
        CTL{                   Control data
            TNACT = S;         TN selection activity
        }                      End CTL aggregate
        ACL{                   Action line
            SPTN{              Specified TN(s)
                TN{            Telephone number {0-N}, where N = the
                               number of individual TNs to select
                    NPA = ...;  NPA
                    NXX = ...;  NXX
                    LINE = ...; Line number
                }              End TN aggregate
                TNRNG{         TN range {0-N}, where N = the number of
                               TN ranges to select
                    NPA = ...;  NPA
                    NXX = ...;  NXX
                    LOLN = ...; Low line number
                    HILN = ...; High line number
                }              End TNRNG aggregate
            }                  End SPTN aggregate
        }                      End ACL aggregate
    }                          End REC aggregate
}%                             End *RTNI section
```

5.1.1.3.4 *RTNI Section Format: TN Return

This request returns TNs that were selected during the negotiation of this service request back to the original list from which they were selected. These TNs may be identified as individual TNs or as ranges of TNs. *SNS will not return any TNs that were not selected for this service request.* Return on a range basis is meant to minimize the amount of data provided in the input request.

```
*RTNI{                          Request for TNLIST Inventory
    REC{                        Record {1-N}, where N = the number of
                                TNLIST inventory requests
        CTL{                    Control data
            TNACT = R;          TN return activity
        }                       End CTL aggregate
        ACL{                    Action line
            SPTN{               Specified TN(s)
                TN{             Telephone number {0-N}, where N = the
                                number of individual TNs to return
                    NPA = ...;  NPA
                    NXX = ...;  NXX
                    LINE = ...; Line number
                }               End TN aggregate
                TNRNG{          TN range {0-N}, where N = the number of
                                TN ranges to return
                    NPA = ...;  NPA
                    NXX = ...;  NXX
                    LOLN = ...; Low line number
                    HILN = ...; High line number
                }               End TNRNG aggregate
            }                   End SPTN aggregate
        }                       End ACL aggregate
    }                           End REC aggregate
}%                              End *RTNI section
```

5.1.2 Line Negotiation Support Contract: Response Message

The response message contains the results of each request. Similar to the request message, the response message is structured into FCIF sections. Each response message section corresponds to a section in the request message:

- The *SRAR section contains the results of the Service Request Administration activity in SNS.

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- The *NDIR section contains the results of the requested Network Data Inquiry activities.

- The *TNIR section contains the results of the requested TNLIST Inventory Update activities.

5.1.2.1 Service Request Administration Response Section (*SRAR)

The *SRAR section contains the results of the service request administration activity.

5.1.2.1.1 General *SRAR Section Format

The data items† for the *SRAR section are shown in the following general format. The items shown in regular typeface reflect the data provided in the original request (*RSRA section). The original input data from the *RSRA section of the request message is always provided in the corresponding *SRAR section of the response message. (The original input data shown in this general format does not indicate multiple occurrences of data items, since that depends on the information provided in the request message.) The items shown in bold typeface represent the response data that SNS supplies. The first group of response data — IERC and SRRC — includes the CTL aggregate return codes. The second group of response data shows the additional data aggregates that may appear in the *SRAR section.‡ The return codes and the additional data aggregates are explained in the sections that follow the general format.

```
*SRAR{                         Service Request Administration Response
   CTL{                        Control data
      SROPT = ...;             Service request option
                                 < E = Establish,M = Modify,C = Cancel >
      IERC = ...;              Input error return code {0-N}, where
                                 N = the number of input errors
```

---

† Data items shown in the *general* section format do not indicate whether they are optional, conditional or required. This information is supplied in the subsequent sections.

‡ In an actual *SRAR section, each additional data aggregate would have data items under it. These data items are not shown in the general format; however, they are explained in subsequent sections.

SRRC = ...;	Service request return code {0-N}, where N = the number of service request processing conditions
}	End CTL aggregate
ACL{	Action line
NEGACT = ...;	Negotiation activity < A = Add Line(s), C = Change existing service >
MAINTN{	Main Centrex TN
NPA = ...;	NPA
NXX = ...;	NXX
LINE = ...;	Line number
}	End MAINTN aggregate
CUST = ...;	Customer name
SA{	Service address
SAGA = ...;	SAG area
ZIP = ...;	ZIP code
ADDR{	Address
BADR{	Basic address
BAD = ...;	Basic address designation
AHN = ...;	Assigned house number
STR = ...;	Street name
CNA = ...;	Community name
STN = ...;	State name
}	End BADR aggregate
SUPL{	Supplemental address data (LOC)
STYP = ...;	Structure type
SID = ...;	Structure ID
ETYP = ...;	Elevation type
EID = ...;	Elevation ID
UTYP = ...;	Unit type
UID = ...;	Unit ID

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```
            }                      End SUPL aggregate
          }                        End ADDR aggregate
        }                          End SA aggregate
        SERVICE = C;               Type of service - Digital Centrex
        PROD = ...;                Product
        CONFIRM = ...;             Confirmation to continue modification and
                                   return selected inventory < Y = Yes >
      }                            End ACL aggregate
      RETINV{                      Returned inventory
      }                            End RETINV aggregate
 }%                                End *SRAR section
```

5.1.2.1.1.1 CTL Aggregate Return Codes

On a response, SNS may include various return codes in the CTL aggregate.
Each provides more detail on any errors or special processing conditions
encountered.

- *Input Error Return Code*

    The contract invoker is responsible for providing SNS with a valid request
    message that conforms to the specifications outlined in this document.
    However, if SNS detects a critical input error condition that prevents it from
    continuing its processing, it notifies the contract invoker of the problem via
    the IERC tag. The value associated with the tag indicates the error
    condition. This tag may appear multiple times for multiple input errors.

- *Service Request Return Code*

    The SRRC tag indicates whether SNS was successful in performing the
    requested service request administration activity. It also alerts the contract
    invoker of any special processing conditions encountered (e.g., errors or
    warnings).

See Appendix D for a description of each return code.

If SNS was not successful in performing the requested Service Request
Administration activity, it does *not* attempt to process any of the other requests
(e.g., network data inquiries, network inventory updates) in the message.

There is one additional data aggregate that may appear in the *SRAR section.
In the general format shown previously, it appears in bold typeface at the end of
the *SRAR section. This additional data aggregate is included only when a
particular value of the SRRC return code appears in the CTL aggregate, as
described in the next section.

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5.1.2.1.2 *SRAR Section Format: Returned Inventory

The RETINV aggregate identifies the selected inventory returned as a result of the service request modification or cancellation. A RETINV aggregate is supplied when the following return code appears in the CTL aggregate:

SRRC = 007.

```
RETINV{                          Returned Inventory
    TNI{                         TN inventory returned
        TN{                      Telephone number {0-N}, where N = the number
                                 of individual TNs returned
            NPA = ...;           NPA
            NXX = ...;           NXX
            LINE = ...;          Line number
        }                        End TN aggregate
        TNRNG{                   TN range {0-N}, where N = the number of groups
                                 of consecutive TNs returned
            NPA = ...;           NPA
            NXX = ...;           NXX
            LOLN = ...;          Low line number
            HILN = ...;          High line number
        }                        End TNRNG aggregate
    }                            End TNI aggregate
    TNERR{                       TN error - TN inventory that could not be returned
        TN{                      Telephone number {0-N}, where N = the number
                                 of individual TNs that could not be returned
            NPA = ...;           NPA
            NXX = ...;           NXX
            LINE = ...;          Line
        }                        End TN aggregate
        TNRNG{                   TN range {0-N}, where N = the number of TNs
                                 that could not be returned, in terms of ranges
            NPA = ...;           NPA
            NXX = ...;           NXX
            LOLN = ...;          Low line
            HILN = ...;          High line
        }                        End TNRNG aggregate
    }                            End TNERR aggregate
}                                End RETINV aggregate
```

5.1.2.2 Network Data Inquiry Response (*NDIR) Section

The *NDIR section contains the results of the network data inquiry(ies). It may contain network-related information, as well as identify errors and discrepancies. Each REC aggregate in the *NDIR section corresponds to a specific network data inquiry response.

5.1.2.2.1 General *NDIR Section Format

The data items† for the *NDIR section are shown in the following general format. The items shown in regular typeface reflect the data provided in the original request (*RNDI section). For each REC aggregate, the original input data from the *RNDI section of the request message is always provided in the corresponding *NDIR section of the response message. (The original input data shown in this general format does not indicate multiple occurrences of data items, since that depends on the information provided in the request message.) The items shown in bold typeface represent the response data that SNS supplies. The first group of response data — IERC and NDRC — includes the CTL aggregate return codes. The second group of response data — from CUSTINFO through CPEINFO — shows the additional data aggregates that may appear in the *NDIR section.‡ The return codes and the additional data aggregates are explained in the sections that follow the general format.

```
*NDIR{                          Network Data Inquiry Response
    REC{                        Record {1-N}, where N equals the number
                                of Network Data Inquiry Responses
        CTL{                    Control data
```

---

† Data items shown in the *general* section format do not indicate whether they are optional, conditional or required. This information is supplied in the subsequent sections.

‡ In an actual *NDIR section, each of these additional data aggregates would have data items under it. These data items are not shown in the general format; however, they are explained in subsequent sections.

```
NDIOPT = ...;          Network data inquiry option:
                       < CUST = Customer System Data,
                          NE = Network Element Characteristics,
                          FPKG = Feature Package,
                          FGRP = Feature Group,
                          SCH = Series Completion Hunt Group
                       In-
                          Service View,
                          CPE = Customer Premises Equipment>
IERC = ...;            Input error return code {0-N}, where
                       N = the number of input errors
NDRC = ...;            Network data return code {0-1}
}                      End CTL aggregate
ACL{                   Action line
    ALL = ...;         All information  < Y = Yes>
    FGRP = ...;        Feature group name
    FPKG = ...;        Feature package name
    SET{               CPE set
        CPEMAN = ...;  CPE manufacturer
        CPEMOD = ...;  CPE model
    }                  End SET aggregate
    TN{                Telephone number (lead or pilot)
        NPA = ...;     NPA
        NXX = ...;     NXX
        LINE = ...;    Line number
    }                  End TN aggregate
}                      End ACL aggregate
CUSTINFO{              Customer system information {0-1}
}                      End CUSTINFO aggregate
NEINFO{                Network element information {0-1}
}                      End NEINFO aggregate
```

```
        FPKGINFO{              Feature package information {0-1}
        }                      End FPKGINFO aggregate
        FGRPINFO{              Feature group information {0-1}
        }                      End FGRPINFO aggregate
        SCHINFO{               Series completion hunt group information
                               {0-1}
        }                      End SCHINFO aggregate
        CPEINFO{               Customer premises equipment
                               information {0-1}
        }                      End CPEINFO aggregate
    }                          End REC aggregate
}%                             End *NDIR section
```

5.1.2.2.1.1 CTL Aggregate Return Codes

There are two return codes that may be included with the CTL aggregate data. In the general format above, they are shown in bold typeface under the CTL aggregate. These return codes are:

- *Input Error Return Code*

  The contract invoker is responsible for providing SNS with a valid request message that conforms to the specifications outlined in this document. However, if SNS detects a critical input error condition that prevents it from continuing its processing, it notifies the contract invoker of the problem via the IERC tag. The value associated with the tag indicates the error condition. This tag may appear multiple times for multiple input errors.

- *Network Data Return Code*

  The NDRC tag indicates whether SNS was successful in obtaining the requested network data.

See Appendix D for a description of each return code.

The only situation in which SNS does not return at least one of the above return codes is when the request was coupled with an unsuccessful service request administration activity.

5.1.2.2.2 Additional Data Aggregates in *NDIR Section

There are six additional data aggregates that may appear in the *NDIR section. In the general format shown previously, they appear in bold typeface at the end of the *NDIR section. These additional data aggregates are included only when specific values of the NDRC return code appear in the CTL aggregate. Table 5-1 shows the relationship between the NDRC return code values and the

additional data aggregates. The individual data items that would appear with the additional data aggregates are described in the sections that follow the table.

Table 5-1. NDRC Return Codes and Related Data Aggregates

NDRC Value	Related Data Aggregate
003	CUSTINFO
001	NEINFO
007, 008, or 010	FPKGINFO
011 or 013	FGRPINFO
028	SCHINFO
021 or 023	CPEINFO

5.1.2.2.3 *NDIR Section Format: Customer System Information

The CUSTINFO aggregate contains the default customer system data for the Centrex group. A CUSTINFO aggregate is returned when the following return code appears in the CTL aggregate:

NDRC = 003.

```
CUSTINFO{              Customer system information
    CTXGRP{            Centrex group
        CTX = ...;     Centrex group ID
        CLLI = ...;    Network element CLLI code
        CAT = ...;     Customer access treatment [opt]
        INTCPT = ...;  Intercept status [opt]
        LCC = ...;     Line class code [opt]
        PIC = ...;     Pre-designated inter-exchange carrier [opt]
        MAINTN{        Main Centrex TN [opt]
            NPA = ...;  NPA
            NXX = ...;  NXX
            LINE = ...; Line number
        }               End MAINTN aggregate
    }                   End CTXGRP aggregate
}                       End CUSTINFO aggregate
```

A main TN is returned only if it differs from the main TN provided when the service request was established.

5.1.2.2.4 *NDIR Section Format: Network Element Characteristics

The NEINFO aggregate describes the characteristics of the customer's serving network element. A NEINFO aggregate is returned when the following return code appears in the CTL aggregate:

NDRC = 001.

```
NEINFO{                    Network element information
    NECHARS{               Network element characteristics
        CLLI = ...;         Network element CLLI code
        WC = ...;           Wire center
        NETYP = ...;        Network element type
        NEGEN = ...;        Network element generic
        MXSCH = ...;        Maximum members in a SCH group [opt]
    }                       End NECHARS aggregate
}                           End NEINFO aggregate
```

5.1.2.2.5 *NDIR Section Format: Feature Package Information

The FPKGINFO aggregate contains feature package information for the requested product on the serving network element. Depending upon the request, SNS may return:

- A list of feature packages, *or*

- A description of a particular feature package, *or*

- A description of all feature packages.

In the latter two cases, SNS provides a description of each feature associated with the requested feature package(s). The following information is obtained from the Feature Catalog:

- Feature Availability

    SNS indicates whether the feature is optional in the feature package and whether it is available on a regular station set and/or electronic set.

- Feature Activation

    For each type of set that the feature can be used on, SNS indicates if the feature may be activated by dialing an access code and/or by depressing a button (key) on the set. This information is useful in configuring the set.

- Feature Scope

  For each feature that is available on an electronic business set (PSET), SNS also indicates the scope of the feature:

  — Business *Set* Feature: Applies to all directory numbers on the set. This includes DMS-100 *key* features that can be assigned to more than one vacant key on the set.

  — *Subset* Feature: Assigned to a subset of directory numbers on the set.

  — *Directory Number* Feature: Assigned on an individual directory number basis.

  — *Primary Number* Feature: Assigned to the set's primary number. The primary number of the set always appears on key one.

A FPKGINFO aggregate is returned when any of the following return codes appear in the CTL aggregate:

NDRC = 007, 008 or 010.

```
FPKGINFO{                         Feature package information
   NE{                            Network element
        CLLI=...;                 Network element CLLI code
        PROD=...;                 Product
        FTRPKG{                   Feature package {1-N}, where N = the
                                  number of feature packages returned

            FPKG=...;             Feature package name
            FEATURE{              Feature {0-N}, where N = the number of
                                  features returned

            FTR=...;              Network element feature name < see
                                  feature catalog>

            FTRDES=...;           Feature description
            OPT=...;              Optional feature flag <Y = Yes> [opt]
            RSET{                 Regular (station) set feature [opt]
                FAI=...;          Feature Activation Indicator
                                  < D = Dial accessed,
                                      N = Not dial accessed or buttonable>
            }                     End RSET aggregate
            ESET{                 Electronic set feature [opt for DMS-100
                                  features]
```

FTRSCP = ...;   Scope of feature on electronic set
                  < B = (Business) set feature,
                      S = Subset feature,
                      D = Directory number feature,
                      P = Primary number feature >
FAI = ...;   Feature Activation Indicator
                  < B = Buttonable,
                      D = Dial accessed,
                      E = Either dial accessed or buttonable,
                      N = Not dial accessed or buttonable >
        }   End ESET aggregate
      }   End FEATURE aggregate
    }   End FTRPKG aggregate
  }   End NE aggregate
}   End FPKGINFO

5.1.2.2.6 *NDIR Section Format: Feature Group Information

The FGRPINFO aggregate contains either:

- The feature groups that are available for the type of service, based on the customer's serving network element type and generic.

- The sub-features available in the requested feature group. SNS also obtains a description of each feature from the Feature Catalog (as described in Feature Package Information).

A FGRPINFO aggregate is returned when any of the following return codes appear in the CTL aggregate:

NDRC = 011 or 013.

FGRPINFO{   Feature group information
    NE{   Network element
        CLLI = ...;   Network element CLLI code
        SERVICE = C;   Type of service - Digital Centrex
        FGRP{   Feature group {1-N}, where N = the
                              number of feature groups returned
            FGRP = ...;   Feature group name < see feature catalog >
            FGRPDES = ...;   Feature group description [opt]

```
           FEATURE{                  Feature {0-N}, where N = the number of
                                     features returned
               FTR = ...;            Network element feature name < see
                                     feature catalog>
               FTRDES = ...;         Feature description
               RSET{                 Regular (station) set feature [opt]
                   FAI = ...;        Feature Activation Indicator
                                     < D = Dial accessed,
                                        N = Not dial accessed or buttonable>
               }                     End RSET aggregate
               ESET{                 Electronic set feature [opt for DMS-100
                                     features]
                   FTRSCP = ...;     Scope of feature on electronic set
                                     < B = (Business) set feature,
                                        S = Subset feature,
                                        D = Directory number feature,
                                        P = Primary number feature>
                   FAI = ...;        Feature Activation Indicator
                                     < B = Buttonable,
                                        D = Dial accessed,
                                        E = Either dial accessed or buttonable,
                                        N = Not dial accessed or buttonable>
               }                     End ESET aggregate
           }                         End FEATURE aggregate
       }                             End FGRP aggregate
     }                               End NE aggregate
   }                                 End FGRPINFO aggregate
}
```

5.1.2.2.7 *NDIR Section Format: Series Completion Hunt Group Information

The SCHINFO aggregate identifies the members in a series completion hunt
group. *Telephone numbers will appear in hunt sequence.* A SCHINFO aggregate
is returned when the following return code appears in the CTL aggregate:

NDRC = 028.

```
SCHINFO{                  Series completion hunt group information
    HTYP = ...;           Hunting type < RG = Regular, CIR = Circular>
```

```
TN{                          Telephone number {1-N}, where N = the number
                             of members in the hunt group
      NPA = ...;             NPA
      NXX = ...;             NXX
      LINE = ...;            Line number
   }                         End TN aggregate
}                            End SCHINFO aggregate
```

5.1.2.2.8 *NDIR Section Format: Customer Premises Equipment Information

The CPEINFO aggregate contains either:

- The CPE that are compatible with the customer's serving network element.

- A description of the requested CPE.

A CPEINFO aggregate is returned when any of the following return codes
appears in the CTL aggregate:

NDRC = 021 or 023.

```
CPEINFO{                     Customer premises equipment information
      CLLI = ...;            Network element CLLI code
      CPE{                   CPE {1-N}, where N = the number of CPE
                             returned
            SET{             CPE set
                  CPEMAN = ...;    CPE manufacturer
                  CPEMOD = ...;    CPE model
            }                End SET aggregate
            CPENAME = ...;   CPE name [opt]
            CPEREG = ...;    CPE registration number [opt]
            CHARS{           CPE characteristics [opt]
                  DIS = ...;          Display flag < Y = Yes > [opt]
                  ONETOUCH = ...;     One touch flag < Y = Yes > [opt]
                  MAXKEY = ...;       Max number of keys < 1-999 > [opt]
                  MAXCA = ...;        Maximum number of call appearances < 1-999 >
                                      [opt]
                  HKEY = ...;         Dedicated hold key flag < Y = Yes > [opt]
                  RKEY = ...;         Dedicated release key flag < Y = Yes > [opt]
            }                End CHARS aggregate
      }                      End CPE aggregate
}                            End CPEINFO aggregate
```

5.1.2.3 TNLIST Inventory Response Section (*TNIR)

The *TNIR section returned in the response message contains the results of the TNLIST inventory request(s). Each REC aggregate corresponds to a TNLIST database inventory response. It may also identify errors and discrepancies.

5.1.2.3.1 General *TNIR Section Format

The data items† for the *TNIR section are shown in the following general format. The items shown in regular typeface reflect the data provided in the original request (*RTNI section). For each REC aggregate, the original input data from the *RTNI section of the request message is always provided in the corresponding *TNIR section of the response message. (The original input data shown in this general format does not indicate multiple occurrences of data items, since that depends on the information provided in the request message.) The items shown in bold typeface represent the response data that SNS supplies. The first group of response data — IERC and TNRC — includes the CTL aggregate return codes. The second group of response data — from UNSPTNINFO through SPTNINFO — shows the additional data aggregates that may appear in the *TNIR section.‡ The return codes and the additional data aggregates are explained in the sections that follow the general format.

```
*TNIR{                       TNLIST Inventory Response
    REC{                     Record {1-N}, where N = the number of
                             TNLIST inventory responses
        CTL{                 Control data
            TNACT = ...;     TN activity < S = Select,R = Return >
            IERC = ...;      Input error return code {0-N}, where N =
                             the number of input errors detected
            TNRC = ...;      TN return code {0-1}
        }                    End CTL aggregate
        ACL{                 Action line
            SPTN{            Specified TN(s)
```

---

† Data items shown in the *general* section format do not indicate whether they are optional, conditional or required. This information is supplied in the subsequent sections.

‡ In an actual *TNIR section, each of these additional data aggregates would have data items under it. These data items are not shown in the general format; however, they are explained in subsequent sections.

```
TN{                     Telephone number
    NPA = ...;          NPA
    NXX = ...;          NXX
    LINE = ...;         Line number
}                       End TN aggregate
TNRNG{                  TN range
    NPA = ...;          NPA
    NXX = ...;          NXX
    LOLN = ...;         Low line number
    HILN = ...;         High line number
}                       End TNRNG aggregate
}                       End SPTN aggregate
UNSPTN{                 Unspecified TN(s)
    NUMTN = ...;        Number of TNs
    CON = ...;          Consecutive indicator < Y = Yes >
    NPA = ...;          NPA
    NXX = ...;          NXX
    ALLTN = ...;        All TNs required flag < N = No >
}                       End UNSPTN aggregate
}                       End ACL aggregate
UNSPTNINFO{ ...         Unspecified TN information [opt]
}                       End UNSPTNINFO aggregate
SPTNINFO{ ...           Specified TN information [opt]
}                       End SPTNINFO aggregate
}                       End REC aggregate
}%                      End *TNIR section
```

5.1.2.3.1.1 CTL Aggregate Return Codes

There are two return codes that may be included with the CTL aggregate data. In the general format above, they are shown in bold typeface under the CTL aggregate. These return codes are:

- *Input Error Return Code*

  The contract originator is responsible for providing SNS with a valid request message that conforms to the specifications outlined in this document. However, if SNS detects a critical input error condition that prevents it from continuing its processing, it notifies the originator of the problem via the IERC tag. The value associated with the tag indicates the error condition. This tag may appear multiple times to identify multiple input errors.

- *TN Return Code*

   The TNRC tag indicates the results of the TN selection or return.

See Appendix D for a description of each return code. (Some return codes are not applicable to all TN activity types).

The only situation in which SNS does not return at least one of the above return codes is when the request was coupled with an unsuccessful service request administration activity.

There are two additional data aggregates that may appear in the *TNIR section. In the general format shown previously, they appear in bold typeface at the end of the *TNIR section. These additional data aggregates are included only when specific values of the TNRC return code appear in the CTL aggregate.

5.1.2.3.2 *TNIR Section Format: TN Selection of Unspecified TNs

The following identifies the *TNIR data items returned to indicate the results of the TN selection when particular TNs were not specified in the request. An UNSPTNINFO aggregate is returned for any of the following return codes in the CTL aggregate:

TNRC = 104, 106, 107 and 108.

UNSPTNINFO{	Unspecified TN information
CLLI = ...;	Network element CLLI code
CTX = ...;	Centrex group ID
SERVICE = C;	Centrex service
TNS{	Successful TNs
NUMSEL = ...;	Number of TNs selected
TN{	Telephone number {0-N}, where N = the number of non-consecutive TNs selected
NPA = ...;	NPA
NXX = ...;	NXX
LINE = ...;	Line
}	End TN aggregate
TNRNG{	TN range {0-N}, where N = the number of groups of consecutive TNs selected
NPA = ...;	NPA
NXX = ...;	NXX
LOLN = ...;	Low line
HILN = ...;	High line

```
        }                       End TNRNG aggregate
    }                           End TNS aggregate
}                               End UNSPTNINFO aggregate
```

5.1.2.3.3 *TNIR Section Format: TN Selection of Specific TNs

The following identifies the *TNIR data items returned to indicate the results of the TN selection. The following data items are provided when the selection of specified TNs was not entirely successful.

This type of SPTNINFO aggregate is returned for any of the following return codes in the CTL aggregate:

TNRC = 101, 102 and 103.

```
SPTNINFO{                       Specified TN information
    CLLI = ...;                 Network element CLLI code
    CTX = ...;                  Centrex group ID
    SERVICE = ...;              Centrex service
    TNS{                        Successful TNs
        NUMSEL = ...;           Number of TNs selected
        TN{                     Telephone number {0-N}, where N = the number
                                of individual specified TNs that were selected
            NPA = ...;          NPA
            NXX = ...;          NXX
            LINE = ...;         Line
        }                       End TN aggregate
        TNRNG{                  TN range {0-N}, where N = the number of
                                specified TNs that were selected, grouped in ranges
                                (these ranges may not match the ranges in the
                                original request)
            NPA = ...;          NPA
            NXX = ...;          NXX
            LOLN = ...;         Low line
            HILN = ...;         High line
        }                       End TNRNG aggregate
    }                           End TNS aggregate
    TNERR{                      TN error
        TN{                     Telephone number {0-N}, where N = the number
                                of specific TNs that could not be selected
            NPA = ...;          NPA
```

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```
    `NXX = ...;          NXX
     LINE = ...;         Line number
     SELERR = ...;       Selection error
                           < U = Unselectable,
                             K = Undesignated,
                             S = Selected,
                             I = Invalid >
        }                End TN aggregate
     }                   End TNERR aggregate
 }                       End SPTNINFO aggregate
```

When SNS is unable to select a specified TN, it identifies the reason for the failure via the SELERR tag:

- TN was not selected because it is marked *unselectable* in TNLIST (SELERR = U).

- TN was not selected because its status is *undesignated* in TNLIST (SELERR = K).

- TN was not selected because it is already marked as *selected* in TNLIST (SELERR = S).

- TN was not selected because it is *invalid* for the Centrex group (SELERR = I).

5.1.2.3.4 *TNIR Section Format: TN Return Information

The following identifies the *TNIR data items supplied when the TN return was only partially successful. A SPTNINFO aggregate is returned when the following return code appears in the CTL aggregate:

TNRC = 202.

```
SPTNINFO{                Specified TN information
    TNS{                 Successful TNs
        NUMRET = ...;    Number of TNs returned
        TN{              Telephone number {0-N}, where N = the number
                         of individual specified TNs that were returned
            NPA = ...;   NPA
            NXX = ...;   NXX
            LINE = ...;  Line
        }                End TN aggregate
```

TNRNG{	TN range {0-N}, where N = the number of specified TNs that were returned, grouped in ranges (these ranges may not match the ranges in the original request)
NPA = ...;	NPA
NXX = ...;	NXX
LOLN = ...;	Low line
HILN = ...;	High line
}	End TNRNG aggregate
}	End TNS aggregate
TNERR{	TN error
TN{	Telephone number {0-N}, where N = the number of individual TNs that could not be returned
NPA = ...;	NPA
NXX = ...;	NXX
LINE = ...;	Line
}	End TN aggregate
TNRNG{	TN range {0-N}, where N = the number of TNs that could not be returned, in terms of ranges
NPA = ...;	NPA
NXX = ...;	NXX
LOLN = ...;	Low line
HILN = ...;	High line
}	End TNRNG aggregate
}	End TNERR aggregate
}	End SPTNINFO aggregate

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5.2 Service Specification Contract (SVCSPC)

This abridged version of the Service Specification contract (SVCSPC) is used to identify those service orders that were issued during the negotiation dialogue. SNS uses this data to administer network resources and clean up the session when the corresponding Order Completion contract is invoked. The Service Specification contract should be invoked whenever a new order is issued for this service request. This contract consists of a request message and a response message.

- The FCIF sections in the request message are as follows:

*C1	Control Header section
*PLHDR	Provisioning Platform Header section
*SNSHDR	SNS Header section [opt]
*SVCSPEC	Service specification section

- The FCIF sections in the response message are as follows:

*C2	Control Header section
*PLHDR	Provisioning Platform Header section
*UMSG	User Message section [opt]
*SNSHDR	SNS Header section
*SVCSPEC	Service specification section

5.2.1 Service Specification Contract Request Message

The service specification data provided in the request message consists of a minimal set of order identification data.

5.2.1.1 Service Specification (*SVCSPEC) Section Format

The *SVCSPEC FCIF section contains the service specification data for one or more orders associated with the service request. The FCIF presented below identifies the data that may be included in the *SVCSPEC section.

*SVCSPEC{	Service specification
REC{	Record {1-N}, where N = the number of orders
ID{	Identification
ORDID{	Order identifier

```
                    ORDTYP = C;        Order type: Change
                    ORDNUM = ...;      Order number
                }                      End ORDID aggregate
                ORDPASS = PRE;         Order pass: pre-completion
            }                          End ID aggregate
        }                              End REC aggregate
}%                                     End *SVCSPEC section
```

Each REC aggregate identifies an individual order issued during the negotiation. Multiple REC aggregates are allowed for negotiations involving multiple orders.

5.2.2 Service Specification Contract Response Message

The response message contains the results of processing the Service Specification contract.

5.2.2.1 Service Specification (*SVCSPEC) Section Format

In a response message, the *SVCSPEC FCIF section contains the service specification data provided on input. These data items are identified below in regular typeface. Additionally, SNS may return the output data identified in bold typeface.

```
*SVCSPEC{                           Service specification
    REC{                            Record {1-N}, where N = the number of
                                    orders
        CTL{ ...                    Control data
            SSRC = ...;             Service specification return code {0-N},
                                    where N = the number of processing
                                    conditions
        }                           End CTL aggregate
        ID{ ...                     Identification
            IDRC = ...;             Identification return code {0-1}
            ORDID{                  Order identifier
                ORDTYP = C;         Order type: Change
                ORDNUM = ...;       Order number
            }                       End ORDID aggregate
            ORDPASS = PRE;          Order pass: pre-completion
        }                           End ID aggregate
    }                               End REC aggregate
}
```

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}%   End *SVCSPEC section

SNS supplements the response message with one or more return codes:

- The *Service Specification Return Code* (SSRC) returned in the CTL aggregate indicates whether SNS was successful in processing the request. The SSRC may also identify an error in the ID data aggregate. When an SSRC of 002 is returned, the ID aggregate should be checked for errors.

- The *Identification Return Code* (IDRC) provided in the ID aggregate indicates the order identification error.

See Appendix D for more information on the possible SSRC and IDRC return code values.

5.3 Order Completion Contract (ORDCMP)

The Order Completion contract signifies the completion or cancellation of an order and triggers order related updates in the TNLIST database. This contract should only be invoked once for each completed or canceled order. The order update information provided is assumed to be based on the latest version of the order. When the Order Completion contract is invoked, SNS updates the status of the order to show that it is no longer pending. If appropriate, the SCH in-service views are also updated.

SNS does *not* update the TNLIST database if any errors are encountered while processing the order. In this case, SNS identifies the errors and indicates which updates would have otherwise been successful.

The Order Completion contract may also result in negotiation dialogue clean-up activities. If all orders associated with the negotiation dialogue have been completed, SNS returns all unused TNs selected for this service request, unless an order update error occurred. If such an error occurs, SNS is not able to determine which TNs were unused and therefore which ones to return. SNS ends the negotiation dialogue by purging the session and its related data.

This contract consists of a request and an *optional* response message.

- The FCIF sections in the request message are as follows:

*C1	Control Header section
*PLHDR	Provisioning Platform Header section
*SNSHDR	SNS Header section [opt]
*ORD	Order section
*SCH	Series Completion Hunt Group section [opt]
*TNL	TN Line section [opt]

> **NOTE**
>
> The Service Request Number (SRN) field in the *C1 header is *optional*. It should be left blank if unknown at the time the contract is invoked. SNS then determines the appropriate SRN, based on information received earlier when the related Service Specification contract was invoked.

• The FCIF sections in the optional response message are as follows:

*C2	Control Header section
*PLHDR	Provisioning Platform Header section
*SNSHDR	SNS Header section [opt]
*ORD	Order section [opt]
*SCH	Series Completion Hunt Group section [opt]
*TNL	TN Line section [opt]
*SELINV	Selected inventory section [opt]
*ORDINFO	Order status information section [opt]

NOTE

The ORDCMP response message is not returned unless an error occurs while processing one or more orders associated with the service request. This message is routed to the ORDERERR destination identified in the Output Handler Destination Table.

5.3.1 Order Completion Contract Request Message

The request message contains information pertaining to the completed or canceled order. The *ORD section is required in the request message to identify the order. The optional *SCH and *TNL sections contain the order related updates that impact the TNLIST database.

5.3.1.1 Order (*ORD) Section

The data items for the *ORD section are:

*ORD{	Order
ORDID{	Order identifier
ORDTYP = C;	Order type: change
ORDNUM = ...;	Order number
CORSFX = ...;	Correction suffix [opt]
}	End ORDID aggregate
ORDPASS...;	Order pass
	< PCN = Post completion,
	CAN = Cancellation>
}%	End *ORD section

The *ORD section identifies the order and indicates whether the order completed successfully (ORDPASS = PCN) or was canceled (ORDPASS = CAN).

In the SNS 2.0 release, the Order Completion contract is assumed to be the source of order update information. The actual network changes that affect the TNLIST database are supplied in the optional *SCH and *TNL sections.

5.3.1.2 Series Completion Hunt Group (*SCH) Section

If SCH in-service views are kept in SNS, the *SCH section should be included in the request message to identify order-related updates.

The data items for the *SCH section are:

```
*SCH{                      Series completion hunt group
    REC{                   Record {1-N}, where N = the number of SCH in-
                           service view updates
        CTL{               Control data
            CTC = ...;     Control code < B = Build,C = Change,R = Remove >
        }                  End CTL aggregate
        ACL{               Action line {1-2}
            ACT = ...;     Action code < O = Old,N = New >
            HTYP = ...;    Hunting type < RG = Regular, CIR = Circular >
                           [conditional; required when ACT = N]
            TN{            Telephone number {1-N}, where N = the number of
                           members in the hunt group
                NPA = ...;  NPA
                NXX = ...;  NXX
                LINE = ...; Line number
            }              End TN aggregate
        }                  End ACL aggregate
    }                      End REC aggregate
}%                         End *SCH section
```

Each REC aggregate contains an SCH in-service view update.

The CTL aggregate within each record contains the control code (CTC) used to determine the type of update to be performed:

- Build the in-service view of an SCH group (CTC = B).

- Change the in-service view of an SCH group (CTC = C).

- Remove the in-service view of an SCH group (CTC = R).

The ACL aggregate contains the specific information required to perform the SCH in-service view update. The action code within the ACL aggregate specifies the type of ACL, old or new. An *old* action code (ACT = O) identifies outward activity, whereas a *new* action code (ACT = N) indicates inward activity. The type of ACL aggregate required depends on the CTC code that appears in the CTL aggregate.

- A build request requires a new ACL.

- A change request requires both an old and a new ACL.

- A remove request requires an old ACL.

TN entries in the ACL aggregate must appear in hunt sequence.

5.3.1.3 TN Line (*TNL) Section

This FCIF section identifies TNs that are working TNs as a result of the order. SNS uses this information to compare against the selected TNs. Those TNs that were selected during the negotiation, but not used, are returned.

The data items for the *TNL section are:

```
*TNL{                          TN Line
    REC{                       Record {1-N}, where N = the number of TNL
                               requests
        CTL{                   Control data
            CTC = B;           Control code: Build
        }                      End CTL aggregate
        ACL{                   Action line
            ACT = N;           Action code: New
            TN{                Telephone number
                NPA = ...;     NPA
                NXX = ...;     NXX
                LINE = ...;    Line number
            }                  End TN aggregate
        }                      End ACL aggregate
    }                          End REC aggregate
}%                             End *TNL section
```

Each REC aggregate represents inward TN activity on the order. Multiple REC aggregates are allowed for multiple working TNs.

The CTL aggregate within each record contains the control code (CTC). In SNS 2.0, build (CTC = B) is the only control code supported.

The ACL aggregate contains a *new* action code (ACT = N) and identifies the new working TN.

5.3.2 Order Completion Contract Response Message

A response message is returned under one or both of the following circumstances:

- SNS encounters one or more errors while processing the order. In this situation, the *ORD, *SCH and *TNL sections provided on input are returned to identify the error (e.g., TNLIST discrepancy).

- SNS is unable to return unused network resources selected for the service request. When an order update error occurs, SNS does *not* automatically return unused network resources. It does, however, identify those resources that were selected. This information is provided in the *SELINV section when the last order associated with the negotiation has been completed or canceled. In this situation, an *ORDINFO section is also returned to identify those orders in the negotiation that could not be processed successfully in SNS.

  The *SELINV and *ORDINFO sections are not returned when there is no remaining selected inventory.

5.3.2.1 Order (*ORD) Section

The presence of the *ORD section in the response message indicates that SNS could not successfully process the order.

The data items for the *ORD section are identical to those provided on input and are identified below in regular typeface. In addition, SNS may optionally return the IERC return code shown in bold typeface.

```
*ORD{                       Order
    IERC = ...;             Input error return code {0-N}
    ORDID{                  Order identifier
        ORDTYP = C;         Order type: change
        ORDNUM = ...;       Order number
        CORSFX = ...;       Correction suffix [opt]
    }                       End ORDID aggregate
```

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```
        ORDPASS...;              Order pass
                                 < PCN = Post completion,
                                   CAN = Cancellation >
}%                               End *ORD section
```

The contract invoker is responsible for providing SNS with a valid request message that conforms to the specifications outlined in this document. However, if SNS detects a critical input error condition that prevents it from processing the order updates, it notifies the contract invoker of the problem via the IERC tag. The value associated with the tag indicates the error condition. This tag may appear multiple times for multiple input errors.

When an input error condition is found in the *ORD section, SNS does *not* attempt to process the order updates in the *SCH or *TNL sections of the message.

5.3.2.2 Series Completion Hunt Group (*SCH) Section

When SNS is unsuccessful in processing the order, the *SCH section is provided in the response message, if received on input. Each REC aggregate within the *SCH section always contains the original input data. These data items are identified below in regular typeface. In addition, SNS may optionally return the SCHRC return code shown in bold typeface.

```
*SCH{                            Series completion hunt group
    REC{                         Record {1-N}, where N = the number of SCH in-
                                 service view updates
        CTL{                     Control data
            CTC = ...;           Control code
                                 < B = Build,C = Change,R = Remove >
            SCHRC = ...;         SCH return code {0-N}
        }                        End CTL aggregate
        ACL{                     Action line {1-2}
            ACT = ...;           Action code < O = Old, N = New >
            HTYP = ...;          Hunting type < RG = Regular, CIR = Circular >
            TN{                  Telephone number {1-N}, where N = the number
                                 of members in the hunt group
                NPA = ...;       NPA
                NXX = ...;       NXX
                LINE = ...;      Line number
            }                    End TN aggregate
```

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```
        }                      End ACL aggregate
    }                          End REC aggregate
}%                             End *SCH section
```

On a response, SNS may include a Series Completion Hunt Return Code. The
SCHRC tag supplied in the CTL aggregate indicates whether SNS was
"successful" in processing the SCH order update.

> **NOTE**
>
> As explained earlier, SNS does not perform partial order
> updates in the TNLIST database. As a result, the
> TNLIST database is *not* actually updated when an order
> error occurs, despite any "successful" return codes provided
> in the response message. The purpose of these return
> codes is to identify those order updates that would have
> been successful, had other errors not occurred.

See Appendix D for a description of the possible SCHRC return codes.

5.3.2.3 TN Line (*TNL) Section

When SNS is unsuccessful in processing the order, the *TNL section is provided
in the response message, if received on input. Each REC aggregate within the
*TNL section always contains the original input data provided on input. These
data items are identified below in regular typeface. In addition, SNS may
optionally return the TNRC return code shown in bold typeface.

```
*TNL{                          TN Line
    REC{                       Record {1-N}, where N = the number of TNL
                               requests
        CTL{                   Control data
            CTC = B;           Control code: Build
            TNRC = ...;        TN return code {0-N}, where N = the number of
                               TN processing conditions
        }                      End CTL aggregate
        ACL{                   Action line
            ACT = N;           Action code: New
            TN{                Telephone number
                NPA = ...;     NPA
```

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```
            NXX = ...;    NXX
            LINE = ...;   Line number
        }                 End TN aggregate
    }                     End ACL aggregate
  }                       End REC aggregate
}%                        End *TNL section
```

On a response, SNS may include a TN Return Code if it attempted to process the order update. The TNRC tag supplied in the CTL aggregate indicates whether SNS was successful in processing the TN order update.

> **NOTE**
>
> As explained earlier, SNS does not perform partial order updates in the TNLIST database. As a result, the TNLIST database is *not* actually updated when an order error occurs, despite any "successful" return codes provided in the response message. The purpose of these return codes is to identify those order updates that would have been successful, had other errors not occurred.

See Appendix D for a description of the possible TNRC return codes.

5.3.2.4 Selected Inventory (*SELINV) Section

The presence of the *SELINV section in the response message indicates that SNS could not automatically return unused network resources that were selected during the negotiation dialogue. The *SELINV section identifies the remaining selected inventory in question. This section is returned after the ORDCMP contract has been invoked for the last order that was associated with the service request.

The data items provided in the *SELINV section are as follows:

```
*SELINV{              Selected network resource inventory
    TNI{              TN inventory selected
        TN{           Telephone number {1-N}, where N = the number
                      of individual TNs selected
            NPA = ...;   NPA
            NXX = ...;   NXX
            LINE = ...;  Line number
```

```
        }                       End TN aggregate
        TNRNG{                  TN range {1-N}, where N = the number of groups
                                of consecutive TNs selected
            NPA = ...;          NPA
            NXX = ...;          NXX
            LOLN = ...;         Low line number
            HILN = ...;         High line number
        }                       End TNRNG aggregate
    }                           End TNI aggregate
}%                              End *SELINV section
```

5.3.2.5 Order Status Information (*ORDINFO) Section

The *ORDINFO section identifies orders in the negotiation dialogue that errored
in SNS upon completion or cancellation. This section is returned after the
ORDCMP contract has been invoked for the last order that was associated with
the service request. The *ORDINFO section is supplied only when the
*SELINV section is returned.

```
*ORDINFO{                       Order Status Information
    ORD{                        Order {1-N}, where N = the number of orders in
                                the negotiation dialogue that errored
        ORDID{                  Order identifier
            ORDTYP = ...;       Order type
            ORDNUM = ...;       Order number
            CORSFX = ...;       Correction suffix [opt]
        }                       End ORDID aggregate
        ORDPASS = ...;          Order pass
                                < CAN = Cancelled,
                                  PCN = Post completion >
    }                           End ORD aggregate
}%                              End *ORDINFO section
```

5.4 Hold Contract (HOLDSR)

The Hold contract holds the service request in SNS. Whenever the negotiation dialogue is put on hold, SNS refrains from returning any responses related to this negotiation until the service request is retrieved (via the RTRVSR contract).

This contract consists of a request and a response message.

- The FCIF sections in the request message are as follows:

*C1	Control Header section
*PLHDR	Provisioning Platform Header section
*SNSHDR	SNS Header section [opt]
*HOLD	Hold Data section [opt]

  The *HOLD section may contain any FCIF-conforming structure supplied by the contract invoker to save data about the negotiation.

- The FCIF sections in the response message are as follows:

*C2	Control Header section
*PLHDR	Provisioning Platform Header section
*UMSG	User Message section [opt]
*SNSHDR	SNS Header section
*HOLD	Hold data section [opt]

If the hold was successful, SNS does not return a *UMSG or *HOLD section. However, if the hold was not successful, SNS returns a *UMSG section, along with the *HOLD section optionally provided in the request message.

5.5 Retrieve Contract (RTRVSR)

The Retrieve contract serves two purposes:

1. Takes a held negotiation dialogue off hold so that SNS may resume returning responses for any outstanding requests related to this negotiation. In addition, SNS returns the negotiation data that was previously held when the Hold contract was last invoked. It also returns the status of each service order associated with the negotiation dialogue.

2. Obtains the service specification data for one or more issued service orders associated with the service request.

> **NOTE**
> This capability has limited use in SNS 2.0 because of the abridged Service Specification contract. In future SNS releases, the Service Specification contract will be expanded to include more service specification data.

This contract consists of a request and a response message.

- The FCIF sections in the request message are as follows:

*C1	Control Header section
*PLHDR	Provisioning Platform Header section
*SNSHDR	SNS Header section [opt]
*RSRD	Request for Service Request Data

The *RSRD section indicates which retrieve options are requested.

- The FCIF sections in the response message are as follows:

*C2	Control Header section
*PLHDR	Provisioning Platform Header section
*UMSG	User Message section [opt]
*SNSHDR	SNS Header section
*SRDR	Service Request Data Response
*HOLD	Hold Data [opt]
*SVCSPEC	Service Specification section [opt]
*ORDINFO	Order Status Information section [opt]

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The *SRDR section is always returned to summarize the results of processing the Retrieve contract. When SNS takes the negotiation off hold, it returns the *HOLD data supplied in the last Hold contract invocation. If service specification data was requested for issued orders, SNS supplies this data in the *SVCSPEC section. In either case, SNS also returns the *ORDINFO section to indicate the status of each order involved in the service request (or each requested order), except when orders were not issued.

5.5.1 Retrieve Contract Request Message

The request message contains the data needed to take the negotiation dialogue off hold and/or retrieve service specification data.

5.5.1.1 Request for Service Request Data (*RSRD) Section Format

This FCIF section identifies which retrieve options to perform. The data items for the *RSRD section are:

```
*RSRD{                      Request for Service Request Data
    CTL{                    Control data
        OFFHOLD = ...;      Off hold option < Y = Yes> [opt]
        SVCSPEC = ...;      Retrieve service specification data flag
                            < S = Retrieve data for specific order(s),
                              A = Retrieve data for all orders> [opt]
    }                       End CTL aggregate
    ACL{                    Action line {0-1}
        ORDID{              Order identifier {1-N}, where N = the number of
                            orders to retrieve when SVCSPEC = S
            ORDTYP = ...;   Order type
            ORDNUM = ...;   Order number
        }                   End ORDID aggregate
    }                       End ACL aggregate
}%                          End *RSRD section
```

The CTL aggregate identifies certain control information. It may contain one or both of the following options:

- The off hold option (OFFHOLD = Y) indicates that SNS should take the negotiation dialogue off hold.

- The retrieve service specification flag indicates that SNS should retrieve the service specification data for one or more orders (SVCSPEC = S) or all orders (SVCSPEC = A) associated with the negotiation dialogue.

When SVCSPEC = S, an ACL aggregate is required to identify the desired order(s).

5.5.2 Retrieve Contract Response Message

The response message contains the results of the request to retrieve service request data.

5.5.2.1 Service Request Data Response (*SRDR) Section Format

The data items for the *SRDR section are:

```
*SRDR{                    Service Request Administration Response
    CTL{                  Control data
        OFFHOLD = ...;    Off hold option < Y = Yes> [opt]
        SVCSPEC = ...;    Retrieve service specification data flag
                          < S = Retrieve data for specific order(s),
                            A = Retrieve data for all orders> [opt]
        IERC = ...;       Input error return code {0-N}, where N = the
                          number of input errors detected
        RVRC = ...;       Retrieve return code {0-2}
    }                     End CTL aggregate
    ACL{                  Action line {0-1}
        ORDID{            Order identifier {1-N}, where N = the number of
                          orders to retrieve when SVCSPEC = S
            ORDTYP = ...; Order type
            ORDNUM = ...; Order number
            CORSFX = ...; Correction suffix [opt]
        }                 End ORDID aggregate
    }                     End ACL aggregate
}%                        End *SRDR section
```

There are two return codes that may be included in the CTL aggregate data. In the general format above, they are shown in bold typeface under the CTL aggregate. The return codes are:

- *Input Error Return Code (IERC)*

  The contract invoker is responsible for providing SNS with a valid request message that conforms to the specifications outlined in this document. However, if SNS detects a critical input error condition that prevents it from continuing its processing, it notifies the contract invoker of the problem via the IERC tag. The value associated with the tag indicates the error condition. This tag may appear multiple times for multiple input errors.

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- *Retrieve Return Code (RVRC)*

  The RVRC tag indicates whether SNS was successful in taking the negotiation dialogue off hold and in retrieving the requested service specification data. This tag may appear multiple times for multiple processing conditions.

See Appendix D for a description of the possible RVRC values.

5.5.2.2 Hold Data (*HOLD) Section

This FCIF section is identical to the *HOLD section described in the Hold contract request message.

5.5.2.3 Service Specification (*SVCSPEC) Section

This FCIF section is identical to the *SVCSPEC section described in the Service Specification Contract request message. It is returned whenever a request is made to retrieve the service specification data for issued orders.

5.5.2.4 Order Status Information (*ORDINFO) Section

This FCIF section indicates the current status (in SNS) of one or more orders involved in the negotiation dialogue. When the negotiation dialogue is taken off hold, the *ORDINFO section contains the status of each issued order associated with the negotiation. When only service specification data was requested, the *ORDINFO section contains only the status of those orders requested. This information is supplied to avoid corrections or cancellations on completed or canceled orders.

```
*ORDINFO{                 Order Status Information
    ORD{                  Order {1-N}, where N = the number of orders
                          involved in the negotiation dialogue
        ORDID{            Order identifier
            ORDTYP = ...;  Order type
            ORDNUM = ...;  Order number
            CORSFX = ...;  Correction suffix [opt]
        }                 End ORDID aggregate
```

```
        ORDPASS = ...;        Order pass
                              < CAN = Cancelled,
                                PCN = Post-completion,
                                PRE = Pre-completion >
      }                       End ORD aggregate
}%                            End *ORDINFO section
```

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6. System Administration Table Maintenance Contracts

All system administration contracts are classified as *Table Maintenance*. Table Maintenance contracts can be one of two types, inquiry or update. The difference between inquiry contracts and update contracts is that only update contracts alter the contents of the database tables. An inquiry contract accesses the database tables and returns the data being requested to the contract invoker. An update contract provides the means to alter the contents of database tables through build, remove, and change functions. The inquiry contracts are:

- Inquiry of TNLIST data (INQTNL)

- Inquiry of Feature Group Catalog, Feature Catalog, and Name Description data (INQCAT)

- Inquiry of Network Element and Switch Parameter data or Switch Feature Exception data (INQNED)

- Inquiry of CPE data (INQCPE)

- Inquiry of Feature Package data (INQFPK)

The table maintenance update contracts are:

- Build, remove, or change data associated with a TNLIST Group (MTCTNL)

- Build, remove, or change Series Completion Hunt Groups and their associated telephone numbers (MTCHNT)

- Change Feature Group Catalog data, Feature Catalog data, and Name Description data (MTCCAT)

- Build, remove, or change data associated with Customer Premises Equipment (MTCCPE)

- Build, remove, or change Feature Packages and their associated data (MTCFPK)

- Build, remove, or change Network Element data (MTCNED)

- Build, remove, or change Switch Feature Exception data (MTCNED).

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The following sections describe the System Administration Table Maintenance contracts. These descriptions are organized by type of data:

- TNLIST Maintenance contracts (INQTNL, MTCTNL, and MTCHNT)

- Catalog Data Maintenance contracts (INQCAT and MTCCAT)

- CPE Data Maintenance contracts (INQCPE and MTCCPE)

- Feature Package Data Maintenance contracts (INQFPK and MTCFPK)

- Switch-Related Data Maintenance contracts (INQNED and MTCNED).

6.1 TNLIST Maintenance Contracts

This section presents the specifications for the three TNLIST Maintenance contracts. These contracts support the build, remove, change, and inquiry functions for the Centrex Group, TN, and Hunting data residing in the TNLIST database.

The first contract, INQTNL, performs inquiries on TN data stored in a service type and/or hunt group. The second, MTCTNL, performs the build, remove, and change functions for the regular Centrex service type and its associated telephone numbers. Finally, the third contract, MTCHNT, performs the build, remove, and change functions for Series Completion Hunt Groups and their associated telephone numbers.

All three contracts may consist of *C1/*C2 headers, *PLHDR, *SNSHDR, *UMSG, and some combination of request/response sections. The following tables list the request and response sections used in the three contracts.

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Table 6-1. INQTNL Contract Sections

Request Sections	Response Sections
*C1	*C2
*PLHDR	*PLHDR
*SNSHDR [opt]	*SNSHDR
	*UMSG [opt]
*RGRP	*GRPR
*RMTN	*MTNR
*RSCH	*SCHR

Table 6-2. MTCTNL Contract Sections

Request Sections	Response Sections
*C1	*C2
*PLHDR	*PLHDR
*SNSHDR [opt]	*SNSHDR
	*UMSG [opt]
*RGRP	*GRPR
*RMTN	*MTNR

Table 6-3. MTCHNT Contract Sections

Request Sections	Response Sections
*C1	*C2
*PLHDR	*PLHDR
*SNSHDR [opt]	*SNSHDR
	*UMSG [opt]
*RSCH	*SCHR

The *C1/*C2 headers, *PLHDR, *SNSHDR, and *UMSG sections are described in Section 3 of this document. The following sections describe the various request/response sections used in the TNLIST Maintenance contracts.

A description of the tag names and code sets used in the definition of the TNLIST Maintenance contracts is provided in Appendix B. Appendix D lists possible return codes, and Appendix E presents examples of TNLIST Maintenance contracts.

6.1.1 *RGRP Section

The *RGRP section is required in the request message for TNLIST processing of the Centrex Group Inquiry (INQTNL) and the Centrex Group Maintenance (MTCTNL) functions. The data items for the *RGRP section are listed below. This listing does not indicate whether the items are optional, conditional, or required. This information is supplied in subsequent sections.

```
*RGRP{
   REC{                          Record data {1-N}
      CTL{                       Control data {1}
         CTC = ...;              Control code
         MODE = ...;             Contract origin
         ALLSTAT = ...;          Delete all TN entries
      }                          End CTL
      ACL{                       Action line {1-2}
         ACT = ...;              Action code
         TIECODE = ...;          Centrex customer ID
         GROUP{                  Centrex group data
            CLLI = ...;          Network element CLLI code
            CTX = ...;           Centrex group ID
            MAINTN{              Main TN data
               NPA = ...;        TN area code
               NXX = ...;        TN exchange code
               LINE = ...;       TN line number
            }                    End MAINTN
            GRPTYP = ...;        Group type
            INTCPT = ...;        Intercept code
            LISTTHRS = ...;      List threshold
            RCDATA{              Recent change data {1}
               PIC = ...;        Primary interexchange carrier
               LCC = ...;        Line class code
               CAT = ...;        Customer access treatment
            }                    End RCDATA
         }                       End GROUP
      }                          End ACL
   }                             End REC
}%                               End *RGRP
```

The CTL aggregate contains control information. In particular, the control code (CTC) is used to determine the type of processing to be performed:

Inquiry for TNLIST Centrex Group data   (CTC = I)
Build TNLIST Centrex Group data   (CTC = B)
Remove TNLIST Centrex Group data   (CTC = R)
Change TNLIST Centrex Group data   (CTC = C)

The ACL aggregate contains the specific information required to perform the TNLIST Centrex Group inquiry/maintenance procedure. The information that SNS requires in each ACL aggregate varies, depending upon the CTC that appears in the CTL aggregate.

For a TNLIST Centrex Group inquiry/maintenance procedure, the action code (ACT) within the ACL aggregate may identify the type of ACL: old (O), new (N), or replace (R). The following types of ACLs are required, based on the CTC value:

- When CTC = I, an old ACL only is assumed.

- When CTC = B, a new ACL only is required.

- When CTC = R, an old ACL only is required.

- When CTC = C, both an old and new ACL are required, or a single replace ACL is required.

The following subsections explain how the *RGRP section should be constructed, depending on the type of control data provided in the CTL aggregate.

6.1.1.1 *RGRP Section Format: TNLIST Centrex Group Inquiry (INQTNL)

SNS uses the information provided in the *RGRP section of the INQTNL request message to determine the level of data returned by the inquiry. If only the TIECODE has been entered, then all of the groups associated with the specified customer will be returned. If the combination CLLI/CTX is entered, then only that data directly associated with the specified group is returned. Finally, if the MAINTN is entered, then only the data associated with that main telephone number is returned.

The following data items may appear in the *RGRP section of the INQTNL request message:

```
*RGRP{
   REC{                      Record data {1-N}
      CTL{                   Control data {1}
         CTC = I;            Control code
      }
      ACL{                   Action line {1}
         TIECODE = ...;      Centrex customer ID [opt]
         GROUP{              Centrex group data [opt]
            CLLI = ...;      Network element CLLI code [conditional]
            CTX = ...;       Centrex group ID [conditional]
            MAINTN{          Main TN data [conditional]
               NPA = ...;    TN area code
               NXX = ...;    TN exchange code
               LINE = ...;   TN line number
            }                End MAINTN
         }                   End GROUP
      }                      End ACL
   }                         End REC
}%                           End *RGRP
```

6.1.1.2 *RGRP Section Format: TNLIST Group Maintenance (MTCTNL)

SNS uses the information provided in the *RGRP section of the MTCTNL request message to build, remove, or change a specific TNLIST Centrex group. The format and actions depend on the control code (CTC) specified in the control data (CTL) aggregate.

6.1.1.2.1 *RGRP Section Format: TNLIST Group BUILD

To build a TNLIST group, the following *RGRP section information should be provided.

```
*RGRP{
   REC{                      Record data {1-N}
      CTL{                   Control data {1}
         CTC = B;            Control code
         MODE = ...;         Contract origin
      }                      End CTL
      ACL{                   Action line {1}
         ACT = N;            Action code
         TIECODE = ...;      Centrex customer ID [opt]
```

```
        GROUP{                  Centrex group data {1}
            CLLI = ...;         Network element CLLI code
            CTX = ...;          Centrex group ID
            MAINTN{             Main TN data
                NPA = ...;      TN area code
                NXX = ...;      TN exchange code
                LINE = ...;     TN line number
            }                   End MAINTN
            GRPTYP = ...;       Group type
            INTCPT = ...;       Intercept code [opt]
            LISTTHRS...;        List threshold [opt]
            RCDATA{             Recent change data [opt] {1}
                PIC = ...;      Primary interexchange carrier
                LCC = ...;      Line class code
                CAT = ...;      Customer access treatment
            }                   End RCDATA
        }                       End GROUP
    }                           End ACL
    }                           End REC
}%                              End *RGRP
```

6.1.1.2.2 *RGRP Section Format: TNLIST Group REMOVE

A TNLIST Centrex group can be removed in different ways. If just the
TIECODE is entered, then an attempt is made to remove all groups associated
with the TIECODE. If just the CLLI/CTX or MAINTN is entered, then an
attempt to remove only that specified group is made. If the ALLSTAT tag is set
to "Y," the delete is performed regardless of the TN status.

```
*RGRP{
  REC{                      Record data {1-N}
    CTL{                    Control data {1}
        CTC = R;            Control code
        ALLSTAT = ...;      Delete all TN entries [opt]
    }                       End CTL
    ACL{                    Action line {1}
        ACT = O;            Action code
        TIECODE = ...;      Centrex customer ID [opt]
        GROUP{              Centrex group data [opt]
```

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CLLI = ...;	Network element CLLI code [conditional]
CTX = ...;	Centrex group ID [conditional]
MAINTN{	Main TN data [conditional]
NPA = ...;	TN area code
NXX = ...;	TN exchange code
LINE = ...;	TN line number
}	End MAINTN
}	End GROUP
}	End ACL
}	End REC
}%	End *RGRP

6.1.1.2.3 *RGRP Section Format: TNLIST Group CHANGE

To change a TNLIST group, the existing key information — as defined in the *Service Negotiation Support (SNS) Database Administration Guide* (BR 007-560-406) — must be provided in either the "O" ACL or "R" ACL aggregate. The key information for the *RGRP section is defined as the valid combinations of TIECODE, CLLI, CTX, and MAINTN, which are used to identify specific TNLIST Centrex groups.

If the "O" ACL aggregate is used, then new entries must be supplied in the "N" ACL aggregate. The "O" ACL aggregate must match the values in the database or no changes will be made. With this method of change, the key information may be modified.

*RGRP{	
REC{	Record data {1-N}
CTL{	Control data {1}
CTC = C;	Control code
}	End CTL
ACL{	Action line {1}
ACT = O;	Action code
TIECODE = ...;	Centrex customer ID [opt]
GROUP{	Centrex group data [conditional]
CLLI = ...;	Network element CLLI code
CTX = ...;	Centrex group ID
MAINTN{	Main TN data
NPA = ...;	TN area code
NXX = ...;	TN exchange code

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```
        LINE = ...;        TN line number
      }                    End MAINTN
      GRPTYP = ...;        Group type [opt]
      INTCPT = ...;        Intercept code [conditional]
      LISTTHRS...;         List threshold [opt]
      RCDATA{              Recent change data [conditional] {1}
         PIC = ...;        Primary interexchange carrier
         LCC = ...;        Line class code
         CAT = ...;        Customer access treatment
      }                    End RCDATA
    }                      End GROUP
  }                        End ACL
ACL{                       Action line {1}
   ACT = N;                Action code
   TIECODE = ...;          Centrex customer ID [opt]
   GROUP{                  Centrex group data {1}
      CLLI = ...;          Network element CLLI code
      CTX = ...;           Centrex group ID
      MAINTN{              Main TN data
         NPA = ...;        TN area code
         NXX = ...;        TN exchange code
         LINE = ...;       TN line number
      }                    End MAINTN
      GRPTYP = ...;        Group type [opt]
      INTCPT = ...;        Intercept code [opt]
      LISTTHRS...;         List threshold [opt]
      RCDATA{              Recent change data [opt] {1}
         PIC = ...;        Primary interexchange carrier
         LCC = ...;        Line class code
         CAT = ...;        Customer access treatment
      }                    End RCDATA
    }                      End GROUP
  }                        End ACL
 }                         End REC
}%                         End *RGRP
```

If the "R" ACL aggregate is used, then the specified tags are used to update the
database. This type of change is unconditional and requires that the key
information only match the values in the database. With this method of change,
the key information may *not* be modified.

```
*RGRP{
  REC{                         Record data
    ACL{                       Action line {1}
      ACT = R;                 Action code
      TIECODE = ...;           Centrex customer ID [opt]
      GROUP{                   Centrex group data [conditional]
        CLLI = ...;            Network element CLLI code
        CTX = ...;             Centrex group ID
        MAINTN{                Main TN data
          NPA = ...;           TN area code
          NXX = ...;           TN exchange code
          LINE = ...;          TN line number
        }                      End MAINTN
        GRPTYP = ...;          Group type [opt]
        INTCPT = ...;          Intercept code [opt]
        LISTTHRS...;           List threshold [opt]
        RCDATA{                Recent change data [opt] {1}
          PIC = ...;           Primary interexchange carrier
          LCC = ...;           Line class code
          CAT = ...;           Customer access treatment
        }                      End RCDATA
      }                        End GROUP
    }                          End ACL
  }                            End REC
}%                             End *RGRP
```

6.1.2 *GRPR Section

The *GRPR section returned in the response message presents the results of the INQTNL and MTCTNL contracts. It may contain customer, group, and/or feature information. It may also identify errors and discrepancies.

6.1.2.1 *GRPR Section Format: TNLIST Centrex Group Response (INQTNL/MTCTNL)

The data items for the *GRPR section are shown in the following general format. The items shown in regular type reflect the data provided in the *RGRP section of the original request. The original input is always provided in the corresponding ACL aggregate of the *GRPR section of the response contract. The items shown in bold type represent the additional response data. The first group of items appear in the CTL aggregate and contain the return codes for the attempted action. The second group appears in the GRPDATA aggregate, which contains any additional data returned from the TNLIST database tables.

```
*GRPR{
  REC{                          Record data {1-N}
    CTL{                        Control data {1}
      CTC = ...;                Control code
      MODE = ...;               Contract origin
      ALLSTAT = ...;            Delete all TN entries
      IERC = ...;               Input error return code {1-N}
      GRPRC = ...;              Centrex database validation return code {1}
    }                           End CTL
    ACL{                        Action line {1-2}
      ACT = ...;                Action code
      TIECODE = ...;            Centrex customer ID
      GROUP{                    Centrex group data {1-N}
        CLLI = ...;             Network element CLLI code
        CTX = ...;              Centrex group ID
        MAINTN{                 Main TN data
          NPA = ...;            TN area code
          NXX = ...;            TN exchange code
          LINE = ...;           TN line number
        }                       End MAINTN
        GRPTYP = ...;           Group type
        INTCPT = ...;           Intercept code
        LISTTHRS = ...;         List threshold
        RCDATA{                 Recent change data [opt] {1}
          PIC = ...;            Primary interexchange carrier
          LCC = ...;            Line class code
          CAT = ...;            Customer access treatment
        }                       End RCDATA
      }                         End GROUP
    }                           End ACL
    GRPDATA{                    Group data {1}
      TIECODE = ...;            Centrex customer ID
      GROUP{                    Centrex group data {1-N}
        CLLI = ...;             Network element CLLI code
        CTX = ...;              Centrex group ID
        MAINTN{                 Main TN data
          NPA = ...;            TN area code
          NXX = ...;            TN exchange code
          LINE = ...;           TN line number
```

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```
}                    End MAINTN
GRPTYP = ...;        Group type
INTCPT = ...;        Intercept code
LISTTHRS = ...;      List threshold
RCDATA{              Recent change data [opt] {1}
    PIC = ...;       Primary interexchange carrier
    LCC = ...;       Line class code
    CAT = ...;       Customer access treatment
}                    End RCDATA
        }            End GROUP
    }                End GRPDATA
  }                  End REC
}%                   End *GRPR
```

6.1.2.2 CTL Aggregate Return Codes

There are two return codes that may be included with the CTL aggregate data. In the general format above they are shown in bold face type. These return codes are:

* *Input Error Return Code (IERC)*

    The contract invoker is responsible for providing SNS with a valid TNLIST Centrex group request message that conforms to the specifications outlined in this document. However, if SNS detects an input error condition that prevents it from continuing its processing, it notifies the contract invoker via the IERC tag. The value associated with the tag indicates the error condition. The tag may appear multiple times to identify multiple input errors.

* *Section Return Code (GRPRC)*

    The GRPRC tag indicates the results of the attempted database processing. It informs the contract invoker of the conditions found in the TNLIST database and whether or not the requested action has taken place. The tag may appear only once.

If the request message was an Inquiry, then the appropriate IERC or GRPRC codes would indicate a failure to retrieve the requested data items.

If the request message was a Build, a failure would be reported by the appropriate IERC or GRPRC codes. A success would result in the addition of the data to the appropriate TNLIST database tables.

If the request message was a Remove, a failure would be reported by the appropriate IERC or GRPRC codes. A success would result in the removal of the data from the appropriate TNLIST database tables.

Finally, if the request message was a Change, a failure would be reported by the appropriate IERC or GRPRC codes. A success would result in the appropriate modifications to the TNLIST database tables.

6.1.3 *RMTN Section

The *RMTN section is required in the request message for TNLIST processing of the TN Inquiry (INQTNL) and the TN Maintenance (MTCTNL) functions. The items for the *RMTN section are listed below. This listing does not indicate whether the items are optional, conditional, or required. This information is supplied in subsequent sections.

```
*RMTN{
    REC{                        Record data {1-N}
        CTL{                    Control data {1}
            CTC = ...;          Control code
            MODE = ...;         Contract origin
            ALLSTAT = ...;      Delete all TN entries
        }                       End CTL
        ACL{                    Action line {1-2}
            ACT = ...;          Action code
            GROUP{              Centrex group data {1}
                CLLI = ...;     Network element CLLI code
                CTX = ...;      Centrex group ID
                MAINTN{         Main TN data
                    NPA = ...;  TN area code
                    NXX = ...;  TN exchange code
                    LINE = ...; TN line number
                }               End MAINTN
            }                   End GROUP
            TNLIST{             TN list data {1-N}
                NPA = ...;      TN area code
                NXX = ...;      TN exchange code
                LOLN = ...;     Low line number of TN range
                HILN = ...;     High line number of TN range
                STAT = ...;     Current TN status
                TYPE = ...;     Type of service for specific TN
                SUBTYP = ...;   TN attributes
            }                   End TNLIST
```

```
    }                        End ACL
   }                         End REC
}%                           End *RMTN
```

The CTL aggregate contains control information. In particular, the control code (CTC) is used to determine the type of processing to be performed.

Inquiry for TNLIST TN data	(CTC = I)
Build TNLIST TN data	(CTC = B)
Remove TNLIST TN data	(CTC = R)
Change TNLIST TN data	(CTC = C)

The ACL aggregate contains the specific information required to perform the TNLIST TN inquiry/maintenance procedure. The information that SNS requires in each ACL aggregate varies, depending on the CTC value that appears in the CTL aggregate.

For a TNLIST TN inquiry/maintenance procedure, the action code (ACT) within the ACL aggregate may identify the type of ACL: old (O), new (N), or replace (R). The following types of ACLs are required, based on the CTC value:

- When CTC = I, an old ACL only is assumed.

- When CTC = B, an new ACL only is required.

- When CTC = R, an old ACL only is required.

- When CTC = C, both an old and new ACL are required, or a single replace ACL is required.

The following subsections explain how the *RMTN section should be constructed, depending on the type of control data provided in the CTL aggregate.

6.1.3.1 *RMTN Section Format: TNLIST TN Inquiry (INQTNL)

SNS uses the information provided in the *RMTN section of the INQTNL request message to determine the level of data returned by the inquiry. If the group data only has been entered, then the TN range information is returned for all ranges of TNs associated with the specified group. If the NPA, NXX, LOLN, and HILN are entered in addition to the group data, then all of the individual telephone number information is returned for the specified range.

The following data items may appear in the *RMTN section of the INQTNL request message:

```
*RMTN{
   REC{                        Record data {1-N}
      CTL{                     Control data {1}
         CTC = I;              Control code
      }                        End CTL
      ACL{                     Action line {1}
         GROUP{                Group data [conditional] {1}
            CLLI = ...;        Network element CLLI code
            CTX = ...;         Centrex group ID
            MAINTN{            Main TN data
               NPA = ...;      TN area code
               NXX = ...;      TN exchange code
               LINE = ...;     TN line number
            }                  End MAINTN
         }                     End GROUP
         TNLIST{               TN list [opt] {1-N}
            NPA = ...;         TN area code
            NXX = ...;         TN exchange code
            LOLN = ...;        Low line number of TN range
            HILN = ...;        High line number of TN range
         }                     End TNLIST
      }                        End ACL
   }                           End REC
}%                             End *RMTN
```

6.1.3.2 *RMTN Section Format: TNLIST TN Maintenance (MTCTNL)

SNS uses the information provided in the *RMTN section of the MTCTNL request message to build, remove, or change a specific TNLIST TN or a range of TNs. The formats and actions depend on the control code (CTC) value specified in the control data (CTL) aggregate.

6.1.3.2.1 *RMTN Section Format: TNLIST TN Build

To build a TNLIST TN or range of TNs, the following section information should be provided:

```
*RMTN{
   REC{                        Record data {1-N}
      CTL{                     Control data {1}
         CTC = B;              Control code
```

```
        MODE = ...;              Contract origin
    }                            End of CTL
    ACL{                         Action line {1}
        ACT = N;                 Action code
        GROUP{                   Centrex group data [conditional] {1}
            CLLI = ...;          Network element CLLI code
            CTX = ...;           Centrex group ID
            MAINTN{              Main TN data
                NPA = ...;       TN area code
                NXX = ...;       TN exchange code
                LINE = ...;      TN line number
            }                    End of MAINTN
        }                        End of GROUP
        TNLIST{                  TN list {1-N}
            NPA = ...;           TN area code
            NXX = ...;           TN exchange code
            LOLN = ...;          Low line number of TN range
            HILN = ...;          High line number of TN range [opt]
            STAT = ...;          Current TN status
            TYPE = ...;          Type of service for specific TN
            SUBTYPE = ...;       TN attributes [opt]
        }                        End of TNLIST
    }                            End of ACL
}                                End of REC
}%                               End of *RMTN
```

6.1.3.2.2 *RMTN Section Format: TNLIST TN Remove

When attempting to remove a TNLIST TN or range of TNs, there are two possibilities. If just the group data is entered, an attempt to remove every TN associated with that group is made. If the NPA, NXX, LOLN, and HILN are entered as well, then an attempt to remove only those TNs associated with the specified range is made. If the ALLSTAT tag is set to "Y," the delete is performed regardless of TN status.

```
*RMTN{
    REC{                         Record data {1-N}
        CTL{                     Control data {1}
            CTC = R;             Control code
            ALLSTAT = ...;       Delete all TN entries [opt]
```

```
}                    End of CTL
ACL{                 Action line {1}
    ACT = O;         Action code
    GROUP{           Group data [conditional] {1}
        CLLI = ...;  Network element CLLI code
        CTX = ...;   Centrex group ID
        MAINTN{      Main TN data
            NPA = ...;   TN area code
            NXX = ...;   TN exchange code
            LINE = ...;  TN line number
        }            End of MAINTN
    }                End of GROUP
    TNLIST{          TN list [opt] {1-N}
        NPA = ...;   TN area code
        NXX = ...;   TN exchange code
        LOLN = ...;  Low line number of TN range
        HILN = ...;  High line number of TN range
    }                End of TNLIST
}                    End of ACL
}                    End of REC
}%                   End of *RMTN
```

6.1.3.2.3 *RMTN Section Format: TNLIST TN Change

When attempting to change a TNLIST TN or range of TNs, the existing key information must be provided in either the "O" ACL or "R" ACL aggregate. The key information for the *RMTN section — as defined in the *Service Negotiation Support (SNS) Database Administration Guide* (BR 007-560-406) — is any valid combination of CLLI, CTX, and MAINTN that identifies the group and the NPA, NXX, LOLN, and HILN that optionally identify a specific set of telephone numbers.

If the "O" ACL aggregate is used, then new entries must be supplied in the "N" ACL aggregate. The "O" ACL aggregate must match the values in the database, or no changes will be made. With this method of change, the key information may be modified.

```
*RMTN{
  REC{                          Record data {1-N}
    CTL{                        Control data
      CTC = C;                  Control code
    }                           End CTL
    ACL{                        Action line {1}
      ACT = O;                  Action code
      GROUP{                    Centrex group data [conditional] {1}
        CLLI = ...;             Network element CLLI code
        CTX = ...;              Centrex group ID
        MAINTN{                 Main TN data
          NPA = ...;            TN area code
          NXX = ...;            TN exchange code
          LINE = ...;           TN line number
        }                       End MAINTN
      }                         End GROUP
      TNLIST{                   TN list data {1-N}
        NPA = ...;              TN area code
        NXX = ...;              TN exchange code
        LOLN = ...;             Low line number of TN range
        HILN = ...;             High line number of TN range
        STAT = ...;             Current TN status
        TYPE = ...;             Type of service for specific TN
        SUBTYP = ...;           TN attributes
      }                         End TNLIST
    }                           End ACL
    ACL{                        Action line {1}
      ACT = N;                  Action code
      GROUP{                    Centrex group data [conditional] {1}
        CLLI = ...;             Network element CLLI code
        CTX = ...;              Centrex group ID
        MAINTN{                 Main TN data
          NPA = ...;            TN area code
          NXX = ...;            TN exchange code
          LINE = ...;           TN line number
        }                       End MAINTN
      }                         End GROUP
      TNLIST{                   TN list data {1-N}
        NPA = ...;              TN area code
```

```
            NXX = ...;          TN exchange code
            LOLN = ...;         Low line number of TN range
            HILN = ...;         High line number of TN range
            STAT = ...;         Current TN status
            TYPE = ...;         Type of service for specific TN
            SUBTYP = ...;       TN attributes
        }                       End TNLIST
    }                           End ACL
  }                             End REC
}%                              End *RMTN
```

If the "R" ACL aggregate is used, then the specified tags are used to update the
database. This type of change is unconditional and requires that the key
information only match the database. With this method of change, the key
information may *not* be modified.

```
*RMTN{
  REC{                         Record data
    ACL{                       Action line {1}
      ACT = R;                 Action code
      GROUP{                   Centrex group data [conditional] {1}
        CLLI = ...;            Network element CLLI code
        CTX = ...;             Centrex group ID
        MAINTN{                Main TN data
          NPA = ...;           TN area code
          NXX = ...;           TN exchange code
          LINE = ...;          TN line number
        }                      End MAINTN
      }                        End GROUP
      TNLIST{                  TN list data {1-N}
        NPA = ...;             TN area code [opt]
        NXX = ...;             TN exchange code [opt]
        LOLN = ...;            Low line number of TN range [opt]
        HILN = ...;            High line number of TN range [opt]
        STAT = ...;            Current TN status [opt]
        TYPE = ...;            Type of service for specific TN [opt]
        SUBTYP = ...;          TN attributes [opt]
      }                        End TNLIST
    }                          End ACL
```

```
  }                       End REC
}%                        End *RMTN
```

6.1.4 *MTNR Section

The *MTNR section returned in the response message presents the results of the INQTNL and MTCTNL contracts. It may contain information on TNs or ranges of TNs. It may also identify errors and discrepancies.

6.1.4.1 *MTNR Section Format: TNLIST TN Response (INQNTL/MTCTNL)

The data items for the *MTNR section are shown in the following general format. The items shown in regular type reflect the data provided in the *RMTN section of the original request. The original input is always provided in the corresponding ACL aggregate of the *MTNR section of the response contract. The items shown in bold type represent the response data. The first group of items appears in the CTL aggregate and contain the return codes for the attempted action. The second group appears in the TNDATA aggregate and contains any additional data returned from the TNLIST database tables. The third group appears in the TNLERR aggregate, which associates a specific TN or range of TNs with an error condition.

```
*MTNR{
  REC{                    Record data {1-N}
    CTL{                  Control data {1}
      CTC = ...;          Control code
      MODE = ...;         Contract origin
      ALLSTAT = ...;      Delete all TN entries
      IERC = ...;         Input error return code {1-N}
      MTNRC = ...;        TNLIST database validation return code {1}
    }                     End CTL
    ACL{                  Action line {1-2}
      ACT = ...;          Action code
      GROUP{              Centrex group data {1}
        CLLI = ...;       Network element CLLI code
        CTX = ...;        Centrex group ID
        MAINTN{           Main TN data
          NPA = ...;      TN area code
          NXX = ...;      TN exchange code
          LINE = ...;     TN line number
```

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```
        }                    End MAINTN
      }                      End GROUP
      TNLIST{                TN list data {1-N}
        NPA = ...;           TN area code
        NXX = ...;           TN exchange code
        LOLN = ...;          Low line number of TN range
        HILN = ...;          High line number of TN range
        STAT = ...;          Current TN status
        TYPE = ...;          Type of service for specific TN
        SUBTYP = ...;        TN attributes
      }                      End TNLIST
    }                        End ACL
    TNDATA{                  TN data {1-N}
      NPA = ...;             TN area code
      NXX = ...;             TN exchange code
      LOLN = ...;            Low line number of TN range
      HILN = ...;            High line number of TN range
      STAT = ...;            Current TN status
      TYPE = ...;            Type of service for specific TN
      SUBTYP = ...;          TN attributes
    }                        End TNDATA
    TNLERR{                  TNLIST error data [opt] {1-N}
      NPA = ...;             TN area code
      NXX = ...;             TN exchange code
      LOLN = ...;            Low line number of TN range
      HILN = ...;            High line number of TN range
      TNERRCDE = ...;        TNLIST aggregate error code
    }                        End TNLERR
  }                          End REC
}%                           End *MTNR
```

6.1.4.2 CTL Aggregate Return Codes

There are two return codes that may be included with the CTL aggregate data. In the general format above they are shown in bold type. These return codes are:

* *Input Error Return Code (IERC)*

    The contract invoker is responsible for providing SNS with a valid TNLIST TN request message that conforms to the specifications outlined in this document. However, if SNS detects an input error condition that prevents it from continuing its processing, it notifies the contract invoker via the IERC

tag. The value associated with the tag indicates the error condition. The tag may appear multiple times to identify multiple input errors.

- *Section Return Code (MTNRC)*

   The MTNRC tag indicates the results of the attempted database processing. It informs the contract invoker of the conditions found in the TNLIST database and whether or not the requested action has taken place. The tag may appear only once.

If the request message was an Inquiry, then the appropriate IERC or MTNRC codes would indicate a failure to retrieve the requested data items.

If the request message was a Build, a failure would be reported by the appropriate IERC or MTNRC codes. A success would result in the addition of the data to the appropriate TNLIST database tables.

If the request message was a Remove, a failure would be reported by the appropriate IERC or MTNRC codes. A success would result in the removal of the data from the appropriate TNLIST database tables.

Finally, if the request message was a Change, a failure would be reported by the appropriate IERC or MTNRC codes. A success would result in the appropriate modifications to the TNLIST database tables.

6.1.4.3 TNLERR Aggregate Return Code

There is one return code that may be returned with the TNLERR aggregate. In the general format above it is shown in bold type along with the other elements of the TNLERR aggregate.

6.1.4.4 TNERRCDE Return Code

The TNERRCDE return code is returned for each individual TN that has an error associated with it.

6.1.5 *RSCH Section

The *RSCH section is required in the request message for TNLIST processing of Series Completion Hunt (SCH) Group Inquiry (INQTNL) and SCH Group Maintenance (MTCHNT) functions. The data items for the *RSCH section are listed below. This listing does not indicate whether the items are optional, conditional, or required. This information is supplied in subsequent sections.

```
*RSCH{
  REC{                      Record data {1-N}
    CTL{                    Control data {1}
      CTC = ...;            Control code
      MODE = ...;           Contract origin
    }                       End CTL
    ACL{                    Action line {1-2}
      ACT = ...;            Action code
      GROUP{                Hunt group data {1}
        HTYP = ...;         Hunting type
        TN{                 TN data {1-N}
          NPA = ...;        TN area code
          NXX = ...;        TN exchange code
          LINE = ...;       TN line number
        }                   End TN
      }                     End GROUP
    }                       End ACL
  }                         End REC
}%                          End *RSCH
```

The CTL aggregate contains control information. In particular, the control code (CTC) is used to determine the type of processing to be performed:

Inquiry for TNLIST SCH data	(CTC = I)
Build TNLIST SCH data	(CTC = B)
Remove TNLIST SCH data	(CTC = R)
Change TNLIST SCH data	(CTC = C)

The ACL aggregate contains the specific information required to perform the TNLIST SCH inquiry/maintenance procedure. The information that SNS requires in each ACL aggregate varies, depending on the CTC value that appears in the CTL aggregate.

For a TNLIST SCH inquiry/maintenance procedure, the action code (ACT) within the ACL aggregate may identify the type of ACL: old (O), new (N), or replace (R). The following types of ACLs are required, based on the CTC value:

- When CTC = I, an old ACL only is assumed.

- When CTC = B, a new ACL only is required.

- When CTC = R, an old ACL only is required.

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- When CTC = C, both an old and new ACL are required, or a single replace ACL is required.

The following subsections explain how the *RSCH section should be constructed, depending on the type of control data provided in the CTL aggregate.

6.1.5.1 *RSCH Section Format: TNLIST SCH Group Inquiry (INQTNL)

SNS uses the information provided in the *RSCH section of the INQTNL request message to determine which SCH group should be returned by the inquiry. The only inquiry available for SCH groups is via TN. It returns the entire hunt group.

The following data items may appear in the *RSCH section of the INQTNL request message:

```
*RSCH{
    REC{                        Record data {1-N}
        CTL{                    Control data {1}
            CTC = I;            Control code
        }                       End CTL
        ACL{                    Action line {1}
            GROUP{              Hunt group data {1}
                TN{             TN data {1-N}
                    NPA = ...;  TN area code
                    NXX = ...;  TN exchange code
                    LINE = ...; TN line number
                }               End TN
            }                   End GROUP
        }                       End ACL
    }                           End REC
}%                              End *RSCH
```

6.1.5.2 *RSCH Section Format: TNLIST SCH Group Maintenance (MTCHNT)

SNS uses the information provided in the *RSCH section of the MTCHNT request message to build, remove, or change a specific TNLIST SCH group. The formats and actions depend on the control code (CTC) value specified in the control data (CTL) aggregate.

6.1.5.2.1 *RSCH Section Format: TNLIST SCH Group Build

To build an TNLIST SCH group the following section information should be provided.

```
*RSCH{
   REC{                    Record data {1-N}
      CTL{                 Control data {1}
         CTC = B;          Control code
         MODE = ...;       Contract origin
      }                    End CTL
      ACL{                 Action line {1}
         ACT = N;          Action code
         GROUP{            Hunt group data {1}
            HTYP = ...;    Hunting type
            TN{            TN data {1-N}
               NPA = ...;  TN area code
               NXX = ...;  TN exchange code
               LINE = ...; TN line number
            }              End TN
         }                 End GROUP
      }                    End ACL
   }                       End REC
}%                         End *RSCH
```

6.1.5.2.2 *RSCH Section Format: TNLIST SCH Group Remove

When attempting to remove a TNLIST SCH group only one possibility exists. If the CTC = R, then the only required tags in the old ACL aggregate are the ACT tag and the TN aggregate for the PILOT_TN. This request removes the entire hunt group and all of its related data.

```
*RSCH{
   REC{                    Record data {1-N}
      CTL{                 Control data {1}
      CTC = R;             Control code
      }                    End CTL
      ACL{                 Action line {1}
         ACT = O;          Action code
         GROUP{            Hunt group data
            TN{            TN data {1-N}
               NPA = ...;  TN area code
               NXX = ...;  TN exchange code
               LINE = ...; TN line number
```

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```
        }                    End TN
      }                      End GROUP
    }                        End ACL
  }                          End REC
}%                           End *RSCH
```

6.1.5.2.3 *RSCH Section Format: TNLIST SCH Group Change

When attempting to change a TNLIST SCH group, the existing key information must be provided in either the "O" ACL or "R" ACL aggregate. The key information for the *RSCH section — as defined in the *Service Negotiation Support (SNS) Database Administration Guide* (BR 007-560-406) — is the PILOT_TN, which is the first TN of the Series Completion Hunt Group.

If the "O" ACL aggregate is used, then new entries must be supplied in the "N" ACL aggregate. The "O" ACL aggregate must match the values in the database or no changes will be made. With this method, the key information may be changed.

```
*RSCH{
   REC{                          Record data {1-N}
      CTL{                       Control data {1}
         CTC = C;                Control code
      }                          End CTL
      ACL{                       Action line {1}
         ACT = O;                Action code
         GROUP{                  Hunt group data
            HTYP = ...;          Hunting type
            TN{                  TN data {1-N}
               NPA = ...;        TN area code
               NXX = ...;        TN exchange code
               LINE = ...;       TN line number
            }                    End TN
         }                       End GROUP
      }                          End ACL
      ACL{                       Action line {1}
         ACT = N;                Action code
         GROUP{                  Hunt group data
            HTYP = ...;          Hunting type
            TN{                  TN data {1-N}
               NPA = ...;        TN area code
               NXX = ...;        TN exchange code
               LINE = ...;       TN line number
            }                    End TN
         }                       End GROUP
      }                          End ACL
   }                             End REC
}%                               End *RSCH
```

If the "R" ACL aggregate is used, then the specified tags are used to update the database. This type of change is unconditional and requires that the key data only match the database. With this method of change, the key data may *not* be changed.

```
*RSCH{
   REC{                          Record data
      ACL{                       Action line {1}
         ACT = R;                Action code
```

```
GROUP{                      Hunt group data
    HTYP = ...;             Hunting type [opt]
    TN{                     TN data {1-N}
        NPA = ...;          TN area code
        NXX = ...;          TN exchange code
        LINE = ...;         TN line number
    }                       End TN
    }                       End GROUP
    }                       End ACL
    }                       End REC
}%                          End *RSCH
```

NOTE

The first occurrence of the TN aggregate in the "R" ACL aggregate
must be the unchanged PILOT_TN of the TNLIST SCH group.

6.1.6 *SCHR Section

The *SCHR section returned in the response message presents the results of the
INQTNL and MTCHNT contracts. It may contain TNLIST SCH group
information. It may also identify errors and discrepancies.

6.1.6.1 *SCHR Section Format: TNLIST SCH Group Response
(INQTNL/MTCHNT)

The data items for the *SCHR section are shown in the following general
format. The items shown in regular type reflect the data provided in the *RSCH
section of the original request. The original input is always provided in the
corresponding ACL aggregate of the *SCHR section of the response contract.
The items shown in bold type represent the response data. The first group of
items appear in the CTL aggregate and contain the return codes for the
attempted action. The second group appears in the HTNGRP aggregate and
contain any additional data returned from the TNLIST database tables, as well
as any hunting error conditions associated with the individual TNs.

```
*SCHR{
    REC{                    Record data {1-N}
        CTL{                Control data {1}
            CTC = ...;      Control code
```

```
            MODE = ...;             Contract origin
            IERC = ...;             Input error return code {1-N}
            SCHRC = ...;            Hunt group database validation return code {1}
        }                           End CTL
        ACL{                        Action line {1}
            ACT = ...;              Action code
            GROUP{                  Hunt group data {1}
                HTYP = ...;         Hunting type
                TN{                 TN data {1-N}
                    NPA = ...;      TN area code
                    NXX = ...;_     TN exchange code
                    LINE = ...;     TN line number
                }                   End TN
            }                       End GROUP
        }                           End ACL
        HTNGRP{                     Hunt group return data {1-N}
            CLLI = ...;             Network element CLLI code
            HTYP = ...;             Hunting type
            HTN{                    Hunt TN data {1-N}
                NPA = ...;          TN area code
                NXX = ...;          TN exchange code
                LINE = ...;         TN line number
                HTNERR = ...;       HTN aggregate error code
            }                       End HTN
        }                           End HTNGRP
    }                               End REC
}%                                  End *SCHR
```

6.1.6.2 CTL Aggregate Return Codes

There are two return codes that may be included with the CTL aggregate data.
In the general format above they are shown in bold type under the CTL
aggregate. These return codes are:

- Input Error Return Code (IERC)

    The contract invoker is responsible for providing SNS with a valid TNLIST
    SCH group request message that conforms to the specifications outlined in
    this document. However, if SNS detects an input error condition that
    prevents it from continuing its processing, it notifies the contract invoker via
    the IERC tag. The value associated with the tag indicates the error condition.
    The tag may appear multiple times to identify multiple input errors.

- Section Return Code (SCHRC)

    The SCHRC tag indicates the results of the attempted database processing. It informs the contract invoker of the conditions found in the TNLIST database and whether or not the requested action has taken place. The tag may appear only once.

If the request message was an Inquiry, then the appropriate IERC or SCHRC codes would indicate a failure to retrieve the requested data items.

If the request message was a Build, a failure would be reported by the appropriate IERC or SCHRC codes. A success would result in the addition of the data to the appropriate TNLIST database tables.

If the request message was a Remove, a failure would be reported by the appropriate IERC or SCHRC codes. A success would result in the removal of the data from the appropriate TNLIST database tables.

Finally if the request message was a Change, a failure would be reported by the appropriate IERC or SCHRC codes. A success would result in the appropriate modifications to the TNLIST database tables.

6.1.6.3 HTN Aggregate Return Code

There is one return code that may be returned with the HTN aggregate. In the general format above it is shown in bold type along with the other elements of the HTN aggregate.

6.1.6.4 HTNERR Return Code

This return code is returned for each individual TN that has an error associated with it.

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6.2 Catalog Data Maintenance Contracts

This section describes two contracts, INQCAT and MTCCAT, which are used to maintain catalog data. Note that catalog data encompasses feature group catalog, feature catalog, and feature name data. The INQCAT contract supports the inquiry of catalog data, while the MTCCAT contract supports the maintenance (change only) of catalog data. The change functionality of nonkey data only is supported, since the data for these tables is provided by Bellcore.

Both contracts consist of a request and a response message and share the *RCAT, *CATR, *RDES, and *DESR sections listed below.

- The FCIF sections in the request message are as follows:

*C1	Control Header section
*PLHDR	Provisioning Platform Header section
*SNSHDR	SNS Header section (optional)
*RCAT	Request for Catalog Information section
*RDES	Request for Name Description Information section

- The FCIF sections in the response message are as follows:

*C2	Control Header section
*PLHDR	Provisioning Platform Header section
*UMSG	User Message section (optional)
*SNSHDR	SNS Header section
*CATR	Catalog Information Response section
*DESR	Name Description Information Response section

See Section 3 in this document for more information on the *C1, *C2, *PLHDR, *UMSG, and *SNSHDR FCIF sections.

6.2.1 General Contract Request Information

The contracts are designed so that multiple requests may be initiated in one contract invocation (request message). This is denoted by the REC aggregate that spans from {1-N}. Therefore, the INQCAT contract may contain multiple inquiry requests, while the MTCCAT contract may contain multiple requests for changes. These requests are structured in terms of the following FCIF sections.

The *RCAT section supports the maintenance of Feature Group Catalog and Feature Catalog Data:

- Inquiry of Feature Group Catalog, Feature Catalog, and Name Description Data (INQCAT)

- Change Feature Group Catalog and Feature Catalog Data (MTCCAT).

The *RDES section supports the maintenance of Feature Name Data:

- Inquiry of Name Description Data (INQCAT)

- Change Name Description Data (MTCCAT).

6.2.2 Request Catalog Data (*RCAT) Section

The *RCAT section contains the data needed to perform inquiries and changes to feature group catalog and feature catalog data.

6.2.2.1 General *RCAT Section Format

The data items† for the *RCAT section are:

```
*RCAT{                          Request for Catalog Data
    REC{                        Record {1-N}, where N equals the number of
                                Catalog Data Requests
        CTL{                    Control data
            CATOPT = ...;       Catalog option:
                                < F = Feature Catalog Information,
                                  G = Feature Group Catalog Information>

            PROP = ...;         Propagate option:
                                < Y = Yes,
                                  N = No,
                                  A = All>

            UPDIND = ...;       Update Indicator:
                                < Y = Yes,
                                  N = No>

            CTC = ...;          Control code:
                                < I = Inquiry,
                                  C = Change>
        }                       End CTL aggregate
        ACL{                    Action line {1,2}
```

---

† Data items shown in the *general* section format do not indicate whether they are optional, conditional, or required. This information is supplied in the subsequent sections.

```
ACT = ...;                    Action code:
                                < O = Old,
                                  N = New,
                                  R = Replace >
NETYP = ...;                  Network element type
NEGEN = ...;                  Network element generic
FGRP = ...;                   Feature group tag
FTR = ...;                    Feature tag
FGRP{                         Feature Group Data
    SERVICE = ...;            Service Type {1-3}:
                                < B = Business,
                                  R = Residence,
                                  C = Centrex
}                             End FGRP aggregate
FEATURE{                      Feature Data
    ACTIND = ...;             Activation indicator
    ELACTIND = ...;           Electronic activation indicator
    REGSET = ...;             Regular set
    FTRSCP = ...;             Feature scope
    SERVICE = ...;            < B = Business,
                                  R = Residence,
                                  C = Centrex
    }                         End FEATURE aggregate
  }                           End ACL aggregate
 }                            End REC aggregate
}%                            End *RCAT section
```

The *RCAT section contains a CTL aggregate and one or more ACL aggregates. The CTL aggregate identifies certain control information. In particular, the control code (CTC) is used to determine the type of control action to be performed:

- Inquire about catalog data (CTC = I)

- Change catalog data (CTC = C).

The catalog option indicator (CATOPT) determines the type of information to work with:

- Feature Group Catalog Data (CATOPT = G)

- Feature Catalog Data (CATOPT = F).

The propagate option (PROP) determines the generic to which the changes apply. If PROP = ALL, then all generics should change without specifying a

generic tag. If PROP = Y, propagate the changes to the specified generic and all higher generics. If PROP = N, then only apply changes to the specified generic. Note that the PROP tag applies only to a change code (CTC = C) and not an inquiry.

The UPDIND is used for a confirmation of an update. If services are changed on the catalog, revalidation of feature exception data must be done. If specific features and services fail the validation, then that data is returned in the XCPDATA of the response section, along with a processing code message. The message questions if the update should still be done even though there were feature exceptions that failed validations. The UPDIND tag specifies "Y" if the update should be done and implies a delete of any feature exception that failed revalidation. Note that this indicator is used in conjunction with the feature option only (CATOPT = F).

The ACL aggregate contains the specific information required to perform the feature group or feature group catalog inquiry or update. The information required in each ACL aggregate varies, depending upon the CTC and CATOPT tags that appear in the CTL aggregate.

The following subsections explain how the *RCAT section should be constructed, depending upon the values in the CTL aggregate.

6.2.2.2 *RCAT Section Format: Catalog Data Inquiry (INQCAT)

An inquiry for catalog data requires at least the switch type and switch generic tags. If CATOPT = G, indicating a request for feature group information, then using NETYP and NEGEN returns multiple feature groups and related service information including description names for that specified type and generic. If FGRP is also supplied, a specific single feature group and related service information is returned.

If CATOPT = F, indicating a request for feature catalog information, then using NETYP and NEGEN returns all the features and related information for that type and generic, including the group tag IDs and descriptions of those features. If FGRP is supplied, then all the features and related information for that specific feature group are returned. If FTR is supplied,† then that specific feature with related information only is returned.

---

† Note if the FTR tag is supplied, the FGRP tag does not have to be specified.

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The following data items may appear in the *RCAT section:

```
*RCAT{                      Request for Catalog Data
    REC{                    Record {1-N}, where N equals the number of
                            Catalog Data Requests
        CTL{                Control data
            CTC = I;        Control Code  =  Inquiry
            CATOPT = G;     Catalog Option  =  Group level
        }                   End CTL aggregate
        ACL{                Action line
            NETYP = ...;    Network element type
            NEGEN = ...;    Network element generic
            FGRP = ...;     Feature group tag [opt]
        }                   End ACL aggregate
    }                       End REC aggregate
}%                          End *RCAT section
```

```
*RCAT{                      Request for Catalog Data
    REC{                    Record {1-N}, where N equals the number of
                            Catalog Data Requests
        CTL{                Control data
            CTC = I;        Control Code  =  Inquiry
            CATOPT = F;     Catalog Option  =  Feature level
        }                   End CTL aggregate
        ACL{                Action line
            NETYP = ...;    Network element type
            NEGEN = ...;    Network element generic
            FGRP = ...;     Feature group tag [opt]
            FTR = ...;      Feature tag [opt]
        }                   End ACL aggregate
    }                       End REC aggregate
}%                          End *RCAT section
```

6.2.2.3 *RCAT Section Format: Change Catalog Data (MTCCAT)

There are two types of changes (CTC = C) allowed for catalog data. The first provides an old and new ACL with action codes (ACT) of "O" and "N". The old ACL holds old key values and old tag values, reflecting the current image of the data, while the new ACL holds the new values allowing the old data to be changed to the new data. For the case of optional tags, *the lack of a tag in the old ACL implies the value becomes its default value (0 for integer, space for*

character). Also for optional tags, *the lack of a tag in the new ACL implies that the value of the tag is set to its default value (0 for integer, space for character).* Comparing the old values ensures proper sequencing of the FCIF messages.

The second type of change contains one ACL with an action code of "R" for replace. The old keys are given with the tags that contain the new values only. To remove an existing value without assigning a new value, it must be explicitly assigned, dependent upon its data type. This is because new tag values only are given with this type of change. The assignment for integers is "TAG = 0;". Characters are assigned "TAG = ;". This type of change is flexible since it allows the ability to change fields without prior knowledge of their old values. This method does not support any updates of key fields.

6.2.2.3.1 *RCAT Section Format: Change Catalog Data (MTCCAT) ACT = O/N

Although the use of old and new ACLs would normally allow changes to key fields, it is restricted in the case of catalog data since Bellcore provides the data. †
Therefore, in the case of CATOPT = G, the tags NETYP, NEGEN, and FGRP in the old ACL must match the values in the new ACL. In the case of CATOPT = F, the tags NETYP, NEGEN, and FTR in the old ACL must match the values in the new ACL. In this last case, the FGRP tag is not needed because a feature may only belong to one group. In addition, in the examples shown below, the lack of a service type would mean that the specific service is not available.

The following data items‡ may appear in the *RCAT section:

```
*RCAT{                        Request for Catalog Data
    REC{                      Record {1-N}, where N equals the number of
                              Catalog Data Requests
        CTL{                  Control data
            CATOPT = G;       Catalog option - Group level
            PROP = Y;         Propagation - Yes [opt]
            CTC = C;          Control code - Change
```

---

† Service information and other feature-related indicators may be changed for particular features or groups within a type or generic, but the keys may not be changed.

‡ Maintenance for name descriptions is not done in this section. This appears in the *RDES section.

```
        }                           End CTL aggregate
        ACL{                        Action line
            ACT = O;                Action Code - old
            NETYP = ...;            Network element type
            NEGEN = ...;            Network element generic
            FGRP = ...;             Feature group tag
            FGRP{                   Feature Group aggregate
                SERVICE = ...;      Service type {0-3} [opt]
            }                       End Feature Group aggregate
        }                           End ACL aggregate
        ACL{                        Action line
            ACT = N;                Action Code - new
            NETYP = ...;            Network element type
            NEGEN = ...;            Network element generic
            FGRP = ...;             Feature group tag
            FGRP{                   Feature Group aggregate
                SERVICE = ...;      Service type {0-3} [opt]
            }                       End Feature Group aggregate
        }                           End ACL aggregate
    }                               End REC aggregate
}%                                  End *RCAT section


*RCAT{                              Request for Catalog Data
    REC{                            Record {1-N}, where N equals the number of
                                    Catalog Data Requests
        CTL{                        Control data
            CATOPT = F;             Catalog option - Feature level
            PROP = N;               Propagation - No [opt]
            UPDIND = ...;           Update Indicator [opt]
            CTC = C;                Control code - Change
        }                           End CTL aggregate
        ACL{                        Action line
            ACT = O;                Action Code - old
            NETYP = ...;            Network element type
            NEGEN = ...;            Network element generic
            FTR = ...;              Feature tag
            FEATURE{                FEATURE aggregate
                SERVICE = ...;      Service type {0-3} [opt]
                ACTIND = ...;       Activation indicator
```

```
                    ELACTIND = ...;      Electronic activation indicator
                    REGSET = ...;        Regular set
                    FTRSCP = ...;        Feature scope
                }                        End Feature aggregate
            }                            End ACL aggregate
        ACL{                             Action line
            ACT = N;                     Action Code - new
            NETYP = ...;                 Network element type
            NEGEN = ...;                 Network element generic
            FTR = ...;                   Feature tag
            FEATURE{                     Feature aggregate
                SERVICE = ...;           Service type {0-3} [opt]
                ACTIND = ...;            Activation indicator
                ELACTIND = ...;          Electronic activation indicator
                REGSET = ...;            Regular set
                FTRSCP = ...;            Feature scope
            }                            End Feature aggregate
        }                                End ACL aggregate
    }                                    End REC aggregate
}%                                       End *RCAT section
```

6.2.2.3.2 *RCAT Section Format: Change Feature Data (MTCCAT) ACT = RPL

In this case, a CTC of "C" and only one ACL aggregate are required. For CATOPT = G, only the services for a specific group may be changed. For CATOPT = F, only the services and feature-related information may be changed for a specific feature.

The following data items may appear in the *RCAT section:

```
*RCAT{                          Request for Catalog Data
    REC{                        Record {1-N}, where N equals the number of
                                Catalog Data Requests
        CTL{                    Control data
            CTC = C;            Control code - Change
            CATOPT = G;         Catalog Option - Group level
            PROP = A;           Propagation - All
        }                       End CTL aggregate
        ACL{                    Action line
            ACT = R;            Action code - replace
```

```
                    NETYP = ...;              Network element type
                    NEGEN = ...;              Network element generic
                    FGRP = ...;               Feature Group tag
                    FGRP{                     Feature Group aggregate
                        SERVICE = ...;        Service type  {0-3} [opt]
                    }                         End FGRP aggregate
                }                             End ACL aggregate
            }                                 End REC aggregate
    }%                                        End *RCAT section


*RCAT{                                        Request for Catalog Data
    REC{                                      Record {1-N}, where N equals the number of
                                              Catalog Data Requests
        CTL{                                  Control data
            CTC = C;                          Control code - Change data
            PROP = N;                         Propagation - No
            UPDIND = ...;                     Update Indicator [opt]
            CATOPT = F;                       Catalog Option - Feature level
        }                                     End CTL aggregate
        ACL{                                  Action line
            ACT = R;                          Action code - replace
            NETYP = ...;                      Network element type
            NEGEN = ...;                      Network element generic
            FTR = ...;                        Feature tag
            FEATURE{                          Feature aggregate
                SERVICE = ...;                Service type  {0-3} [opt]
                ACTIND = ...;                 Activation indicator [opt]
                ELACTIND = ...;               Electronic activation indicator [opt]
                REGSET = ...;                 Regular set [opt]
                FTRSCP = ...;                 Feature scope [opt]
            }                                 End FEATURE aggregate
        }                                     End ACL aggregate
    }                                         End REC aggregate
}%                                            End *RCAT section
```

6.2.3 Request Name Description Data (*RDES) Section

The *RDES section contains the data needed to perform inquiries and
maintenance to feature and feature group descriptions. Name descriptions
appear through normal inquiry of catalog information in the *RCAT section.

6.2.3.1 General *RDES Section Format

The data items† for the *RDES section are:

```
*RDES{                          Request for Name Description Data
    REC{                        Record {1-N}, where N equals the number of
                                Name Description Data Requests
        CTL{                    Control data
            CTC = ...;          Control code:
                                < I = Inquiry,
                                  C = Change >
        }                       End CTL aggregate
        ACL{                    Action line {1,2}
            ACT = ...;          Action code:
                                < O = Old,
                                  N = New,
                                  R = Replace >
            NETYP = ...;        Network element type
            TAGTYP = ...;       Tag Type:
                                < F = Feature,
                                  G = Group >
            TAGID = ...;        Tag ID
            DESCR{              Description Data {1-N}
                SERVICE = ...;  Service Type:
                                < B = Business,
                                  R = Residence,
                                  C = Centrex
                DESC = ...;     Name Description
                PROD = ...;     Product Name
            }                   End DESCR aggregate
        }                       End ACL aggregate
    }                           End REC aggregate
}%                              End *RDES section
```

---

† Data items shown in the *general* section format do not indicate whether they are optional, conditional, or required. This information is supplied in the subsequent sections.

The *RDES section contains a CTL aggregate and one or more ACL aggregates. The CTL aggregate identifies certain control information. In particular, the control code (CTC) is used to determine the type of control action to be performed:

- Inquire about name description data (CTC = I)

- Change name description data (CTC = C).

The following subsections explain how the *RDES section should be constructed, depending upon the CTC value in the CTL aggregate.

6.2.3.2 *RDES Section Format: Name Description Data Inquiry (INQCAT)

An inquiry for name description data requires the NETYP and TAGTYP tags. In this case, all the name descriptions are returned for every tag ID. If a particular tag ID is specified (TAGID), then all the name descriptions are returned for that particular tag ID.

The following data items may appear in the *RDES section:

```
*RDES{                      Request for Name Description Data
    REC{                    Record {1-N}, where N equals the number of
                            Name Description Data Requests
        CTL{                Control data
            CTC = I;        Control Code  =  Inquiry
        }                   End CTL aggregate
        ACL{                Action line
            NETYP = ...;    Network element type
            TAGTYP = ...;   Tag Type
            TAGID = ...;    Tag  ID [opt]
        }                   End ACL aggregate
    }                       End REC aggregate
}%                          End *RDES section
```

6.2.3.3 *RDES Section Format: Change Name Description Data (MTCCAT)

There are two types of changes allowed for Name Description Data. See the description of changing catalog data for the *RCAT section for more information.

6.2.3.3.1 *RDES Section Format: Change Name Description Data (MTCCAT) ACT = O/N

This type of change requires a CTC of "C" and two ACL aggregates. Although this case would normally support key changes, there is a restriction here because the data is provided by Bellcore. Therefore, the NETYP, TAGTYP, and

TAGID tags may not be changed, which means that the old and new values for these tags must be the same.

The following data items may appear in the *RDES section:

```
*RDES{                          Request for Name Description Data
    REC{                        Record {1-N}, where N equals the number of
                                Name Description Data Requests
        CTL{                    Control data
            CTC = C;            Control Code - Change
        }                       End CTL aggregate
        ACL{                    Action line
            ACT = O;            Activity code - Old
            NETYP = ...;        Network element type
            TAGTYP = ...;       Tag Type
            TAGID = ...;        Tag ID
            DESCR{              Description Data {1-N}
                SERVICE = ...;  Service Type [conditional]
                DESC = ...;     Name Description
                PROD = ...;     Product Name [conditional]
            }                   End DESCR aggregate
        }                       End ACL aggregate
        ACL{                    Action line
            ACT = N;            Action code - New
            NETYP = ...;        Network element type
            TAGTYP = ...;       Tag Type
            TAGID = ...;        Tag ID
            DESCR{              Description Data {1-N}
                SERVICE = ...;  Service Type [conditional]
                DESC = ...;     Name Description
                PROD = ...;     Product Name [conditional]
            }                   End DESCR aggregate
        }                       End ACL aggregate
    }                           End REC aggregate
}                               
}%                              End *RDES section
```

6.2.3.3.2 *RDES Section Format: Change Name Description Data (MTCCAT) ACT = RPL

In this type of change, a CTC of "C" and one ACL aggregate are required. The NETYP, TAGTYP, TAGID, and SERVICE tags must be specified in order to use this type of change.

The following data items may appear in the *RDES section:

```
*RDES{                          Request for Catalog Data
    REC{                        Record {1-N}, where N equals the number of
                                Name Description Data Requests
        CTL{                    Control data
            CTC = C;            Control Code = Change
        }                       End CTL aggregate
        ACL{                    Action line
            ACT = R;            Activity code - replace
            NETYP = ...;        Network element type
            TAGTYP = ...;       Tag Type
            TAGID = ...;        Tag ID
            DESCR{              Description Data {1-4}
                SERVICE = ...;  Service Type [opt]
                DESC = ...;     Name Description [opt]
                PROD = ...;     Product Name [opt]
            }                   End DESCR aggregate
        }                       End ACL aggregate
    }                           End REC aggregate
}%                              End *RDES section
```

6.2.4 Catalog Related Data Response (*CATR) Section

The *CATR section is created as a result of a request in the *RCAT section of
the INQCAT or MTCCAT contract. There is one response REC for each REC
in the original request message. The section contains responses to feature group
catalog and feature catalog information. The *CATR section also identifies
errors and discrepancies.

6.2.4.1 General *CATR Section Format

The data items† for the *CATR section are shown below in a general format.
The *RCAT of the request message is provided in the CTL and ACL aggregates
of the corresponding *CATR section of the response message for each REC

---

† Data items shown in the *general* section format do not indicate whether they are optional,
  conditional, or required. This information is supplied in the subsequent sections.

aggregate. The items shown in regular typeface reflect the data provided in the original request (*RCAT section). The items shown in bold typeface represent the response data.

```
*CATR{                          Catalog Data Response
    REC{                        Record {1-N}, where N equals the number of
                                Catalog Data Responses
    CTL{                        Control data
        CATOPT = ...;           Catalog option
        PROP = ...;             Propagation option
        UPDIND = ...;           Update indicator
        CTC = ...;              Control code
        IERC = ...;             Input error return code {0-N}, where N = the
                                number of input errors
        CDRC = ...;             Catalog data return code {0-N}
    }                           End CTL aggregate
    ACL{                        Action line {1,2}
        NETYP = ...;            Network element type
        NEGEN = ...;            Network element generic
        FGRP = ...;             Feature group tag
        FTR = ...;              Feature tag
        FGRP{                   FGRP aggregate
            SERVICE = ...;      Service Type {0-3}
        }                       End FGRP aggregate
        FEATURE{                Feature Data Information
            SERVICE = ...;      Service Type {0-3}
            ACTIND = ...;       Activation indicator
            ELACTIND = ...;     Electronic activation indicator
            REGSET = ...;       Regular set
            FTRSCP = ...;       Feature scope
        }                       End FEATURE aggregate
    }                           End ACL aggregate
    FGRPDATA{                   Feature group information {0-N}
        FGRP = ...;             Feature group tag ID
        GDESCR{                 GDESCR aggregate {0-3}
            SERVICE = ...;      Service Type
            FGRPDES = ...;      Feature Group Name Description
        }                       End GDESCR aggregate
    }                           End FGRPDATA aggregate
```

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```
FEATDATA{                    Feature data information {0-N}
    FGRP = ...;              Feature group tag ID
    GDESCR{                  GDESCR aggregate {0-3}
        SERVICE = ...;       Service Type
        FGRPDES = ...;       Feature Group Name Description
    }                        End GDESCR aggregate
    FTR = ...;               Feature tag ID
    FDESC{                   FDESC aggregate {0-3}
        SERVICE = ...;       Service Type
        FTRDES = ...;        Feature Name Description
    }                        End FDESC aggregate
    ACTIND = ...;            Activation indicator
    ELACTIND = ...;          Electronic activation indicator
    REGSET = ...;            Regular set
    FTRSCP = ...;            Feature scope
}                            End FEATDATA aggregate
XCPDATA{                     Switch feature exception data {0-N}
    FTR = ...;               Feature tag
    SID{                     SID aggregate (1-N}
        CLLI = ...;          Network element ID
        SERVICE = ...;       Service Type
    }                        End SID aggregate
}                            End XCPDATA aggregate
ERROR{                       ERROR aggregate {0-N}
    SERVICE...;              Service type
    NEGEN...;                Network element generic
    SVCERR...;               Service error code
    }                        End ERROR aggregate
  }                          End REC aggregate
}%                           End *CATR section
```

The first group of response data (IERC and CDRC), includes the CTL aggregate return codes. This data is returned as a response in all cases (CTC = I, C).

The other group of response data (FGRPDATA and/or FEATDATA aggregates) shows the additional data that may appear in the *CATR section. This is returned upon a successful inquiry request only.

The XCPDATA aggregate is returned only when a change of service leads to a failure in revalidating the feature exceptions against the new catalog containing the updated services. A CDRC processing message supplies the failed feature exception validations and the UPDIND tag to determine if the update should

continue. See the description of the *RCAT section for an explanation of the UPDIND tag.

The ERROR aggregate is returned when there is an error. The aggregate identifies the generic that is affected for all IERC errors. This is done specifically for the case in which the PROP tag specifies that multiple generics are being manipulated. In the case of a service type error, the service type and associated generic is identified. This is done because several service types could be input at the same time.

The return codes and the additional aggregates are explained in the sections that follow the general format.

6.2.4.2 CTL Aggregate Return Codes

There are two return code tags that may be included in the CTL aggregate. In the general format above, they are shown in bold typeface within the CTL aggregate. These return code tags are:

- Input Error Return Code (IERC)

  This return code indicates an incorrect format in the FCIF message or the associated tags. The value associated with the tag indicates the error condition. This tag may appear multiple times to identify multiple input errors. See Appendix D for specific IERC values and descriptions.

- Feature Data Return Code (CDRC)

  The CDRC tag indicates the result of inquiries, and changes of feature related data. This tag may appear multiple times indicating multiple process messages. See Appendix D for specific CDRC values and descriptions.

6.2.4.3 *CATR Section Format: Feature Data Inquiry Response

Upon successful completion of an inquiry, the data items in the FGRPDATA and/or FEATDATA aggregate of the *CATR general section are returned (depending upon the CATOPT specified).

If unsuccessful, only the IERC and CDRC tags are returned.

6.2.4.4 *CATR Section Format: MTCCAT Contract Response

The response to maintenance activity (CTC = C) results in either a successful or unsuccessful return code, but it does not return any data as would happen in the case of an inquiry request. Therefore, for this case, the FGRPDATA and/or FEATDATA aggregates are never returned. Only the IERC and CDRC tags are returned, which contain the input error codes and return codes described previously.

```
*CATR{                    Catalog Data Response
    REC{                  Record {1-N}, where N equals the number of
                          Catalog Data Responses
        CTL{              Control data
            CTC = ...;    Control code < C >
            IERC = ...;   Input error return code {0-N}, where N = the
                          number of input errors
            CDRC = ...;   Catalog data return code {0-N}
        }                 End CTL aggregate
        ACL{              Action line {1,2} from original request
        }                 End ACL aggregate
    }                     End REC aggregate
}%                        End *CATR section
```

6.2.5 Name Description Data Response (*DESR) Section

The *DESR section is created as a result of a request in the *RDES section of
the INQCAT or MTCCAT contract. There is one response REC for each REC
in the original request message. The section contains responses to name
description data. The *DESR section also identifies errors and discrepancies.

6.2.5.1 General *DESR Section Format

The data items† for the *DESR section are shown below in a general format.
The *RDES of the request message is provided in the CTL and ACL aggregates
of the corresponding *DESR section of the response message for each REC
aggregate. The items shown in regular typeface reflect the data provided in the
original request (*RDES section). The items shown in bold typeface represent
the response data.

```
*DESR{                    Name Description Data Response
    REC{                  Record {1-N}, where N equals the number of
                          Name Description Data Responses
        CTL{              Control data
```

---

† Data items shown in the *general* section format do not indicate whether they are optional,
conditional, or required. This information is supplied in the subsequent sections.

```
        CTC = ...;              Control code
        IERC = ...;             Input error return code {0-N}, where N = the
                                number of input errors
        DDRC = ...;             Description data return code {0-N}
    }                           End CTL aggregate
    ACL{                        Action line {1,2}
        NETYP = ...;            Network element type
        TAGTYP = ...;           Tag Type
        TAGID = ...;            Tag ID
        DESCR{                  DESCR aggregate
            SERVICE = ...;      Service Type
            DESC = ...;         Name Description
            PROD = ...;         Product Name
        }                       End DESCR aggregate
    }                           End ACL aggregate
    NAMES{                      NAMES aggregate {0-N}
        TAGID = ...;            Tag ID
        DESCR{                  DESCR aggregate {1-N}
            SERVICE = ...;      Service Type
            DESC = ...;         Name Description
            PROD = ...;         Product Name
        }                       End DESCR aggregate
        ERROR{                  ERROR aggregate {0-N}
            SERVICE = ...;      Service Type
            DESC = ...;         Name Description
            PROD = ...;         Product Name
            NAMERR = ...;       Names Error Code
        }                       End ERROR Aggregate
    }                           End NAMES aggregate
  }                             End REC aggregate
}%                              End *DESR section
```

The first group of response data (IERC and DDRC) includes the CTL aggregate return codes. This is returned as a response in all cases (CTC = I, C).

The other group of response data (the DESCR aggregate) shows the additional data that may appear in the *CATR section. This is returned only upon a successful inquiry request. The return codes and the additional aggregates are explained in the sections that follow the general format.

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The ERROR aggregate is returned when any errors occur. This aggregate identifies the data fields in error and provides the corresponding error code.

6.2.5.2 CTL Aggregate Return Codes

There are two return code tags that may be included in the CTL aggregate. In the general format above, they are shown in bold typeface within the CTL aggregate. These return code tags are:

- Input Error Return Code (IERC)

  This return code indicates an incorrect format in the FCIF message or the associated tags. The value associated with the tag indicates the error condition. This tag may appear multiple times to identify multiple input errors. See Appendix D for specific IERC values and descriptions.

- Description Data Return Code (DDRC)

  The DDRC tag indicates the result of inquiries and changes of feature-related data. This tag may appear multiple times indicating multiple process messages. See Appendix D for specific DDRC values and descriptions.

6.2.5.3 *DESR Section Format: Name Description Data Inquiry Response

Upon successful completion of an inquiry, the data items in the DESCR aggregate of the *DESR general section are returned.

If unsuccessful, only the IERC and DDRC tags are returned.

6.2.5.4 *DESR Section Format: MTCCAT Contract Response

The response to maintenance activity (CTC = C) results in either a successful or unsuccessful return code, but does not return any data as would happen in the case of an inquiry request. Therefore, for this case, the NAMES aggregate is never returned. Only the IERC and DDRC tags are returned. These tags hold the input errors and return codes described previously.

```
*DESR{                          Name Description Data Response
    REC{                        Record {1-N}, where N equals the number of
                                Name Description Data Responses
      CTL{                      Control data
          CTC = ...;            Control code < C >
          IERC = ...;           Input error return code {0-N}, where N = the
                                number of input errors
```

DDRC = ...;	**Description Data return code {0-N}**
}	End CTL aggregate
ACL{	Action line {1,2} from original request
}	End ACL aggregate
}	End REC aggregate
}%	End *DESR section

6.3 CPE Data Maintenance Contracts

This section describes two contracts, INQCPE and MTCCPE, which are used to maintain CPE data. CPE data encompasses customer premises equipment information and reference data. The INQCPE contract supports the inquiry† of CPE data, while the MTCCPE contract supports the maintenance (build, change, and remove) of CPE data.

Both contracts consist of a request and a response message and share the *RCPE and *CPER sections listed below.

- The FCIF sections in the request message are as follows:

*C1	Control Header section
*PLHDR	Provisioning Platform Header section
*SNSHDR	SNS Header section (optional)
*RCPE	Request for Customer Premises Equipment section

- The FCIF sections in the response message are as follows:

*C2	Control Header section
*PLHDR	Provisioning Platform Header section
*UMSG	User Message section (optional)
*SNSHDR	SNS Header section
*CPER	Customer Premises Equipment Response section

See Section 3 in this document for more information on the *C1, *C2, *PLHDR, *UMSG, and *SNSHDR FCIF sections. The *RCPE and the *CPER sections are explained in the following subsections.

6.3.1 General Contract Request Information

The contracts are designed so that multiple requests may be initiated in one contract invocation (request message). This is denoted by the REC aggregate that spans from {1-N}. Therefore, the INQCPE contract may contain multiple inquiry requests, while the MTCCPE contract may contain multiple requests for

---

† Note that the inquiries in maintenance are designed for the support of the maintenance functionality.

builds, changes, and deletes. These requests are structured in terms of the following FCIF sections. The *RCPE section supports the maintenance of CPE data:

- Inquiry of CPE Data (INQCPE)

- Build CPE Data (MTCCPE)

- Change CPE Data (MTCCPE)

- Remove CPE Data (MTCCPE).

6.3.2 Request for CPE Data (*RCPE) Section

The *RCPE section contains the data needed to perform inquiries and maintenance to CPE data.

6.3.2.1 General *RCPE Section Format

The data items† for the *RCPE section are:

```
*RCPE{                          Request for CPE data
    REC{                        Record {1-N}, where N equals the number
                                of CPE Inquiry Requests
        CTL{                    Control data
            CTC = ...;          Control code:
                                < I = Inquiry,
                                  B = Build,
                                  C = Change,
                                  R = Remove >
        }                       End CTL aggregate
        ACL{                    Action line {1,2}
            ACT = ...;          Action code:
                                < O = Old,
                                  N = New,
                                  R = Replace >
            CPEMAN = ...;       CPE manufacturer.
```

---

† Data items shown in the *general* section format do not indicate whether they are optional, conditional, or required. This information is supplied in the subsequent sections.

```
        CPEMOD = ...;        CPE model number
        CPENAME = ...;       CPE name
        CPEREG = ...;        CPE registration number
        DIS = ...;           Display indicator
        ONETOUCH = ...;      One touch indicator
        MAXKEY = ...;        Maximum number of keys
        MAXCA = ...;         Maximum number of call appearances
        HKEY = ...;          Hold key indicator
        RKEY = ...;          Release key indicator
        NETYP = ...;         Switch type {0-N}
    }                        End ACL aggregate
  }                          End REC aggregate
}%                           End *RCPE section
```

The *RCPE section contains a CTL aggregate and one or more ACL aggregates. The CTL aggregate identifies certain control information. In particular, the control code (CTC) is used to determine the type of control action to be performed:

- Inquire about CPE data (CTC = I)

- Add/Build CPE data (CTC = B)

- Change CPE data (CTC = C)

- Remove CPE data (CTC = R).

The ACL aggregate contains the specific information required to perform the CPE data inquiry or update. The information required in each ACL aggregate varies, depending upon the CTC that appears in the CTL aggregate.

The following subsections explain how the *RCPE section should be constructed, depending upon the CTC value in the CTL aggregate.

6.3.2.2 *RCPE Section Format: Customer Premises Equipment Inquiry (INQCPE)

An inquiry for CPE data requires the CPEMAN and CPEMOD (manufacturer and model number) tags.

The following data items may appear in the *RCPE section:

```
*RCPE{                          Request for CPE data
    REC{                        Record {1-N}, where N equals the number
                                of CPE Inquiry Requests
        CTL{                    Control data
            CTC = I;
        }                       End CTL aggregate
        ACL{                    Action line
            CPEMAN = ...;       CPE manufacturer
            CPEMOD = ...;       CPE model number
        }                       End ACL aggregate
    }                           End REC aggregate
}%                              End *RCPE section
```

6.3.2.3 *RCPE Section Format: Build CPE Data (MTCCPE)

To add CPE data† requires a CTC of "B" and an ACT of "N". The required tags in the ACL aggregate are CPEMAN, CPEMOD, DIS, ONETOUCH, HKEY, RKEY and MAXKEY.

The following data items may appear in the *RCPE section:

```
*RCPE{                          Request for CPE data
    REC{                        Record {1-N}, where N equals the number
                                of CPE Maintenance Requests
        CTL{                    Control data
            CTC = B;            Control code
        }                       End CTL aggregate
        ACL{                    Action line
            ACT = N;            Action code = New
            CPEMAN = ...;       CPE manufacturer
            CPEMOD = ...;       CPE model number
            CPENAME = ...;      CPE name [opt]
            CPEREG = ...;       CPE registration number [opt]
```

---

† Note that multiple switch types (NETYP) may be added for a CPE manufacturer and model number.

```
        DIS = ...;              Display indicator
        ONETOUCH = ...;         One touch indicator
        MAXKEY = ...;           Maximum number of keys
        MAXCA = ...;            Maximum number of call appearances [opt]
        HKEY = ...;             Hold key indicator
        RKEY = ...;             Release key indicator
        NETYP = ...;            Switch type {0-N} [opt]
    }                           End ACL aggregate
  }                             End REC aggregate
}%                              End *RCPE section
```

6.3.2.4 *RCPE Section Format: Remove CPE Data (MTCCPE)

To delete CPE data, a CTC of "R" and an ACT of "O" are required in the CTL aggregate. In the ACL aggregate, the CPEMAN and CPEMOD tags are required.

The following data items may appear in the *RCPE section:

```
*RCPE{                         Request for CPE data
    REC{                       Record {1-N}, where N equals the number
                               of CPE Maintenance Requests
        CTL{                   Control data
            CTC = R;           Control code - Remove
        }                      End CTL Aggregate
        ACL{                   Action line
            ACT = O;           Action code - Old
            CPEMAN = ...;      CPE manufacturer
            CPEMOD = ...;      CPE model number
        }                      End ACL aggregate
    }                          End REC aggregate
}%                             End *RCPE section
```

6.3.2.5 *RCPE Section Format: Change Customer Premises Equipment (MTCCPE)

There are two types of changes (CTC = C) allowed for CPE data. The first provides an old and new ACL with action codes (ACT) of "O" and "N". This allows updates for key fields. The old ACL holds old key values and old tag values that reflect the current data image, while the new ACL holds the new values that allow the old data to be changed to the new data. *The lack of a tag in the old ACL implies that the value represents its default value (0 for integer, or space for character). The lack of a tag in the new ACL implies that the value of the tag will be set to its default value.* This case is flexible since it allows key

changes and ensures proper sequencing by comparing tag values in the old ACL to the old database image.

The second type of change contains one ACL with an action code of "R" for replace. The old keys are given with the tags that contain the new values only. To remove an existing value without assigning a new value, it must be explicitly assigned, dependent upon its data type. The assignment for integers is TAG = 0; while characters will be assigned TAG = ;. This type of change is flexible since it allows the ability to change fields without prior knowledge of their old values. However, this method does not allow changes to key fields.

6.3.2.5.1 *RCPE Section Format: Change Customer Premises Equipment (MTCCPE) ACT = O/N

The following data items may appear in the *RCPE section:

```
*RCPE{                      Request for CPE data
    REC{                    Record {1-N}, where N equals the number
                            of CPE Maintenance Requests
        CTL{                Control data
            CTC = C;        Control code - Change
        }                   End CTL aggregate
        ACL{                Action line
            ACT = O;        Action code - Old
            CPEMAN = ...;   CPE manufacturer
            CPEMOD = ...;   CPE model number
            CPENAME = ...;  CPE name [opt]
            CPEREG = ...;   CPE registration number [opt]
            DIS = ...;      Display indicator
            ONETOUCH = ...; One touch indicator
            MAXKEY = ...;   Maximum number of keys
            MAXCA = ...;    Maximum number of call appearances [opt]
            HKEY = ...;     Hold key number
            RKEY = ...;     Release key number
            NETYP = ...;    Switch type {0-N} [opt]
        }                   End ACL aggregate
        ACL{                Action line
            ACT = N;        Action code - New
            CPENAME = ...;  CPE name [opt]
            CPEREG = ...;   CPE registration number [opt]
            CPEMOD = ...;   CPE model number
```

```
        DIS = ...;              Display indicator
        ONETOUCH = ...;         One touch indicator
        MAXKEY = ...;           Max number of keys
        MAXCA = ...;            Maximum number of call appearances [opt]
        HKEY = ...;             Hold key indicator
        RKEY = ...;             -Release key indicator
        NETYP = ...;            Switch type {0-N} [opt]
    }                           End ACL aggregate
  }                             End REC aggregate
}%                              End *RCPE section
```

6.3.2.5.2 *RCPE Section Format: Change Customer Premises Equipment (MTCCPE) ACT = RPL

In this type of change, a CTC of "C" and one ACL aggregate only are required. As a reminder, you cannot change the key field with this type of change.

The following data items may appear in the *RCPE section:

```
*RCPE{                         Request for CPE data
    REC{                       Record {1-N}, where N equals the number
                               of CPE Maintenance Requests
        CTL{                   Control data
            CTC = C;           Control code - Change
        }                      End CTL aggregate
        ACL{                   Action line
            ACT = R;           Action code - replace
            CPEMAN = ...;       CPE manufacturer
            CPEMOD = ...;       CPE model number
            CPENAME = ...;      CPE name [opt]
            CPEREG = ...;       CPE registration number [opt]
            DIS = ...;          Display indicator
            ONETOUCH = ...;     One touch indicator
            MAXKEY = ...;       Maximum number of keys
            MAXCA = ...;        Maximum number of call appearances [opt]
            HKEY = ...;         Hold key indicator
```

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```
        RKEY = ...;             Release key indicator
        NETYP = ...;            Switch type {0-N} [opt]
    }                           End ACL aggregate
  }                             End REC aggregate
}%                              End *RCPE section
```

6.3.3 Customer Premise Equipment Response (*CPER) Section

The *CPER section is created as a result of a request in the *RCPE section of the INQCPE or MTCCPE contract. There is one response REC for each REC in the original request message. The section contains responses to CPE data requests. The *CPER section also identifies errors and discrepancies.

6.3.3.1 General *CPER Section Format

The data items† for the *CPER section are shown below in a general format. The *RCPE section of the request message is provided in the CTL and ACL aggregates of the corresponding *CPER section of the response message for each REC aggregate. The items shown in regular typeface reflect the data provided in the original request (*RCPE section). The items shown in bold typeface represent the response data.

```
*CPER{                          Customer Premises Equipment Response
    REC{                        Record {1-N}, where N equals the number
                                of Customer Premises Equipment
                                Responses
        CTL{                    Control data
            CTC = ...;          Control code
            IERC = ...;         Input error return code {0-N}, where
                                N = the number of input errors
            CPRC = ...;         Customer Premises Equipment return
                                code {0-N}
        }                       End CTL aggregate
        ACL{                    Action line {1,2}
```

---

† Data items shown in the *general* section format do not indicate whether they are optional, conditional, or required. This information is supplied in the subsequent sections.

```
            CPEMAN = ...;        CPE manufacturer
            CPEMOD = ...;        CPE model number
            CPENAME = ...;       CPE name
            CPEREG = ...;        CPE registration number
            DIS = ...;           Display indicator
            ONETOUCH = ...;      One touch indicator
            MAXKEY = ...;        Maximum number of keys
            MAXCA = ...;         Maximum number of call appearances
            HKEY = ...;          Hold key indicator
            RKEY = ...;          Release key indicator
            NETYP = ...;         Switch type {0-N}
        }                        End ACL aggregate
    CPEDATA{                     Customer Premises Equipment data {0-1}
            CPENAME = ...;       CPE name
            CPEREG = ...;        CPE registration number
            DIS = ...;           Display indicator
            ONETOUCH = ...;      One touch indicator
            MAXKEY = ...;        Maximum number of keys
            MAXCA = ...;         Maximum number of call appearances
            HKEY = ...;          Hold key indicator
            RKEY = ...;          Release key indicator
            NETYP = ...;         Network element type {0-N}
        }                        End CPEDATA aggregate
    NETYPERR{                    NETYPERR aggregate {0-N}
            NETYP = ...;         Network element type
            NERR = ...;          Network element error
        }                        End NETYPERR aggregate
    }                            End REC aggregate
}%                               End *CPER section
```

The first group of response data (IERC and CPRC) includes the CTL aggregate return codes. This data is returned as a response in all cases (CTC = I, B, C, R).

The CPEDATA aggregate shows the additional data that may appear in the *CPER section. This is returned only upon a successful inquiry request.

If an error is detected with the input NETYP data, the NETYPERR aggregate will be generated on output. This is done to indicate which specific occurrence of NETYP is in error, since several could be present on input.

The return codes and the additional aggregates are explained in the subsections below.

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6.3.3.2 CTL Aggregate Return Codes

There are two return code tags that may be included in the CTL aggregate. In the general format above, they are shown in bold typeface within the CTL aggregate. These return code tags are:

- Input Error Return Code (IERC)

  This return code indicates an incorrect format in the FCIF message or the associated tags. The value associated with the tag indicates the error condition. This tag may appear multiple times to identify multiple input errors. See Appendix D for specific IERC values and descriptions.

- Customer Premises Equipment Return Code (CPRC)

  The CPRC tag indicates the result of inquiries, additions, changes, replacements, and deletions of CPE data. See Appendix D for specific CPRC values and descriptions.

6.3.3.3 *CPER Section Format: Customer Premises Equipment Inquiry Response

Upon successful completion of an inquiry, the data items in the CPEDATA aggregate of the *CPER general section are returned. If unsuccessful, only the IERC and CPRC tags are returned.

6.3.3.4 *CPER Section Format: MTCCPE Contract Response

The response to any maintenance activity (CTC = B,C,R) results in either a successful or unsuccessful return code. Data is not returned as in the case of an inquiry request. Therefore, for this case, the CPEDATA aggregate is never returned. Only the IERC and CPRC tags are returned. These tags hold the input errors and return codes described previously.

```
*CPER{                      Customer Premises Equipment Response
    REC                     Record {1-N}, where N equals the number
                            of CPE Responses
        CTL{                Control data
            CTC = ...;      Control code < B,C,R >
            IERC = ...;     Input error return code {0-N}, where
                            N = the number of input errors
            CPRC = ...;     Customer Premises Equipment return
                            code {0-1}
        }                   End CTL aggregate
```

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```
NETYPERR{                    NETYPERR aggregate {0-N}
    NETYP = ...;             Network element type
    NERR = ...;              Network element error
}                            End NETYPERR aggregate
}                            End REC aggregate
}%                           End *CPER section
```

If an error is detected with the input NETYP data, the NETYPERR aggregate will be generated on output. This is done to indicate which specific occurrence of NETYP is in error, since several could be present on input.

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6.4 Feature Package Data Maintenance Contracts

This section describes two contracts, INQFPK and MTCFPK, which are used to maintain feature package data. The INQFPK contract supports the inquiry of feature package data, while the MTCFPK contract supports the maintenance of feature package data. Both contracts consist of a request message and a response message.

FCIF sections in the request message are as follows:

*C1	Control Header section
*PLHDR	Provisioning Platform Header section
*SNSHDR	SNS Header section (optional)
*RFPK	Request for Feature Package Maintenance

FCIF sections in the response message are as follows:

*C2	Control Header section
*PLHDR	Provisioning Platform Header section
*UMSG	User Message section (optional)
*SNSHDR	SNS Header section
*FPKR	Feature Package Maintenance Response

Both contracts, INQFPK and MTCFPK, follow this FCIF format and share the *RFPK and *FPKR sections.

See Section 3 in this document for more information on the *C1, *C2, *PLHDR, *UMSG, and *SNSHDR FCIF sections.

6.4.1 Request Feature Package Data (*RFPK)

The *RFPK section allows you to build, remove, change, and inquire about feature packages. The general format of this section is shown below.

6.4.1.1 General Format

*RFPK{	Request for Feature Package Data
REC{	Record {1-N}, where N equals the number of Feature Package Requests
CTL{	Control data

```
        CTC = ...;              Control code: < I = Inquiry, B = Build,
                                C = Change, R = Remove >
        PROP = ...;             Propagate Indicator
        ALL = ...;              Request all data Indicator; < Y = Yes >
      }                         End CTL aggregate
ACL{                            Action line {1,2}
        ACT = ...;              Action code:
                                < O = Old,
                                N = New,
                                R = Replace >
        PROD = ...;             Product Name
        NETYP = ...;            Switch Type
        NEGEN = ...;            Switch Generic
        FPKG = ...;             Feature Package Name
        SERVICE = ...;          Types of service {0-3}:
                                < R = Residence,
                                B = Business,
                                C = Centrex >
        FEATURE{                Feature {1-N} where N equals the number
                                of features within this package.
          FTR = ...;            Feature Tag ID
          OPT = ...;            Optional Indicator
        }                       End Feature aggregate
      }                         End ACL aggregate
    }                           End REC aggregate
}%                              End *RFPK section
```

This FCIF section is broken into the REC, CTL, ACL, and FEATURE
aggregates. The REC aggregate allows multiple requests to be sent in one
contract. For example, one *INQFPK contract may process multiple inquiry
requests. Similarly, one *MTCFPK contract may process multiple requests for
build, remove, and change. The CTL aggregate holds the control code (CTC),
which determines the type of request to be performed. The ACL aggregate
contains the necessary information to process this request. The FEATURE
aggregate contains information about specific features in a package.

The NEGEN and PROP tags are used to determine the generic of the feature
package as follows:

No NEGEN tag, PROP = A   Perform the maintenance request for all generics.

NEGEN = xyz, PROP = N   Perform the maintenance request for the specific generic xyz.

NEGEN = xyz, PROP = Y   Perform the maintenance request for the given generic xyz and all subsequent generics (propagate it).

The generic is determined in this manner for all requests in the maintenance contract, MTCFPK. In the inquiry contract, however, a specific generic must be supplied by the user.

The ALL tag is used to indicate how much data should be returned upon an inquiry request. For example, when ALL = Y, this indicates the return of both feature package data names and all the feature information associated with the feature packages. When ALL = N, this indicates that only feature package names were requested.

The following subsections describe the formats of specific requests for each control code (BRIC†). In these FCIF formats, each tag shown is required unless specifically labeled as optional, denoted by "[opt]".

6.4.1.2 *RFPK Section Format Feature Package Inquiry (INQFPK)

There are three types of inquiries that can be made on a feature package:

1. Request a list of all feature package names under a product name/switch type/switch generic. The required tags for this type of request are PROD, NETYP, NEGEN, and ALL = N.

2. Request a list of all features under a specific feature package. The required tags for this type of request are PROD, NETYP, NEGEN, and FPKG.

3. Request all feature packages and all features within the packages. The required tags for this type of request are PROD, NETYP, NEGEN, and ALL = Y.

The absence of the feature package name tag, FPKG, indicates that all feature package names are requested. It is the ALL indicator that determines whether just feature package names or feature packages and associated feature information are returned upon an inquiry request. If ALL = Y, all feature

---

†   BRIC is used here to abbreviate Build, Remove, Inquire and Change

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packages and their associated feature information are returned. If ALL = N, feature package names only are returned. The type of service, indicated by the SERVICE tag, determines which feature package data is returned. For example, if SERVICE = "R" (residence), then residence feature package names† are returned in the response section (*FPKR). Note that only one type of service may be specified here. The lack of a SERVICE tag indicates all feature package data under that product is returned.

If the features of a specific package are requested, then FPKG should be equal to the name of the package.

To obtain a list of feature package names, the following *RFPK section would be used:

```
*RFPK{                    Request for Feature Package Data
   REC{                   Record {1-N}, where N equals the number of
                          Feature Package Requests
      CTL{                Control data
         CTC = I;         Control code: Inquiry
      }                   End CTL aggregate
      ACL{                Action line
         PROD = ...;      Product Name
         NETYP = ...;     Switch Type
         NEGEN = ...;     Switch Generic
         SERVICE = ...;   Type of Service    [opt]
      }                   End ACL aggregate
   }                      End REC aggregate
}%                        End *RFPK section
```

---

† "Residence feature package names" is used here to mean those feature packages that support residence services. These packages may also support other types of services.

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To obtain a list of features for a particular feature package, the *RFPK section would appear as:

```
*RFPK{                      Request for Feature Package Data
   REC{                     Record {1-N}, where N equals the number of
                            Feature Package Requests
      CTL{                  Control data
         CTC = I;           Control code: Inquiry
      }                     End CTL aggregate
      ACL{                  Action line
         PROD = ...;        Product Name
         NETYP = ...;       Switch Type
         NEGEN = ...;       Switch Generic
         FPKG = ...;        Feature Package Name
      }                     End ACL aggregate
   }                        End REC aggregate
}%                          End *RFPK section
```

To obtain information about all feature packages and their associated features, the following *RFPK section would be used:

```
*RFPK{                      Request for Feature Package Data
   REC{                     Record {1-N}, where N equals the number of
                            Feature Package Requests
      CTL{                  Control data
         CTC = I;           Control code: Inquiry
         ALL = Y;           All indicator - Yes
      }                     End CTL aggregate
      ACL{                  Action line
         PROD = ...;        Product Name
         NETYP = ...;       Switch Type
         NEGEN = ...;       Switch Generic
         SERVICE = ...;     Service Type    [opt]
      }                     End ACL aggregate
   }                        End REC aggregate
}%                          End *RFPK section
```

6.4.1.3 *RFPK Section Format: Build Feature Package (MTCFPK)

To build a feature package, there must be at least one FEATURE aggregate in the *RFPK section.† The absence of the SERVICE tag implies that the feature package has been set up, however it is not yet offered (possibly because of tariff reasons). This section may appear as follows:

```
*RFPK{                    Request for Feature Package Data
    REC{                  Record {1-N}, where N equals the number of
                          Feature Package Requests
        CTL{              Control data
            CTC = B;      Control code - Build
            PROP = ...;   Propagate indicator [opt]
        }                 End CTL aggregate
        ACL{              Action line
            ACT = N;      Action code: New data
            PROD = ...;   Product Name
            NETYP = ...;  Switch Type
            NEGEN = ...;  Switch Generic [conditional]
            FPKG = ...;   Feature Package Name
            SERVICE = ...; Type of service {0-3}
            FEATURE{      Feature {1-N} where N equals the number of
                          features within this package.
                FTR = ...;  Feature Tag ID
                OPT = ...;  Optional Indicator
            }             End Feature Aggregate
        }                 End ACL aggregate
    }                     End REC aggregate
}%                        End *RFPK section
```

6.4.1.4 *RFPK Section Format: Remove Feature Package (MTCFPK)

To remove feature package data, a CTC of "R" and an ACT of "O" are required in the CTL and ACL aggregates, respectively.

The type of remove performed is determined by the appearance of the tags. Although the product name (PROD) is the only required tag, the NETYP, NEGEN, and FPKG tags may also be supplied. Depending upon the

---

† Every feature package must consist of at least one feature.

combination, various responses may result. Some of the possible combinations are:

- PROD/NETYP/NEGEN/FPKG removes a specific feature package for a switch type, switch generic, and product. The PROP tag may also be used to propagate the delete across generics.

- PROD/NETYP/NEGEN removes all feature packages for a switch type, switch generic, and product. Again, the PROP tag may also be used to propagate the delete across generics.

- PROD/FPKG removes a specific feature package from a product for all switch types and switch generics. The PROP tag is not used in this case.

- PROD removes all the feature packages for a product for all switch types and generics. The PROP tag is not used in this case.

When a feature package is removed, it is removed for all types of service (business, residence, and Centrex).

The following data items may appear in the *RFPK section:

*RFPK{	Request for Feature Package Data
REC{	Record {1-N}, where N equals the number of Feature Package Requests
CTL{	Control data
CTC = R;	Control code: Remove
PROP = ...;	Propagate indicator [opt]
}	End CTL aggregate
ACL{	Action line
ACT = O;	Action code: Old data
PROD = ...;	Product Name
NETYP = ...;	Switch Type [opt]
NEGEN = ...;	Switch Generic [opt]
FPKG = ...;	Feature Package Name [opt]
}	End ACL aggregate
}	End REC aggregate
}%	End *RFPK section

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6.4.1.5 *RFPK Section Format: Change a Feature Package (MTCFPK)

There are two ways to request a change for feature packages:

1. Old/New Action Codes

   This request requires two ACL aggregates to change the old data in the old ACL aggregate (ACT = O) to the new data supplied in the new ACL aggregate (ACT = N). The lack of a tag in the new ACL aggregate for optional fields indicates that the value of that tag becomes its default value (0 for integers, space for characters). The lack of a tag in the old ACL aggregate for optional fields indicates that its current value is its default value (0 for integers, space for characters). This type of change allows key changes and ensures proper sequencing by matching the tag values in the old ACL aggregate to the database values. PROD, NETYP, NEGEN, SERVICE, and FPKG may be changed as well as Feature Data in this type of change.

2. Replace Action Code

   This method requires one ACL aggregate (ACT = R) with an action code of replace. An old image of the data is not needed. The new data must be provided with the feature package and all of its associated features and related data. In this type of change, only feature data associated with a particular feature package for a specific product, switch type, and switch generic may be changed. Therefore, PROD, NETYP, NEGEN, and FPKG tags are required in this type of change. The propagate option (PROP) may be used to propagate changes across generics.

Using the old/new ACLs to perform the change, the *RFPK section would appear as:

```
*RFPK{                  Request for Feature Package Data
   REC{                 Record {1-N}, where N equals the number of
                        Feature Package Requests
      CTL{              Control data
         CTC = C;       Control code: Change
         PROP = ...;    Propagate indicator [opt]
      }                 End CTL aggregate
      ACL{              Action line
         ACT = O;       Action code: Old data
```

```
              PROD = ...;              Product Name
              NETYP = ...;             Switch Type
              NEGEN = ...;             Switch Generic [conditional]
              SERVICE = ...;           Type of service {0-3}
              FPKG = ...;              Feature Package Name
              FEATURE{                 Feature {1-N} where N equals the number of
                                       features within this package.
                 FTR = ...;            Feature Tag ID
                 OPT = ...;            Optional Indicator
              }                        End Feature aggregate
          }                            End ACL aggregate
          ACL{                         Action line
              ACT = N;                 Action code: New data
              PROD = ...;              Product Name
              NETYP = ...;             Switch Type
              NEGEN = ...;             Switch Generic [conditional]
              SERVICE = ...;           Type of service {0-3}
              FPKG = ...;              Feature Package Name
              FEATURE{                 Feature {1-N} where N equals the number of
                                       features within this package.
                 FTR = ...;            Feature Tag ID
                 OPT = ...;            Optional Indicator
              }                        End Feature aggregate
          }                            End ACL aggregate
      }                                End REC aggregate
}%                                     End *RFPK section
```

Using the "R" (replace) action code, the *RFPK section for a change would
appear as:

```
*RFPK{                                 Request for Feature Package Data
   REC{                                Record {1-N}, where N equals the number of
                                       Feature Package Requests
       CTL{                            Control data
          CTC = C;                     Control code: Change
          PROP = ...;                  Propagate option [opt]
       }                               End CTL aggregate
       ACL{                            Action line
```

```
ACT = R;              Action code: Replace data
PROD = ...;           Product Name
NETYP = ...;          Switch Type
NEGEN = ...;          Switch Generic [conditional]
FPKG = ...;           Feature Package Name
SERVICE = ...;        Type of service {0-3} [opt]
FEATURE{              Feature {0-N} where N equals the number of
                      features within this package.  Replace with this
                      new feature set.
    FTR = ...;        Feature Tag ID [opt]
    OPT = ...;        Optional Indicator [opt]
    }                 End Feature aggregate
    }                 End ACL aggregate
    }                 End REC aggregate
}%                    End *RFPK section
```

6.4.2 Feature Package Data Response (*FPKR) Section

The *FPKR section is created as a result of a request (*RFPK) in either the
INQFPK contract or the MTCFPK contract. There is one response REC for
each request REC in the original request message.

6.4.2.1 General Format

The following is a general format for the response message:

```
*FPKR{                Feature Package Response section
    REC{              Record {1-N}, where N equals the number
                      of Feature Package Responses
        CTL{          Control data
            CTC = ...;     Control code
            IERC = ...;    Input error return code {0-N}, where the
                           number of input errors.
            FPRC = ...;    Feature package return code {0-1}
            PROP = ...;    Propagate option
            ALL = ...;     Request all data option [opt]
        }             End CTL aggregate
        ACL{          Action line {1,2} - Original Request
            ACT = ...;     Action code
            PROD = ...;    Product Name
```

NETYP = ...;	Switch Type
NEGEN = ...;	Switch Generic
FPKG = ...;	Feature Package Name
SERVICE = ...;	Type of service {0-3}
FEATURE{	Feature {0-N} where N equals the number of features within a package.
FTR = ...;	Feature Tag ID
OPT = ...;	Optional Indicator [opt]
}	End Feature aggregate
}	End ACL aggregate
PRODUCT{	**Product Data {0-1}**
PROD = ...;	**Product Name**
NETYP = ...;	**Network Element Type**
NEGEN = ...;	**Network Element Generic**
FPDATA{	**Feature Package Data {0-N}**
FPKG = ...;	**Feature Package Name**
SERVICE = ...;	**Type of service {0-3}**
FEATURE{	**Feature {0-N} where N equals the number of feature within a package.**
FTR = ...;	**Feature Tag ID**
OPT = ...;	**Optional Indicator**
DESC{	**Feature Descriptions {1-3}**
SERVICE = ...;	**Service type <R, B, C>**
FTRDES = ...;	**Description Long Name**
}	**End of DESC aggregate**
}	**End FEATURE aggregate**
}	**End FPDATA aggregate**
}	**End PRODUCT aggregate**
ERROR{	**Error aggregate {0-N}**
FTR = ...;	**Feature Tag ID**
SERVICE = ...;	**Service Type**
IERC = ...;	**Input Error Code**
}	**End Error aggregate**
}	End REC aggregate
}%	End *FPKR section

The response message contains the ACL from the original request message, plus additional data (FPDATA aggregate from the inquiry) and return codes. Two return codes will be present in the response section. They are the IERC (Input Error Return Code) and the FPRC (Feature Package Return Code). The IERC may contain multiple error codes indicating input errors or incorrect formats in the FCIF message. The FPRC will return the result of processing the request. The ERROR aggregate contains the IERC code to indicate which FTR or SERVICE the error belongs to.

See Appendix D for a listing of the IERC and FPRC codes.

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6.5 Switch-Related Data Maintenance Contracts

This section describes two contracts, INQNED and MTCNED, which are used to maintain switch-related data. Switch-related data encompasses network element, switch parameter, and switch feature exception data. The INQNED contract supports the inquiry† of switch-related data, while the MTCNED contract supports the maintenance (build, change, and remove) of switch-related data. There is no maintenance associated with the switch parameter table, since it consists of Bellcore-provided data.

Both contracts consist of a request and a response message and share the *RNED, *NEDR, *RXCP, and *XCPR sections listed below.

- The FCIF sections in the request message are as follows:

*C1	Control Header section
*PLHDR	Provisioning Platform Header section
*SNSHDR	SNS Header section (optional)
*RNED	Request for Network Element Data section
*RXCP	Request for Switch Exception Data section

- The FCIF sections in the response message are as follows:

*C2	Control Header section
*PLHDR	Provisioning Platform Header section
*UMSG	User Message section (optional)
*SNSHDR	SNS Header section
*NEDR	Network Element Data Response section
*XCPR	Switch Exception Data Response section

See Section 3 in this document for more information on the *C1, *C2, *PLHDR, *UMSG, and *SNSHDR FCIF sections.

6.5.1 General Contract Request Information

The contracts are designed so that multiple requests may be initiated in one contract invocation (request message). This is denoted by the REC aggregate that spans from {1-N}. Therefore, the INQNED contract may contain multiple inquiry requests, while the MTCNED contract may contain multiple requests for

---

† The inquiries in maintenance are designed for the support of the maintenance functionality.

builds, changes, and deletes. These requests are structured in terms of the
following FCIF sections.

. The *RNED section supports the maintenance of network element and switch
parameter data:

- Inquiry of Network Element and Switch Parameter Data (INQNED)

- Build Network Element Data only (MTCNED)

- Modify Network Element Data only (MTCNED)

- Remove Network Element Data only (MTCNED).

The *RXCP section supports the maintenance of Switch Feature Exception
Data:

- Inquiry of Switch Feature Exception Data (INQNED)

- Build Switch Feature Exception Data (MTCNED)

- Modify Switch Feature Exception Data (MTCNED)

- Remove Switch Feature Exception Data (MTCNED).

6.5.2 Request Network Element Data (*RNED) Section

The *RNED section contains the data needed to perform inquiries and
maintenance to network element and switch parameter data.

6.5.2.1 General *RNED Section Format

The data items† for the *RNED section are:

*RNED{	Request for Network Element Data
REC{	Record {1-N}, where N equals the number of Network Element Inquiry Requests
CTL{	Control data

---

† Data items shown in the *general* section format do not indicate whether they are optional,
conditional, or required. This information is supplied in the subsequent sections.

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```
        CTC = ...;           Control code:
                             < I = Inquiry,
                               B = Build,
                               C = Change,
                               R = Remove >
    }                        End CTL aggregate
  ACL{                       Action line {1,2}
        ACT = ...;           Action code:
                             < O = Old,
                               N = New,
                               R = Replace >
        CLLI = ...;          Network element CLLI code
        NETYP = ...;         Network element type
        NEGEN = ...;         Network element generic
        WC = ...;            Wire center
    }                        End ACL aggregate
  }                          End REC aggregate
}%                           End *RNED section
```

The *RNED section contains a CTL aggregate and one or more ACL aggregates. The CTL aggregate identifies certain control information. In particular, the control code (CTC) is used to determine the type of control action to be performed:

- Inquire about network element data (CTC = I)

- Add/Build another network element ID (CTC = B)

- Change network element data (CTC = C)

- Remove network element data (CTC = R).

The ACL aggregate contains the specific information required to perform the switch-related data inquiry or update. The information required in each ACL aggregate varies, depending upon the CTC that appears in the CTL aggregate.

The following subsections explain how the *RNED section should be constructed, depending upon the CTC value in the CTL aggregate.

6.5.2.2 *RNED Section Format: Network Element Inquiry (INQNED)

An inquiry for network element data requires a CLLI code for network element ID.

The following data items may appear in the *RNED section:

```
*RNED{                          Request for Network Element Data
    REC{                        Record {1-N}, where N equals the number of
                                Network Element Data Requests
        CTL{                    Control data
            CTC = I;            Control Code  =  Inquiry
        }                       End CTL aggregate
        ACL{                    Action line
            CLLI = ...;         Network element ID (CLLI code)
        }                       End ACL aggregate
    }                           End REC aggregate
}%                              End *RNED section
```

6.5.2.3 *RNED Section Format Build Network Element (MTCNED)

To add a network element ID with related information requires a CTC of "B"
and an ACT of "N". The required tags in the ACL aggregate are CLLI,
NETYP, NEGEN, and WC.

The following data items may appear in the *RNED section:

```
*RNED{                          Request for Network Element Data
    REC{                        Record {1-N}, where N equals the number of
                                Network Element Data Requests
        CTL{                    Control data
            CTC = B;            Control code - Build
        }                       End CTL aggregate
        ACL{                    Action line
            ACT = N;            Activity - new
            CLLI = ...;         Network element CLLI code
            NETYP = ...;        Network element type
            NEGEN = ...;        Network element generic
            WC = ...;           Wire center
        }                       End ACL aggregate
    }                           End REC aggregate
}%                              End *RNED section
```

6.5.2.4 *RNED Section Format Remove Network Element (MTCNED)

To delete a network element ID and its related data, a CTC of "R" and an ACT
of "O" are required in the CTL aggregate. In the ACL aggregate, the CLLI code
for the network element ID is required.

The following data items may appear in the *RNED section:

```
*RNED{                      Request for Network Element Data
    REC{                    Record {1-N}, where N equals the number of
                            Network Element Data Requests
        CTL{                Control data
            CTC = R;        Control code - Remove data
        }                   End CTL aggregate
        ACL{                Action line
            ACT = O;        Activity is against old data
            CLLI = ...;     Network element CLLI code
        }                   End ACL aggregate
    }                       End REC aggregate
}%                          End *RNED section
```

6.5.2.5 *RNED Section Format: Change Network Element (MTCNED)

There are two types of changes (CTC = C) allowed for network element data. The first provides an old and new ACL with action codes (ACT) of "O" and "N". This allows updates for key fields. The old ACL holds old key values and old tag values, reflecting the current data image, while the new ACL holds the new values that allow the old data to be changed to the new data. *The lack of a tag in the old ACL implies that the value represents its default value (0 for integer, or space for character). The lack of a tag in the new ACL implies that the value of the tag will be set to its default value.* Comparing the values in the old ACL aggregate with the current database image ensures proper sequencing of the FCIF messages.

The second type of change contains one ACL with an action code of "R" for replace. The old keys are given with only the tags that contain the new values. To remove an existing value without assigning a new value, it must be explicitly assigned, dependent upon its data type. The assignment for integers is "TAG = 0;". Characters are assigned "TAG = ;". This type of change is flexible since it provides the ability to change fields without prior knowledge of their old values. This method does not allow changes to key fields.

6.5.2.5.1 *RNED Section Format: Change Network Element (MTCNED) ACT = O/N

The following data items may appear in the *RNED section:

```
*RNED{                     Request for Network Element Data
    REC{                   Record {1-N}, where N equals the number of
                           Network Element Data Requests
        CTL{               Control data
            CTC = C;       Control code - Change
        }                  End CTL aggregate
        ACL{               Action line
            ACT = O;       Activity - old
            CLLI = ...;    Network element CLLI code
            NETYP = ...;   Network element type
            NEGEN = ...;   Network element generic
            WC = ...;      Wire center
        }                  End ACL aggregate
        ACL{               Action line
            ACT = N;       Activity - data
            CLLI = ...;    Network element CLLI code
            NETYP = ...;   Network element type
            NEGEN = ...;   Network element generic
            WC = ...;      Wire center
        }                  End ACL aggregate
    }                      End REC aggregate
}%                         End *RNED section
```

6.5.2.5.2 *RNED Section Format: Change Network Element (MTCNED) ACT = RPL

In this type of change, a CTC of "C" and only one ACL aggregate is required. As a reminder, you cannot change the key field with this type of change.

The following data items may appear in the *RNED section:

```
*RNED{                     Request for Network Element Data
    REC{                   Record {1-N}, where N equals the number of
                           Network Element Data Requests
        CTL{               Control data
            CTC = C;       Control code - Change data
```

```
        }                         End CTL aggregate
        ACL{                      Action line
            ACT = R;              Activity - replace
            CLLI = ...;           Network element CLLI code (old key)
            NETYP = ...;          Network element type    [opt]
            NEGEN = ...;          Network element generic [opt]
            WC = ...;             Wire center  [opt]
        }                         End ACL aggregate
    }                             End REC aggregate
}%                                End *RNED section
```

6.5.3 Request Switch Exception Data (*RXCP) Section

The *RXCP section contains the data needed to perform inquiries and maintenance to switch feature exception data.

6.5.3.1 General *RXCP Section Format

The data items† for the *RXCP section are:

```
*RXCP{                           Request for Switch Feature Exception Data
    REC{                         Record {1-N}, where N equals the number of
                                 Switch Feature Exception Requests
        CTL{                     Control data
            CTC = ...;           Control code:
                                 < I = Inquiry,
                                   B = Build,
                                   C = Change,
                                   R = Remove>
        }                        End CTL aggregate
        ACL{                     Action line {1,2}
```

---

† Data items shown in the *general* section format do not indicate whether they are optional, conditional, or required. This information is supplied in the subsequent sections.

```
        ACT = ...;          Action code:
                            < O = Old,
                            N = New,
                            R = Replace>
        CLLI = ...;         Network element CLLI code
        FTR = ...;          Feature tag
        SERVICE = ...;      Service Type {1-3}:
                            B = Business,
                            C = Centrex,
                            R = Residence>
    }                       End ACL aggregate
  }                         End REC aggregate
}%                          End *RXCP section
```

The *RXCP section contains a CTL aggregate and one or more ACL aggregates. The CTL aggregate identifies certain control information. In particular, the control code (CTC) is used to determine the type of control action to be performed as previously described in the *RNED section.

The ACL aggregate contains the specific information required to perform the network element inquiry or update. The information required in each ACL aggregate varies, depending upon the CTC that appears in the CTL aggregate.

The following subsections explain how the *RXCP section should be constructed, depending upon the CTC value in the CTL aggregate.

6.5.3.2 *RXCP Section Format: Switch Feature Exception Inquiry (INQNED)

An inquiry for switch feature exception data requires a CLLI code for the network element ID. In this case, all the feature exceptions at that switch are returned. If a specific feature tag is given, then only that specific feature exception is returned.

The following data items may appear in the *RXCP section:

```
*RXCP{                      Request for Switch Feature Exception Data
    REC{                    Record {1-N}, where N equals the number of
                            Switch Feature Exception Data Requests
        CTL{                Control data
            CTC = I;        Control Code  =  Inquiry
        }                   End CTL aggregate
        ACL{                Action line
```

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```
            CLLI=...;           Network element ID (CLLI code)
            FTR=...;            Feature tag [opt]
        }                       End ACL aggregate
    }                           End REC aggregate
}%                              End *RXCP section
```

6.5.3.3 *RXCP Section Format: Build a Switch Feature Exception (MTCNED)

To add feature exceptions at a specific switch requires a CTC of "B" and an ACT of "N". The switch and feature tag must also be specified.

The following data items may appear in the *RXCP section:

```
*RXCP{                          Request for Switch Feature Exception Data
    REC{                        Record {1-N}, where N equals the number of
                                Switch Feature Exception Data Requests
        CTL{                    Control data
            CTC=B;              Control code - Build
        }                       End CTL aggregate
        ACL{                    Action line
            ACT=N;              New data
            CLLI=...;           Network element CLLI code
            FTR=...;            Network element type
            SERVICE=...;        Service type {1-3}
        }                       End ACL aggregate
    }                           End REC aggregate
}%                              End *RXCP section
```

6.5.3.4 *RXCP Section Format: Remove a Switch Feature Exception (MTCNED)

To remove all the feature exceptions at a particular switch only the switch ID (CLLI) is required. To remove a specific feature exception at a switch, the switch ID (CLLI) and the feature tag name (FTR) are required. Either delete capability requires a CTC of "R" in the CTL aggregate, and an ACT of "O" in the ACL aggregate.

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The following data items may appear in the *RXCP section:

```
*RXCP{                       Request for Switch Feature Exception Data
     REC{                    Record {1-N}, where N equals the number of
                             Switch Feature Exception Data Requests
          CTL{               Control data
               CTC = R;      Control code - Remove data
          }                  End CTL aggregate
          ACL{               Action line
               ACT = O;      Activity is against old data
               CLLI = ...;   Network element CLLI code
               FTR = ...;    Feature tag    [opt]
          }                  End ACL aggregate
     }                       End REC aggregate
}%                           End *RXCP section
```

6.5.3.5 *RXCP Section Format Change Switch Feature Exception Data (MTCNED)

There are two types of changes allowed for Switch Feature Exception Data. Refer to the *RNED section for more information on these change types.

6.5.3.5.1 *RXCP Section Format Change Switch Feature Exception Data (MTCNED) ACT = O/N

This type of change requires a CTC of "C" and two ACL aggregates. It supports key changes, and ensures proper sequencing.

The following data items may appear in the *RXCP section:

```
*RXCP{                       Request for Switch Feature Exception Data
     REC{                    Record {1-N}, where N equals the number of
                             Switch Feature Exception Data Requests
          CTL{               Control data
               CTC = C;      Control code - Change
          }                  End CTL aggregate
          ACL{               Action line
               ACT = O;      Action Code - old
               CLLI = ...;   Network element CLLI code
               FTR = ...;    Feature tag
               SERVICE = ...; Service type {1-3}
```

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```
        }                         End ACL aggregate
        ACL{                      Action line
            ACT = N;              Activity is new data
            CLLI = ...;           Network element CLLI code
            FTR = ...;            Feature tag
            SERVICE = ...;        Service type {1-3}
        }                         End ACL aggregate
    }                             End REC aggregate
}%                                End *RXCP section
```

6.5.3.5.2 *RXCP Section Format: Change Switch Feature Exception Data (MTCNED) ACT = RPL

In this type of change, a CTC of "C" and only one ACL aggregate are required. The switch ID and feature tag must be specified in order to use this change function. As a reminder, you cannot change the key field with this type of change.

The following data items may appear in the *RXCP section:

```
*RXCP{                          Request for Switch Feature Exception Data
    REC{                        Record {1-N}, where N equals the number of
                                Switch Feature Exception Data Requests
        CTL{                    Control data
            CTC = C;            Control code - Change data
        }                       End CTL aggregate
        ACL{                    Action line
            ACT = R;            Action code - replace
            CLLI = ...;         Network element CLLI code
            FTR = ...;          Feature tag
            SERVICE = ...;      Service type {1-3}
        }                       End ACL aggregate
    }                           End REC aggregate
}%                              End *RXCP section
```

6.5.4 Network Element Data Response (*NEDR) Section

The *NEDR section is created as a result of a request in the *RNED section of the INQNED or MTCNED contract. There is one response REC for each REC in the original request message. The section contains responses to network-related information. The *NEDR section also identifies errors and discrepancies.

6.5.4.1 General *NEDR Section Format

The data items† for the *NEDR section are shown below in a general format. The *RNED section of the request message is provided in the CTL and ACL aggregates of the corresponding *NEDR section of the response message for each REC aggregate. The items shown in regular typeface reflect the data provided in the original request (*RNED section). The items shown in bold typeface represent the response data.

*NEDR{	Network Element Data Response
REC{	Record {1-N}, where N equals the number of Network Element Responses
CTL{	Control data
CTC = ...;	Control code
IERC = ...;	**Input error return code {0-N}, where N = the number of input errors**
NDRC = ...;	**Network data return code {0-N}**
}	End CTL aggregate
ACL{	Action line {1,2}
CLLI = ...;	Network element ID (CLLI code)
NETYP = ...;	Network element type
NEGEN = ...;	Network element generic
WC = ...;	Wire center
}	End ACL aggregate
NEDATA{	**Network element information {0-1}**
CLLI = ...;	**Network element CLLI code**
NETYP = ...;	**Network element type**
NEGEN = ...;	**Network element generic**
WC = ...;	**Wire center**
MXSCH = ...;	**Maximum members in a SCH group**
MXSCHP = ...;	**Maximum SCH groups to participate**
}	**End NEDATA aggregate**
XCPDATA{	**Switch feature exception data {0-N}**
FTR = ...;	**Feature tag**

---

† Data items shown in the *general* section format do not indicate whether they are optional, conditional, or required. This information is supplied in the subsequent sections.

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```
     SVC{                    SVC aggregate {1-3}
         SERVICE = ...;      Service type
         FTRDES = ...;       Description
     }                       End SVC aggregate
   }                         End XCPDATA aggregate
  }                          End REC aggregate
}%                           End *NEDR section
```

The first group of response data (IERC and NDRC) includes the CTL aggregate return codes. This data is returned as a response in all cases (CTC = I, B, C, R).

The NEDATA aggregate shows the additional data that may appear in the *NEDR section. This aggregate is returned upon a successful inquiry request.

The XCPDATA aggregate is returned when a change of type or generic leads to a failure in revalidating the feature exceptions against the catalog for the updated type and/or generic. This is an internal database integrity check comparing the switch feature exception data against the catalog data. The update does not take place until the failed feature exceptions are either deleted or reset. The contract returns the switch feature exceptions that failed the validation. The return codes and the additional aggregates are explained in the subsections below.

6.5.4.2 CTL Aggregate Return Codes

There are two return code tags that may be included in the CTL aggregate. In the general format above, they are shown in bold typeface within the CTL aggregate. These return code tags are:

- Input Error Return Code (IERC)

  This return code indicates an incorrect format in the FCIF message or the associated tags. The value associated with the tag indicates the error condition. This tag may appear multiple times to identify multiple input errors. See Appendix D for specific IERC values and descriptions.

- Network Data Return Code (NDRC)

  The NDRC tag indicates the result of inquiries, additions, changes, replacements, and deletions of network element data. See Appendix D for specific NDRC values and descriptions.

6.5.4.3 *NEDR Section Format: Network Element Data Inquiry Response

Upon successful completion of an inquiry, the data items in the NEDATA aggregate of the *NEDR general section are returned. If unsuccessful, only the IERC and NDRC tags are returned.†

6.5.4.4 *NEDR Section Format: MTCNED Contract Response

The response to any maintenance activity (CTC = B, C, R) results in either successful or unsuccessful return codes (IERC/NDRC) found in the CTL aggregate of the response section. Other data that may possibly be returned in this case is the XCPDATA aggregate, which only appears when a type and/or generic have been changed and the exceptions fail revalidation against the catalog. The NEDATA aggregate is returned only upon a successful inquiry.

```
*NEDR{                       Network Element Data Response
    REC                      Record {1-N}, where N equals the number of
                             Network Element Responses
    CTL{                     Control data
        CTC = ...;           Control code < B,C,R >
        IERC = ...;          Input error return code {0-N}, where N = the
                             number of input errors
        NDRC = ...;          Network data return code {0-1}
    }                        End CTL aggregate
    ACL{                     Action line {1,2} from original request
    }                        End ACL aggregate
    XCPDATA{                 Exception data {1-N}, where N = the number of
                             feature exception validation failures for a switch
                             type/generic change
    }                        End XCPDATA aggregate
    }                        End REC aggregate
}%                           End *NEDR section
```

---

† In the case of unsuccessful changes of switch type and/or switch generic, revalidation failures of feature exceptions cause the XCPDATA aggregate to be returned.

6.5.5 Switch Feature Exception Data Response (*XCPR) Section

The *XCPR section is created as a result of a request in the *RXCP section of the INQNED or MTCNED contract. There is one response REC for each REC in the original request message. The section contains responses to switch feature exception-related information. The *XCPR section also identifies errors and discrepancies.

6.5.5.1 General *XCPR Section Format

The data items† for the *XCPR section are shown below in a general format. The *RXCP section of the request message is provided in the CTL and ACL aggregates of the corresponding *XCPR section of the response message for each REC aggregate. The items shown in regular typeface reflect the data provided in the original request (*RXCP section). The items shown in bold typeface represent the response data.

```
*XCPR{                    Network Element Data Response
    REC{                  Record {1-N}, where N equals the number of
                          Network Element Responses
    CTL{                  Control data
        CTC = ...;        Control code
        IERC = ...;       Input error return code {0-N}, where N = the
                          number of input errors
        FERC = ...;       Feature exception return code {0-1}
    }                     End CTL aggregate
    ACL{                  Action line {1,2}
        ACT = ...;        Action code:
                          < O = Old,
                            N = New,
                            R = Replace >
        CLLI = ...;       Network element CLLI code
        FTR = ...;        Feature tag
```

---

† Data items shown in the *general* section format do not indicate whether they are optional, conditional, or required. This information is supplied in the subsequent sections.

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```
        SERVICE=...;        Service Type {1-3}:
                              B = Business,
                              C = Centrex,
                              R = Residence>
    }                       End ACL aggregate
    XCPDATA{                Exception data information {0-N}, where N = the
                            number of feature exceptions
        FTR = ...;          Feature tag
        SVC{                SVC aggregate {1-3}
            SERVICE = ...;  Service type
            FTRDES = ...;   Description
        }                   End SVC aggregate
    }                       End XCPDATA aggregate
    ERROR{                  ERROR aggregate {0-N}
        SERVICE = ...;      Service type
        SVCERR = ...;       Service error code
    }                       End ERROR aggregate
}                           End REC aggregate
}%                          End *XCPR section
```

The first group of response data (IERC and FERC) includes the CTL aggregate return codes. This data is returned as a response in all cases (CTC = I, B, C, R). The second group of response data (the XCPDATA aggregate) shows the additional data that may appear in the *XCPR section. This data is returned only upon a successful inquiry request.

If an error is detected with the input SERVICE data, the ERROR aggregate will be generated on output. This is done to indicate which specific occurrence of SERVICE is in error, since several could be present on input.

6.5.5.2 CTL Aggregate Return Codes

There are two return code tags that may be included in the CTL aggregate. In the general format above, they are shown in bold typeface within the CTL aggregate. These return code tags are:

- Input Error Return Code (IERC)

    This return code indicates an incorrect format in the FCIF message or the associated tags. The value associated with the tag indicates the error condition. This tag may appear multiple times to identify multiple input errors. See Appendix D for specific IERC values and descriptions.

- Feature Exception Return Code - (FERC)

    The FERC tag indicates the result of inquiries, additions, changes,

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replacements, and deletions of feature exception data. See Appendix D for specific FERC values and descriptions.

6.5.5.3 *XCPR Section Format: Switch Feature Exception Data Inquiry Response

Upon successful completion of an inquiry, the data items in the XCPDATA aggregate of the *XCPR general section are returned. If unsuccessful, only the IERC and FERC tags are returned.

6.5.5.4 *XCPR Section Format: MTCNED Contract Response

The response to any maintenance activity (CTC = B, C, R) results in either a successful or unsuccessful return code. Data is not returned as it is in the case of an inquiry request. Therefore, for this case, the XCPDATA aggregate is never returned. Only the IERC and NDRC tags are returned. These tags hold the input errors and return codes described previously.

```
*XCPR{                      Network Element Data Response
    REC                     Record {1-N}, where N equals the number of
                            Network Element Responses
    CTL{                    Control data
        CTC = ...;          Control code < B, C, R >
        IERC = ...;         Input error return code {0-N}, where N = the
                            number of input errors
        FERC = ...;         Feature exception return code {0-1}
    }                       End CTL aggregate
    ACL{                    Action line {1,2} from original request
    }                       End ACL aggregate
    ERROR{                  ERROR aggregate {0-N}
        SERVICE = ...;      Service type
        SVCERR = ...;       Service error code
    }                       End ERROR aggregate
    }                       End REC aggregate
}%                          End *XCPR section
```

If an error is detected with the input SERVICE data, the ERROR aggregate will be generated on output. This is done to indicate which specific occurrence of SERVICE is in error, since several could be present on input.

A. Appendix A — FCIF Overview

The Flexible Computer Interface Form (FCIF) is a data exchange language developed for inter-operating systems applications communications. It was developed to "minimize" message sizes for the purposes of network communications, decouple the component systems with respect to release transitioning, and provide for interface extensibility.

A.1 FCIF Language

In the FCIF language,* the kernel unit of data is the *data item*. A data item consists of an FCIF tag and value combination, with the tag delimited from the value by the character " = " and the value terminated by the character ";". A tag is defined as a string of numbers or upper-case letters. The FCIF data value is a sequence of zero or more ASCII or EBCDIC characters (excluding control characters other than line feed and tab). If special FCIF delimiter characters are needed within a data value, they must be preceded by a backslash ("\"), which is interpreted as an escape. (See Section A.5 for information on ASCII to EBCDIC character translation problems.) Therefore, the data item representing "street" could be of the form:

STR = MAIN ST;

The FCIF *data aggregate* is a named grouping of one or more FCIF data items and/or other FCIF data aggregates. The aggregate tag is an FCIF tag as defined above. The aggregate tag precedes the grouped data, which is enclosed between the characters "{" and "}", respectively. Therefore, the aggregate representing "basic address" could be of the form:

BADR{STR = MAIN;HNBR = 123;CN = MYTOWN;ST = KANSAS;}

Given the notion of items and aggregates, the FCIF language allows for explicit hierarchical data relationships to an arbitrary number of levels. The FCIF syntax allows the definition of an arbitrary, hierarchical tree structure in which each data item corresponds to a terminal node on the tree and each data aggregate corresponds to a branch node. For example, the *nested* aggregate structure representing a "complete address" (basic plus supplemental) could have the form:

---

* The information in this Appendix is taken from two Bellcore Memoranda for File: (1) Roberto, J. T., "Flexible Computer Interface Form (FCIF), A Data Exchange Language," April 29, 1987; and (2) Chol, K. K., "TVO and FCIF Interface," June 20, 1988.

CADR{BADR{STR = MAIN;HNBR = 123;CN = MYTOWN;
ST = KANSAS;}SADR{UNIT = APT 1A;FLR = 2;}}

Once the data hierarchy is defined for a given construct between two FCIF partners, all allowable data items need not be sent and the sequence of the items within an aggregate is optional.

The FCIF section is used to group data items and data aggregates by the different general activities a component system typically performs. An FCIF section is denoted by surrounding the grouped data by the characters "*" (for the beginning of the section) and "%" (for the end of the section). The first aggregate in a section is commonly referred to as the section name. Thus, a valid FCIF section could be:

*MSG{REC{APSO = Y;DST = LAC;}TXT = NO FACILITIES;}%

In actual uses of the FCIF language, inter-component system messages typically have multiple sections. Each section groups similar data corresponding to application-specific processing.

A.2 Semantics

The semantics of a language can be viewed simply as the relationship between the structure of the language and what the language denotes. In the development of the FCIF language, a fundamental decision was made to make the language "semantic-less." This means that there are no predefined meanings associated with its kernel elements, namely, data items. Therefore, the semantic interpretation of any given FCIF message (as defined by the contract) is left to the receiving component system. Such a message (or part of a message) received by another component system could be interpreted differently, and have a different meaning. In practical terms, the FCIF language has no predefined verbs, keywords, implied actions, or operators. However, such elements could be defined using the FCIF language in the implementation of any contract.

As an example of the flexibility of a semantic-less language, consider the following three constructs, which represent a "disconnect" and two "circuits," respectively.

DIS = TN1[2019812464], TN1[2019812465];
ACT = OUT; CKT{TN = 2019812464; TN = 2019812465;}
REMOVE{CKT = TN[2019812464]; CKT = TN[2019812465];}

A.3 Parsing FCIF

When an FCIF message is decomposed, an application usually requires the tag and the data associated with the tag. The tag by itself may not be very useful, since its context within the grouping of FCIF aggregates may affect its meaning. The following example illustrates an FCIF sequence:

*ACL{TP{ID = CT15-0013;}OE{ID = 002-000-001;}}%

In this example, there are two occurrences of the tag "ID". The meaning of "ID" varies, depending on whether it appears in the TP or OE aggregate.

As strings of ASCII (or EBCDIC) characters, FCIF messages are intrinsically readable. In actual uses of the FCIF language, "white space," tab, and new line characters have been used extensively to make FCIF messages more readable with respect to message structure. This enhanced readability has substantially reduced the time and effort involved in tracking down inter-system transaction failures.

A.4 FCIF Syntax

To describe the formal syntax of the FCIF language, the following notation language elements will be used:

Element	Definition
< x >	Describes the object named "x"
:: =	Can be formed from
|	A separator for alternative constructs (exclusive OR)
(x) (i,j)	A repeating specification for the object "x" to be iterated at least "i" times but not more than "j" times, in which $j > = i > = 0$.
"..."	A non-null terminal symbol sequence

Using the notation language specified above, the syntax can be expressed in the form of the following statements:

< message> :: = (< section>) (1,N)

< section> :: = < white space> < start of section> (< data aggregate> | < data item>) (1,N < end of section> < white space>

< start of section > ::= *

< end of section > ::= %

< data aggregate > ::= < tag > < left aggregate delimiter > (< data aggregate > | < data item >)(1,N) < right aggregate delimiter >

< data item > ::= < tag > < tag delimiter > < value > < data item delimiter >

< tag > ::= (< letter > | < digit >)(1,N)

< value > ::= (< letter > | < digit > | < ASCII special character > | < letter1 > | < control character >) (0,N)

< tag delimiter > ::= < white space > < equal sign >

< data item delimiter > ::= < data item termination > < white space >

< left aggregate delimiter > ::= < white space > < start of aggregate >

< right aggregate delimiter > ::= < white space > < end of aggregate > < white space >

< start of aggregate > ::= { | <

< end of aggregate > ::= } | >

< data item termination > ::= ;

< white space > ::= (< control character > | < one blank space >) (0,N)

< letter > ::= A|B|C|...|Z|a|b|c|...|z

< digit > ::= 0|1|2|3|4|5|6|7|8|9

< ASCII or EBCDIC special character > ::= Environmental writable characters except < letter > < digit > < letter1 > < control character >

< vertical bar > ::= |

< letter1 > ::= < backslash > < FCIF special character >

< backslash > :: = \

< fcif special character> :: = ;|{|}|%|=|*| < back slash > | < | >

< control character> :: = < tab > | < line feed>

< equal sign > :: = =

< tab > :: = tab character

< line feed> :: = line feed character

< one blank space> :: = space character

NOTE
An "empty" aggregate is not a valid FCIF construct. A null value is an acceptable FCIF construct, but SNS contracts do not allow null values. For example, the use of "TN{}" to represent an empty aggregate is not valid. Likewise, the use of "BAD = ;" to convey a tag with a null value is not allowed. See Appendix B for appropriate tag size ranges.

A.5 Character Translation Problem

For inter-component system communication in which the ASCII character set is not available, an ASCII to EBCDIC (and vice versa) translation can be performed at the communication level. Applications should not use characters that may cause translation problems if communication to foreign character sets is desired. **Only environmental writable (non-binary) characters can be converted into FCIF messages.** The characters that may cause translation problems are:

ASCII: [ ] ! ^ |

EBCDIC: ? ! | ~ \

B. Appendix B — SNS FCIF Tag Descriptions

Table B-1. SNS FCIF Tag Descriptions

SNS FCIF Tag Descriptions (1 of 14)			
Tag	**Size**	**Code Set**	**Description**
ACCT	1-4	Alpha/Num	Customer account; criteria used in identifying spare loops
ACT	1	O,N,R	Action code — old (O), new (N), or replace (R)
ACTIND	1	B, D, E, N	Activation indicator. Indicates if customer's feature is buttonable (B), dial accessed (D), either (E), or does not apply (N).
AHN	1-8	Alpha/Num	Assigned house number is a reference number assigned to an address in lieu of a house number. Only BAD *or* AHN may exist in an address.
ALL	1	Y,N	Return all features for each returned feature package (Y), or return only feature packages (N)
ALLSTAT	1	Y,N	Delete all TN entries regardless of STAT code
ALLTN	1	N	All TNs are *not* required for selection.
ALT	1-67	Alpha/Num	Alternate address is the name of a street that is an alternate name for a primary street name in PREMIS.
BAD	1-12	Alpha/Num	Basic address designation identifies the house number portion of the address. Only BAD *or* AHN may exist in an address.
BO	1-9	Alpha/Num	Business office serving customers in a specific geographic area
CAT	1-3	Numeric	Customer access treatment code

SNS FCIF Tag Descriptions (2 of 14)			
Tag	Size	Code Set	Description
CATOPT	4	F,G	Catalog option indicator: feature (F) or group (G)
CDRC	5		Catalog data return code. Indicates the results of catalog data processing.
CKL	1-15	Alpha/Num	Circuit location identifier used to identify a circuit termination (e.g., CKL 1)
CLLI	11	Alpha/Num	CLLI code that identifies a network element
CLS	1-27	Alpha/Num	CLCI serial number that identifies a circuit
CNA	1-32	Alpha/Num	Community in which address is located
CNA1	1-29	Alpha/Num	Alternate community name 1
CNA2	1-29	Alpha/Num	Alternate community name 2
CNARQ	1	Y	Community name required indicator is a positive indicator to identify whether the PREMIS primary community name is required on the service order for PREMIS service order processing.
CO	3	Alpha/Num	A code to identify the group or groups of telephone numbers allocated for subscribers served within a specific geographic area
CON	1	Y	Consecutive indicator. Indicates that consecutive TNs are desired.
CONFIRM	1	Y	Confirmation indicator. Confirms that a proposed action should take place.
CORSFX	1-2	Alpha/Num	Correction suffix on an order
CPEMAN	1-20	Alpha/Num	CPE manufacturer

SNS FCIF Tag Descriptions (3 of 14)			
Tag	Size	Code Set	Description
CPEMOD	1-20	Alpha/Num	CPE model
CPENAME	1-30	Alpha/Num	CPE name
CPEREG	1-17	Alpha/Num	CPE registration number
CPRC	5	Alpha/Num	Customer premises equipment return code. Indicates the processing error.
CTC	1	B,C,R,I	Control code: build (B), change (C), remove (R), or inquiry (I)
CTX	1-18	Numeric	Centrex group identifier
CUST	1-20	Alpha/Num	Customer name
DAY	1-2	Numeric	Day portion of the date
DDRC	5		Description data return code. Indicates the results of name description data processing.
DESC	1-50		Description name. The long name of the feature or feature group.
DESCRIP	2-50	Alpha/Num	Descriptive address
DIR	1-9	Alpha/Num	A code to identify a telephone directory area for listing and delivery purposes
DIS	1	Y,N	Display flag. Indicates if CPE can support features that require a display.
DPA	1-15	Alpha/Num	Different premises address identifier used to identify a circuit termination (e.g., DPA 1)
ECHO	unlimited	Alpha/Num	Echo data is used to hold data that is to be returned to the originator untouched.
EID	1-10	Alpha/Num	The actual elevation identifier of the location ETYP (e.g., FLR)

SNS FCIF Tag Descriptions (4 of 14)			
Tag	**Size**	**Code Set**	**Description**
ELACTIND	1	B, D, E, N	Electronic set activation indicator: buttonable (B), dial accessed (D), either (E), or not applicable (N).
ELECSET	1	S, D, P, U	Identifies the feature: electronic business set feature (S), electronic business set subset feature (D), assignable only to the primary number (P), or unavailable as an electronic business·set feature (U).
EMBFLG	1	Y	Indicates whether a switching entity has been embargoed.
EMBLVL	3	GSG or RNG	Indicates the level at which the embargo is set. This tag is required if the embargo aggregate (EMB) exists.
EMBRMK	1-72	Alpha/Num	The explanation of the embargo.
ETYP	1-4	Alpha/Num	The type of elevation to which the EID data field applies.
EXCH	1-4	Alpha/Num	Exchange is the code for a geographic area where an approved rate structure for basic service applies.
FAI	1	B,D,E,N	Feature activation indicator: buttonable (B), dial accessed (D), either buttonable or dial accessed (E), or not dial accessed or buttonable (N).
FERC	5	Alpha/Num	Feature exception return code. Indicates the results of feature exception processing.
FGRP	8		Feature group tag. Identifies the group that the feature belongs to.
FO	1	Y	Foreign office indicator
FPKG	1-15	Alpha/Num	Feature package name.

SNS FCIF Tag Descriptions (5 of 14)			
Tag	Size	Code Set	Description
FPRC	5		Feature package return code. Indicates the results of feature package data processing.
FTR	1-8	See Feature Catalog.	Network element feature name.
FTRDES	1-50	Alpha/Num	Feature description
FTRSCP	1	B,S,D,P	Scope of feature on an electronic set: business set feature (B), subset feature (S), directory number feature (D), or primary number feature (P).
GRPRC	5	Numeric	Indicates the results of the CTX database validations.
GRPTYP	2	NC, CC, RC	Group type: non-Centrex (NC), combined (CC), or regular Centrex (RC)
HHV	1-13	Alpha/Num	High house number value in a numbered address range
HILN	4	Numeric	High line number in a TN range
HKEY	1	Y,N	Dedicated hold key flag
HOUR	1-2	Numeric	Hour portion of the time
HTNERR	5	Numeric	Error code associated with the specific occurrence of HTN aggregate for a hunt group
HTYP	1-3	RG,CIR	Hunting type: regular (RG) or circular (CIR)
IERC	3-5	Alpha/Num	Input error return code. Indicates why the input request is invalid.

SNS FCIF Tag Descriptions (6 of 14)			
Tag	Size	Code Set	Description
INQOPT	3	SAG, NEI, PMI, NEG	Service Negotiation Support Inquiry Option that identifies the type of inquiry: Street Address Validation Inquiry (SAG), Network Element Inquiry (NEI), Product Marketing Inquiry (PMI), or Negotiation Inquiry (NEG).
INTCPT	3	CNT, CTC, DNT, DTC	Intercept status: operator intercept for change order (CNT), machine intercept for change order (CTC), operator intercept for disconnect (DNT), or machine intercept for disconnect (DTC).
LCC	3	Alpha/Num	Line class code
LCL	1-10	Alpha/Num	Identifies local information associated with a particular geographic area
LHV	1-13	Alpha/Num	Low house number value in a numbered address range
LINE	4	Numeric	Line associated with a telephone number
LISTTHRS	1-4	Numeric	List threshold
LOLN	4	Numeric	Low line number in a TN range
LPRC	3	Alpha/Num	Loop return code. Indicates the results of any loop inquiries performed.
LURC	3	Alpha/Num	Living unit return code. Indicates the results of living unit validation.
MADN	1	Y,N	MADN flag. Indicates a multiple appearance directory number.

SNS FCIF Tag Descriptions (7 of 14)			
Tag	Size	Code Set	Description
MAXCA	1-3	Numeric	Maximum number of call appearances allowed
MAXKEY	1-3	Numeric	Maximum key number on CPE.
MIN	1-2	Numeric	Minute portion of the time
MKSEG	1	R = Residence, P = Business, M = Major, C = Coin, G = General, I = Interlata carrier, A = Mobile communications	Market segment indicator; criteria used in identifying spare loops
MODE	4-5	CONV, MAINT	Contract origin
MONTH	1-2	Numeric	Month portion of the date
MTNRC	5	Numeric	Indicates the results of the TNLIST database validations.
MXSCH	1-5	Numeric	Maximum members in a series completion hunt group
MXSCHP	1-5	Alpha/Num	Maximum SCH groups in which a single TN may participate.
NDIOPT	2-5	CUST, NE, FPKG, FGRP, SCH, CPE	Network data inquiry option
NDRC	3,5	Alpha/Num	Network data return code
NEGACT	1	A,C	Negotiation activity: add lines (A), change existing service (C)

SNS FCIF Tag Descriptions (8 of 14)			
Tag	**Size**	**Code Set**	**Description**
NEGEN	1-10	4.2, 5, 6, BCS 28, BCS 29, BCS 30, BCS 31	Network element generic
NERC	3	Alpha/Num	Network element return code. Indicates the results of determining network element accessibility.
NETYP	1-15	5ESS, DMS100	Network element type
NOTICE	1	Y	Confirmation notice indicator used in loop reservations
NPA	3	Numeric	The numbering plan area identifies the area code for a particular geographic area.
NUMCF	1-2	Numeric	Number of spare/reserved loops that are connected facilities
NUMLP	1-2	Numeric	Number of loops to inquire about or reserve
NUMRET	1-5	Numeric	Number of TNs returned
NUMRSV	1-2	Numeric	Number of loops reserved
NUMSEL	1-5	Numeric	Number of TNs selected
NUMSP	1-2	Numeric	Number of spare loops that are available to support the service
NUMTN	1-5	Numeric	Number of TNs to select
NXX	3	Numeric	NXX associated with a telephone number

SNS FCIF Tag Descriptions (9 of 14)			
Tag	**Size**	**Code Set**	**Description**
OFFHOLD	1	Y	Off hold indicator. Indicates that the negotiation dialogue should be taken off hold.
ONETOUCH	1	Y,N	One touch flag. Indicates CPE has speakerphone feature.
OPT	1	Y,N	Optional flag. Indicates that feature is optional in a feature package.
ORDNUM	1-12	Alpha/Num	Order number
ORDPASS	3	PRE, PCN, CAN	Order pass: pre-completion (PRE), post-completion (PCN), or cancellation (CAN)
ORDTYP	1	C	Order type: change (C)
PC	1-9	Alpha/Num	Identifies local information associated with a particular geographic area.
PD	1-9	Alpha/Num	Plant district identifies the plant installation district for a geographic area.
PFO	1-13	Alpha/Num	Planned facilities order number used in placing a loop reservation
PIC	3-4	Alpha/Num	Predesignated interexchange carrier
PMRC	3 or 5	Alpha/Num	Product marketing return code. Indicates the results of determining product marketing conditions.
PROD	1-30	Any value *except* NONE.	Product name. **Note** that in the SNS Release 2.0 and below, the product is restricted to 25 characters only.

SNS FCIF Tag Descriptions (10 of 14)			
Tag	Size	Code Set	Description
PROP	1	Y, N, A	Propagate option indicator. Indicates whether to propagate changes to higher generics (Y), a specific generic (N), or all generics (A).
PSAGA	2-12	Alpha/Num	PREMIS SAG Area identifies the name associated with a geographic area served by an RSC or BSC.
RGIN	1	E, O, B, S, T, X	Range indicator. Indicates whether the addresses in a *numbered* address range are even (E), odd (O) or both (B). In a Street Name/Address Range Menu, this indicator may also indicate whether the addresses in an *unnumbered* address range are assigned by PREMIS (S), the user (T) or that the unnumbered area does not have AHNs (X).
RKEY	1	Y,N	Dedicated release key flag
RSVRMK	1-50	Alpha/Num	Loop reservation remark
RTZ	5	Alpha/Num	Rate zone is a code for the mileage charges that should be assessed to telephone customers in a specific geographic area.
RVRC	3,5	Alpha/Num	Retrieve return code. Indicates the results of retrieving negotiation data held in SNS.
SAGA	2-12	Alpha/Num	SAG Area identifies the name associated with a geographic area served by an RSC or BSC.
SARC	3,5	Alpha/Num	Street address return code. Indicates the results of street address validation.

SNS FCIF Tag Descriptions (11 of 14)			
Tag	Size	Code Set	Description
SCHRC	3,5	Alpha/Num	Series completion hunt return code
SEC	1-2	Numeric	Seconds portion of the time
SELERR	1	U,K,S,I	TN selection error. Indicates reason why a specific TN could not be selected: TN is unselectable (U), TN is undesignated (K), TN is already selected (S), or TN is invalid (I).
SERVICE	1	C,R,B	Type of service: Digital Centrex (C), residence (R), or business (B)
SID	1-10	Alpha/Num	The actual structure identifier of the location STYP
SIG	1	L, G, B	Signaling OEC: L = loop start, G = ground start, B = loop or ground start
SNRC	3,5	Alpha/Num	Service negotiation return code. Indicates a service request timing problem.
SO	1-13	Alpha/Num	Service order number used in placing a loop reservation
SRMK1	1-72	Alpha/Num	SAG remark 1
SRMK2	1-72	Alpha/Num	SAG remark 2
SRMK3	1-72	Alpha/Num	SAG remark 3
SROPT	1	E,M,C	Service request option: establish (E), modify (M), or cancel (C).
SRRC	3,5	Alpha/Num	Service request return code. Indicates whether SNS was successful in establishing, modifying, or cancelling the service request.

SNS FCIF Tag Descriptions (12 of 14)			
Tag	Size	Code Set	Description
SSRC	3,5	Alpha/Num	Service specification return code. Indicates whether SNS was successful in performing the requested service specification activities.
STAT	2	AV, HA, RS, SL, US, UD	Current TN status: available (AV), held for administration (HA), restricted (RS), selected (SL), unselectable (US), undesignated (UD).
STN	2	Alpha/Num	State name is the approved postal abbreviation of the state name.
STNRQ	1	Y	State name required indicator is a positive indicator to identify whether the PREMIS state name is required on the service order for PREMIS service order processing.
STR	1-50	Alpha/Num	Street name including directional and thoroughfare or descriptive address
STYP	4	BLDG, WING, PIER	The type of structure to which the SID data field applies
SUBTYP	3	Alphabetic	Attributes to a telephone number
SVCSPEC	1	S,A	Service specification data retrieval flag: retrieve service specification data for *specific* orders (S) or retrieve service specification data for *all* orders (A).
SVCTYP	1	C = Change service	Service type

SNS FCIF Tag Descriptions (13 of 14)			
Tag	Size	Code Set	Description
TAGID	8		Tag ID. Indicates the tag associated with a feature or feature group.
TAGTYP	1	F, G	Tag type indicator: feature (F) or group (G)
TAR	1-6	Alpha/Num	Tax area code for the taxes levied on telephone service within a specific geographic area
TELF	1-5	Alpha/Num	Telephone features. Identifies the special telephone capabilities that are available in a specific geographic area.
TEXT	unlimited	Alpha/Num	Text associated with an LFACS report
TIECODE	11	Alpha/Num	Centrex customer ID
TNACT	1	S,R	TN activity code: selection (S) or return (R)
TNERRCDE	5	Numeric	Error code associated with a specific occurrence of the TNLIST aggregate
TNRC	3,5	Alpha/Num	TN return code. Indicates the results of TNLIST processing.
TTA	3	Numeric	The terminating traffic area (foreign office)
TYPE	1	Alphabetic	Type of service for a specific telephone number
UID	1-10	Alpha/Num	The actual unit identifier of the location UTYP
UPDIND	1	Y,N	Update indicator for confirmation that the specified change is desired.
USERID	1-8	Alpha/Num	ID that identifies the end user

SNS FCIF Tag Descriptions (14 of 14)			
Tag	Size	Code Set	Description
UTYP	4	APT, RM, LOT, SUIT, SLIP, UNIT	The unit type identifies the type of unit.
VDATA	unlimited	Alpha/Num	Variable data is used to hold data that is to be returned to the originator untouched.
WC	1-8	Alpha/Num	PREMIS Wire Center code for a geographic area served by telephone plant through a single Main Distribution Frame (MDF) or multiple MDFs connected by tie cables and administered as one MDF
YEAR	4	Numeric	Year portion of the date
ZIP	5	Alpha/Num	Zip code for a particular geographic area assigned by the U.S. Post Office

C. Appendix C — Rules for the ADDR Data Aggregate

Four different types of addresses can be provided as input to SNS. The following rules apply to each type of input address:

1. Numbered Addresses

2. Descriptive Addresses

3. Unnumbered Addresses

4. Unnamed Addresses.

1. Numbered Addresses

Data items for a numbered street address are as follows:

```
ADDR{                   Address
    BADR{               Basic address
        BAD = ...;      Basic address designation
        STR = ...;      Street name
        CNA = ...;      Community name [opt]
        STN = ...;      State name [opt]
    }
    SUPL{               Supplemental address
        SID = ...;      Structure ID [opt]
        STYP = ...;     Structure type [opt]
        EID = ...;      Elevation ID [opt]
        ETYP = ...;     Elevation type [opt]
        UID = ...;      Unit ID [opt]
        UTYP = ...;     Unit type [opt]
    }
}
```

BAD Data

This data (basic address designation) can take three different formats. The first format is a simple house number, which can be a maximum of 8 characters:

Example: BAD = 12345678;

The second format is a suffixed house number. For this format, a suffix is separated from the base number by a hyphen (-) and can be from 1 to 4 characters; but to be a valid suffix, the characters must comprise a field that is either alphabetic, alphanumeric, or contain a fraction (number/number).

Examples: BAD = 1234-1/2;
           BAD = 1234-1A;
           BAD = 123-A;
           BAD = 1-ABC;

The third format is a hyphenated house number. For this format, the hyphenated part is separated from the base number by a hyphen (-) and can be from 1 to 4 numbers (the hyphenated part must be all numeric).

Examples: BAD = 1234-1111;
           BAD = 1-105;
           BAD = 20-1;
           BAD = 54AB-336;

STR Data

The street name can contain a directional sign and a thoroughfare name. If a directional sign is input, it must be separated from the street name by one (1) space. A directional sign may be one of the following:

N = north	NW = northwest
S = south	NE = northeast
E = east	SW = southwest
W = west	SE = southeast

If a thoroughfare name is input, it must be separated from the street name by one space.

Examples: STR = W State St;
STR = S Sixth St;
STR = Haven Cove HY;
STR = Shore Rd;
STR = Omaha Ave;
STR = White Pine Lane;

CNA and STN Data

The community name (CNA) and state name (STN) tags are optional.

SUPL Data

The supplemental (additional) address data (SUPL) is optional input data used to identify the living unit for those contracts involving LFACS. If supplemental data is required, there are three different levels of location data that can be provided.

Examples:

    SUPL {UID = 33A; UTYP = APT;}
    SUPL {UID = 1; UTYP = RM;}
    SUPL {EID = 3; ETYP = FLR; UID = 10; UTYP = APT;}
    SUPL {SID = 5; STYP = BLDG; EID = 2; ETYP = FLR;
        UID = 205; UTYP = APT;}

The valid identification names for each level of supplemental data with a restricted code set are:

    UTYP =   APT
               RM
               LOT
               SUIT
               SLIP
               UNIT

    ETYP =   FLR

    STYP =   BLDG
               WNG
               PIER

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2. **Descriptive Addresses**

Data items for a descriptive address are as follows:

```
ADDR{                      Address
   BADR{                   Basic address
      STR = ...;           Street name
      CNA = ...;           Community name [opt]
      STN = ...;           State name [opt]
   }
   SUPL{                   Supplemental address
      SID = ...;           Structure ID [opt]
      STYP = ...;          Structure type [opt]
      EID = ...;           Elevation ID [opt]
      ETYP = ...;          Elevation type [opt]
      UID = ...;           Unit ID [opt]
      UTYP = ...;          Unit type [opt]
   }
}
```

STR Data

The street name data for this type of address would be the name of a building or location. No BAD or AHN data should be input for this type of address or value will be considered a street name.

```
Examples:   STR = EMPIRE STATE BUILDING;
            STR = PEACHTREE GARDENS;
            STR = DORAL COUNTRY CLUB;
            STR = OFFUTT AIRFORCE BASE;
```

Note: No @ symbol should be included with the input data.

CNA and STN Data

The community name (CNA) and state name (STN) tags are optional.

SUPL Data

The supplemental address (SUPL) data aggregate is optional. (See the previous description.)

3. **Unnumbered Addresses**

An unnumbered street address has a street name, but does not have a house number. Each living unit that has an unnumbered street address is identified by an Assigned House Number (AHN).

Data items for an unnumbered street address are as follows:

```
ADDR{                    Address
    BADR{                Basic address
        AHN = ...;       Assigned house number
        STR = ...;       Street name
        CNA = ...;       Community name [opt]
        STN = ...;       State name [opt]
    }
    SUPL{                Supplemental address
        SID = ...;       Structure ID [opt]
        STYP = ...;      Structure type [opt]
        EID = ...;       Elevation ID [opt]
        ETYP = ...;      Elevation type [opt]
        UID = ...;       Unit ID [opt]
        UTYP = ...;      Unit type [opt]
    }
}
```

AHN Data

This data can be a maximum of 8 characters.

Examples: AHN = 1501;
           AHN = 56;
           AHN = 123401;

STR Data

The street name data should be input following the same guidelines described for the numbered address section. No @ symbol should be input.

CNA and STN Data

The community name (CNA) and state name (STN) data item tags are optional.

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SUPL Data

The supplemental address (SUPL) data aggregate is optional. (See the previous numbered address description.)

4. **Unnamed Addresses**

An unnamed address has no street name and no house number. In PREMIS, each unnamed street address is identified by an Assigned House Number (AHN) and a street name (STR) consisting of a comma followed by the community name.

Data items for an unnamed address are as follows:

```
ADDR{                           Address
    BADR{                       Basic address
        AHN = ...;              Assigned house number
        STR = ...;              Street name
        CNA = ...;              Community name [opt]
        STN = ...;              State name [opt]
    }
    SUPL{                       Supplemental address
        SID = ...;              Structure ID [opt]
        STYP = ...;             Structure type [opt]
        EID = ...;              Elevation ID [opt]
        ETYP = ...;             Elevation type [opt]
        UID = ...;              Unit ID [opt]
        UTYP = ...;             Unit type [opt]
    }
}
```

Examples:

```
STR  =  ,NORFOLK;
STR  =  ,OAKDALE;
STR  =  ,BROKEN BOW;
```

In all of the above examples, the street name data is the name of the community in which the unnamed street exists.

CNA and STN Data

The community name (CNA) and state name (STN) tags are optional.

SUPL Data

The supplemental address (SUPL) data aggregate is optional.

SNS Address Terminology

In SNS, the *street address* refers to all address data, except the SUPL data. This includes ZIP, SAGA, BAD, AHN, STR, CNA and STN. A street address is determined to be valid when it falls within an address *range* in the PREMIS SAG. As a result of partial matching, alternate street names, and descriptive processing, PREMIS may "modify" the input street address in order to match a *primary* street address in its SAG database. Once PREMIS has identified the primary street address, this address should be used during the remainder of the negotiation.

The *living unit address* refers to the complete address data (street address plus optional SUPL). A living unit address is determined to be valid when it identifies a particular *service address* in LFACS. When SNS interfaces with LFACS, it supplies LFACS with the primary street address obtained from PREMIS (when available), as well as any SUPL data provided on input. LFACS may use partial matching techniques to obtain a match on the living unit address. In this situation, the modified living unit address should be used during the remainder of the negotiation.

D. Appendix D — SNS Return Codes

This appendix explains the return codes for the negotiation contracts and the system administration table maintenance contracts.

D.1 Negotiation Contract Return Codes

The following sections list the return codes that may appear in the response messages of the negotiation dialogue and stand-alone contracts. These return codes are organized by the contract section in which they might appear.

The input error return codes (IERCs) indicate an incorrect format in the FCIF request message or the associated tags. See Section 3 and Appendix B in this document for the correct format.

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D.1.1 *SNSR Section Return Codes

IERC   **General Input Error Condition**

000   The message received does not conform to a valid Service
Negotiation Support request (e.g., *RSNS section was not
provided).

IERC   **SVCLOC Input Error Condition**

001   SAGA or Zip Code is required input, but neither was found.
002   Basic address (e.g., street name) is required address data, but was
not provided.
003   Basic address data is in error. It could be that SNS received both
an AHN and a house number.
004   Address data is required input, but was not provided.
005   SAGA data is invalid.
006   Zip Code data is invalid.
007   Supplemental address data is invalid.

IERC   **CTL Input Error Condition**

101   Control data is required input, but was not provided.
102   Control Code is required input, but was not provided.
103   Control Code is invalid.
104   Inquiry option is invalid.
105   Inquiry option is required input, but was not provided.
106   Service type is invalid.
107   Service type is required input, but was not provided.
108   Control information provided is incompatible.

*SNSR Section Return Codes

IERC	ACL Input Error Condition
201	ACL is required input, but was not provided.
202	Reserved for future use.
203	Action Code is invalid.
204	Product name/service is required input, but was not provided.
205	A circuit identifier (TN or CLS) is required input, but was not provided.
206	Reserved for future use.
207	Reserved for future use.
208	Reserved for future use.
209	Main TN format is invalid.
210	Reserved for future use.
211	MADN flag is invalid.
212	TN format is invalid.
213	Both TN and CLS/TID were provided on input. Only one circuit identifier is allowed.
214	Both DPA and CKL were provided on input. Only one circuit termination identifier is allowed.
215	Product is invalid.
216	CLS is invalid.
217	DPA is invalid.
218	CKL is invalid.
219	Reserved for future use.
220	Reserved for future use.
221	Reserved for future use.
222	Reserved for future use.
223	Reserved for future use.
224	WC is invalid.
225	FO is invalid.
226	SIG is invalid.

*SNSR Section Return Codes

SARC   **Street Address Verification Error Condition**

000   An error occurred in PREMIS. Notify the SNS System
      Administrator to check the SNS system error log for more
      information.

001   Input SAGA is not supported by this SNS entity. Street address
      validation was not performed.
      (The input SAGA does not exist in the PREMIS Destination Table).

002   Input Zip Code is not supported by this SNS entity. Street address
      validation was not performed.
      (The input Zip Code does not exist in the PREMIS Destination
      Table).

003   Verify Street Name entry — no exact or partial match found.
      (PREMIS RC = 105-3)

004   Verify Street Name entry — two or more partial matches found.
      (PREMIS RC = 105-2)

005   Verify Descriptive Address entry — no exact or partial match found.
      (PREMIS RC = 106-3)

006   Verify Descriptive Address entry — two or more partial matches
      found. (PREMIS RC = 106-2)

007   Verify House number or AHN entry. (PREMIS RC = 107)

008   Verify Community and State, address duplicated. (PREMIS
      RC = 108)

009   Verify Street Name entry and House Number or AHN. (PREMIS
      RC = 109)

010   Input Zip Code is associated with more than one SAGA.

011   Reserved for future use.

012   More than one basic address is associated with input descriptive
      address — exact match on input descriptive. (PREMIS RC = 111)

013   More than one basic address is associated with input descriptive
      address — one partial match on input descriptive. (PREMIS
      RC = 111-1)

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*SNSR Section Return Codes

SARC   **Street Address Verification Error Condition**

014   Verify house number or AHN entry — one or more assigned house
        number ranges exist for the street. (PREMIS RC = 117)
015   Could not complete SAG validations. (PREMIS RC = 115)
016   No exact match was found on address entry — more than 50 similar
        addresses to output. (PREMIS RC = 116)

*SNSR Section Return Codes

SARC   **Successful Street Address Processing Condition**

101   Exact street name was matched in PREMIS. (PREMIS
       RC = 301)

102   The exact street name was not found in PREMIS. One partial
       street name match was found. (PREMIS RC = 301-1)

103   An alternate street name or an alternate basic address was
       specified on input. Exact street name was matched in PREMIS.
       (PREMIS RC = 301-8)

104   An alternate street name or an alternate basic address was
       specified on input. The exact street name was not found in
       PREMIS — one partial street name match was found. (PREMIS
       RC = 301-9)

105   Exact input descriptive address name was matched in PREMIS.
       (PREMIS RC = 507)

106   The exact input descriptive address name was not found in
       PREMIS — one partial descriptive address name match was
       found. (PREMIS RC = 507-1)

A "-1" suffix is appended to the end of the return code to indicate that the input
street/descriptive was found in a different community/state. (PREMIS RC 301--
-> 308 and 507---> 508)

*SNSR Section Return Codes

NERC   **Network Element Processing Condition**

001   Network element information is not available (in PREMIS) for the wire center associated with the street address.

002   SNS has identified the network elements that exist in the wire center associated with the street address in PREMIS.

003   SNS has determined that no network elements exist in the wire center associated with the street address in PREMIS.

004   SNS has identified the network element serving the customer, based on its Centrex group in TNLIST.

005   Main TN does not identify a Centrex group in TNLIST — network element information could not be obtained for the particular *customer*.

SNS returns multiple NERC return codes when SNS returns the NERC = 005. SNS also returns a NERC with a value between 001 and 003.

*SNSR Section Return Codes

PMRC   **Product Marketing Processing Condition**

001   Product is available in the serving office. An embargo condition *may* exist at the SGS or range levels and also *may* exist at any of the network elements. (PREMIS RC = 350)

002   Product is unavailable in the serving office. (PREMIS RC = 351)

003   Reserved for future use.

004   There is at least one foreign office that can provide the requested product. An embargo condition *may* exist at any of the network elements. (PREMIS RC = 352)

005   There are no foreign offices to provide the requested product. (PREMIS RC = 353)

006   SNS obtained a list of products marketed at the service address from the serving office. SNS will also obtain any GSG, address range and/or network element embargo data associated with those products. (PREMIS RC = 356)

007   No products are being marketed at the service address from the serving office. (PREMIS RC = 358)

008   Main TN does not identify a valid Centrex group. Product marketing information could not be filtered for the customer.

009   Product marketing information is not available in this wire center. (PREMIS RC = 357)

010   SNS obtained a list of products marketed at the serving address from a foreign office(s). An embargo condition *may* exist at any of the network elements. (PREMIS RC = 354)

011   No products are being marketed at the service address from a foreign office(s). (PREMIS RC = 355)

A "-1" suffix is appended to the end of the return code (PMRC = 001 through 007 and 010 through 011) to indicate that SNS has filtered the service availability information from PREMIS, based on the MAIN TN provided on input (or the CLLI code for the INQCHG contract).

SNS returns multiple PMRC return codes when SNS returns the PMRC = 008 and when the foreign office indicator has been specified on input.

*SNSR Section Return Codes

LURC   **Living Unit Validation Condition**

000   An error occurred in LFACS. Notify the SNS System
       Administrator to check the SNS system error log for more
       information.
001   An exact match was found on the living unit.
002   A partial match was found on the living unit — one partial match
       found.
003   A match was not found on the living unit. A neighborhood
       report of nearby living units was generated.
004   No exact match on street name — more than one partial match.
       (LFACS Similar Street Name Report)
005   Unable to perform living unit address validation. SNS-LFACS
       interface is not supported in this wire center.
       (The PREMIS WC does not exist in the LFACS WC Table.)

LPRC   **Loop Availability Processing Condition**

001   Reserved for future use.
002   Circuit ID was not found at the specified service location.
003   Service is regradable on the existing circuit.
004   Service is not regradable on the existing circuit.
005   Reserved for future use.
006   Reserved for future use.
007   Reserved for future use.
008   Reserved for future use.
009   Reserved for future use.
010   Reserved for future use.
011   Reserved for future use.
012   Outside plant transmission requirements could not be determined
       for the requested service. Loop processing could not be
       performed.

D.1.2 *OSPR Section Return Codes

IERC **General Input Error Condition**

000   The message received does not conform to a valid Loop Availability
       Inquiry and Reservation request (e.g., *ROSP section was not provided).

IERC **SVCLOC Input Error Condition**

001   SAGA or Zip Code is required input, but neither was found.
002   Basic address (e.g., street name) is required address data, but was not
       provided.
003   Basic address data is invalid. It could be that SNS received both an
       AHN and a house number.
004   Address data is required input, but was not provided.
005   SAGA data is invalid.
006   Zip Code data is invalid.
007   Supplemental address data is invalid.

IERC **CTL Input Error Condition**

101   Control data is required input, but was not provided.
102   Control Code is required input, but was not provided.
103   Control Code is invalid.

*OSPR Section Return Codes

IERC   **ACL Input Error Condition**

201   ACL is required input, but was not provided.
202   Action Code is required input, but was not provided.
203   Action Code is invalid.
204   Product name/service is required input, but was not provided.
205   Service Order, Planned Facilities Order, or Circuit ID is required input, but was not provided.
206   Number of loops is required input, but was not provided.
207   Number of loops is invalid (e.g., not numeric or not appropriate for type of reservation key provided).
208   Reservation due date is required.
209   Reservation due date is invalid.
210   Confirmation notice indicator is invalid.
211   Too many reservation keys were provided. Specify *either* a service order number, a planned facilities order number, *or* a circuit identifier (TN or CLS).
212   MADN flag is invalid.
213   TN format is invalid.
214   Reserved for future use.
215   Product is invalid.
216   Customer account is invalid.
217   Market segment indicator is invalid.
218   CLS is invalid.
219   DPA is invalid.
220   CKL is invalid.
221   PFO is invalid.
222   SO is invalid.
223   Reservation remark is invalid.
224   WC is invalid.
225   FO is invalid.
226   SIG is invalid.

On a loop reservation *update*:

- A "-1" suffix is appended to the end of the return code to indicate that the ACL error occurred with respect to the *old* ACL.

- A "-2" suffix is appended to the end of the return code to indicate that the ACL error occurred with respect to the *new* ACL.

*OSPR Section Return Codes

SARC   **Street Address Verification Error Condition**

000   An error occurred in PREMIS. Notify the SNS System Administrator to check the SNS system error log for more information.

001   Input SAGA is not supported by this SNS entity. Street address validation was not performed.
(The input SAGA does not exist in the PREMIS Destination Table.)

002   Input Zip Code is not supported by this SNS entity. Street address validation was not performed.
(The input Zip Code does not exist in the PREMIS Destination Table.)

003   Verify Street Name entry — no exact or partial match was found. (PREMIS RC = 105-3)

004   Verify Street Name entry — two or more partial matches were found. (PREMIS RC = 105-2)

005   Verify Descriptive Address entry — no exact or partial match was found. (PREMIS RC = 106-3)

006   Verify Descriptive Address entry — two or more partial matches were found. (PREMIS RC = 106-2)

007   Verify House number or AHN entry. (PREMIS RC = 107)

008   Verify Community and State, address duplicated. (PREMIS RC = 108)

009   Verify Street Name entry and House Number or AHN. (PREMIS RC = 109)

010   Input Zip Code is associated with more than one SAGA.

011   Reserved for future use.

012   More than one basic address associated with input descriptive address — exact match on input descriptive. (PREMIS RC = 111)

013   More than one basic address associated with input descriptive address — one partial match on input descriptive. (PREMIS RC = 111-1)

014   Verify house number or AHN entry — one or more assigned house number ranges exist for the street. (PREMIS RC = 117)

015   Could not complete SAG validations. (PREMIS RC = 115)

016   No exact match was found on address entry — more than 50 similar addresses to output. (PREMIS RC = 116)

*OSPR Section Return Codes

SARC   **Successful Street Address Processing Condition**

101   Exact street name was matched in PREMIS. (PREMIS RC = 301)

102   The exact street name was not found in PREMIS. Only one partial street name match was found. (PREMIS RC = 301-1)

103   An alternate street name or an alternate basic address was specified on input. Exact street name was matched in PREMIS. (PREMIS RC = 301-8)

104   An alternate street name or an alternate basic address was specified on input. The exact street name was not found in PREMIS. Only one partial street name match was found. (PREMIS RC = 301-9)

105   Exact input descriptive address name was matched in PREMIS. (PREMIS RC = 507)

106   The exact input descriptive address name was not found in PREMIS. Only one partial descriptive address name match was found. (PREMIS RC = 507-1)

A "-1" suffix is appended to the end of the return code to indicate that the input street/descriptive was found in a different community/state. (PREMIS RC 301---> 308 and 507---> 508)

LURC   **Living Unit Validation Condition**

000   An error occurred in LFACS. Notify the SNS System Administrator to check the SNS system error log for more information.

001   An exact match was found on the living unit.

002   A partial match was found on the living unit — one partial match found.

003   A match was not found on the living unit. A neighborhood report of nearby living units was generated.

004   No exact match was found on street name — more than one partial match. (LFACS Similar Street Name Report)

005   Unable to perform living unit address validation. SNS-LFACS interface is not supported in this wire center.
(The PREMIS WC does not exist in the LFACS WC Table.)

*OSPR Section Return Codes

LPRC	Loop Processing Condition

001	Address is not associated with a serving terminal in LFACS. Loop processing could not be performed.
002	The service requested does not require loop facility assignments. (LFACS encountered an assignment rule with a STOP condition.)
003	Outside plant transmission requirements could not be determined for the requested service. Loop processing could not be performed.

LPRC	Loop Availability Processing Condition

101	Adequate assignable loops are available to support the requested service.
102	Assignable loops are available to support only a subset of the requested loops.
103	Assignable loops are not available to support the requested service.

LPRC	Loop Reservation Processing Condition

201	All requested loops were reserved.
202	Only a subset of the requested loops were reserved.
203	None of the requested loops were reserved.
204	All requested loop reservation(s) were removed. If the actual number of loops reserved in LFACS is less than the number requested, LFACS removes the reservations against those found. (In LFACS 18.6, this condition results in LPRC = 205.)
205	None of the requested loop reservation(s) were removed. (LFACS 18.6)
206	No reservations were found for the specified circuit ID. Loop reservation update could not be performed.
207	No reservations were found for the specified service order number. Loop reservation update could not be performed.
208	No reservations were found for the specified planned facilities order number. Loop reservation update could not be performed.

*OSPR Section Return Codes

LPRC   **Loop Processing Condition**

209   LFACS has determined the format of the circuit identifier (TN or CLS and optional DPA or CKL) to be invalid. The loop reservation update could not be performed.

On a loop reservation modification, SNS may return multiple LPRC return codes. If SNS returns LPRC = 204, it will also return another LPRC with a value between 201 and 203.

D.1.3 *TNLR Section Return Codes

IERC	General Input Error Condition
000	The message received does not conform to a valid TN List Selection/Return request (e.g., *RTNL section was not provided).

IERC	CTL Input Error Condition
001	Control data is required input, but was not provided.
002	TN activity code is invalid.
003	TN activity code is required input, but was not provided.

IERC	ACL Input Error Condition
101	ACL is required input, but was not provided.
102	Main TN is required input, but was not provided.
103	Reserved for future use.
104	Reserved for future use.
105	TN range(s) format is invalid.
106	TN format(s) is invalid.
107	Main TN format is invalid.
108	Number of TNs to select is invalid.
109	Consecutive indicator is invalid.
110	Either the NPA or NXX was specified as a criteria for selecting unspecified TNs. Specify both the NPA and NXX or neither.
111	Number of TNs to select is required for unspecified TN selection.
112	A TN or TN range is required for specified TN selection or return.
113	NPA-NXX format is invalid.

*TNLR Section Return Codes

TNRC	TN Processing Condition
001	Main TN does not identify a valid Centrex group.

TNRC	TN Selection Processing Condition
101	Reserved for future use.
102	Reserved for future use.
103	Reserved for future use.
104	All unspecified TNs were selected.
105	None of the unspecified TNs were selected.
106	Only a subset of the unspecified TNs were selected.
107	All requested *consecutive* unspecified TNs were selected, but a single block of consecutive TNs was not available. More than one block of consecutive TNs were selected instead.
108	Only a subset of the requested *consecutive* unspecified TNs were selected, but a single block of consecutive TNs was not available. More than one block of consecutive TNs were selected instead.

A "-1" suffix is appended to the end of the TN Selection Return Code when the input main TN differs from the main TN associated with the regular Centrex group to which the input TN belongs.

TNRC	TN Return Processing Condition
201	All specified TNs were returned.
202	Only a subset of the specified TNs were returned.
203	None of the specified TNs were returned.

D.1.4 *SRAR Section Return Codes

IERC	CTL Input Error Condition
001	Control data is required input, but was not provided.
002	Control Code is required input, but was not provided.
003	Control Code is invalid.

IERC	ACL Input Error Condition
101	ACL is required input, but was not provided.
102	Reserved for future use.
103	Negotiation activity is required input, but was not provided.
104	SAGA or Zip Code is required input, but neither was found. (If the living unit is brand new, the SAGA is always required).
105	Basic address (e.g., street name) is required address data, but was not provided.
106	Basic address data is in error. It could be that SNS received both an AHN and a house number.
107	Address data is required input, but was not provided.
108	SAGA data is invalid.
109	Zip Code data is invalid.
110	Supplemental address data is invalid.
111	Main TN format is invalid.
112	Main TN format is required, but was not provided.
113	Product is invalid.
114	Negotiation activity is invalid.
115	Service is required, but was not provided.
116	Service is invalid.
117	Confirmation indicator is invalid.

*SRAR Section Return Codes

SRRC	Service Request Processing Condition
001	The requested service request administration activity was successful.
002	The service request was not established or modified as requested. SNS was unable to determine the serving network element for the main TN.
003	Reserved for future use.
004	Reserved for future use.
005	Reserved for future use.
006	Warning — The main TN exists in a Centrex group, but is not the main TN for that group.
007	SNS returned all inventory selected during the negotiation of this service request.
008	The service request modification was not performed, since network resources were selected for this service request. To proceed, confirm that SNS should return these resources.
009	Warning — Network element characteristics have changed.
010	Warning — Customer system data has changed.
011	Warning — Feature packages *may* have changed.
012	Warning — Feature groups *may* have changed.
013	Reserved for future use.
014	Warning — Compatible CPE *may* have changed.
015	Reserved for future use.
016	The service request was not canceled because orders have already been issued.
017	Reserved for future use.
018	The requested service modification is not supported.
019	The service request was not established or modified as requested. The service type associated with the main TN does not match the service type provided on input.

D.1.5 *NDIR Section Return Codes

IERC	General Input Error Condition
000	The *RNDI section provided on input does not conform to the contract specifications and could not be processed.

IERC	CTL Input Error Condition
001	Control data is required input, but was not provided.
002	Network Data Inquiry option is required input, but was not provided.
003	Network Data Inquiry option is invalid.

IERC	ACL Input Error Condition
101	ACL is required input, but was not provided.
102	Reserved for future use.
103	Feature group name is invalid.
104	CPE manufacturer is invalid.
105	CPE model is invalid.
106	Both CPE manufacturer and model are required input.
107	Reserved for future use.
108	Reserved for future use.
109	TN format is invalid.
110	Either a specific feature package name *or* all feature packages may be requested, but not both.
111	All indicator is invalid.
112	Feature package name is invalid.

*NDIR Section Return Codes

NDRC	Network Data Inquiry Processing Condition
001	Characteristics were returned for the serving network element.
002	SNS was unable to determine the characteristics of the serving network element.
003	Customer system data was returned for the Centrex group.
004	Reserved for future use.
005	Reserved for future use.
006	There are no available feature packages in SNS for the serving network element and requested product.
007	A list of available feature package(s) was returned.
008	Information on the requested feature package was returned.
009	The requested feature package was not available in SNS.
010	Available feature package(s) and their sub-features were returned.
011	A list of available feature group(s) was returned.
012	There are no available feature groups in SNS for the serving network element and type of service.
013	Information on the requested feature group was returned.
014	The requested feature group was not available in SNS.
015	Reserved for future use.
016	Reserved for future use.
017	Reserved for future use.
018	Reserved for future use.
019	Reserved for future use.
020	Reserved for future use.
021	The CPE compatible with the serving network element was returned.
022	There is no CPE in SNS that is compatible with the serving network element.
023	Information on the requested CPE was returned.

*NDIR Section Return Codes

NDRC   **Network Data Inquiry Processing Condition**

024	The requested CPE was not available in SNS for the serving network element type.
025	Reserved for future use.
026	Reserved for future use.
027	Reserved for future use.
028	Information on the requested series completion hunt group was returned.
029	The requested series completion hunt group was not in SNS.

D.1.6 *TNIR Section Return Codes

IERC	General Input Error Condition
000	The *RTNI section provided on input does not conform to the contract specifications and could not be processed.

IERC	CTL Input Error Condition
001	Control data is required input, but was not provided.
002	TN activity code is invalid.
003	TN activity code is required input, but was not provided.

IERC	ACL Input Error Condition
101	ACL is required input, but was not provided.
102	Reserved for future use.
103	Reserved for future use.
104	Reserved for future use.
105	TN range(s) format is invalid.
106	TN format(s) is invalid.
107	Reserved for future use.
108	Number of TNs to select is invalid.
109	Consecutive indicator is invalid.
110	Either NPA or NXX was specified as a criteria for selecting unspecified TNs. Specify both NPA-NXX or neither.
111	Number of TNs to select is required for unspecified TN selection.
112	A TN or TN range is required for specified TN selection.
113	NPA-NXX unspecified TN selection criteria is invalid.
114	Reserved for future use.
115	All TNs required indicator is invalid.
116	Neither specific nor non-specific TNs were requested. Specify either form of TN selection.
117	Both specific and non-specific TNs were requested. Only one form of TN selection is allowed per request.
118	A TN or TN ranges is required on a TN return.

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*TNIR Section Return Codes

TNRC   **TN Selection Processing Condition**

101   All specified TNs were selected.
102   Only a subset of the specified TNs were selected.
103   None of the specified TNs were selected.
104   All unspecified TNs were selected.
105   None of the unspecified TNs were selected.
106   Only a subset of the unspecified TNs were selected.
107   All requested *consecutive* unspecified TNs were selected, but a single block of consecutive TNs was not available. More than one block of consecutive TNs were selected instead.
108   Only a subset of the requested *consecutive* unspecified TNs were selected, but a single block of consecutive TNs was not available. More than one block of consecutive TNs were selected instead.

TNRC   **TN Return Processing Condition**

201   All specified TNs were returned.
202   Only a subset of the specified TNs were returned.
203   None of the specified TNs were returned.

D.1.7 *SVCSPEC Section Return Codes

SSRC   Unsuccessful Service Specification Processing Condition

000   A service specification record is required input, but was not provided.
001   ID is required input, but was not provided.
002   ID data is in error.

SSRC   Successful Service Specification Processing Condition

101   The service specification was stored in SNS.

IDRC   ID Error Condition

001   Order identifier is required input, but was not provided.
002   Order identifier is invalid.

D.1.8 *SRDR Section Return Codes

IERC   **General Input Error Condition**

000   The message received does not conform to a valid Retrieve
       request (e.g., *RSRD section was not provided).

IERC   **CTL Input Error Condition**

001   Control data is required input, but was not provided.
002   Off hold indicator and/or retrieve service specification flag were
       not provided on input. At least one is required.
003   Off hold indicator is invalid.
004   Retrieve service specification data flag is invalid.

IERC   **ACL Input Error Condition**

101   An order identifier is required input, but was not provided.
102 · One or more order identifiers are invalid.

RVRC   **Retrieve Processing Condition**

001   The negotiation dialogue was taken off hold.
002   The negotiation dialogue is not currently on hold.
003   All of the requested service specification data was retrieved.
004   Only some of the requested service specification data was retrieved.
005   None of the requested service specification data was retrieved.

D.1.9 *ORD Section Return Codes

IERC	General Input Error Condition

000   The message received does not conform to a valid Order
       Completion request (e.g., *ORD section was not provided).

IERC	CTL Input Error Condition

001   Order identifier is required input, but was not provided.
002   Order identifier is invalid.
003   Correction suffix is invalid.
004   Order pass is required input, but was not provided.
005   Order pass is invalid.

D.1.10 *SCH Section Return Codes

SCHRC   **SCH Structure Errors**

000	A record is required input, but was not provided.
001	Control Code is required input, but was not provided.
002	Control Code is invalid.
003	An *old* ACL is required input, but was not provided.
004	A *new* ACL is required input, but was not provided.
005	Both an *old* and *new* ACL are required input, but either or both were not provided.

SCHRC   **SCH ACL Error Condition**

101	Hunt TN format is invalid.
102	Hunting type is invalid.
103	At least one TN is required in the SCH group.
104	One or more TNs is duplicated in the hunt group.
105	Hunting type is required on input, but was not provided.

One of the following suffixes is appended to the return code:

- A "-1" suffix is appended to the end of the return code to indicate that the error occurred in the *old* ACL.

- A "-2" suffix is appended to the end of the return code to indicate that the error occurred in the *new* ACL.

SCHRC   **SCH Processing Condition**

201	SCH update was "successful."
202	Reserved for future use.
203	Old SCH view was not found in the TNLIST database.
204	One or more TNs in the new SCH view already exist as a member in another SCH group.
205	One or more TNs in the new SCH view are not working or selected.

D.1.11 *TNL Section Return Codes

TNRC   **TNL Structure Error**

000	A record is required input, but was not provided.
001	Control Code is required input, but was not provided.
002	Control Code is invalid.
003	An *old* ACL is required input, but was not provided.
004	A *new* ACL is required input, but was not provided.
005	Both an *old* and *new* ACL are required input. One or both were not provided.

TNRC   **TNL ACL Error Condition**

101	TN format is invalid.
102	TN is required input, but was not provided.

One of the following suffixes is appended to the return code:

- A "-1" suffix is appended to the end of the return code to indicate that the error occurred in the *old* ACL.

- A "-2" suffix is appended to the end of the return code to indicate that the error occurred in the *new* ACL.

D.2 System Administration Table Maintenance Contract Return Codes

The table maintenance contract return codes include the input error return codes
(IERCs) and the section processing return codes (GRPRC, MTNRC, SCHRC,
NDRC, FERC, CDRC, DDRC, FPRC, and CPRC). The following sections
present the IERC codes organized by the table maintenance contracts to which
they apply and list the section processing return codes.

D.2.1 IERC Codes for the INQTNL Contract

The input error return codes shown in this section apply to the INQTNL
contract. Each IERC consists of five bytes. The first three bytes represent the
specific message. The following two-byte suffix indicates which ACL aggregate
encountered the error. The suffix equals "00" when only one ACL appears. The
suffix is "01" if the error occurred in the "old" ACL, and the suffix is "02" if the
error was found in the "new" ACL.

IERC Message Code	Description
001	CTC must be B,C,R, or I.
002	Contract name is not compatible with CTC.
003	At least one REC aggregate is required in the contract.
008	ACT tag is required.
009	CTC tag is required.
010	CTL aggregate is required.
606	Invalid TIECODE
607	Invalid CLLI
608	Invalid CTX
612	Invalid LISTTHRS
615	Invalid PROD
619	Invalid HILN
621	Invalid HTYP
622	Invalid LINE
623	Invalid LOLN
624	Invalid NPA
626	Invalid NXX
635	Requested STATUS count is invalid.
651	On CTX chg/dlt/inq, CLLI/CTX or TIECODE or MAINTN may be required.
656	CLLI, CTX, SERVICE, PROD or MAINTN is required.
657	ACL aggregate is required.
690	A TN aggregate is required.
701	TNs in the range do not exist in the database.

D.2.2 IERC Codes for the MTCTNL Contract

The input error return codes shown in this section apply to the MTCTNL contract. Each IERC consists of five bytes. The first three bytes represent the specific message. The following two-byte suffix indicates which ACL aggregate encountered the error. The suffix equals "00" when only one ACL appears. The suffix is "01" if the error occurred in the "old" ACL, and the suffix is "02" if the error was found in the "new" ACL.

IERC Message Code	Description
001	CTC must be B,C,R, or I.
002	Contract name is not compatible with CTC.
003	At least one REC aggregate is required in the contract.
004	ACT tag must be "N" for a BUILD.
005	Both "O" and "N" are required for CHANGE.
006	ACT tag must be "O" and "N" or "R".
007	ACT tag must be "O" for a REMOVE.
008	ACT tag is required.
009	CTC tag is required.
010	CTL aggregate is required.
011	If ACT = R, then only one ACL is allowed.
012	Invalid number of ACLs for this CTC code.
601	MODE must be CONV/MAINT.
603	CTX Group Type must be RC/MC/CC.
606	Invalid TIECODE
607	Invalid CLLI
608	Invalid CTX
609	INTCPT must be CTC/CNT/DTC/DNT.
610	Invalid PIC
611	Invalid CAT
612	Invalid LISTTHRS
613	Invalid LCC
615	Invalid PROD
617	Invalid GRPST
619	Invalid HILN
622	Invalid LINE
623	Invalid LOLN
624	Invalid NPA
625	Invalid NXTST

IERC Message Code	Description
626	Invalid NXX
627	Invalid OPT
630	Invalid STAT
631	Invalid SUBTYP
633	Invalid TYPE
634	RC_DATA is invalid for simple business and residence.
635	Requested STATUS count is invalid.
646	CTXTYPE required in add.
650	On CTX add, CLLI/CTX and MAINTN are all required.
651	On CTX chg/dlt/inq, CLLI/CTX or TIECODE or MAINTN may be required.
654	Combined CTX is currently not supported.
655	MODE is required.
656	CLLI, CTX, SERVICE, PROD or MAINTN is required.
657	ACL aggregate is required.
659	Entered TNs are overlapping.
661	TNLIST aggregate is required.
701	TNs in the range do not exist in the database.
702	TNs in the range exist in the database.
703	TNs in the range are in an active Hunt Group.
704	TNs in the range are not available.
705	TNs in OLD ACL have subtypes that do not match subtypes in database.
706	TNs in OLD ACL have types that do not match types in database.
707	TNs in OLD ACL have status codes that do not match status codes in database.
708	Cannot delete a MAIN_TN.
800	Existing group in new ACL of a change is not supported.
801	Group in new ACL must be same as group in old ACL.
802	TN in new ACL does not match TN in old ACL.

D.2.3 IERC Codes for the MTCHNT Contract

The input error return codes shown in this section apply to the MTCHNT contract. Each IERC consists of five bytes. The first three bytes represent the specific message. The following two-byte suffix indicates which ACL aggregate encountered the error. The suffix equals "00" when only one ACL appears. The suffix is "01" if the error occurred in the "old" ACL, and the suffix is "02" if the error was found in the "new" ACL.

IERC Message Code	Description
001	CTC must be B,C,R, or I.
002	Contract name is not compatible with CTC.
003	At least one REC aggregate is required in the contract.
004	ACT tag must be "N" for a BUILD.
005	Both "O" and "N" are required for CHANGE.
006	ACT tag must be "O" and "N" or "R".
007	ACT tag must be "O" for a REMOVE.
008	ACT tag is required.
009	CTC tag is required.
010	CTL aggregate is required.
011	ACT = R, then only one ACL is allowed.
012	Invalid number of ACLs for this CTC code.
621	Invalid HTYP
622	Invalid LINE
624	Invalid NPA
626	Invalid NXX
655	MODE is required.
657	ACL aggregate is required.
660	Hunt Groups must consist of at least two TN lines.
664	Hunt Unit TN STATUS must equal SL or WK.
668	A Hunt Unit must exist on CTX_LIST Table.
689	TN aggregate is duplicated in entered Hunt Group.
690	A TN aggregate is required.
693	Old ACL has more TNs than the database.
694	Last Hunt Unit of a regular SCH contains a non-null hunt-to entry.

IERC Message Code	Description
695	Delete process of a change - FAILED.
696	ADD process of a change - FAILED.
697	Old ACL Hunt Type does not match database Hunt Type.
698	Old ACL NPA/NXX/LINE not = database NPA/NXX/LINE.
699	Expected Hunt Unit not found in database — Integrity Problem — Contact your DBA.
700	OLD ACL has fewer Hunt Units than database.

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D.2.4 IERC Codes for the INQCPE and MTCCPE Contracts

The input error return codes shown in this section apply to INQCPE and MTCCPE contracts. Each IERC consists of five bytes. The first three bytes represent the specific message. The following two-byte suffix indicates which ACL aggregate encountered the error. The suffix equals "00" when only one ACL appears. The suffix is "01" if the error occurred in the "old" ACL, and the suffix is "02" if the error was found in the "new" ACL.

IERC Message Code	Description
001	CTC must be B,C,R, or I.
002	Contract name is not compatible with CTC.
003	At least one REC aggregate is required in the contract.
004	ACT tag must be "N" for a BUILD.
005	Both "O" and "N" are required for CHANGE.
006	ACT tag must be "O" and "N" or "R".
007	ACT tag must be "O" for a REMOVE.
008	ACT tag is required.
009	CTC tag is required.
011	ACT = R, then only one ACL is allowed.
012	Invalid number of ACLs for this CTC code.
100	NETYP is invalid
112	NETYP is not supported.
115	NETYP in old ACL does not match value on database record.
200	CPEMAN is required.
201	CPEMOD is required.
202	DIS is required.
203	ONETOUCH is required.
204	MAXKEY is required.
205	HKEY is required.
206	RKEY is required.
207	MAXKEY must be greater than or equal to MAXCA.
208	CPEMAN is invalid.
209	CPEMOD is invalid.
210	CPENAME is invalid.

IERC Message Code	Description
211	CPEREG is invalid.
212	DIS is invalid.
213	ONETOUCH is invalid.
214	MAXKEY is invalid.
215	MAXCA is invalid.
216	HKEY is invalid.
217	RKEY is invalid.
222	Duplicate NETYP entry.
223	DIS does not match database value.
224	ONETOUCH does not match database value.
225	MAXKEY does not match database value.
226	HKEY does not match database value.
227	RKEY does not match database value.
228	MAXCA does not match database value.
229	CPENAME does not match database value.
230	CPEREG does not match database value.
235	NETYP values exist in database that were not specified on input.

D.2.5 IERC Codes for the INQCAT and MTCCAT Contracts

The input error return codes shown in this section apply to the INQCAT and MTCCAT contracts. Each IERC consists of five bytes. The first three bytes represent the specific message. The following two-byte suffix indicates which ACL aggregate encountered the error. The suffix equals "00" when only one ACL appears. The suffix is "01" if the error occurred in the "old" ACL, and the suffix is "02" if the error was found in the "new" ACL.

IERC Message Code	Description
001	CTC must be B,C,R, or I.
002	Contract name is not compatible with CTC.
003	At least one REC aggregate is required in the contract.
004	ACT tag must be "N" for a Build.
005	Both "O" and "N" are required for CHANGE.
006	ACT tag must be "O" and "N" or "R".
007	ACT tag must be "O" for a Remove.
008	ACT tag is required.
009	CTC tag is required.
011	ACT = R, then only one ACL is allowed.
012	Invalid number of ACLs for this CTC code.
109	NETYP is a required tag.
110	NEGEN is a required tag.
112	NETYP is not supported.
113	NEGEN is not supported.
115	NETYP in old ACL does not match value on database record.
122	Feature exceptions exist that are not valid for new switch type/generic.
153	Only one service tag is allowed.
155	PROP is a required tag.
157	FTR is a required tag.
158	Duplicate FTR entry.
160	SVC type res. does not match database value.

IERC Message Code	Description
161	SVC type bus. does not match database value.
162	SVC type CTX does not match database value.
163	FTR does not match database value.
167	SERVICE must be C, I, B, R.
169	FTR is invalid.
173	PROP must be Y, N, or A.
302	SERVICE duplicated on input.
350	CATOPT tag must be Y or N.
351	UPDIND tag must be Y or N.
352	FGRP tag is not alphanumeric.
353	ACTIND must be B, D, E, or N.
354	ELACTIND must be B, D, E, or N.
355	REGSET tag must be A or U.
356	FTRSCP tag must be S, D, P, or U.
358	FGRP and FTR tags cannot both be input.
360	ACTIND tag is a required tag.
361	ELACTIND tag is a required tag.
362	REGSET tag is a required tag.
363	FTRSCP tag is a required tag.
364	ACTIND tag value does not match database value.
365	ELACTIND tag value does not match database value.
366	REGSET tag value does not match database value.
367	FTRSCP tag value does not match database value.
368	TAGTYPE tag value must be F or G.
369	TAGID tag value is invalid.
370	DESC tag value is invalid.
371	TAGTYPE tag is a required tag.
372	TAGID tag is a required tag.
373	DESC tag is a required tag.
374	No update data was provided on input.
375	Description does not match database value.
376	Product name does not match database value.
377	Service type indicator does not match database value.
378	NETYPE new key is not same as old value.
379	TAGTYPE new key is not same as old value.

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IERC Message Code	Description
380	TAGID new key is not same as old value.
381	PROD in database, but did not come back in with old data.
382	Service type in database did not come back in with old data.
383	Switch type: old key, new key not same.
384	Switch generic: old key, new key not same.
385	Feature tag: old key, new key not same.
386	Feature group tag: old key, new key not same.

D.2.6 IERC Codes for the INQFPK and MTCFPK Contracts

The input error return codes shown in this section apply to the INQFPK and MTCFPK contracts. Each IERC consists of five bytes. The first three bytes represent the specific message. The following two-byte suffix indicates which ACL aggregate encountered the error. The suffix equals "00" when only one ACL appears. The suffix is "01" if the error occurred in the "old" ACL, and the suffix is "02" if the error was found in the "new" ACL.

IERC Message Code	Description
001	CTC must be B,C,R, or I.
002	Contract name is not compatible with CTC.
003	At least one REC aggregate is required in the contract.
004	ACT tag must be "N" for a BUILD.
005	Both "O" and "N" are required for CHANGE.
006	ACT tag must be "O" and "N" or "R".
007	ACT tag must be "O" for a REMOVE.
008	ACT tag is required.
009	CTC tag is required.
011	ACT = R, then only one ACL is allowed.
012	Invalid number of ACLs for this CTC code.
109	NETYP is a required tag.
110	NEGEN is a required tag.
112	NETYP is not supported.
113	NEGEN is not supported.
114	NETYP/NEGEN combination is not valid.
115	NETYP in old ACL does not match value on database record.
116	NEGEN in old ACL does not match value on database record.
150	PROD is a required tag.
151	FPKG is a required tag.
152	OPT is a required tag.
154	Key combination is invalid for remove.
155	PROP is a required tag.

IERC Message Code	Description
156	FTR is not supported.
157	FTR is a required tag.
158	Duplicate FTR entry.
159	OPT does not match database value.
160	SVC type res. does not match database value.
161	SVC type bus. does not match database value.
162	SVC type CTX does not match database value.
163	FTR does not match database value.
164	FPKG does not match database value.
165	OPT must be Y or N.
166	PROD is invalid.
167	SERVICE must be C, I, B, R.
168	FPKG is invalid.
169	FTR is invalid.
170	FTRDES is invalid.
171	BUTTON is invalid.
172	ALL must be Y or N.
173	PROP must be Y, N, or A.
174	PRODUCT NAME: old key, new key not same.
175	Feature Package name: old key, new key not same.
302	SERVICE duplicated on input.
383	Switch type: old key, new key not same.
384	Switch generic: old key, new key not same.

D.2.7 IERC Codes for the INQNED and MTCNED Contracts

The input error return codes shown in this section apply to the INQNED and MTCNED contracts. Each IERC consists of five bytes. The first three bytes represent the specific message. The following two-byte suffix indicates which ACL aggregate encountered the error. The suffix equals "00" when only one ACL appears. The suffix is "01" if the error occurred in the "old" ACL, and the suffix is "02" if the error was found in the "new" ACL.

IERC Message Code	Description
001	CTC must be B,C,R, or I.
002	Contract name is not compatible with CTC.
003	At least one REC aggregate is required in the contract.
004	ACT tag must be "N" for a BUILD.
005	Both "O" and "N" are required for CHANGE.
006	ACT tag must be "O" and "N" or "R".
007	ACT tag must be "O" for a REMOVE.
008	ACT tag is required.
009	CTC tag is required.
011	ACT = R, then only one ACL is allowed.
012	Invalid number of ACLs for this CTC code.
100	NETYP is invalid
101	NEGEN is invalid.
102	WC is invalid.
107	CLLI is invalid.
108	CLLI is a required tag.
109	NETYP is a required tag.
110	NEGEN is a required tag.
111	WC is a required tag.
112	NETYP is not supported.
113	NEGEN is not supported.
114	NETYP/NEGEN combination is not valid.

IERC Message Code	Description
115	NETYP in old ACL does not match value on database record.
116	NEGEN in old ACL does not match value on database record.
117	WC in old ACL does not match value on database record.
122	Feature exceptions exist that are not valid for new switch type/generic.
156	FTR is not supported.
157	FTR is a required tag.
160	SVC type res. does not match database value.
161	SVC type bus. does not match database value.
162	SVC type CTX does not match database value.
163	FTR does not match database value.
167	SERVICE must be C, I, B, R.
169	FTR is invalid.
300	SERVICE is a required tag for this CTC.
301	Network element must already exist for this action.
302	SERVICE duplicated on input.

D.2.8 Table Maintenance Section Processing Codes

Section processing codes are return and/or error codes that may appear in the response message of a table maintenance contract. These codes accompany the following tags: GRPRC, MTNRC, SCHRC, NDRC, FERC, CDRC, DDRC, FPRC, and CPRC.

Each code consists of five bytes. The first three bytes represent the specific message. The two-byte suffix refers to the database table that is affected by the message. The section processing codes apply to all table maintenance contracts.

Message Code	Description
000	Entry not found; database rollback
001	Entry already exists; database rollback
002	Successful add
003	Successful delete
004	Successful update
005	Successful inquiry
007	Database does not match original input; database rollback
008	Update failed; database rollback

Table Suffix	Description
00	Multiple Tables
01	Network Element Table
02	Switch Parameter Table
03	Feature Package Table
04	Feature Group Catalog Table
05	Feature Catalog Table
06	Feature Name Table
07	Switch Feature Exception Table
08	CPE Information Table
09	CPE Reference Table
10	Reserved for future use.
11	Reserved for future use.
12	Centrex Group Table
13	Centrex TN List Table
14	Customer Centrex Table

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Table Suffix	Description
15	Group List Table
16	Reserved for future use.
17	Reserved for future use.
18	Recent Change Data Table
19	Telephone Range Table
20	Hunt Device Table
21	Hunt Group Table
22	Hunt Unit Table

D.2.8.1 Examples

The following table contains some examples of section processing codes and explains their meanings.

Table D-1. Section Code Examples

Code	Meaning
00015	Entry not found in Group List Table.
00112	Entry already exists in Centrex Group Table.
00401	Successful update to Network Element Table.
00308	Successful delete in CPE Information Table.

E. Appendix E — SNS Contract Examples

The following pages contain examples of the different types of request and response messages that may be submitted to and returned from SNS.

E.1 Negotiation Contract Examples

The negotiation contract examples are divided into two groups: the negotiation stand-alone and the negotiation dialogue.

E.1.1 Negotiation Stand-Alone Contract Examples

This section contains examples of the different types of negotiation stand-alone request and response messages that may be submitted to and returned from SNS.

E.1.1.1 Fatal Error Encountered (Request)

```
*C1= INQSAG          ABNS   SNS        U  0;%
*PLHDR{
        USERID = KKAHL;
        LCLID = APP;
}%
*RSNS{
        SVCLOC{
                ACL{
                        ZIP = 07921;
                        ADDR{
                                BADR{
                                        BAD = 26;
                                        STR = ASHLEY COURT;
                                }
                        }
                }
        }
        CTL{
                CTC = I;
                INQOPT = SAG;
        }
}%
```

E.1.1.2 Fatal Error Encountered (Response)

```
*Cl = INQSAG              SNS    ABNS         S  0;%
*PLHDR{
       USERID = KKAHL;
       LCLID = APP;
}%
*UMSG{
       MSGTEXT = Contract failed - Security not authorized;
}%
*RSNS{
       SVCLOC{
              ACL{
                     ZIP = 07921;
                     ADDR{
                            BADR{
                                   BAD = 26;
                                   STR = ASHLEY COURT;
                            }
                     }
              }
       }
       CTL{
              CTC = I;
              INQOPT = SAG;
       }
}%
```

E.1.1.3 SNS — Street Address Validation Inquiry; Input Error (Request)

```
*Cl = INQSAG            ABNS   SNS        U  0;%
*PLHDR{
       USERID = KKAHL;
       LCLID = APP;
}%
*RSNS{
       SVCLOC{
               ACL{
                       ADDR{
                               BADR{
                                       BAD = 26;
                                       STR = ASHLEY COURT;
                               }
                       }
               }
       }
       CTL{
               CTC = I;
               INQOPT = SAG;
       }
}%
```

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E.1.1.4 SNS — Street Address Validation Inquiry; Input Error (Response)

```
*C2 = INQSAG900410121440        SNS    ABNS        S  0;%
*PLHDR{
        USERID = KKAHL;
        LCLID = APP;
}%
*SNSHDR{
        DATE{
                YEAR = 1990;
                MONTH = 04;
                DAY = 10;
        }
        TIME{
                HOUR = 12;
                MIN = 15;
                SEC = 00;
        }
}%
*SNSR{
        SVCLOC{
                ACL{
                        ADDR{
                                BADR{
                                        BAD = 26;
                                        STR = ASHLEY COURT;
                                }
                        }
                }
        }
        CTL{
                CTC = I;
                INQOPT = SAG;
                IERC = 001;
        }
}%
```

E.1.1.5 Street Address Validation Inquiry; Invalid Street Address (Request)

```
*Cl = INQSAG            ABNS    SNS         U  0;%
*PLHDR{
      USERID = KKAHL;
      LCLID = APP;
}%
*RSNS{
      SVCLOC{
            ACL{
                  ZIP = 99999;
                  ADDR{
                        BADR{
                              BAD = 26;
                              STR = ASHLEY COURT;
                        }
                  }
            }
      }
      CTL{
            CTC = I;
            INQOPT = SAG;
      }
}%
```

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E.1.1.6 Street Address Validation Inquiry; Invalid Street Address (Response)

```
*C2 = INQSAG900410121440        SNS    ABNS        S  0;%
*PLHDR{
        USERID = KKAHL;
        LCLID = APP;
}%
*SNSHDR{
        DATE{
                YEAR = 1990;
                MONTH = 04;
                DAY = 10;
        }
        TIME{
                HOUR = 12;
                MIN = 15;
                SEC = 00;
        }
}%
*SNSR{
        SVCLOC{
                ACL{
                        ZIP = 99999;
                        ADDR{
                                BADR{
                                        BAD = 26;
                                        STR = ASHLEY COURT;
                                }
                        }
                }
        }
        CTL{
                CTC = I;
                INQOPT = SAG;
                SARC = 002;
        }
}%
```

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E.1.1.7 Street Address Validation Inquiry (Request)

```
*C1 = INQSAG              ABNS   SNS          U  0;%
*PLHDR{
        USERID = KKAHL;
        LCLID = APP;
}%
*RSNS{
        SVCLOC{
                ACL{
                        ZIP = 07921;
                        ADDR{
                                BADR{
                                        BAD = 26;
                                        STR = ASHLEY COURT;
                                }
                        }
                }
        }
        CTL{
                CTC = I;
                INQOPT = SAG;
        }
}%
```

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E.1.1.8 Street Address Validation Inquiry (Response)

```
*C2= INQSAG900410121440      SNS    ABNS      S  0;%
*PLHDR{
      USERID = KKAHL;
      LCLID = APP;
}%
*SNSHDR{
      DATE{
            YEAR = 1990;
            MONTH = 04;
            DAY = 10;
      }
      TIME{
            HOUR = 12;
            MIN = 15;
            SEC = 00;
      }
}%
```

E.1.1.9 Street Address Validation Inquiry; Valid Street Address (Response, continued)

```
*SNSR{
      SVCLOC{
            ACL{
                  ZIP = 07921;
                  ADDR{
                        BADR{
                              BAD = 26;
                              STR = ASHLEY COURT;
                        }
                  }
            }
      }
      CTL{
            CTC = I;
            INQOPT = SAG;
            SARC = 101;
      }
      SAGINFO{
            SAGA = NFRK;
            EXCH = PDM;
            WC = PDMT,921;
            RTZ = N25;
            TAR = NF010;
            ZIP = 05714;
            NPA = 304;
            TELF = TT;
            BO = NTHFRK;
            DIR = N127;
            PD = OT;
            PC = PARK;
            CO = 921;
            CNA = BEDMINSTER;
            STN = NJ;
      }
}%
```

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E.1.1.10 Network Element Inquiry (Request)

```
*Cl = INQNEI              ABNS   SNS          U  0;%
*PLHDR{
      USERID = KKAHL;
      LCLID = APP;
}%
*RSNS{
      SVCLOC{
            ACL{
                  ZIP = 07921;
                  ADDR{
                        BADR{
                              BAD = 26;
                              STR = ASHLEY COURT;
                        }
                  }
            }
      }
      CTL{
            CTC = I;
            INQOPT = NEI;
      }
}%
```

E.1.1.11 Network Element Inquiry (Response)

```
*C2 = INQNEI900410121440        SNS    ABNS        S  0;%
*PLHDR{
        USERID = KKAHL;
        LCLID = APP;
}%
*SNSHDR{
        DATE{
                YEAR = 1990;
                MONTH = 04;
                DAY = 10;
        }
        TIME{
                HOUR = 12;
                MIN = 15;
                SEC = 00;
        }
}%
```

E.1.1.12 Network Element Inquiry; Network Elements Determined (Response, continued)

```
*SNSR{
       SVCLOC{
              ACL{
                     ZIP = 07921;
                     ADDR{
                            BADR{
                                   BAD = 26;
                                   STR = ASHLEY COURT;
                            }
                     }
              }
       }
       CTL{
              CTC = I;
              INQOPT = PMI;
              SARC = 101;
              NERC = 002;
       }
       SAGINFO{
              SAGA = NFRK;
              EXCH = PDM;
              WC = PDMT,921;
              RTZ = N25;
              TAR = NF010;
              ZIP = 05714;
              NPA = 304;
              TELF = TT;
              BO = NTHFRK;
              DIR = N127;
              PD = OT;
              PC = PARK;
              CO = 921;
              CNA = BEDMINSTER;
              STN = NJ;
       }
       NEINFO{
              SOD{
                     NE{
                            CLLI = ABCDEFGH001;
                            NETYP = 5E;
                            NEGEN = 4.2;
                     }
              }
       }
}%
```

E.1.1.13 Product Marketing Inquiry; Specific Product (Request)

```
*C1 = INQPMI              ABNS   SNS          U  0;%
*PLHDR{
        USERID = KKAHL;
        LCLID = APP;
}%
*RSNS{
        SVCLOC{
                ACL{
                        ZIP = 07921;
                        ADDR{
                                BADR{
                                        BAD = 26;
                                        STR = ASHLEY COURT;
                                }
                        }
                }
        }
        CTL{
                CTC = I;
                INQOPT = PMI;
        }
        ACL{
                PROD = INTELLIPATHII;
        }
}%
```

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E.1.1.14 Product Marketing Inquiry; Service is Available (Response)

```
*C2= INQPMI900410121440        SNS   ABNS        S 0;%
*PLHDR{
        USERID = KKAHL;
        LCLID = APP;
}%
*SNSHDR{
        DATE{
                YEAR = 1990;
                MONTH = 04;
                DAY = 10;
        }
        TIME{
                HOUR = 12;
                MIN = 15;
                SEC = 00;
        }
}%
*SNSR{
        SVCLOC{
                ACL{
                        ZIP = 07921;
                        ADDR{
                                BADR{
                                        BAD = 26;
                                        STR = ASHLEY COURT;
                                }
                        }
                }
        }
        CTL{
                CTC = I;
                INQOPT = PMI;
                SARC = 101;
                PMRC = 001;
        }
        ACL{
                PROD = INTELLIPATHII;
        }
        SAGINFO{
                SAGA = NFRK;
                EXCH = PDM;
                WC = PDMT,921;
                RTZ = N25;
                TAR = NF010;
                ZIP = 05714;
                NPA = 304;
                TELF = TT;
                BO = NTHFRK;
                DIR = N127;
```

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```
                PD = OT;
                PC = PARK;
                CO = 921;
                CNA = BEDMINSTER;
                STN = NJ;
        }
        PMINFO{
                SOD{
                        MKTPROD{
                                PROD = INTELLIPATHII;
                                NE{
                                        CLLI = ABCDEFGH001;
                                        NETYP = 5E;
                                        NEGEN = 4.2;
                                }
                        }
                }
        }
}%
```

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                                                     SNS Release 2.0

E.1.1.15 Product Marketing Inquiry; Service is Unavailable (Response)

```
*C2 = INQPMI900410121440      SNS    ABNS         S  0;%
*PLHDR{
        USERID = KKAHL;
        LCLID = APP;
}%
*SNSHDR{
        DATE{
                YEAR = 1990;
                MONTH = 04;
                DAY = 10;
        }
        TIME{
                HOUR = 12;
                MIN = 15;
                SEC = 00;
        }
}%
*SNSR{
        SVCLOC{
                ACL{
                        ZIP = 07921;
                        ADDR{
                                BADR{
                                        BAD = 26;
                                        STR = ASHLEY COURT;
                                }
                        }
                }
        }
        CTL{
                CTC = I;
                INQOPT = PMI;
                SARC = 101;
                PMRC = 002;
        }
        ACL{
                PROD = INTELLIPATHII;
        }
        SAGINFO{
                SAGA = NFRK;
                EXCH = PDM;
                WC = PDMT,921;
                RTZ = N25;
                TAR = NF010;
                ZIP = 05714;
                NPA = 304;
                TELF = TT;
                BO = NTHFRK;
                DIR = N127;
```

```
                    PD = OT;
                    PC = PARK;
                    CO = 921;
                    CNA = BEDMINSTER;
                    STN = NJ;
          }
}%
```

E.1.1.16 Product Marketing Inquiry; All Products (Request)

```
*C1 = INQPMI              ABNS   SNS         U  0;%
*PLHDR{
        USERID = KKAHL;
        LCLID = APP;
}%
*RSNS{
        SVCLOC{
                ACL{
                        ZIP = 07921;
                        ADDR{
                                BADR{
                                        BAD = 26;
                                        STR = ASHLEY COURT;
                                }
                        }
                }
        }
        CTL{
                CTC = I;
                INQOPT = PMI;
        }
        ACL{
                PROD = ALL;
        }
}%
```

E.1.1.17 Product Marketing Inquiry; All Products (Response)

```
*C2 =  INQPMI900410121440      SNS    ABNS        S  0;%
*PLHDR{
        USERID = KKAHL;
        LCLID = APP;
}%
*SNSHDR{
        DATE{
                YEAR = 1990;
                MONTH = 04;
                DAY = 10;

        }
        TIME{
                HOUR = 12;
                MIN = 15;
                SEC = 00;

        }
}%
*SNSR{
        SVCLOC{
                ACL{
                        ZIP = 07921;
                        ADDR{
                                BADR{
                                        BAD = 26;
                                        STR = ASHLEY COURT;
                                }
                        }
                }
        }
        CTL{
                CTC = I;
                INQOPT = PMI;
                SARC = 101;
                PMRC = 006;

        }
        ACL{
                PROD = ALL;

        }
        SAGINFO{
                SAGA = NFRK;
                EXCH = PDM;
                WC = PDMT,921;
                RTZ = N25;
                TAR = NF010;
                ZIP = 05714;
                NPA = 304;
                TELF = TT;
                BO = NTHFRK;
                DIR = N127;
```

```
                    PD = OT;
                    PC = PARK;
                    CO = 921;
                    CNA = BEDMINSTER;
                    STN = NJ;
            }
            PMINFO{
                    SOD{
                          MKTPROD{
                                  PROD = INTELLIPATHII;
                                  NE{
                                          CLLI = ABCDEFGH001;
                                          NETYP = 5E;
                                          NEGEN = 4.2;
                                  }
                          }
                          MKTPROD{
                                  PROD = INTELLIDIAL;
                                  NE{
                                          CLLI = ABCDEFGH001;
                                          NETYP = 5E;
                                          NEGEN = 4.2;
                                  }
                          }
                    }
            }
}%
```

E.1.1.18 Change Service Inquiry (Request)

```
*CI = INQCHG              ABNS   SNS         U  0;%
*PLHDR{
        USERID = KKAHL;
        LCLID = APP;
}%
*RSNS{
        SVCLOC{
                ACL{
                        ZIP = 07921;
                        ADDR{
                                BADR{
                                        BAD = 26;
                                        STR = ASHLEY COURT;
                                }
                        }
                }
        }
        CTL{
                CTC = I;
                INQOPT = NEG;
                SVCTYPE = C;
        }
        ACL{
                PROD = INTELLIPATHII;
                TN{
                        NPA = 201;
                        NXX = 699;
                        LINE = 3920;
                }
        }
}%
```

E.1.1.19 Change Service Inquiry; Service is Regradable (Response)

```
*C2 =  INQCHG900410121440      SNS    ABNS        S  0;%
*PLHDR{
        USERID = KKAHL;
        LCLID = APP;
}%
*SNSHDR{
        DATE{
                YEAR = 1990;
                MONTH = 04;
                DAY = 10;
        }
        TIME{
                HOUR = 12;
                MIN = 15;
                SEC = 00;
        }
}%
*SNSR{
        SVCLOC{
                ACL{
                        ZIP = 07921;
                        ADDR{
                                BADR{
                                        BAD = 26;
                                        STR = ASHLEY COURT;
                                }
                        }
                }
        }
        CTL{
                CTC = I;
                INQOPT = NEG;
                SARC = 101;
                PMRC = 001;
                LURC = 001;
                LPRC = 003;
        }
        ACL{
                PROD = INTELLIPATHII;
                TN{
                        NPA = 201;
                        NXX = 699;
                        LINE = 3920;
                }
        }
        SAGINFO{
                SAGA = NFRK;
                EXCH = PDM;
                WC = PDMT,921;
```

```
                RTZ = N25;
                TAR = NF010;
                ZIP = 05714;
                NPA = 304;
                TELF = TT;
                BO = NTHFRK;
                DIR = N127;
                PD = OT;
                PC = PARK;
                CO = 921;
                CNA = BEDMINSTER;
                STN = NJ;
        }
        PMINFO{
                SOD{
                        MKTPROD{
                                PROD = INTELLIPATHII;
                                NE{
                                        CLLI = ABCDEFGH001;
                                        NETYP = 5E;
                                        NEGEN = 4.2;
                                }
                        }
                }
        }
}%
```

E.1.1.20 Change Service Inquiry; Service is Not Regradable (Response)

```
*C2 = INQCHG900410121440      SNS     ABNS        S 0;%
*PLHDR{
        USERID = KKAHL;
        LCLID = APP;
}%
*SNSHDR{
        DATE{
                YEAR = 1990;
                MONTH = 04;
                DAY = 10;
        }
        TIME{
                HOUR = 12;
                MIN = 15;
                SEC = 00;
        }
}%
*SNSR{
        SVCLOC{
                ACL{
                        ZIP = 07921;
                        ADDR{
                                BADR{
                                        BAD = 26;
                                        STR = ASHLEY COURT;
                                }
                        }
                }
        }
        CTL{
                CTC = I;
                INQOPT = NEG;
                SARC = 101;
                PMRC = 001;
                LURC = 001;
                LPRC = 004;
        }
        ACL{
                PROD = INTELLIPATHII;
                TN{
                        NPA = 201;
                        NXX = 699;
                        LINE = 3920;
                }
        }
        SAGINFO{
                SAGA = NFRK;
                EXCH = PDM;
                WC = PDMT,921;
```

```
              RTZ = N25;TAR = NF010;
              ZIP = 05714;
              NPA = 304;
              TELF = TT;
              BO = NTHFRK;
              DIR = N127;
              PD = OT;
              PC = PARK;
              CO = 921;
              CNA = BEDMINSTER;
              STN = NJ;
      }
      PMINFO{
              SOD{
                      MKTPROD{
                              PROD = INTELLIPATHII;  .
                              NE{
                                      CLLI = ABCDEFGH001;
                                      NETYP = 5E;
                                      NEGEN = 4.2;
                              }
                      }
              }
      }
}%
```

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E.1.1.21 Loop Availability Inquiry (Request)

```
*Cl = INQLAI              ABNS   SNS         U  0;%
*PLHDR{
      USERID = KKAHL;
      LCLID = APP;
}%
*ROSP{
      SVCLOC{
            ACL{
                  ZIP = 07921;
                  ADDR{
                        BADR{
                              BAD = 26;
                              STR = ASHLEY COURT;
                        }
                  }
            }
      }
      CTL{
            CTC = I;
      }
      ACL{
            PROD = INTELLIPATHII;
            NUMLP = 10;
            WC = PDMT,921;
      }
}%
```

E.1.1.22 Loop Availability Inquiry; Adequate Loops are Assignable (Response)

```
*C2 = INQLAI900410121440      SNS    ABNS        S  0;%
*PLHDR{
        USERID = KKAHL;
        LCLID = APP;
}%
*SNSHDR{
        DATE{
                YEAR = 1990;
                MONTH = 04;
                DAY = 10;

        }
        TIME{
                HOUR = 12;
                MIN = 15;
                SEC = 00;

        }
}%
*OSPR{
        SVCLOC{
                ACL{
                        ZIP = 07921;
                        ADDR{
                                BADR{
                                        BAD = 26;
                                        STR = ASHLEY COURT;
                                }
                        }
                }
        }
        CTL{
                CTC = I;
                LURC = 001;
                LPRC = 001;
        }
        ACL{
                PROD = INTELLIPATHII;
                NUMLP = 10;
                WC = PDMT,921;
        }
        LOOPINFO{
                NUMSP = 10;
                NUMCF = 2;
        }
}%
```

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E.1.1.23 Loop Availability Inquiry; Subset of Loops are Assignable (Response)

```
*C2 = INQLAI900410121440        SNS    ABNS         S  0;%
*PLHDR{
        USERID = KKAHL;
        LCLID = APP;
}%
*SNSHDR{
        DATE{
                YEAR = 1990;
                MONTH = 04;
                DAY = 10;
        }
        TIME{
                HOUR = 12;
                MIN = 15;
                SEC = 00;
        }
}%
*OSPR{
        SVCLOC{
                ACL{
                        ZIP = 07921;
                        ADDR{
                                BADR{
                                        BAD = 26;
                                        STR = ASHLEY COURT;
                                }
                        }
                }
        }
        CTL{
                CTC = I;
                LURC = 001;
                LPRC = 002;
        }
        ACL{
                PROD = INTELLIPATHII;
                NUMLP = 10;
                WC = PDMT,921;
        }
        LOOPINFO{
                NUMSP = 5;
                NUMCF = 2;
        }
}%
```

E.1.1.24 Loop Availability Inquiry; No Loops are Assignable (Response)

```
*C2 = INQLAI900410121440        SNS    ABNS        S  0;%
*PLHDR{
        USERID = KKAHL;
        LCLID = APP;
}%
*SNSHDR{
        DATE{
                YEAR = 1990;
                MONTH = 04;
                DAY = 10;
        }
        TIME{
                HOUR = 12;
                MIN = 15;
                SEC = 00;
        }
}%
*OSPR{
        SVCLOC{
                ACL{
                        ZIP = 07921;
                        ADDR{
                                BADR{
                                        BAD = 26;
                                        STR = ASHLEY COURT;
                                }
                        }
                }
        }
        CTL{
                CTC = I;
                LURC = 001;
                LPRC = 003;
        }
        ACL{
                PROD = INTELLIPATHII;
                NUMLP = 10;
                WC = PDMT,921;
        }
}%
```

E.1.1.25 Loop Reservation (Request)

```
*C1 = UPDRSV            ABNS   SNS         U  0;%
*PLHDR{
       USERID = KKAHL;
       LCLID = APP;
}%
*ROSP{
       SVCLOC{
              ACL{
                     ZIP = 07921;
                     ADDR{
                            BADR{
                                   BAD = 26;
                                   STR = ASHLEY COURT;
                            }
                     }
              }
       }
       CTL{
              CTC = B;
       }
       ACL{
              ACT = N
              PROD = INTELLIPATHII;
              NUMLP = 10;
              WC = PDMT,921;
              SO = N69123;
              ACCT = IBM;
              MKSEG = P;
              NOTICE = Y;
              RSVDATE{
                     YEAR = 1990;
                     MONTH = 04;
                     DAY = 10;
              }
              RSVRMK = RESERVATION MADE BY KAREN KAHL;
       }
}%
```

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E.1.1.26 Loop Reservation; All Loops Reserved (Response)

```
*C2 = UPDRSV900410121440        SNS     ABNS         S 0;%
*PLHDR{
        USERID = KKAHL;
        LCLID = APP;
}%
*SNSHDR{
        DATE{
                YEAR = 1990;
                MONTH = 04;
                DAY = 10;
        }
        TIME{
                HOUR = 12;
                MIN = 15;
                SEC = 00;
        }
}%
*OSPR{
        SVCLOC{
                ACL{
                        ZIP = 07921;
                        ADDR{
                                BADR{
                                        BAD = 26;
                                        STR = ASHLEY COURT;
                                }
                        }
                }
        }
        CTL{
                CTC = B;
                LURC = 001;
                LPRC = 004;
        }
        ACL{

                ACT = N
                PROD = INTELLIPATHII;
                NUMLP = 10;
                WC = PDMT,921;
                SO = N69123;
                ACCT = IBM;
                MKSEG = P;
                NOTICE = Y;
                RSVDATE{
                        YEAR = 1990;
                        MONTH = 04;
                        DAY = 10;
                }
                RSVRMK = RESERVATION MADE BY KAREN KAHL;
```

```
        }
        LOOPINFO{
                NUMRSV = 10;
                NUMCF = 2;
        }
}%
```

E.1.1.27 Loop Reservation; Subset of Loops Reserved (Response)

```
*C2 = UPDRSV900410121440        SNS    ABNS        S  0;%
*PLHDR{
        USERID = KKAHL;
        LCLID = APP;
}%
*SNSHDR{
        DATE{
                YEAR = 1990;
                MONTH = 04;
                DAY = 10;
        }
        TIME{
                HOUR = 12;
                MIN = 15;
                SEC = 00;
        }
}%
*OSPR{
        SVCLOC{
                ACL{
                        ZIP = 07921;
                        ADDR{
                                BADR{
                                        BAD = 26;
                                        STR = ASHLEY COURT;
                                }
                        }
                }
        }
        CTL{
                CTC = B;
                LURC = 001;
                LPRC = 005;
        }
        ACL{
                ACT = N
                PROD = INTELLIPATHII;
                NUMLP = 10;
                WC = PDMT,921;
                SO = N69123;
                ACCT = IBM;
                MKSEG = P;
                NOTICE = Y;
                RSVDATE{
                        YEAR = 1990;
                        MONTH = 04;
                        DAY = 10;
                }
                RSVRMK = RESERVATION MADE BY KAREN KAHL;
```

```
        }
        LOOPINFO{
                NUMRSV = 6;
                NUMCF = 0;
        }
}%
```

E.1.1.28 Loop Reservation; No Loops Reserved (Response)

```
*C2= UPDRSV900410121440        SNS    ABNS        S 0;%
*PLHDR{
        USERID = KKAHL;
        LCLID = APP;
}%
*SNSHDR{
        DATE{
                YEAR = 1990;
                MONTH = 04;
                DAY = 10;
        }
        TIME{
                HOUR = 12;
                MIN = 15;
                SEC = 00;
        }
}%
*OSPR{
        SVCLOC{
                ACL{
                        ZIP = 07921;
                        ADDR{
                                BADR{
                                        BAD = 26;
                                        STR = ASHLEY COURT;
                                }
                        }
                }
        }
        CTL{
                CTC = B;
                LURC = 001;
                LPRC = 006;
        }
```

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```
ACL{
        ACT = N
        PROD = INTELLIPATHII;
        NUMLP = 10;
        WC = PDMT,921;
        SO = N69123;
        ACCT = IBM;
        MKSEG = P;
        NOTICE = Y;
        RSVDATE{
                YEAR = 1990;
                MONTH = 04;
                DAY = 10;
        }
        RSVRMK = RESERVATION MADE BY KAREN KAHL;
    }
}%
```

E.1.1.29 TN Selection; Unspecified TNs (Request)

```
*Cl = UPDTNL                ABNS    SNS           U  0;%
*PLHDR{
        USERID = KKAHL;
        LCLID = APP;
}%
*RTNL{
        CTL{
                TNACT = S;
        }
        ACL{
                MAINTN{
                        NPA = 201;
                        NXX = 699;
                        LINE = 1000;
                }
                UNSPTN{
                        NUMTN = 15;
                        NPA = 201;
                        NXX = 699;
                }
        }
}%
```

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E.1.1.30 TN Selection; All Unspecified TNs Selected (Response)

```
*C2 = UPDTNL900410121440        SNS    ABNS       S  0;%
*PLHDR{
        USERID = KKAHL;
        LCLID = APP;
}%
*SNSHDR{
        DATE{
                YEAR = 1990;
                MONTH = 04;
                DAY = 10;
        }
        TIME{
                HOUR = 12;
                MIN = 15;
                SEC = 00;
        }
}%
*TNLR{
        CTL{
                TNACT = S;
                TNRC = 104;
        }
        ACL{
                MAINTN{
                        NPA = 201;
                        NXX = 699;
                        LINE = 1000;
                }
                UNSPTN{
                        NUMTN = 15;
                        NPA = 201;
                        NXX = 699;
                }
        }
        UNSPTNINFO{
                TNS{
                        NUMSEL = 15;
                        TN{
                                NPA = 201;
                                NXX = 699;
                                LINE = 7001;
                        }
                        TN{
                                NPA = 201;
                                NXX = 699;
                                LINE = 7004;
                        }
                        TNRNG{
                                NPA = 201;
```

```
                    NXX = 699;
                    LOLN = 8050;
                    HILN = 8052;
        }
        TNRNG{
                    NPA = 201;
                    NXX = 699;
                    LOLN = 8060;
                    HILN = 8069;
                }
            }
        }
    }%
```

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E.1.1.31 TN Selection; No Unspecified TNs Selected (Response)

```
*C2 = UPDTNL900410121440        SNS    ABNS        S  0;%
*PLHDR{
        USERID = KKAHL;
        LCLID = APP;
}%
*SNSHDR{
        DATE{
                YEAR = 1990;
                MONTH = 04;
                DAY = 10;
        }
        TIME{
                HOUR = 12;
                MIN = 15;
                SEC = 00;
        }
}%
*TNLR{
        CTL{
                TNACT = S;
                TNRC = 105;
        }
        ACL{
                MAINTN{
                        NPA = 201;
                        NXX = 699;
                        LINE = 1000;
                }
                UNSPTN{
                        NUMTN = 15;
                        NPA = 201;
                        NXX = 699;
                }
        }
}%
```

E.1.1.32 TN Return (Request)

```
*Cl = UPDTNL             ABNS   SNS         U  0;%
*PLHDR{
        USERID = KKAHL;
        LCLID = APP;
}%
*RTNL{
        CTL{
                TNACT = R;
        }
        ACL{
                SPTN{
                        TN{
                                NPA = 201;
                                NXX = 699;
                                LINE = 3001;
                        }
                        TN{
                                NPA = 201;
                                NXX = 699;
                                LINE = 3007;
                        }
                        TNRNG{
                                NPA = 201;
                                NXX = 699;
                                LOLN = 3010;
                                HILN = 3018;
                        }
                }
        }
}%
```

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E.1.1.33 TN Return; All TNs Returned (Response)

```
*C2 =  UPDTNL900410121440        SNS     ABNS        S  0;%
*PLHDR{
        USERID = KKAHL;
        LCLID = APP;
}%
*SNSHDR{
        DATE{
                YEAR = 1990;
                MONTH = 04;
                DAY = 10;
        }
        TIME{
                HOUR = 12;
                MIN = 15;
                SEC = 00;
        }
}%
*TNLR{
        CTL{
                TNACT = R;
                TNRC = 201;
        }
        ACL{
                SPTN{
                        TN{
                                NPA = 201;
                                NXX = 699;
                                LINE = 3001;
                        }
                        TN{
                                NPA = 201;
                                NXX = 699;
                                LINE = 3007;
                        }
                        TNRNG{
                                NPA = 201;
                                NXX = 699;
                                LOLN = 3010;
                                HILN = 3018;
                        }
                }
        }
}%
```

E.1.2 Negotiation Dialogue Contract Examples

This section contains examples of the different types of negotiation dialogue
request and response messages that may be submitted to and returned from SNS.

E.1.2.1 Establish Service Request Coupled with TN Selection - Request Message

```
*Cl = SNSNEG            ULBB1   SNS         CU  0;%
*PLHDR{
        USERID = TKSMD04;
}%
*SNSHDR{
        ECHO = ESTABLISH SR COUPLED WITH TN SELECTION - MAIN TN NOT IN SNS;
        IDATE{ MONTH = 11; DAY = 13; YEAR = 1991; }
        ITIME{ HOUR = 08; MIN = 25; SEC = 11; }
}%
*RSRA{
        CTL{
                SROPT = E;
        }
        ACL{
                NEGACT = A;
                MAINTN{
                        NPA = 806;
                        NXX = 222;
                        LINE = 4900;
                }
                CUST = DELIA;
                SA{
                        SAGA = KING;
                        ADDR{
                                BADR{
                                        BAD = 10017;
                                        STR = CARISSA CIR;
                                        CNA = EARTH POLE;
                                        STN = SR;
                                }
                        }
                }
                SERVICE = C;
        }
}%
```

```
*RTNI{
     REC{
          CTL{
               TNACT = S;
          }
          ACL{
               SPTN{
                    TN{
                         NPA = 806;
                         NXX = 376;
                         LINE = 4960;
                    }
                    ALLTN = N;
               }
          }
     }
}%
```

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E.1.2.2 Establish Service Request Coupled with TN Selection - Unsuccessful Response Message

```
*C2 = SNSNEG911113082510        SNS    ULBB1        CS  0;%
*PLHDR{
        USERID = TKSMD04;
}%
*SNSHDR{
        ECHO = ESTABLISH SR COUPLED WITH TN SELECTION - MAIN TN NOT IN SNS;
        MSG = TNRC101;
        IDATE{ MONTH = 11; DAY = 13; YEAR = 1991; }
        ITIME{ HOUR = 08; MIN = 25; SEC = 10; }
        DATE{ YEAR = 1991; MONTH = 11; DAY = 13; }
        ITIME{ HOUR = 08; MIN = 25; SEC = 11; }
}%
*SRAR{
        CTL{
                SROPT = E;
                SRRC = 002;

        }
        ACL{

                NEGACT = A;
                MAINTN{
                        NPA = 806;
                        NXX = 222;
                        LINE = 4900;

                }
                CUST = DELIA;
                SA{
                        SAGA = KING;
                        ADDR{
                                BADR{

                                        BAD = 10017;
                                        STR = CARISSA CIR;
                                        CNA = EARTH POLE;
                                        STN = SR;

                                }
                        }
                }
                SERVICE = C;
        }
}%
```

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```
*TNIR{
      REC{
            CTL{
                  TNACT = S;
            }
            ACL{
                  SPTN{
                        TN{
                              NPA = 806;
                              NXX = 376;
                              LINE = 4960;
                        }
                        ALLTN = N;
                  }
            }
      }
}%
```

E.1.2.3 Establish Service Request - Request Message

```
*Cl = SNSNEG              ULBB1   SNS         CU  0;%
*PLHDR{
        USERID = TKSMD04;
}%
*SNSHDR{
        ECHO = ESTABLISH SR;
        IDATE{ MONTH = 11; DAY = 13; YEAR = 1991; }
        ITIME{ HOUR = 10; MIN = 21; SEC = 55; }
}%
*RSRA{
        CTL{
                SROPT = E;
        }
        ACL{
                NEGACT = A;
                MAINTN{
                        NPA = 806;
                        NXX = 376;
                        LINE = 4900;
                }
                CUST = FEELEY;
                SA{
                        SAGA = KING;
                        ADDR{
                                BADR{
                                        BAD = 8710;
                                        STR = KINGSPOINT;
                                }
                        }
                }
                SERVICE = C;
                PRODUCT = CENTURY;
        }
}%
```

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E.1.2.4 Establish Service Request - Response Message

```
*C2= SNSNEG911113102156       SNS    ULBB1       CS  0;%
*PLHDR{
       USERID = TKSMD04;
}%
*SNSHDR{
       ECHO = ESTABLISH SR;
       IDATE{ MONTH = 11; DAY = 13; YEAR = 1991; }
       ITIME{ HOUR = 10; MIN = 21; SEC = 55; }
       DATE{ YEAR = 1991; MONTH = 11; DAY = 13; }
       TIME{ HOUR = 10; MIN = 21; SEC = 57; }
}%
*SRAR{
       CTL{
              SROPT = E;
              SRRC = 001;

       }
       ACL{
              NEGACT = A;
              MAINTN{
                     NPA = 806;
                     NXX = 376;
                     LINE = 4900;

              }
              CUST = FEELEY;
              SA{
                     SAGA = KING;
                     ADDR{
                            BADR{
                                   BAD = 8710;
                                   STR = KINGSPOINT;

                            }
                     }
              }
              SERVICE = C;
              PRODUCT = CENTURY;

       }
}%
```

E.1.2.5 Customer System Data Inquiry - Request Message

```
*Cl = SNSNEG911113102156        ULBB1   SNS           CU  ;%
*PLHDR{
        USERID = TKSMD04;
}%
*SNSHDR{
        ECHO = CUSTOMER SYSTEM DATA INQUIRY;
        IDATE{ MONTH = 11; DAY = 13; YEAR = 1991; }
        ITIME{ HOUR = 10; MIN = 26; SEC = 30; }
}%
*RNDI{
        REC{
                CTL{
                        NDIOPT = CUST;
                }
        }
}%
```

E.1.2.6 Customer System Data Inquiry - Response Message

```
*C2 = SNSNEG911108095357        SNS    ULBB1        CS  0;%
*PLHDR{
        USERID = TKSMD04;
}%
*SNSHDR{
        ECHO = CUSTOMER SYSTEM DATA INQUIRY;
        IDATE{ MONTH = 11; DAY = 13; YEAR = 1991; }
        ITIME{ HOUR = 10; MIN = 26; SEC = 30; }
        DATE{ YEAR = 1991; MONTH = 11; DAY = 13; }
        TIME{ HOUR = 10; MIN = 26; SEC = 31; }


}%
*NDIR{
        REC{
                CTL{
                        NDIOPT = CUST;
                        NDRC = 003;


                }
                CUSTINFO{
                        CTXGRP{
                                CTX = RC;
                                CLLI = LTRYSRRP001;
                                INTCPT = DTC;


                        }


                }


        }

}%
```

E.1.2.7 Network Element Characteristics and CPE Inquiries - Request Message

```
*C1 = SNSNEG911113102156        ULBB1  SNS        CU  0;%
*PLHDR{
      USERID = TKSMD04;
}%
*SNSHDR{
      ECHO = NE CHARACTERISTICS AND CPE INQUIRIES;
      IDATE{ MONTH = 11; DAY = 13; YEAR = 1991; }
      ITIME{ HOUR = 10; MIN = 27; SEC = 09; }
}%
*RNDI{
      REC{
            CTL{
                  NDIOPT = NE;
            }
      }
      REC{
            CTL{
                  NDIOPT = CPE;
            }
      }
}%
```

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E.1.2.8 Network Element Characteristics and CPE Inquiries - Response Message

```
*C2 = SNSNEG911113102156        SNS     ULBB1        CS  0;%
*PLHDR{
        USERID = TKSMD04;
}%
*SNSHDR{
        ECHO = NE CHARACTERISTICS AND CPE INQUIRIES;
        IDATE{ MONTH = 11; DAY = 13; YEAR = 1991; }
        ITIME{ HOUR = 10; MIN = 27; SEC = 09; }
        DATE{ YEAR = 1991; MONTH = 11; DAY = 13; }
        TIME{ HOUR = 10; MIN = 27; SEC = 10; }
}%
*NDIR{
        REC{
                CTL{
                        NDIOPT = NE;
                        NDRC = 001;
                }
                NEINFO{
                        NECHARS{
                                CLLI = LTRYSRRP001;
                                WC = 806327;
                                NETYP = 5ESS;
                                NEGEN = 4.2;
                                MXSCH = 32;
                        }
                }
        }
        REC{
                CTL{
                        NDIOPT = CPE;
                        NDRC = 021;
                }
                CPEINFO{
                        CLLI = LTRYSRRP001;
                        CPE{
                                SET{
                                        CPEMAN = NTI;
                                        CPEMOD = M5009;
                                }
                                CPENAME = MERIDIAN CENTREX SET;
                                CPEREG = ETG488-71846-XT-N;
                        }
                        CPE{
                                SET{
                                        CPEMAN = NTI;
                                        CPEMOD = M5209;
                                }
                                CPENAME = MERIDIAN CENTREX DISPLAY SET;
```

```
                        CPEREG = ETG488-71846-XT-N;
              }
              CPE{
                   SET{
                          CPEMAN = NTI;
                          CPEMOD = M52112;
                   }
                   CPENAME = MERIDIAN CENTREX SPEAKER SET;
                   CPEREG = ETG488-71846-XT-N;
              }
              CPE{
                   SET{
                          CPEMAN = NTI;
                          CPEMOD = M5312;
                   }
                   CPENAME = MERIDIAN CENTREX POWER SET;
                   CPEREG = ETG488-71846-XT-N;
              }
         }
       }
}%
```

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\-

E.1.2.9 CPE Inquiry - Request Message

```
*Cl = SNSNEG911113102156        ULBBl   SNS          CU  0;%
*PLHDR{
      USERID = TKSMD04;
}%
*SNSHDR{
      ECHO = CPE INQUIRY;
      IDATE{ MONTH = 11; DAY = 13; YEAR = 1991; }
      ITIME{ HOUR = 10; MIN = 29; SEC = 15; }
}%
*RNDI{
      REC{
            CTL{
                  NDIOPT = CPE;
            }
            ACL{
                  SET{
                        CPEMAN = NTI;
                        CPEMOD = M5312;
                  }
            }
      }
}%
```

E.1.2.10 CPE Inquiry - Response Message

```
*C2= SNSNEG911114140935       SNS   ULBB1      CS  0;%
*PLHDR{
      USERID = TKSMD04;
}%
*SNSHDR{
      ECHO = CPE INQUIRY;
      IDATE{ MONTH = 11; DAY = 13; YEAR = 1991; }
      ITIME{ HOUR = 10; MIN = 29; SEC = 15; }
      DATE{ YEAR = 1991; MONTH = 11; DAY = 13; }
      TIME{ HOUR = 10; MIN = 29; SEC = 16; }
}%
*NDIR{
      REC{
            CTL{
                  NDIOPT = CPE;
                  NDRC = 023;
            }
            ACL{
                  SET{
                        CPEMAN = NTI;
                        CPEMOD = M5312;
                  }
            }
            CPEINFO{
                  CPE{
                        SET{
                              CPEMAN = NTI;
                              CPEMOD = M5312;
                        }
                        CPENAME = MERIDIAN CENTREX POWER SET;
                        CHARS{
                              CPEREG = ETG488-71846-XT-N;
                              DIS = Y;
                              ONETOUCH = Y;
                              MAXKEY = 10;
                              MAXCA = 10;
                              HKEY = Y;
                              RKEY = Y;
                        }
                  }
                  CLLI = LTRYSRRP001;
            }
      }
}%
```

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E.1.2.11 TN Selection - Request Message

```
*Cl = SNSNEG911113102156      ULBBl  SNS        CU  0;%
*PLHDR{
       USERID = TKSMD04;
}%
*SNSHDR{
       ECHO = TN SELECTION;
       IDATE{ MONTH = 11; DAY = 13; YEAR = 1991; }
       ITIME{ HOUR = 10; MIN = 30; SEC = 1; }
}%
*RTNI{
       REC{
              CTL{
                     TNACT = S;
              }
              ACL{
                     UNSPTN{
                            NUMTN = 5;
                            CON = Y;
                            ALLTN = N;
                     }
              }
       }
       REC{
              CTL{
                     TNACT = S;
              }
              ACL{
                     SPTN{
                            TN{
                                   NPA = 806;
                                   NXX = 376;
                                   LINE = 4915;
                            }
                     }
              }
       }
}%
```

E.1.2.12 TN Selection - Response Message

```
*C2= SNSNEG911113102156       SNS     ULBB1        CS  0;%
*PLHDR{
        USERID = TKSMD04;
}%
*SNSHDR{
        ECHO = TN SELECTION;
        IDATE{ MONTH = 11; DAY = 13; YEAR = 1991; }
        ITIME{ HOUR = 10; MIN = 30; SEC = 1; }
        DATE{ YEAR = 1991; MONTH = 11; DAY = 13; }
        TIME{ HOUR = 10; MIN = 30; SEC = 2; }
}%
*TNIR{
        REC{
                CTL{
                        TNACT = S;
                        TNRC = 104;

                }
                ACL{
                        UNSPTN{
                                NUMTN = 5;
                                CON = Y;
                                ALLTN = N;
                        }
                }
                UNSPTNINFO{
                        TNS{
                                TNRG{
                                        NPA = 806;
                                        NXX = 376;
                                        LOLN = 4990;
                                        HILN = 4994;

                                }
                        }
                        NUMSEL = 5;
                        CLLI = LTRYSRRP001;
                        SERVICE = C;
                        CTX = RC;
                }
        }
```

```
REC{
     CTL{
          TNACT = S;
          TNRC = 101;
     }
     ACL{
          SPTN{
               TN{
                    NPA = 806;
                    NXX = 376;
                    LINE = 4915;
               }
          }
     }
     SPTNINFO{
          TNS{
               TN{
                    NPA = 806;
                    NXX = 376;
                    LINE = 4915;
               }
               NUMSEL = 1;
          }
          CLLI = LTRYSRRP001;
          SERVICE = C;
          CTX = RC;
     }
}
}%
```

E.1.2.13 Feature Package Inquiry - Request Message

```
*C1 = SNSNEG911113102156        ULBB1   SNS           CU  0;%
*PLHDR{
       USERID = TKSMD04;
}%
*SNSHDR{
       ECHO = FEATURE PACKAGE INQUIRY;
       IDATE{ MONTH = 11; DAY = 13; YEAR = 1991; }
       ITIME{ HOUR = 10; MIN = 43; SEC = 22; }
}%
*RNDI{
       REC{
              CTL{
                     NDIOPT = FPKG;
              }
       }
}%
```

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E.1.2.14 Feature Package Inquiry - Response Message

```
*C2= SNSNEG911113102156        SNS    ULBB1        CS 0;%
*PLHDR{
       USERID = TKSMD02;
}%
*SNSHDR{
       ECHO = FEATURE PACKAGE INQUIRY;
       IDATE{ MONTH = 11; DAY = 13; YEAR = 1991; }
       ITIME{ HOUR = 10; MIN = 43; SEC = 22; }
       DATE{ MONTH = 11; DAY = 13; YEAR = 1991; }
       TIME{ HOUR = 10; MIN = 43; SEC = 23; }
}%
*NDIR{
       REC{
              CTL{
                     NDIOPT = FPKG;
                     NDRC = 007;
              }
              FPKGINFO{
                     NE{
                            PROD = PLEXAR-I;
                            CLLI = LTRYSRRP001;
                            FTRPKG{
                                   FPKG = JIMFEELEY2;
                            }
                     }
              }
       }
}%
```

E.1.2.15 Feature Group Inquiry - Request Message

```
*C1 = SNSNEG911113102156        ULBB1  SNS         CU  0;%
*PLHDR{
        USERID = TKSMD04;
}%
*SNSHDR{
        ECHO = FEATURE GROUP INQUIRY;
        IDATE{ MONTH = 11; DAY = 13; YEAR = 1991; }
        ITIME{ HOUR = 10; MIN = 52; SEC = 11; }
}%
*RNDI{
        REC{
                CTL{
                        NDIOPT = FGRP;
                }
                ACL{
                }
        }
}%
```

E.1.2.16 Feature Group Inquiry - Request Message

```
*C2 = SNSNEG911113102156      SNS    ULBB1      CS  0;%
*PLHDR{
        USERID = TKSMD04;
}%
*SNSHDR{
        ECHO = FEATURE GROUP INQUIRY;
        IDATE{ MONTH = 11; DAY = 13; YEAR = 1991; }
        ITIME{ HOUR = 10; MIN = 52; SEC = 11; }
        DATE{ YEAR = 1991; MONTH = 11; DAY = 13; }
        TIME{ HOUR = 10; MIN = 52; SEC = 12; }
}%
*NDIR{
        REC{
                CTL{
                        NDIOPT = FGRP;
                        NDRC = 011;
                }
                FGRPINFO{
                        NE{
                                SERVICE = C;
                                CLLI = LTRYSRRP001;
                                FGRP{
                                        FGRP = ACB;
                                        FGRPDES = AUTOMATIC CALLBACK;
                                }
                                FGRP{
                                        FGRP = ACCTCODE;
                                        FGRPDES = ACCOUNT CODE;
                                }
                                FGRP{
                                        FGRP = ARS;
                                        FGRPDES = AUTOMATIC ROUTE SELECTION;
                                }
                                FGRP{
                                        FGRP = AUTHCODE;
                                        FGRPDES = AUTHORIZATION CODE;
                                }
                                FGRP{
                                        FGRP = CFW;
                                        FGRPDES = CALL FORWARDING;
                                }
                                FGRP{
                                        FGRP = CPU;
                                        FGRPDES = CALL PICKUP;
                                }
                                FGRP{
                                        FGRP = CW;
                                        FGRPDES = CALL WAITING;
                                }
```

```
FGRP{
        FGRP = DP;
        FGRPDES = DISPLAY AND PRIVACY;
}
FGRP{
        FGRP = DR;
        FGRPDES = DISTINCTIVE RINGING;
}
FGRP{
        FGRP = IDP;
        FGRPDES = INDIVIDUALIZED DIALING PLAN;
}
FGRP{
        FGRP = LASS;
        FGRPDES = LOCAL AREA SIGNALING SERVICES;
}
FGRP{
        FGRP = LSF;
        FGRPDES = LASS SELECTIVE FEATURES;
}
FGRP{
        FGRP = MDRD;
        FGRPDES = MESSAGE DETAILED RECORDING;
}
FGRP{
        FGRP = MSS;
        FGRPDES = MESSAGE SERVICE;
}
FGRP{
        FGRP = MWC;
        FGRPDES = MULTIWAY CALLING;
}
FGRP{
        FGRP = PFA;
        FGRPDES = PRIVATE FACILITIES ACCESS;
}
FGRP{
        FGRP = TGSR;
        FGRPDES = TERMINAL GROUP AND STATION RESTRICTION;
}
FGRP{
        FGRP = TOD;
        FGRPDES = TIME OF DAY;
}
                        }
                }
        }
}%
```

E.1.2.17 Cancel Service Request - Request Message

```
*C1 = SNSNEG911113102156        ULBB1   SNS          CU  0;%
*PLHDR{
        USERID = TKSMD04;
}%
*SNSHDR{
        ECHO = CANCEL SERVICE REQUEST;
        IDATE{ MONTH = 11; DAY = 13; YEAR = 1991; }
        ITIME{ HOUR = 13; MIN = 27; SEC = 11; }
}%
*RSRA{
        CTL{
                SROPT = C;
        }
}%
```

E.1.2.18 Cancel Service Request - Response Message

```
*C2 = SNSNEG911113102156        SNS    ULBB1       CS  0;%
*PLHDR{
        USERID = TKSMD04;
}%
*SNSHDR{
        ECHO = CANCEL SERVICE REQUEST;
        IDATE{ MONTH = 11; DAY = 13; YEAR = 1991; }
        ITIME{ HOUR = 13; MIN = 27; SEC = 11; }
        DATE{ YEAR = 1991; MONTH = 11; DAY = 13; }
        TIME{ HOUR = 13; MIN = 27; SEC = 12; }
}%
*SRAR{
        CTL{
                SROPT = C;
                SRRC = 001;
        }
}%
```

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E.1.2.19 Modify Service Request - Request Message

```
*C1 = SNSNEG911113102156        ULBB1  SNS        CU  0;%
*PLHDR{
        USERID = TKSMD04;
}%
*SNSHDR{
        ECHO = MODIFY SERVICE REQUEST;
        IDATE{ MONTH = 11; DAY = 13; YEAR = 1991; }
        ITIME{ HOUR = 08; MIN = 25; SEC = 11; }
}%
*RSRA{
        CTL{
                SROPT = M;

        }
        ACL{
                NEGACT = A;
                MAINTN{
                        NPA = 806;
                        NXX = 325;
                        LINE = 4900;
                }
                CUST = DELIA;
                SA{
                        SAGA = KING;
                        ADDR{
                                BADR{
                                        BAD = 10017;
                                        STR = CARISSA CIR;
                                        CNA = EARTH POLE;
                                        STN = SR;
                                }
                        }
                }
                SERVICE = C;
                CONFIRM = Y;
        }
}%
```

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```
*RTNI{
      REC{
            CTL{
                  TNACT = S;
            }
            ACL{
                  UNSPTN{
                        NUMTN = 5;
                        CON = Y;
                        ALLTN = N;
                  }
            }
      }
}%
```

E.1.2.20 Modify Service Request - Response Message

```
*C2 = SNSNEG9111112151507        SNS    ULBB1        CS  0;
%*PLHDR{
        USERID = TKSMD04;
}%
*SNSHDR{
        ECHO = MODIFY SERVICE REQUEST;
        IDATE{ MONTH = 11; DAY = 13; YEAR = 1991; }
        ITIME{ HOUR = 08; MIN = 25; SEC = 11; }
        DATE{ YEAR = 1991; MONTH = 11; DAY = 13; }
        TIME{ HOUR = 15; MIN = 19; SEC = 50; }
}%
*SRAR{
        CTL{
                SROPT = M;
                SRRC = 010;
                SRRC = 009;
                SRRC = 011;
                SRRC = 012;
                SRRC = 014;
                SRRC = 007;
                SRRC = 001;
        }
        ACL{
                NEGACT = A;
                MAINTN{
                        NPA = 806;
                        NXX = 325;
                        LINE = 4900;
                }
                CUST = DELIA;
                SA{
                        SAGA = KING;
                        ADDR{
                                BADR{
                                        BAD = 10017;
                                        STR = CARISSA CIR;
                                        CNA = EARTH POLE;
                                        STN = SR;
                                }
                        }
                }
                SERVICE = C;
                CONFIRM = Y;
        }
        RETINV{
                TNI{
                        TNRNG{
                                NPA = 806;
                                NXX = 376;
```

```
                        LOLN = 4945;
                        HILN = 4949;

                }
        }
    }
}%
*TNIR{
    REC{
        CTL{
            TNACT = S;
            TNRC = 104;
        }
        ACL{
            UNSPTN{
                    NUMTN = 5;
                    CON = Y;
                    ALLTN = N;
            }
        }
        UNSPTNINFO{
            TNS{
                    TNRG{
                            NPA = 806;
                            NXX = 699;
                            LOLN = 1005;
                            HILN = 1009;
                    }
            }
            NUMSEL = 5;
            CLLI = LTRYSRRP001;
            SERVICE = C;
            CTX = XY;
        }
    }
}%
```

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E.1.2.21 Service Specification - Request Message

```
*C1 = SVCSPC911113102156        ULBB1   SNS         CU  0;%
*PLHDR{
        USERID = TKSMD04;
}%
*SNSHDR{
        ECHO = SERVICE SPECIFICATION WITH 2 ORDERS;
        IDATE{ MONTH = 11; DAY = 13; YEAR = 1991; }
        ITIME{ HOUR = 12; MIN = 35; SEC = 22; }
}%
*SVCSPEC{
        REC{
                ID{
                        ORDID{
                                ORDTYP = C;
                                ORDNUM = 123456;
                        }
                }
                ORDPASS = PRE;
        }
        REC{
                ID{
                        ORDID{
                                ORDTYP = C;
                                ORDNUM = 987654;
                        }
                }
                ORDPASS = PRE;
        }
}%
```

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E.1.2.22 Service Specification - Response Message

```
*C2 = SVCSPC911113102156        SNS     ULBB1        CS  0;%
*PLHDR{
        USERID = TKSMD04;
}%
*SNSHDR{
        ECHO = SERVICE SPECIFICATION WITH 2 ORDERS;
        IDATE{ MONTH = 11; DAY = 13; YEAR = 1991; }
        ITIME{ HOUR = 12; MIN = 35; SEC = 22; }
        DATE{ YEAR = 1991; MONTH = 11; DAY = 13; }
        TIME{ HOUR = 11; MIN = 35; SEC = 23; }
}%
*SVCSPEC{
        REC{
                CTL{
                        SSRC = 101;
                }
                ID{
                        ORDID{
                                ORDTYP = C;
                                ORDNUM = 123456;
                        }
                }
                ORDPASS = PRE;
        }
        REC{
                CTL{
                        SSRC = 101;
                }
                ID{
                        ORDID{
                                ORDTYP = C;
                                ORDNUM = 987654;
                        }
                }
                ORDPASS = PRE;
        }
}%
```

E.1.2.23 Order Completion - Request Message

```
*C1 = ORDCMP              SOP   SNS        CU  0;%
*PLHDR{
        USERID = TKSMD02;
}%
*SNSHDR{
        ECHO = ORDER COMPLETION WITH TN FORMAT ERROR;
        IDATE{ MONTH = 11; DAY = 17; YEAR = 1991; }
        ITIME{ HOUR = 12; MIN = 35; SEC = 22; }
}%
*ORD{
        ORDID{
                ORDTYP = C;
                ORDNUM = 123456;
        }
        ORDPASS = PCN;
}%
*TNL{
        REC{
                CTL{
                        CTC = B;
                }
                ACL{
                        ACT = N;
                        TN{
                                NPA = 806;
                                NXX = 376;
                        }
                }
        }
        REC{
                CTL{
                        CTC = B;
                }
                ACL{
                        ACT = N;
                        TN{
                                NPA = 806;
                                NXX = 376;
                                LINE = 4992;
                        }
                }
        }
        REC{
                CTL{
                        CTC = B;
                }
                ACL{
                        ACT = N;
                        TN{
```

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```
                        NPA = 806;
                        NXX = 376;
                        LINE = 4993;
                    }
                }
            }
} %
```

E.1.2.24 Order Completion - Unsuccessful Response Message

```
*C2 = ORDCMP911113102156      SNS    ORDERERR     CS  0;%
*PLHDR{
        USERID = TKSMD02;
}%
*SNSHDR{
        ECHO = ORDER COMPLETION WITH TN FORMAT ERROR;
        IDATE{ MONTH = 11; DAY = 17; YEAR = 1991; }
        ITIME{ HOUR = 12; MIN = 35; SEC = 22; }
        DATE{ MONTH = 11; DAY = 17; YEAR = 1991; }
        TIME{ HOUR = 12; MIN = 35; SEC = 23; }
}%
*ORD{
        ORDID{
                ORDTYP = C;
                ORDNUM = 123456;
        }
        ORDPASS = PCN;
}%
*TNL{
        REC{
                CTL{
                        CTC = B;
                        TNRC = 102-1;
                }
                ACL{
                        ACT = N;
                        TN{
                                NPA = 806;
                                NXX = 376;
                        }
                }
        }
        REC{
                CTL{
                        CTC = B;
                }
                ACL{
                        ACT = N;
                        TN{
                                NPA = 806;
                                NXX = 376;
                                LINE = 4992;
                        }
                }
        }
        REC{
                CTL{
                        CTC = B;
                }
```

```
        ACL{
                ACT = N;
                TN{
                        NPA = 806;
                        NXX = 376;
                        LINE = 4993;
                }
        }
}
}%
```

E.1.2.25 Hold - Request Message

```
*C1 = HOLDSR911113102156        ULBB1   SNS          CU  0;%
*PLHDR{
        USERID = TKSMD04;
}%
*SNSHDR{
        ECHO = HOLD SERVICE REQUEST IN SNS;
        IDATE{ MONTH = 11; DAY = 13; YEAR = 1991; }
        ITIME{ HOUR = 04; MIN = 25; SEC = 11; }
}%
*HOLD{
        ANYAGG{
                ANYTAG = ANYVALUE;
        }
}%
```

E.1.2.26 Hold - Response Message

```
*C2 = HOLDSR911113102156        SNS     ULBB1        CS  0;%
*PLHDR{
        USERID = TKSMD04;
}%
*SNSHDR{
        ECHO = HOLD SERVICE REQUEST IN SNS;
        IDATE{ MONTH = 11; DAY = 13; YEAR = 1991; }
        ITIME{ HOUR = 04; MIN = 25; SEC = 11; }
        DATE{ YEAR = 1991; MONTH = 11; DAY = 13; }
        TIME{ HOUR = 10; MIN = 30; SEC = 42; }
}%
```

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E.1.2.27 Retrieve - Request Message

```
*C1 = RTRVSR911113102156        ULBB1  SNS        CU  0;%
*PLHDR{
        USERID = TKSMD04;
}%
*SNSHDR{
        ECHO = RETRIEVE SERVICE REQUEST;
        IDATE{ MONTH = 11; DAY = 13; YEAR = 1991; }
        ITIME{ HOUR = 14; MIN = 25; SEC = 11; }
}%
*RSRD{
        CTL{
            OFFHOLD = Y;
        }
}%
```

E.1.2.28 Retrieve - Response Message

```
*C2 = RTRVSR911113102156        SNS    ULBB1        CS  0;%
*PLHDR{
        USERID = TKSMD04;
}%
*SNSHDR{
        ECHO = RETRIEVE SERVICE REQUEST;
        IDATE{ MONTH = 11; DAY = 13; YEAR = 1991; }
        ITIME{ HOUR = 14; MIN = 25; SEC = 11; }
        DATE{ YEAR = 1991; MONTH = 11; DAY = 13; }
        TIME{ HOUR = 10; MIN = 34; SEC = 47; }
}%
*SRDR{
        CTL{
                OFFHOLD = Y;
                RVRC = 001;
        }
}%
*HOLD{
        ANYAGG{
                ANYTAG = ANYVALUE;
        }
}%
```

E.2 System Administration Table Maintenance Contract Examples

The table maintenance contract examples shown in this section are organized into subsections based on table maintenance contract type.

E.2.1 TNLIST Maintenance Contract Examples

This section contains examples of the different types of TNLIST Maintenance contracts that may be submitted to SNS.

E.2.1.1 Build a CTX GROUP

```
*RGRP{
        REC{
                CTL{
                        CTC = B;
                        MODE = MAINT;
                }
                ACL{
                        ACT = N;
                        TIECODE = NYNY0000010;
                        GROUP{
                                CLLI = LTRYSRRP001;
                                CTX = 9244900P001;
                                MAINTN{
                                        NPA = 718;
                                        NXX = 358;
                                        LINE = 1900;
                                }
                                GRPTYP = RC;
                                INTCPT = DTC;
                                LISTTHRS = 10;
                                RCDATA{
                                        PIC = ATT;
                                        LCC = J34;
                                        CAT = 21;
                                }
                        }
                }
        }
}%
```

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E.2.1.2 Inquire Against a TIECODE (Return All CTX Groups)

```
*RGRP{
        REC{
                CTL{
                        CTC = I;
                }
                ACL{
                        TIECODE = NYNY0000010;
                }
        }
}%
```

E.2.1.3 Inquire Against a Specific CTX Group

```
*RGRP{
        REC{
                CTL{
                        CTC = I;
                }
                ACL{
                        GROUP{
                                CLLI = LTRYSRRP001;
                                CTX = 9244900P001;
                        }
                }
        }
}%
```

E.2.1.4 Inquire Against a Specific Main TN

```
*RGRP{
      REC{
            CTL{
                  CTC = I;
            }
            ACL{
                  GROUP{
                        MAINTN{
                              NPA = 718;
                              NXX = 358;
                              LINE = 1900;
                        }
                  }
            }
      }
}%
```

E.2.1.5 Delete a Customer (Remove All CTX Groups)

```
*RGRP{
      REC{
            CTL{
                  CTC = R;
                  ALLSTAT = Y; (Delete all associated TNs regardless of status)
            }
            ACL{
                  TIECODE = NYNY0000010;
            }
      }
}%
```

E.2.1.6 Delete a Specific CTX Group (Remove the Entire Group)

```
*RGRP{
      REC{
            CTL{
                  CTC = R;
                  ALLSTAT = N; (Do not delete if associated TN status  =  SL)
            }
            ACL{

                  GROUP{
                        CLLI = LTRYSRRP001;
                        CTX = 9244900P001;
                  }
            }
      }
}%
```

E.2.1.7 Delete a Specific Main TN (Remove All Associated TNs)

```
*RGRP{
      REC{
            CTL{
                  CTC = R; (Do not delete if associated TN status  =  SL)
            }
            ACL{

                  GROUP{
                        MAINTN{
                              NPA = 718;
                              NXX = 358;
                              LINE = 1900;
                        }
                  }
            }
      }
}%
```

E.2.1.8 Change a CTX Group Entry (OLD/NEW)

```
*RGRP{
      REC{
            CTL{
                  CTC = C;
            }
            ACL{
                  ACT = O;
                  TIECODE = NYNY0000010
                  GROUP{
                        CLLI = LTRYSRRP001;
                        CTX = 9244900P001;
                        GRPTYP = RC;
                        INTCPT = DTC;
                        LISTTHRS = 10;
                        RCDATA{
                              PIC = AT&T;
                              LCC = J34;
                              CAT = R1;
                        }
                  }
            }
            ACL{
                  ACT = N;
                  TIECODE = NYNY0000010
                  GROUP{
                        CLLI = LTRYSRRP001;
                        CTX = 9244900P001;
                        MAINTN{
                              NPA = 718;
                              NXX = 358;
                              LINE = 1000;
                        }

                        GRPTYP = RC;
                        INTCPT = DTC;
                        LISTTHRS = 35;
                        RCDATA{
                              PIC = ATT;
                              LCC = Z15;
                              CAT = 21;
                        }
                  }
            }
      }
}%
```

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E.2.1.9 Replace CTX Group Entry (REPL)

```
*RGRP{
      REC{
            CTL{
                  CTC = C;
            }
            ACL{
                  ACT = R;
                  TIECODE = NYNY0000010
                  GROUP{
                        CLLI = LTRYSRRP001;
                        CTX = 9244900P001;
                        INTCPT = CTC;
                  }
            }
      }
}%
```

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E.2.1.10 Build a TN Entry

```
*RMTN{
      REC{
            CTL{
                  CTC = B;
                  MODE = MAINT;
            }
            ACL{

                  ACT = N;
                  GROUP{
                        CLLI = LTRYSRRP001;
                        CTX = 9244900P001;
                  }
                  TNLIST{
                        NPA = 718;
                        NXX = 358;
                        LOLN = 1900;
                        HILN = 1950;
                        STAT = AV;
                        TYPE = Q;

                  }
                  TNLIST{
                        NPA = 718;
                        NXX = 358;
                        LOLN = 1951;
                        HILN = 1999;
                        STAT = SL;
                        TYPE = Q;
                        SUBTYP = BBB;

                  }
            }
      }
}%
```

E.2.1.11 Inquire Against All TN Entries Associated with a CTX Group (Return TN Ranges)

```
*RMTN{
        REC{
                CTL{
                        CTC = I;
                }
                ACL{
                        GROUP{
                                MAINTN{
                                        NPA = 718;
                                        NXX = 358;
                                        LINE = 1900;
                                }
                        }
                }
        }
}%
```

E.2.1.12 Inquire Against TN Entries (Return Line Data)

```
*RMTN{
      REC{
            CTL{
                  CTC = I;
            }
            ACL{
                  GROUP{
                        CLLI = LTRYSRRP001;
                        CTX = 9244900P001;
                  }
                  TNLIST{
                        NPA = 718;
                        NXX = 358;
                        LOLN = 1900;
                        HILN = 1950;
                  }
                  TNLIST{
                        NPA = 718;
                        NXX = 358;
                        LOLN = 1951;
                        HILN = 1999;
                  }
            }
      }
}%
```

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E.2.1.13 Delete All TN Entries Associated with a CTX Group

```
*RMTN{
        REC{
                CTL{
                        CTC = R;
                        ALLSTAT = Y;   (Delete regardless of TN status)
                }
                ACL{
                        GROUP{
                                MAINTN{
                                        NPA = 718;
                                        NXX = 358;
                                        LINE = 1900:
                                }
                        }
                }
        }
}%
```

E.2.1.14 Delete Only a Range of Individual TNs

```
*RMTN{
        REC{
                CTL{
                        CTC = R; (Do not delete if TN status = SL)
                }
                ACL{
                        GROUP{
                                CLLI = LTRYSRRP001;
                                CTX = 9244900P001;
                        }
                        TNLIST{
                                NPA = 718;
                                NXX = 358;
                                LOLN = 1900;
                                HILN = 1950;
                        }
                }
        }
}%
```

E.2.1.15 Change a TN Entry (OLD/NEW)

```
*RMTN{
      REC{
            CTL{
                  CTC = C;
            }
            ACL{
                  ACT = O;
                  GROUP{
                        CLLI = LTRYSRRP001;
                        CTX = 9244900P001;
                  }
                  TNLIST{
                        NPA = 718;
                        NXX = 358;
                        LOLN = 1900;
                        HILN = 1950;
                        STAT = AV;
                        TYPE = Q;
                        SUBTYP = AAA;
                  }
            }
            ACL{
                  ACT = N;
                  GROUP{
                        CLLI = LTRYSRWK001;
                        CTX = 924490WK001;
                  }
                  TNLIST{
                        NPA = 718;
                        NXX = 358;
                        LOLN = 1900;
                        HILN = 1950;
                        SUBTYP = ZZZ;
                  }
            }
      }
}%
```

E.2.1.16 Replace a TN Entry (REPL)

```
*RMTN{
      REC{
            CTL{
                  CTC = C;
            }
            ACL{
                  ACT = R;
                  GROUP{
                        CLLI = LTRYSRRP001;
                        CTX = 9244900P001;
                  }
                  TNLIST{
                        NPA = 718;
                        NXX = 358;
                        LOLN = 1900;
                        HILN = 1950;
                        STAT = SL;
                        SUBTYP = MMM;
                  }
            }
      }
}%
```

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E.2.1.17 Build a Series Completion Hunt (SCH) Group

```
*RSCH{
       REC{
              CTL{
                     CTC = B;
                     MODE = MAINT;
              }
              ACL{
                     ACT = N;
                     GROUP{
                            HTYP = RG;
                            TN{
                                   NPA = 718;
                                   NXX = 358;
                                   LINE = 1900;
                            }
                            TN{
                                   NPA = 718;
                                   NXX = 358;
                                   LINE = 1902;
                            }
                            TN{
                                   NPA = 718;
                                   NXX = 358;
                                   LINE = 1904;
                            }
                            TN{
                                   NPA = 718;
                                   NXX = 358;
                                   LINE = 1906;
                            }
                     }
              }
       }
}%
```

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E.2.1.18 Inquire Against a SCH Group (Return the Entire SCH Group)

```
*RSCH{
        REC{
                CTL{
                        CTC = I;
                }
                ACL{
                        GROUP{
                                TN{
                                        NPA = 718;
                                        NXX = 358;
                                        LINE = 1904;
                                }
                        }
                }
        }
}%
```

E.2.1.19 Delete a SCH Group (Must Use the PILOT_TN)

```
*RSCH{
        REC{
                CTL{
                        CTC = R;
                }
                ACL{
                        GROUP{
                                TN{
                                        NPA = 718;
                                        NXX = 358;
                                        LINE = 1900;
                                }
                        }
                }
        }
}%
```

E.2.1.20 Change a SCH Group (OLD/NEW)

```
*RSCH{
      REC{
            CTL{
                  CTC = C;
            }
            ACL{
                  ACT = O;
                  GROUP{
                        HTYP = RG;
                        TN{
                              NPA = 718;
                              NXX = 358;
                              LINE = 1900;
                        }
                        TN{
                              NPA = 718;
                              NXX = 358;
                              LINE = 1902;
                        }
                        TN{
                              NPA = 718;
                              NXX = 358;
                              LINE = 1904;
                        }
                        TN{
                              NPA = 718;
                              NXX = 358;
                              LINE = 1906;
                        }
                  }
            }
            ACL{
                  ACT = N;
                  GROUP{
                        HTYP = CIR;
                        TN{
                              NPA = 718;
                              NXX = 358;
                              LINE = 1900;
                        }
```

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```
TN{
        NPA = 718;
        NXX = 358;
        LINE = 1902;
}
TN{
        NPA = 718;
        NXX = 358;
        LINE = 1904;
}
TN{
        NPA = 718;
        NXX = 358;
        LINE = 1906;
    }
  }
 }
}
}%
```

E.2.1.21 Replace a SCH Group (REPL)

```
*RSCH{
      REC{
            CTL{
                  CTC = C;
            }
            ACL{
                  ACT = R;
                  GROUP{
                        HTYP = CIR;
                        TN{
                              NPA = 718;
                              NXX = 358;
                              LINE = 1900;
                        }
                        TN{
                              NPA = 718;
                              NXX = 358;
                              LINE = 1902;
                        }
                        TN{
                              NPA = 718;
                              NXX = 358;
                              LINE = 1904;
                        }
                        TN{
                              NPA = 718;
                              NXX = 358;
                              LINE = 1906;
                        }
                  }
            }
      }
}%
```

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E.2.2 Catalog Data Maintenance Contract Examples

E.2.2.1 Feature Catalog Inquiry

```
*C1 = INQCAT              ODS   SNS         U  0;%
*PLHDR{
        USERID = LYANG;
        LCLID = APP;
}%
*SNSHDR{
        IDATE{
                YEAR = 1991;
                MONTH = 09;
                DAY = 26;
        }
        ITIME{
                HOUR = 10;
                MIN = 01;
                SEC = 00;
        }
}%
*RCAT{
        REC{
                CTL{
                        CTC = I;
                        CATOPT = F;
                }
                ACL{
                        NETYP = 5ESS;
                        NEGEN = 4.2;
                        FTR = FEAT1;
                }
        }
}%
```

E.2.2.2 Feature Catalog Response

```
*C2 = INQCAT910926100108        SNS    ODS        S  0;%
*PLHDR{
        USERID = LYANG;
        LCLID = APP;
}%
*SNSHDR{
        IDATE{
                YEAR = 1991;
                MONTH = 09;
                DAY = 26;
        }
        ITIME{
                HOUR = 10;
                MIN = 01;
                SEC = 00;
        }
        DATE{
                YEAR = 1991;
                MONTH = 09;
                DAY = 26;
        }
        TIME{
                HOUR = 10;
                MIN = 01;
                SEC = 08;
        }
}%
*CATR{
        REC{
                CTL{
                        CTC = I;
                        CATOPT = F;
                        CDRC = 00505;
                }
                ACL{
                        NETYP = 5ESS;
                        NEGEN = 4.2;
                        FTR = FEAT1;
                }
```

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```
FEATDATA{
        FGRP = GRP1;
        GDESCR{
                SERVICE = B;
                DESC = BUSGRP1;
        }
        FTR = FEAT1;
        FDESCR{
                SERVICE = B;
                DESC = BUSFEAT1;
        }
        ACTIND = Y;
    }
}
}%
```

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E.2.3 CPE Data Maintenance Contract Examples

E.2.3.1 CPE Inquiry (Request)

```
*C1 = INQCPE              ODS   SNS        U  0;%
*PLHDR{
        USERID = LYANG;
        LCLID = APP;
}%
*SNSHDR{
        IDATE{
                YEAR = 1991;
                MONTH = 09;
                DAY = 26;
        }
        ITIME{
                HOUR = 10;
                MIN = 01;
                SEC = 00;
        }
}%

*RCPE{
        REC{
                CTL{
                        CTC = I;
                }
                ACL{
                        CPEMAN = MANUF1;
                        CPEMOD = 12345;
                }
        }
}%
```

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E.2.3.2 CPE Inquiry (Response)

```
*C2 =  INQCPE910926100108        SNS    ODS         S  0;%
*PLHDR{
        USERID = LYANG;
        LCLID = APP;
}%
*SNSHDR{
        IDATE{
                YEAR = 1991;
                MONTH = 09;
                DAY = 26;
        }
        ITIME{
                HOUR = 10;
                MIN = 01;
                SEC = 00;
        }
        DATE{
                YEAR = 1991;
                MONTH = 09;
                DAY = 26;
        }
        TIME{
                HOUR = 10;
                MIN = 01;
                SEC = 08;
        }
}%
*CPER{
        REC{
                CTL{
                        CTC = I;
                        CPRC = 00508;
                }
                ACL{
                        CPEMAN = MANUF1;
                        CPEMOD = 12345;
                }
                CPEDATA{
                        CPENAME = MANUFACTURER 1;
                        CPEREG = S12153458;
                        DIS = Y;
                        ONETOUCH = Y;
                        HKEY = N;
                        RKEY = Y;
                        NETYP = 5ESS;
                }
        }
}%
```

E.2.4 Switch-Related Data Maintenance Contract Examples

E.2.4.1 Network Element Inquiry (Request)

```
*Cl = INQNED             ODS    SNS         U  0;%
*PLHDR{
        USERID = LYANG;
        LCLID = APP;
}%
*SNSHDR{
        IDATE{
                YEAR = 1991;
                MONTH = 09;
                DAY = 26;
        }
        ITIME{
                HOUR = 10;
                MIN = 01;
                SEC = 00;
        }
}%
*RNED{
        REC{
                CTL{
                        CTC = I;
                }
                ACL{
                        CLLI = CLLISWITCH1;
                }
        }
}%
```

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E.2.4.2 Network Element Inquiry (Response)

```
*C2 = INQNED910926100108        SNS    ODS        S  0;%
*PLHDR{
        USERID = LYANG;
        LCLID = APP;
}%
*SNSHDR{
        IDATE{
                YEAR = 1991;
                MONTH = 09;
                DAY = 26;

        }
        ITIME{
                HOUR = 10;
                MIN = 01;
                SEC = 00;

        }
        DATE{
                YEAR = 1991;
                MONTH = 09;
                DAY = 26;

        }
        TIME{
                HOUR = 10;
                MIN = 01;
                SEC = 08;

        }
}%
*NEDR{
        REC{
            ·   CTL{
                        CTC = I;
                        NDRC = 00501;

                }
                ACL{
                        CLLI = CLLISWITCH1;

                }
                NEDATA{
                        CLLI = CLLISWITCH1;
                        NETYP = 5ESS;
                        NEGEN = 4.2;
                        WC = WIRERCENTER1;
                        MXSCH = 32;
                        MXSCHP = 32;

                }
        }
}%
```

E.2.4.3 Switch Feature Exception (Request)

```
*CI = INQNED            ODS   SNS          U  0;%
*PLHDR{
       USERID = LYANG;
       LCLID = APP;
}%
*SNSHDR{
       IDATE{
               YEAR = 1991;
               MONTH = 09;
               DAY = 26;
       }
       ITIME{
               HOUR = 10;
               MIN = 01;
               SEC = 00;
       }
}%

*RXCP{
       REC{
               CTL{
                       CTC = I;
               }
               ACL{
                       CLLI = CLLISWITCH2;
               }
       }
}%
```

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E.2.4.4 Switch Feature Exception (Response)

```
*C2 = INQNED910926100108          SNS    ODS          S  0;%
*PLHDR{
        USERID = LYANG;
        LCLID = APP;
}%
*SNSHDR{
        IDATE{
                YEAR = 1991;
                MONTH = 09;
                DAY = 26;

        }
        ITIME{
                HOUR = 10;
                MIN = 01;
                SEC = 00;

        }
        DATE{
                YEAR = 1991;
                MONTH = 09;
                DAY = 26;

        }
        TIME{
                HOUR = 10;
                MIN = 01;
                SEC = 08;

        }
}%
*XCPR{
        REC{
                CTL{
                        CTC = I;
                        FERC = 00507;

                }
                ACL{
                        CLLI = CLLISWITCH2;

                }
                XCPDATA{
                        FTR = FEAT1;
                        SVC{
                                SERVICE = B;
                                FTRDES = BUS FEAT1;

                        }
                        SVC{
                                SERVICE = R;
                                FTRDES = RES FEAT1;

                        }

                }
```

```
XCPDATA{
        FTR = FEAT2;
        SVC{
                SERVICE = R;
                FTRDES = RES FEAT2;
        }
    }
  }
}%
```

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E.2.4.5 Feature Package Inquiry (Request)

```
*Cl = INQFPK              ODS   SNS        U  0;%
*PLHDR{
        USERID = NPATEL;
        LCLID = APP;
}%
*SNSHDR{
        IDATE{
                YEAR = 1991;
                MONTH = 09;
                DAY = 26;
        }
        ITIME{
                HOUR = 10;
                MIN = 01;
                SEC = 00;
        }
}%

*RFPK{
        REC{
                CTL{
                        CTC = I;
                }
                ACL{
                        PROD = PLEXARI;
                        NETYP = 5ESS;
                        NEGEN = 4.2;
                        FPKG = STANDARD PACKAGE I;
                }
        }
}%
```

E.2.4.6 Feature Package Inquiry (Response)

```
*C2 = INQFPK910926100108        SNS   ODS          S  0;%
*PLHDR{
        USERID = NPATEL;
        LCLID = APP;
}%
*SNSHDR{
        IDATE{
                YEAR = 1991;
                MONTH = 09;
                DAY = 26;
        }
        ITIME{
                HOUR = 10;
                MIN = 01;
                SEC = 00;
        }
        DATE{
                YEAR = 1991;
                MONTH = 09;
                DAY = 26;
        }
        TIME{
                HOUR = 10;
                MIN = 01;
                SEC = 08;
        }
}%
*FPKR{
        REC{
                CTL{
                        CTC = I;
                        FPROC = 00503;
                }
                ACL{
                        PROD = PLEXARI;
                        NETYP = 5ESS;
                        NEGEN = 4.2;
                        FPKG = STANDARD PACKAGE I;
                }
                PRODUCT{
                        PROD = PLEXARI;
                        NETYP = 5ESS;
                        NEGEN = 4.2;
                        FPDATA{
                                FPKG = STANDARD PACKAGE I;
                                SERVICE = C;
                                FEATURE{
                                        FTR = CPU;
                                        OPT = N;
```

```
                              DESC{
                                     SERVICE = C;
                                     FTRDES = CALL PICKUP;
                              }
                       }
                       FEATURE{
                              FTR = CFW;
                              OPT = Y;
                              DESC{
                                     SERVICE = C;
                                     FTRDES = CALL FORWARDING;
                              }
                       }
                }
          }
}%
```

E.2.4.7 Feature Group Inquiry (Request)

```
*Cl = INQCAT                ODS    SNS        U  0;%
*PLHDR{
        USERID = LYANG;
        LCLID = APP;
}%
*SNSHDR{
        IDATE{
                YEAR = 1991;
                MONTH = 09;
                DAY = 26;
        }
        ITIME{
                HOUR = 10;
                MIN = 01;
                SEC = 00;
        }
}%

*RCAT{
        REC{
                CTL{
                        CTC = I;
                        CATOPT = G;
                }
                ACL{
                        NETYP = 5ESS;
                        NEGEN = 4.2;
                        FGRP = GRP1;
                }
        }
}%
```

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E.2.4.8 Feature Group Inquiry (Response)

```
*C2 = INQCAT910926100108        SNS    ODS          S  0;%
*PLHDR{
        USERID = LYANG;
        LCLID = APP;
}%
*SNSHDR{
        IDATE{
                YEAR = 1991;
                MONTH = 09;
                DAY = 26;
        }
        ITIME{
                HOUR = 10;
                MIN = 01;
                SEC = 00;
        }
        DATE{
                YEAR = 1991;
                MONTH = 09;
                DAY = 26;
        }
        TIME{
                HOUR = 10;
                MIN = 01;
                SEC = 08;
        }
}%
*CATR{
        REC{
                CTL{
                        CTC = I;
                        CATOPT = G;
                        CDRC = 00504;
                }
                ACL{
                        NETYP = 5ESS;
                        NEGEN = 4.2;
                        FGRP = GRP1;
                }
                FGRPDATA{
                        FGRP = GRP1;
                        GDESCR{
                                SERVICE = B;
                                DESC = BUSGRP1;
                        }
                }
        }
}%
```

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E.2.4.9 Feature Name Inquiry (Request)

```
*C1 = INQCAT              ODS    SNS         U  0;%
*PLHDR{
        USERID = LYANG;
        LCLID = APP;
}%
*SNSHDR{
        IDATE{
                YEAR = 1991;
                MONTH = 09;
                DAY = 26;
        }
        ITIME{
                HOUR = 10;
                MIN = 01;
                SEC = 00;
        }
}%
*RDES{
        REC{
                CTL{
                        CTC = I;
                }
                ACL{
                        NETYP = 5ESS;
                        TAGTYP = F;
                        TAGID = FEAT1;
                }
        }
}%
```

E.2.4.10 Feature Name Inquiry (Response)

```
*C2 = INQCAT910926100108        SNS    ODS        S  0;%
*PLHDR{
        USERID = LYANG;
        LCLID = APP;
}%
*SNSHDR{
        IDATE{
                YEAR = 1991;
                MONTH = 09;
                DAY = 26;
        }
        ITIME{
                HOUR = 10;
                MIN = 01;
                SEC = 00;
        }
        DATE{
                YEAR = 1991;
                MONTH = 09;
                DAY = 26;
        }
        TIME{
                HOUR = 10;
                MIN = 01;
                SEC = 08;
        }
}%
*DESR{
        REC{
                CTL{
                        CTC = I;
                        DDRC = 00506;
                }
                ACL{
                        NETYP = 5ESS;
                        TAGTYP = F;
                        TAGID = FEAT1;
                }
                NAMES{
                        TAGID = FEAT1;
                        DESCR{
                                SERVICE = B;
                                DESC = BUSFEAT1;
                        }
                }
        }
}%
```

F. Appendix F — Guide to Acronyms

AIN	Advanced Intelligent Network
BAE	Bellcore Application Environment
BCC	Bellcore Client Company
CAT	Centrex Access Treatment
CCF	Customized Calling Feature
CMT	Communication Terminal Table
CPU	Central Processing Unit
DAR	Data Access Routines
DASD	Direct Access Store Device
DBA	Database Administrator
DBD	Database Definition
DBMS	Database Management System
DBRC	Database Recovery Control
DBRM	Database Request Modules
DCL	Data Control Language
DDL	Data Definition Language
DPS	Display Processing System
FC	Functional Component
FCIF	Flexible Computer Interface Form
FID	Field Identifier
GOT	Generic Output Translator
GTS	Generic Table System
HDAM	Hierarchic Direct Access Method
IMP	Immediate Message Poster
IMS	Information Management System
ISDN	Integrated Services Digital Network
I/O	Input/Output
JCL	Job Control Language
LCC	Line Class Codes
LFACS	Loop Facilities Assignment and Control System
MVP	Multi-Variety Package
NMAG	Network Marketing Area Guide
ORT	Output Routing Table
PLBB	Processing Layer Building Block
PREMIS	Premises Information System
PSB	Program Specification Block
RAA	Root Addressable Area

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RAP	Root Anchor Points
RBA	Relative Byte Address
RCU	Recent Change USOCs
RMF	Resource Measurement Facility
SAC	Service Activation Controller
SNS	Service Negotiation Support
SOE	Standard Operating Environment
SOP	Service Order Processor
SQL	Structured Query Language
STOGRP	Storage Group
TCIS	Telecommunications Interface System
TN	Telephone Number
TNLIST	Telephone Number List
TTS	TIRKS Table System
ULBB	User Layer Building Block
USOC	Universal Service Order Code
VSAM	Virtual Sequential Access Method
VTOC	Volume Table of Contents

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