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Foreword

This ETSI Technical Report (ETR) has been produced by the Network Aspects (NA) Technical Committee of the European Telecommunications Standards Institute (ETSI).

ETRs are informative documents resulting from ETSI studies which are not appropriate for European Telecommunication Standard (ETS) or Interim European Telecommunication Standard (I-ETS) status. An ETR may be used to publish material which is either of an informative nature, relating to the use or the application of ETSs or I-ETSs, or which is immature and not yet suitable for formal adoption as an ETS or an I-ETS.

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1 Scope

The scope of this ETSI Technical Report (ETR) is the further development of the Intelligent Network (IN) for both the Integrated Services Digital Network (ISDN) and Public Switched Telecommunication Network (PSTN).

This ETR is intended as a guide to implementers and network operators on the required functionality to support desired IN Capability Set 1 (CS1) services.

This ETR is based on ITU-T Recommendation Q.1214 [1] as given in CCITT COM XI-R 165, 1992. The requirements of this Recommendation apply unless modified by the statements provided in clause 3 of this ETR.

2 References

This ETR incorporates by dated or undated reference, provisions from other publications. These references are cited at the appropriate places in the text and the publications are listed below. For dated references subsequent amendments to, or revisions of, any of these publications apply to this ETR only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

- [1] ITU-T Recommendation Q.1214: "Distributed functional plane for intelligent network capability set 1".
- [2] ETR 321: "Intelligent Network (IN); Global functional plane for IN Capability Set 1 (CS1)".
- [3] ETS 300 374: "Signalling Protocols and Switching (SPS); Intelligent Network Capability Set 1 (CS1); Core Intelligent Network Application Protocol (INAP)".

3 Exceptions to ITU-T Recommendation Q.1214

The following exceptions/amendments to ITU-T Recommendation Q.1214 [1] apply:

3.1 Section 4.2.2.2

The following text is to be inserted after the first paragraph:

"It is mandatory that transitions between PICs which are depicted in the CS1 BCSM are supported by CS1 call processing. Other transitions may be supported as well, as long as the corresponding information flows satisfy the IF postconditions listed in Q.1214, section 6."

3.2 Section 4.2.2.2.a.3

The sentence "Availability of routing address and nature of address" is to be changed into "Availability of routing address (routing list or a route index) and nature of address".

3.3 Section 5: Stage 2 descriptions of SIBs

The following sections for stage 2 descriptions of the new Service Independent building Blocks (SIBs) defined in the delta document for Q.1213 "Global Functional Plane for IN CS-1" are to be inserted:

5.2.14 Initiate Call

5.2.14.1 Description

The Initiate Call SIB is invoked while no SSF-SCF relationship exists. The SCF establishes a control relationship with the SSF by sending an Initiate Call Attempt request indication. The CCF/SSF will perform the actions required to setup a connection with the called party.

5.2.14.2 Information flows

5.2.14.2.1 Diagram

Figure 5-58.1/Q.1214 depicts the information flows and Functional Entity Actions to support Initiate Call functionality.

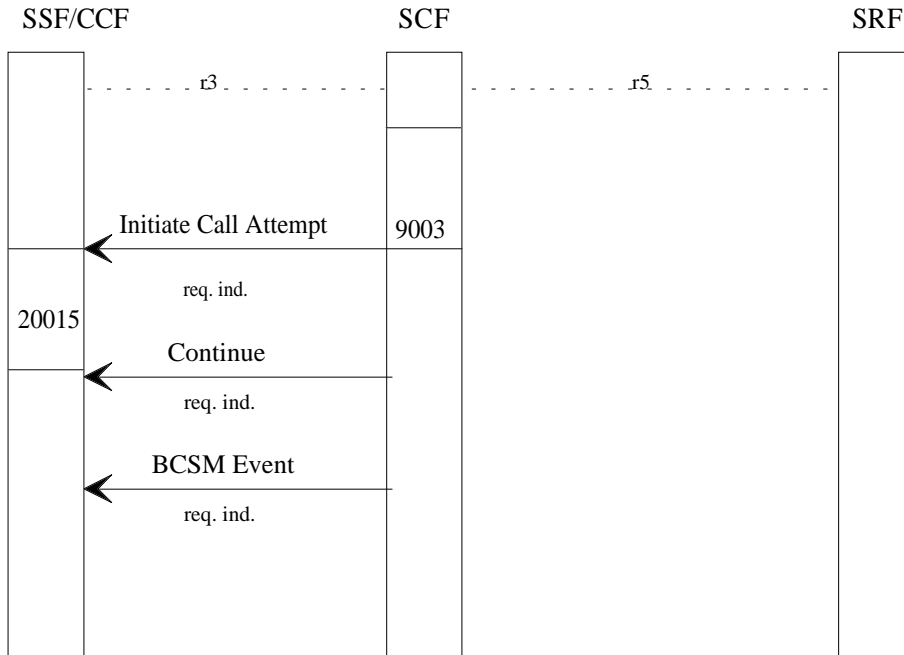


Figure 5-58.1/Q.1214: Information flow diagram "Initiate Call Attempt" SIB

5.2.14.2.2 Definition of Information Flows

Initiate Call Attempt request indication is an unconfirmed information flow from SCF to SSF to create a new call to one call party using address information provided by the SCF.

The following information flow elements may be conveyed by this information flow:

Element	Relationship	Request indication
Destination Routing Address	r3	mandatory
Alerting pattern	r3	optional
Service Interaction Indicators	r3	optional
Calling Party Number	r3	optional

5.2.14.3 Functional Entity Actions

Functional entities are assumed to have the basic capabilities required to properly perform their assigned function in the IN. Only functional entity actions (FEAs) pertinent to the "Initiate Call" SIB are shown in the information flow diagram. Reference numbers have been arbitrarily assigned to cross-reference the FEAs shown in section 5.2.14.2.1 with these descriptions:

SCF actions

Reference number	Action
9003	Initiate Request - send one or more BCP information flows

SSF actions

Reference number	Action
20015	Process Initiate Call Attempt request indication.

5.2.15 Disconnect Resource

5.2.15.1 Description

The Disconnect Resource SIB is used to release specialized resource. The SCF sends a Disconnect Forward Connection request indication to the CCF/SSF in order to disconnect specialized resources involved in the call.

5.2.15.2 Information flows

5.2.15.2.1 Diagram

Figure 5-58.2/Q.1214 depicts the information flows and Functional Entity Actions to support Disconnect Resource functionality.

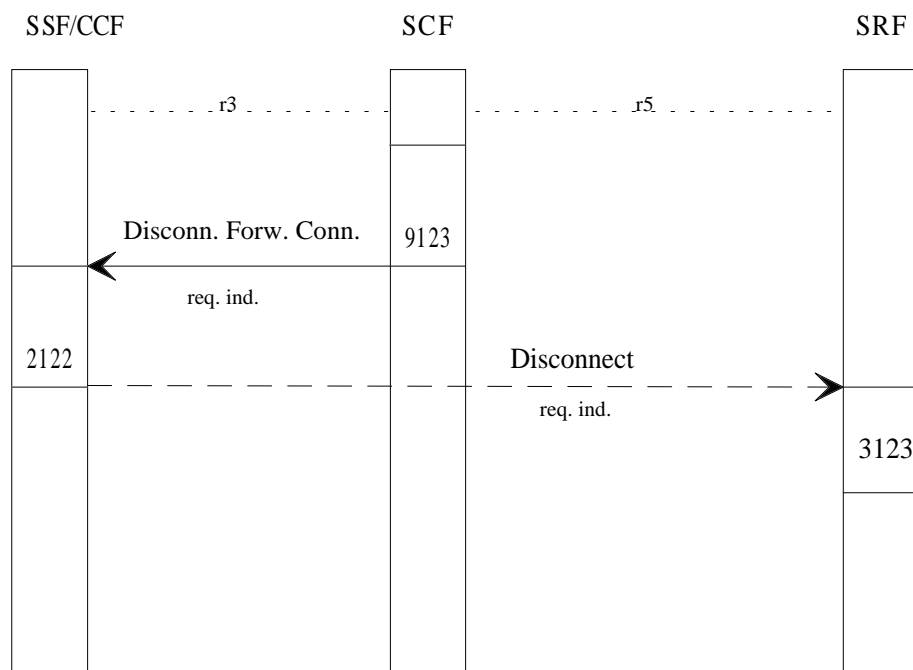


Figure 5-58.2/Q.1214: Information flow diagram "Disconnect Resource" SIB

5.2.15.2.2 Definition of Information Flows

Disconnect Forward Connection request indication is an unconfirmed information flow from SCF to the non-assisting SSF of a pair of SSFs to disconnect the connection between the Initiating SSF and the Assisting SSF, and the Assisting SSF and its associated SRF. It can also be used to clear the connection between an SSF and SRF established as the result of using the Connect to Resource IF.

There are no information flow elements to be conveyed by this information flow.

Disconnect request indication is a confirmed information flow defined in the Recommendation Q.71 for ISDN Basic Call Setup. It is used to clear the connection between an SSF and SRF.

The following information flow elements may be conveyed by this information flow:

Element	Relationship	Request indication
Call Id	r5	mandatory
Cause	r5	mandatory

5.2.15.3 Functional Entity Actions

Functional entities are assumed to have the basic capabilities required to properly perform their assigned function in the IN. Only functional entity actions (FEAs) pertinent to the "Disconnect Resource" SIB are shown in the information flow diagram. Reference numbers have been arbitrarily assigned to cross-reference the FEAs shown in section 5.2.15.2.1 with these descriptions:

SCF actions

Reference number	Action
9123	Initiate Disconnect - initiate a Disconnect Forward Connection request indication and send to the CCF/SSF

SSF actions

Reference number	Action
2122	- receive Disconnect Forward Connection request indication from the SCF - formulate and send Disconnect request indication to SRF

SRF actions

Reference number	Action
3123	- receive and analyse Disconnect request indication from CCF/SSF - continue disconnect process as defined in Rec Q.71

5.2.16 Connect

5.2.16.1 Description

When the Connect SIB is invoked, the SCF sends a Connect request indication to the CCF/SSF, which will perform the actions required to set up a connection with the called party.

5.2.16.2 Information flows

5.2.16.2.1 Diagram

Figure 5-58.3/Q.1214 depicts the information flows and Functional Entity Actions to support Connect functionality.

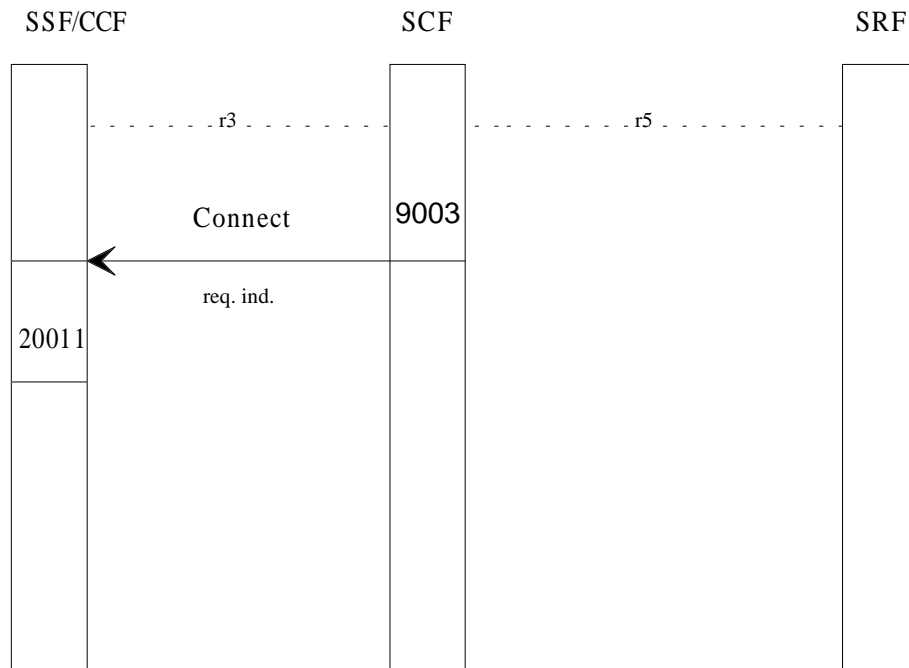


Figure 5-58.3/Q.1214: Information flow diagram "Connect" SIB

5.2.16.2.2 Definition of Information Flows

Connect request indication is an unconfirmed information flow from SCF to SSF used to create a call to a defined destination, in the case of an existing call in the set up phase, or to forward a call to another destination.

The following information flow elements may be conveyed by this information flow:

Element	Relationship	Request indication
Destination Routeing Address	r3	mandatory
Alerting Pattern	r3	optional
Route List	r3	optional
Correlation Id	r3	optional
SCF Id	r3	optional
Cut and Paste	r3	optional
Original Called Party Id	r3	optional
Service Interaction Indicators	r3	optional
Calling Party Number	r3	optional
Calling Party's Category	r3	optional
Redirecting Party ID	r3	optional
Redirection Information	r3	optional

5.2.16.3 Functional Entity Actions

Functional entities are assumed to have the basic capabilities required to properly perform their assigned function in the IN. Only functional entity actions (FEAs) pertinent to the "Connect" SIB are shown in the information flow diagram. Reference numbers have been arbitrarily assigned to cross-reference the FEAs shown in section 5.2.16.2.1 with these descriptions:

SCF actions

Reference number	Action
9003	Initiate Request - send one or more BCP information flows

SSF actions

Reference number	Action
20011	Process Connect request indication from the SCF

5.2.17 EDPRequest

5.2.17.1 Description

The EDPRequest SIB arms EDPs in the basic call process. The SCF sends a Request Report BCSM Event request indication which specifies the event that should be reported by the CCF/SSF.

5.2.17.2 Information flows

5.2.17.2.1 Diagram

Figure 5-58.4/Q.1214 depicts the information flows and Functional Entity Actions to support EDPRequest functionality.

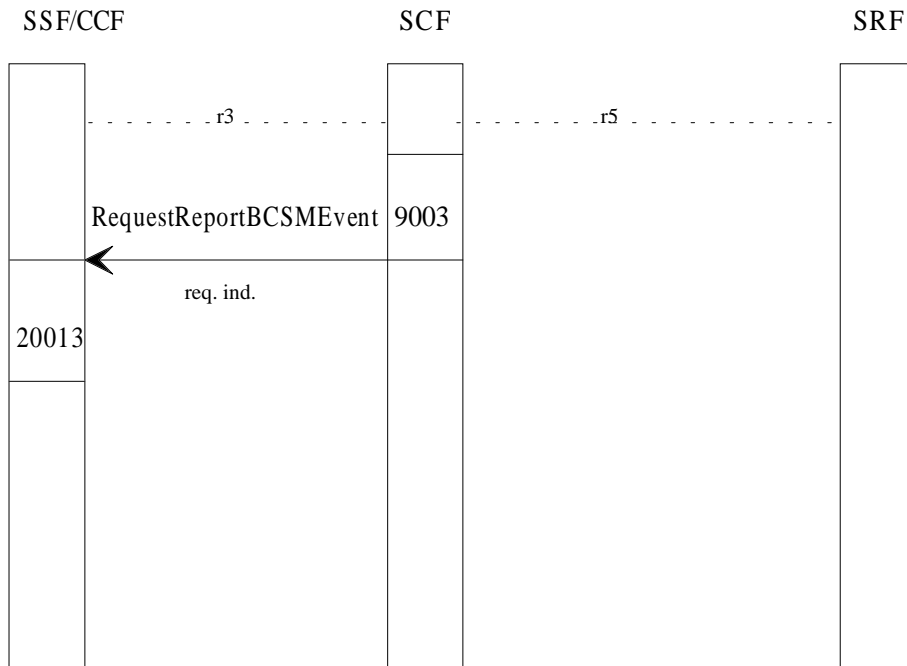


Figure 5-58.4/Q.1214: Information flow diagram "EDPRequest" SIB

5.2.17.2.2 Definition of Information Flows

RequestReportBCSMEvent request indication is an unconfirmed information flow from SCF to SSF used to request the SSF to monitor for a call-related event, then send a notification back to the SCF when the event is detected.

The following information flow elements may be conveyed by this information flow:

Element	Relationship	Request indication
BCSM Events	<i>r3</i>	<i>mandatory</i>

5.2.17.3 Functional Entity Actions

Functional entities are assumed to have the basic capabilities required to properly perform their assigned function in the IN. Only functional entity actions (FEAs) pertinent to the "EDPRequest" SIB are shown in the information flow diagram. Reference numbers have been arbitrarily assigned to cross-reference the FEAs shown in section 5.2.17.2.1 with these descriptions:

SCF actions

Reference number	Action
9003	Initiate Request - send one or more BCP information flows

SSF actions

Reference number	Action
20013	Process Request Report BCSM Event request indication - arm EDP(s)

5.2.18 Continue

5.2.18.1 Description

The Continue SIB continues basic call processing from the point at which it was suspended. The SCF sends a Continue request indication to the CCF/SSF to indicate that call processing should proceed without data modification.

5.2.18.2 Information flows

5.2.18.2.1 Diagram

Figure 5-58.5/Q.1214 depicts the information flows and Functional Entity Actions to support Continue functionality.

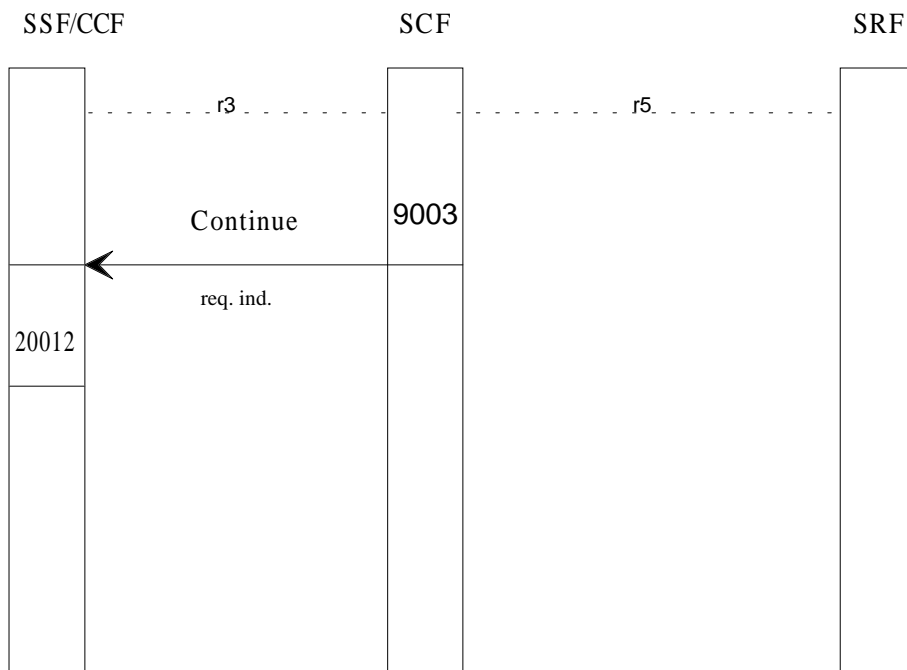


Figure 5-58.5/Q.1214: Information flow diagram "Continue" SIB

5.2.18.2.2 Definition of Information Flows

Continue request indication is an unconfirmed information flow from SCF to SSF used to request the SSF to proceed with call processing at the DP at which it previously suspended call processing to await SCF instructions.

There are no information flow elements to be conveyed by this information flow.

5.2.18.3 Functional Entity Actions

Functional entities are assumed to have the basic capabilities required to properly perform their assigned function in the IN. Only functional entity actions (FEAs) pertinent to the "Continue" SIB are shown in the information flow diagram. Reference numbers have been arbitrarily assigned to cross-reference the FEAs shown in section 5.2.18.2.1 with these descriptions:

SCF actions

Reference number	Action
9003	Initiate Request - send one or more BCP information flows

SSF actions

Reference number	Action
20012	Process Continue request indication

5.2.19 EDPIInfo

5.2.19.1 Description

The EDPIInfo SIB performs the actual retrieval of EDP information when an event has been received by the Basic Call Processing SIB.

5.2.19.2 Information flows

No information flows are needed.

5.2.19.3 Functional Entity Actions

Functional entities are assumed to have the basic capabilities required to properly perform their assigned function in the IN.

SCF actions

Reference number	Action
9001	Retrieve EDP Info

5.2.20 ReleaseCall

5.2.20.1 Description

The ReleaseCall SIB releases the call during any phase of basic call processing. The SCF sends a Release Call request indication to the CCF/SSF. The CCF/SSF performs the required action to clear the call.

5.2.20.2 Information flows

5.2.20.2.1 Diagram

Figure 5-58.7/Q.1214 depicts the information flows and Functional Entity Actions to support ReleaseCall functionality.

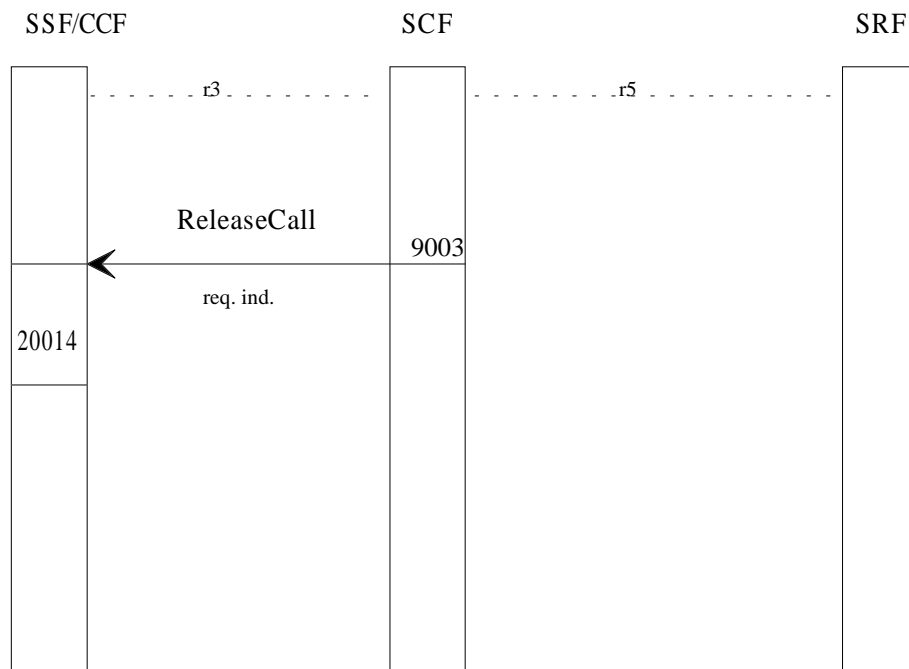


Figure 5-58.7/Q.1214: Information flow diagram "ReleaseCall" SIB

5.2.20.2.2 Definition of Information Flows

ReleaseCall request indication is an unconfirmed information flow from SCF to SSF used to clear an existing call at any phase of the call.

The following information flow elements may be conveyed by this information flow:

Element	Relationship	Request indication
Cause	r3	mandatory

5.2.20.3 Functional Entity Actions

Functional entities are assumed to have the basic capabilities required to properly perform their assigned function in the IN. Only functional entity actions (FEAs) pertinent to the "ReleaseCall" SIB are shown in the information flow diagram. Reference numbers have been arbitrarily assigned to cross-reference the FEAs shown in section 5.2.20.2.1 with these descriptions:

SSF actions

Reference number	Action
20014	Process Release Call request indication.

SCF actions

Reference number	Action
9003	Release Call request indication.

Section 5.5.2

The following amendment is to be made into the table 5-1/Q.1214 **SIB/FE Mapping**:

SIB	Functional entities			
	SSF/CCF	SCF	SRF	SDF
Initiate Call	X	X		
Disconnect Resource	X	X	X	
Connect	X	X		
EDPRequest	X	X		
Continue	X	X		
EDPInfo		X		
ReleaseCall	X	X		

The table 5-2/Q.1214 **SIB/IF Mapping** is to be deleted for not being relevant with ETR 321 [2] and ETS 300 374 [3].

3.4 Section 6.4.2: Information flows between SCF and SSF

The following replaces the text of the whole section:

6.4.2.1 Activate Service Filtering

- a. FE Relationship: SCF to SSF
- b. Synopsis

This IF activates service filtering, and shall be invoked outside the context of a call. The SCF uses this to instruct the SSF to deal with requests for a specific service and to count each specific attempt. The count of filtered calls will be returned to the SCF after a specified interval.

- c. Information Elements:

Filtered call treatment	(M)
Filtering characteristics	(M)
Filtering timeout	(M)
Filtering criteria	(M)
Start time	(O)

- d. IE Descriptions

Filtered call treatment specifies how filtered calls are treated. It includes information about the announcement to be played, the charging approach, the number of counters used and the release cause to be applied to filtered calls.

Filtering characteristics defines the severity of the filtering and the point in time when the service filtering response shall be sent. It determines whether the Interval or Number of Calls are used.

Filtering timeout defines the maximum duration of the filtering. When the timer expires, a service filtering response is sent to the SCF. It is a choice of either a duration or a specified stop time.

Filtering criteria specifies which calls are filtered based on the service key, Location Number, Calling Line ID and/or Calling Address Value. It is a choice of service key alone or service key together with Calling Address Value or Calling Line ID.

Start time defines when filtering is started. If Start Time is not provided or was already met, the SSF starts filtering immediately.

- e. Mapping to FE Model(s)

This IF applies outside the context of an existing relationship between the SCF and the SSF.

For further details refer to the stage 2 description of the Limit SIB in section 5 of the Rec. Q.1214.

6.4.2.2 Activity Test

- a. FE Relationship: SCF to SSF
- b. Synopsis

This IF is used to check for the continued existence of a relationship between the SCF and SSF. If the relationship is still in existence, then the SSF will respond with Activity Test Response. If no reply is received, then the SCF will assume that the SSF has failed in some way and will take the appropriate action.

- c. Information Elements

None

- d. IE Descriptions

Not applicable.

- e. Mapping to FE Model(s)

For further details refer to the Stage 2 description of the Activity Test functionality in section 5 of the Rec. Q.1214.

6.4.2.3 Activity Test Response

- a. FE Relationship: SSF to SCF
- b. Synopsis

This IF is used in the process of checking for the continued existence of a relationship between the SCF and SSF. If the relationship is still in existence, then the SSF will respond to the Activity Test Request sent by the SCF with Activity Test Response.

- c. Information Elements

None

- d. IE Descriptions

Not applicable.

- e. Mapping to FE Model(s)

For further details refer to the Stage 2 description of the Activity Test functionality in section 5 of the Rec. Q.1214.

6.4.2.4 Apply Charging

- a. FE Relationship: SCF to SSF
- b. Synopsis

This IF is used for interacting from the SCF with the SSF charging mechanisms. The "Apply Charging Report" IF provides the feedback from the SSF to the SCF. As several connection configurations may be established during a call, a possibility exists for the "Apply Charging" to be invoked at the beginning of each connection configuration, for each party.

- c. Information Elements

ACh Billing Charging Characteristics (M)

Send Calculation to SCF Indication (M)

Party to Charge (O)

- d. IE Descriptions

ACh Billing Charging Characteristics specifies the charging related information to be provided by the SSF and the conditions on which this information has to be reported back to the SCF via the "Apply Charging Report" IF. Its contents is network operator specific.

Send Calculation to SCF Indication indicates that "Apply Charging Report" IF is expected from the SSF. This parameter is always set to TRUE.

Party to Charge indicates the party in the call to which the charging should be applied. If it is not present, then it is applied to the A-party.

- e. Mapping to FE Model(s)

This IF applies in the context of an existing control relationship between the SCF and SSF for a given two-party Call Segment.

- SCF preconditions:
- (1) A control relationship exists between the SCF and the SSF;
 - (2) The SLPI has determined that an "Apply Charging" IF has to be sent.
- SCF postconditions:
- (1) The SLPI is expecting "Apply Charging Report" IF from the SSF.
- SSF preconditions:
- (1) Call origination attempt has been initiated.
- SSF Postconditions:
- None.

For further details refer to the Stage 2 description of the Charge SIB in section 5 of the Rec. Q.1214.

6.4.2.5 Apply Charging Report

- a. FE Relationship: SSF to SCF
- b. Synopsis

This IF is used by the SSF to report charging related information to the SCF as requested by the SCF using the "Apply Charging" IF. During a connection configuration the "Apply Charging Report" IF may be invoked on multiple occasions. For each call party and each connection configuration, the "Apply Charging Report" IF may be sent several times, but at least once at the end of the connection configuration charging process.

- c. Information Elements

Call Result (M)

- d. IE Descriptions

Call result provides the SCF with the charging related information previously requested. It will include the "Party to Charge" IE as received in the related "Apply Charging" IF to correlate the result to the request.

- e. Mapping to FE Model(s)

SSF preconditions: (1) A control relationship exists between the SCF and the SSF
(2) A charging event has been detected that was requested by the SCF via an "Apply Charging" IF.

SSF postconditions: None.

SCF preconditions: (1) An "Apply Charging" IF with its "Send Calculation to SCF Indication" IE set to TRUE has been sent at the request of an SLPI and the SLPI is expecting an "Apply Charging Report" from the SSF.

SCF Postconditions: (1) None.

For further details refer to the Stage 2 description of the Charge SIB in section 5 of the Rec. Q.1214.

6.4.2.6 Assist Request Instructions

- a. FE Relationship: SSF to SCF
- b. Synopsis

This IF is sent to the SCF by an SSF, which is acting as the Assisting SSF in an Assist or Hand-off procedure. It is generated when the Assisting SSF receives a call from an initiating SSF containing information indicating an Assist or Hand-off procedure.

- c. Information Elements

Correlation ID (M)

SRF Available (O)

SRF SSF Capabilities (O)

- d. IE Descriptions

Correlation Id is used by the SCF to associate the Assist Request Instructions from the Assisting SSF or by a SRF with the Initial DP from the Initiating SSF. The value of the Correlation Id may be extracted from the digits received from the Initiating SSF or be all of the digits.

SRF Available indicates whether or not an SRF is attached and available (i.e., not exhausted) at the SSF. This IE is applicable to this IF only in the assist with relay hand-off case.

SRF SSF Capabilities indicates which SRF resource are supported within the SSF an attached and available. This IE is applicable to this IF only in the assist with relay hand-off case.

- e. Mapping to FE Model(s)

An Assisting SSF sends this information flow to the SCF as part of an SSF Service Assist/Hand-off.

SSF Preconditions: (1) An assist indication is detected by the assisting SSF.

SSF Postconditions: (1) The assisting SSF waits for instructions.

SCF Preconditions: (1) A control relationship exists between the SCF and the initiating SSF;

(2) The SCF waits for "Assist Request Instructions".

SCF Postcondition: (1) A SSF instruction is being prepared.

For further details refer to the Stage 2 description of the User Interaction SIB in section 5 of the Rec. Q.1214.

6.4.2.7 Call Gap

- a. FE Relationship: SCF to SSF
- b. Synopsis

This IF is used to reduce the rate at which specific service requests are sent to the SCF.

- c. Information Elements

- Gap Criteria (M)

- Gap Indicators (M)

- Control Type (O)

- Gap Treatment (O)

- d. IE Descriptions

Gap criteria identifies the criteria for a call to be subject to call gapping. This is a choice of called party number, service key, service key with called party number, service key with calling party number and optionally location number.

Gap indicators indicate the gapping characteristics, namely duration and gap interval.

Control type indicates the reason for activating call gapping.

Gap treatment indicates how calls that were stopped by the call gapping mechanism shall be treated. It consists of two sub-elements, Information to Send and Release Cause. These can also be activated simultaneously.

- e. Mapping to FE Model(s)

This IF applies outside the context of an existing relationship between the SCF and SSF, or within the context of an existing control relationship for a given two-party Call Segment. In the latter case, it is processed independent of the given Call Segment.

SCF precondition: (1) The SCF detects an overload condition persists and call gapping has to be initiated at the SSF; or

The SCF receives a manually initiated call gapping request from the SMF.

SCF postcondition: None.

SSF precondition: None.

SSF postcondition: (1) Call gapping for gap criteria is activated; or

Call gapping for gap criteria is removed.

For further details refer to the Stage 2 description of the Call Gap capability in section 5 of the Rec. Q.1214.

6.4.2.8 Call Information Report

- a. FE Relationship: SSF to SCF
- b. Synopsis

This IF is used to send specific call information for a single call to the SCF as requested by the SCF in a previous Call Information Request IF. This IF is sent at the end of the call.

- c. Information Elements

Requested Information List (M)

- d. IE Descriptions

According to the requested information list the SSF sends the appropriate types and values to the SCF.

- e. Mapping to FE Model(s)

This IF applies in the context of an existing control relationship between the SCF and SSF for a given two-party Call Segment. The SSF sends this information flow to the SCF at the end of the call.

- SSF Preconditions:
- (1) At least one party disconnects from a call or the call fails for other reasons;
 - (2) Requested call information has been collected;
 - (3) Call Information Report is pending due to a previously received Call Information Request operation;
 - (4) A control relationship exists between the SCF and the SSF.

SSF Postconditions: None.

- SCF Preconditions:
- (1) An SLPI is expecting Call Information Report;
 - (2) A control relationship exists between the SCF and the SSF

SCF Postconditions: None.

For further details refer to the Stage 2 description of the Log Call Information SIB in section 5 of the Rec. Q.1214.

6.4.2.9 Call Information Request

- a. FE Relationship: SCF to SSF
- b. Synopsis

This IF is used to request the SSF to record specific information about a single call and report it to the SCF using the Call Information Report IF.

- c. Information Elements

Requested Information Type List (M)

- d. IE Descriptions

Requested information type list specifies a list of specific items of information which is requested. The list may contain Call Attempt Elapsed Time, Call Stop Time, Call Connect Elapsed Time, Called Address and Release Cause.

- e. Mapping to FE Model(s)

This IF applies in the context of an existing control relationship between the SCF and SSF for a given two-party Call Segment.

- SCF Preconditions:
- (1) A control relationship exists between the SCF and the SSF;
 - (2) The SLPI has determined that a Call Information Request operation has to be sent by the SCF.

- SCF Postconditions:
- (1) The SLPI is expecting a Call Information Report from SSF.

- SSF Preconditions:
- (1) Call origination attempt has been initiated

- SSF Postconditions:
- (1) Requested call information is retained by the SSF;
 - (2) The SSF is waiting for further instructions.

For further details refer to the Stage 2 description of the Log Call Information SIB in section 5 of the Rec. Q.1214.

6.4.2.10 Cancel

- a. FE Relationship: SCF to SSF
- b. Synopsis

The SCF uses this information flow to cancel all outstanding requests to SSFs.

- c. Information Elements

All Requests (M)

- d. IE Descriptions

All Requests indicates that all active request for Event Report BCSM, Event Notification Charging, Apply Charging Report and Call Information Report should be cancelled.

- e. Mapping to FE Model(s)

The SCF sends this information flow to the SSF to cancel all outstanding requests.

- SCF Preconditions:
- (1) A control relationship exists between the SCF and the SSF;
 - (2) A SLPI has determined that it is no longer interested in any reports or notifications from the SSF and that the control relationship should be ended.

SCF Postcondition: (1) The control relationship with the concerned FE (SSF) is ended.

SSF Preconditions: None.

SSF Postconditions: (1) All active requests for reports and notifications have been cancelled

For further details refer to the Stage 2 description of the User Interaction SIB in section 5 of the Rec. Q.1214.

6.4.2.11 Collect Information

a. FE Relationship: SCF to SSF

b. Synopsis

This IF is used to request the SSF to perform the basic originating call processing actions which will collect destination information from a calling party.

c. Information Elements

None

d. IE Descriptions

Not applicable.

e. Mapping to FE Model(s)

This IF only applies during call setup in an originating BCSM for a two-party Call Segment, in an SSF which can directly communicate with the calling party.

- SCF Preconditions:
- (1) A control relationship exists between the SCF and the SSF;
 - (2) An SLPI has determined that more information from the calling party is required to enable processing to proceed.

SCF Postconditions: (1) SLPI execution is suspended pending receipt of dialled digits.

SSF Preconditions: (1) Call origination attempt has been initiated.

SSF Postconditions: (1) Basic call processing resumes at PIC 2.

6.4.2.12 Connect

- a. FE Relationship: SCF to SSF
- b. Synopsis

This IF is used to request the SSF to perform the call processing actions to route a call to a specific destination. To do so, the SSF may use destination information from the calling party (e.g., dialled digits) and existing call setup information (e.g., route index to a list of trunk groups) depending on the information provided by the SCF.

c. Information Elements

Destination Routeing Address	(M)
Alerting Pattern	(O)
Correlation ID	(O)
SCF ID	(O)
Cut and Paste	(O)
Calling Party Number	(O)
Route List	(O)
Calling Party's Category	(O)
Original Called Party ID	(O)
Redirecting Party ID	(O)
Redirection Information	(O)
Service Interaction Indicators	(O)

d. IE Descriptions

Destination Routeing Address defines the called party numbers towards which the call is to be routed. The destination routeing address may include the correlation Id and SCF Id if used in the context of a hand-off procedure, but only if they are not specified separately.

Alerting Pattern indicates a specific pattern that is used to alert a subscriber. It only applies if the network signalling supports it or if SSF is the terminating local exchange for the subscriber.

Correlation Id is used by the SCF to associate the Assist Request Instructions from the assisting SSF with the Initial DP from the initiating SSF. The correlation id is used in the context of a hand-off procedure and only if the correlation id is not embedded in the destination routeing address. The network operator has to decide about the actual mapping of this IE on the used signalling system.

SCF Id indicates the SCF identifier and enables the assisting SSF to identify which SCF the destination routeing address should be sent to. The SCF Id is used in the context of a hand-off procedure and only if the SCF Id is not embedded in the destination routeing address. The network operator has to decide about the actual mapping of this IE on the used signalling system.

Cut and Paste is used by the SCF to instruct the SSF to delete a specified number of leading digits that it has received from the calling party and to paste the remaining dialled digits on to the end of the digits supplied by the SCF in the first element of the destination routeing address.

Calling Party Number is used to provide an alternative to the Calling party number supplied by the network. It is used for applications such as UPT, where only the SCF can verify the identity of the calling party. The use of this IE is operator dependent.

Route List is used to select the outgoing trunk group used for routing the call. A sequence of routes is provided to allow flexible routing for applications such as VPN without increasing the number of queries required for such applications.

Calling Party's Category indicates the type of calling party (e.g., operator, payphone, ordinary subscriber).

Original Called Party Id carries the dialed digits if the call has met call forwarding on route to the SSF or is forwarded by the SCF.

Redirecting Party Id indicates the directory number the call was redirected from.

Redirection Information contains forwarding related information, such as redirecting counter.

Service Interaction Indicators contain indicators sent from the SCF to the SSF for control of the network based services at the originating exchange and the destination exchange.

e. Mapping to FE Model(s)

This IF only applies before the Active PIC in an originating or terminating BCSM for a two-party Call Segment.

- SCF Preconditions:
- (1) A control relationship exists between the SCF and the SSF;
 - (2) An SLPI has determined that a Connect has to be sent by the SCF

SCF Postconditions: (1) None.

- SSF Preconditions:
- (1) Call origination attempt has been initiated;
 - (2) Basic call processing has been suspended at a DP;
 - (3) The SSF waits for instructions.

SSF Postconditions: (1) The SSF performs the call processing actions to route the call to the specified destination.

6.4.2.13 Connect to Resource

a. FE Relationship: SCF to SSF

b. Synopsis

This IF is used to connect a call from the SSF to a specialized resource. After successful connection to the SRF, the interaction with the caller can take place. The SSF relays all operations for the SRF and all responses from the SRF.

c. Information Elements

Resource Address (M)

Service Interaction Indicators (O)

d. IE Descriptions

Resource Address identifies the physical location of the SRF. Its contents is either IP Routing Address, which indicates the routing address to set up a connection towards the SRF or empty field, which indicates that the call party is to be connected to a predefined SRF.

Other IEs as previously defined.

e. Mapping to FE Model(s)

The SCF sends this information flow to an SSF to establish a connection to an SRF for a two-party Call Segment.

- SCF Preconditions:
- (1) A control relationship exists between the SCF and the SSF;
 - (2) The SLPI has determined that interaction with the call party is needed.

- SCF Postconditions:
- (1) The SCF prepares instructions to send to SRF.

- SSF Preconditions:
- (1) Basic call processing has been suspended at a DP.

- SSF Postconditions:
- (1) The call party is connected to the SRF;
 - (2) The SSF is waiting for end of user interaction.

For further details refer to the Stage 2 description of the User Interaction SIB in section 5 of the Rec. Q.1214.

6.4.2.14 Continue

a. FE Relationship: SCF to SSF

b. Synopsis

This IF is used to request the SSF to proceed with call processing at the DP at which it previously suspended call processing to await SCF instructions (i.e. proceed to the next PIC in the BCSM). The SSF continues call processing without substituting new data from the SCF.

c. Information Elements

None

d. IE Descriptions

Not applicable.

e. Mapping to FE Model(s)

This IF applies to all BCSMs in a Call Segment and associated Call Segment , if any. It is equally applicable in originating and terminating BCSMs, at any phase of call processing.

- SCF Preconditions:
- (1) A control relationship exists between the SCF and the SSF;
 - (2) A SLPI has determined that a Continue has to be sent by the SCF.

- SCF Postconditions:
- (1) None.

- SSF Preconditions:
- (1) Call origination attempt has been initiated;
 - (2) Basic call processing has been suspended at a DP;
 - (3) The SSF waits for instructions.

- SSF Postconditions:
- (1) Basic call processing continues to the next PIC if no other TDPs or EDPs were detected for the current DP

6.4.2.15 Disconnect Forward Connection

- a. FE Relationship: SCF to SSF
- b. Synopsis

This IF is sent to the non-assisting SSF of a pair of SSFs involved in an Assist procedure. It is used to disconnect the connection between the initiating SSF and the Assisting SSF, and the Assisting SSF and its associated SRF. This IF can also be used to clear the connection between an SSF and SRF established as the result of using the Connect to Resource IF.

- c. Information Elements

None

- d. IE Descriptions

Not applicable.

- e. Mapping to FE Model(s)

The SCF sends this IF to an SSF to terminate a Service Assist or interaction with an end user for a two-party Call Segment.

- SCF Preconditions:
- (1) A control relationship exists between SCF and the SSF;
 - (2) An interaction with the call party is in progress.

- SCF Postconditions:
- (1) None.

- SSF Preconditions:
- (1) Call origination attempt has been initiated;
 - (2) Basic call processing has been suspended at a DP;
 - (3) The connection between the initiating SSF and the assisting SSF or the SRF is established.

- SSF Postconditions:
- (1) The connection to the SRF or Assisting SSF is released;
 - (2) The SSF is waiting for instructions.

6.4.2.16 Establish Temporary Connection

- a. FE Relationship: SCF to SSF
- b. Synopsis

This IF is used to create a connection between the initiating SSF and the Assisting SSF as part of an Assist procedure. It can also be used to create a connection between a SSF and a SRF, for the case where the SRF exists in a separately addressable physical entity.

- c. Information Elements

Assisting SSF SRF Routeing Address (M)

Correlation ID (O)

SCF ID (O)

Service Interaction Indicators (O)

d. IE Descriptions

Assisting SSF SRF Routeing Address indicates the destination address of the SRF for assist procedure. This IE may contain embedded within it, a correlation ID and SCF ID, but only if correlation ID and SCF ID are not defined separately.

Other IEs as previously defined.

e. Mapping to FE Model(s)

The SSF sends this IF to the SCF upon detecting an EDP in a BCSM, for a two-party Call Segment.

SCF Preconditions: (1) A control relationship exists between the SCF and the SSF;
(2) The service logic has determined that a connection is needed between the SSF and SRF/assisting SSF.

SCF Postconditions: (1) The SCF is waiting for assist request instructions.

SSF Preconditions: (1) Call origination attempt has been initiated;
(2) Basic call processing has been suspended at a DP;
(3) The SSF waits for instructions;
(4) The SSF is not an assisting SSF.

SSF Postconditions: (1) The SSF performs the call processing actions to route the call to the Assisting SSF/SRF;
(2) The SSF is waiting for end of temporary connection.

6.4.2.17 Event Notification Charging

a. FE Relationship: SSF to SCF

b. Synopsis

This IF is used by the SSF to report the SCF the occurrence of a specific charging event type as requested by the SCF using the Request Notification Charging Event IF.

c. Information Elements

Event Type Charging	(M)
Event Specific Information Charging	(O)
Leg ID	(O)

d. IE Descriptions

Event Type Charging indicates the charging event type which has occurred. Its contents is network operator specific, which may be "charge pulses" or "charge messages".

Event Specific Information Charging contains charging related information specific to the event. Its contents is network operator specific.

Leg Id indicates the party in the call for which the event is reported.

e. Mapping to FE Model(s)

The SSF sends this IF to the SCF upon detecting an EDP in a BCSM, for a two-party Call Segment.

- SSF Preconditions:
- (1) A control relationship exists between the SCF and the SSF;
 - (2) A charging event has been detected that is requested by the SCF.

SSF Postconditions: (1) None.

SCF Preconditions: (1) A SLPI is expecting an "Event Notification Charging" from the SSF.

SCF Postconditions: (1) None.

For further details refer to the Stage 2 description of the Charge SIB in section 5 of the Rec. Q.1214.

6.4.2.18 Event Report BCSM

a. FE Relationship: SSF to SCF

b. Synopsis

This IF is used to notify the SCF of a call-related event (e.g., BCSM events such as busy or no answer) previously requested by the SCF in a Request Report BCSM Event IF.

c. Information Elements

Event Type BCSM	(M)
Event Specific Information BCSM	(O)
Leg ID	(O)
Misc Call Info	(O)

d. IE Descriptions

Event Type BCSM specifies the type of event that is reported.

Event Specific Information BCSM indicates the call related information specific to the event.

Leg ID as previously defined.

Misc Call Info indicates detection point related information.

e. Mapping to FE Model(s)

The SSF sends this IF to the SCF upon detecting an EDP in a BCSM, for a two-party Call Segment.

- SSF Preconditions:
- (1) Call origination attempt has been initiated;
 - (2) The BCSM proceeds to an EDP that is armed.

- SSF Postconditions:
- (1) For an EDP-R basic call processing has been suspended at the DP, and the SSF waits for the instructions;
 - (2) For an EDP-N basic call processing continues.

- SCF Preconditions:
- (1) A control relationship exists between the SCF and the SSF;
 - (2) The SLPI is expecting an event report from the SSF.

- SCF Postconditions:
- (1) The Event is reported to an SLPI;
 - (2) For an EDP-R the SCF will prepare SSF or SRF instructions in accordance with the SLPI.

6.4.2.19 Furnish Charging Information

a. FE Relationship: SCF to SSF

b. Synopsis

This IF is to be used for interacting with off-line operations. It gives some charging information to SSF, to enable it to generate an appropriate billing record for the current call. The generated record at the end of the call may be sent by the SSF to some OA&M system. This IF may be invoked several times during a call.

c. Information Elements

FCI Billing Charging Characteristics (M)

d. IE Descriptions

FCI Billing Charging Characteristics indicates network operator specific billing and/or charging characteristics.

e. Mapping to FE Model(s)

This IF applies in the context of an existing control relationship between the SCF and the SSF for a given two-party Call Segment.

- SCF Preconditions:
- (1) A control relationship exists between the SCF and the SSF;
 - (2) An SLPI has determined that a Furnish Charging Information has to be sent by the SCF.

SCF Postconditions: None.

SSF Preconditions: (1) Call origination attempt has been initiated.

SSF Postconditions: (1) Billing information is retained by the SSF.

6.4.2.20 Initial DP

- a. FE Relationship: SSF to SCF
- b. Synopsis

This IF is sent by the SSF after detection of an TDP-R in the BCSM, to request the SCF for instructions to complete the call.

- c. Information Elements

Service Key	(M)
Called Party Number	(O)
Calling Party Number	(O)
Calling Party's Category	(O)
Original Called Party ID	(O)
Location Number	(O)
Forward Call Indicators	(O)
Bearer Capability	(O)
Event Type BCSM	(O)
Redirecting Party ID	(O)
Redirection Information	(O)
SRF Available	(O)
SRF SSF Capabilities	(O)
CGE Encountered	(O)
Additional Calling Party Number	(O)
Service Interaction Indicators	(O)
High Layer Compatibility	(O)

- d. IE Descriptions

Service Key identifies for the SCF unambiguously the requested IN service. It is used to address the correct application/SLP within the SCF (not for SCP addressing).

Called Party Number is the called party number.

Calling Party Number carries the calling party number to identify the calling party or the origin of the call.

Original Called Party Id carries the dialled digits if the call has met call forwarding on the route to the SSF.

Location Number is used to convey the geographical area address for mobility services. It is used when Calling party number does not contain any information about the geographical location of the calling party (e.g., origin dependent routing when the calling party is a mobile subscriber).

Bearer Capability indicates the type of the bearer capability connection to the user.

Event Type BCSM indicates the armed BCSM detection point event, resulting in the Initial DP operation.

CGE Encountered indicates that the related call has passed call gapping.

Additional Calling Party Number is the calling party number provided by the access signalling system of the calling user.

High Layer Compatibility indicates the type of the high layer compatibility, which will be used to determine the ISDN-teleservice of a connected ISDN terminal.

Other IEs as previously defined.

e. Mapping to FE Model(s)

The SSF sends this IF to the SCF upon detecting a DP in a BCSM for a two-party Call Segment.

- SSF Preconditions:
- (1) Call origination attempt has been initiated;
 - (2) An event has been detected at a DP and the DP criteria have been met;
 - (3) Call gapping is not in effect for the call, and the call is not to be filtered;
 - (4) There is no existing control relationship influencing the Call Segment.

SSF Postconditions: (1) A control relationship has been established and the SSF waits for instructions from the SCF

SCF Preconditions: None.

SCF Postconditions: (1) A SLPI has been invoked.

6.4.2.21 Initiate Call Attempt

a. FE Relationship: SCF to SSF

b. Synopsis

This IF is used to request the SSF to create a new call to one call party using address information provided by the SCF (e.g., wake-up call). An EDP-R shall be armed on Answer and all the call failure events, in order to have the SCF treat this call segment appropriately when either of these events is encountered.

c. Information Elements:

Destination Routeing Address	(M)
Calling Party Number	(O)
Alerting Pattern	(O)
Service Interaction Indicators	(O)

d. IE Descriptions

Destination Routeing Address contains the called party number towards which the call is to be routed.

Calling Party Number identifies which number shall be regarded as the calling party for the created call. If this IF is not sent by the SCF, the SSF may supply a network dependent default value.

Other IEs as previously defined.

e. Mapping to FE Model(s)

This IF applies outside the context of an existing relationship between the SCF and the SSF.

- SCF Preconditions:
- (1) A SLPI has been invoked, no control relationship exists between SCF and SSF;
 - (2) The SLPI has determined that a Initiate Call Attempt IF should be sent to the SSF

- SCF Postconditions:
- (1) A control relationship is established between the SCF and SSF;
 - (2) SLPI execution continues

SSF Preconditions: None

- SSF Postconditions:
- (1) A new originating BCSM has been created, call processing is suspended at DP 1;
 - (2) The SSF is waiting for instructions.

6.4.2.22 Release Call

- a. FE Relationship: SCF to SSF
- b. Synopsis

This IF is used to tear down by the SCF an existing call at any phase of the call for all the parties involved in the call.

c. Information Elements:

Cause (M)

d. IE Descriptions

Cause IE indicates to the SSF the reason of releasing a specific call. This may be used by the SSF for generating specific tones to the different parties in the call or to fill in the "cause" in the release message.

e. Mapping to FE Model(s)

- SCF Precondition:
- (1) A SLPI has been invoked;
 - (2) A control relationship exists between the SCF and SSF;
 - (3) The SLPI has determined that a Release Call IF should be sent by the SCF.

SCF Postconditions: (1) None.

SSF Preconditions: (1) Call Origination Attempt has been initiated.

SSF Postconditions: (1) All connections and resources related to the call are released.

6.4.2.23 Request Notification Charging Event

- a. FE Relationship: SCF to SSF
- b. Synopsis

This IF is used to instruct the SSF how to manage the charging events which are received from other FE's not under the control of the service logic instance. For each connection configuration this IF may be used several times.

- c. Information Elements

Sequence of Charging Event (M)

- d. IE Descriptions

Sequence of Charging Event contains a list of the charging events and the corresponding monitor types and corresponding legs. For each element in the list the following information elements are included: Event Type Charging, Monitor Mode, Leg ID.

Event Type Charging indicates the charging event type. Its contents is network operator specific, which may be "charge pulses" or "charge messages".

Monitor Mode indicates the monitor mode applicable for the corresponding "EventTypeCharging" subparameter. Monitor may be "interrupted", "notify" and "continue" or "transparent" .

Leg ID indicates the Leg ID of the corresponding event type charging subparameter.

- e. Mapping to FE Model(s)

SCF Preconditions: (1) A control relationship exists between the SCF and the SSF;
(2) An SLPI has determined that a Request Notification Charging Event has to be sent by the SCF.

SCF Postconditions: None.

SSF Preconditions: (1) Call origination attempt has been initiated.

SSF Postconditions: None.

6.4.2.24 Request Report BCSM Event

- a. FE Relationship: SCF to SSF
- b. Synopsis

This IF is used to request the SSF to monitor for a call-related event (e.g. BCSM events such as busy or no answer), then send a notification back to the SCF when the event is detected.

- c. Information Elements

BCSM Events (M)

d. IE Descriptions

BCSM Events IE specifies the event or events of which a report is requested. It contains one or more sets of the following information:

- Event Type BCSM specifies the type of the event;
- Monitor Mode indicates how the events should be reported;
- Leg ID indicates the party of the call for which the event should be reported;
- DP Specific Criteria indicates information specific to the EDP to be armed (number of digits to be collected, application timer).

e. Mapping to FE Model(s)

This IF applies to all BCSMs in a Call Segment, if any.

- SCF Preconditions:
- (1) A control relationship exists between the SCF and the SSF;
 - (2) The SLPI has decided that a request for an event report BCSM is needed.
- SCF Postconditions:
- (1) In the case where monitor mode has the values of Interrupted or Notify & Continue, the SLPI is expecting an event report from the SSF;
 - (2) SLPI execution continues.
- SSF Precondition:
- (1) Call origination attempt has been initiated.
- SSF Postconditions:
- (1) The requested EDPs have been armed as indicated;
 - (2) Previously requested events are monitored until ended by a transparent monitor mode, until the end of the call, until the EDPs are detected or until the corresponding leg is released.

6.4.2.25 Reset Timer

a. FE Relationship: SCF to SSF

b. Synopsis

This IF is used by the SCF to refresh the T_{ssf} application timer, in order to avoid the T_{ssf} timeout at the SSF.

c. Information Elements:

Timer Value (M)

Timer ID (M)

d. IE Descriptions

Timer value specifies the value to which the T_{ssf} is to be set.

Timer ID has a default value identifying the T_{ssf} timer.

e. Mapping to FE Model(s)

This IF applies to an application timer set in the context of an existing control relationship between the SCF and the SSF for a given two-party Call Segment.

SCF preconditions: (1) A control relationship exists between the SCF and the SSF;
(2) An SLPI has determined by the $T_{scf-ssf}$ guard timer expiration, that the Reset Timer IF has to be sent in order to avoid T_{ssf} timeout at the SSF.

SCF Postcondition: (1) The SLPI reset the $T_{scf-ssf}$ guard timer.

SSF Preconditions: (1) Call origination attempt has been initiated;
(2) Basic call processing has been suspended at a DP.

SSF Postconditions: (1) The T_{ssf} timer has been reset.

6.4.2.26 Send Charging Information

a. FE Relationship: SCF to SSF

b. Synopsis

This IF is used to instruct the SSF on the charging information to send back down the call path. The sending back of charging information can either be by charge pulses or signalling or internal if SSF is located in LE. In the LE, either charge meter can be updated or a standard call record created. As several connection configurations may be established during a call a possibility exists for the SCI operation to be invoked on multiple occasions.

c. Information Elements:

SCI Billing Charging Characteristics (M)

Leg ID (M)

d. IE Descriptions

SCI Billing Charging Characteristics indicates billing and/or charging characteristics. Its content is network operator specific. The following information elements can be included:

- charge level
- charge pulses
- charge messages

Other IEs as previously defined.

e. Mapping to FE Model(s)

This IF applies in the context of an existing control relationship between the SCF and the SSF for a given two-party Call Segment.

- SCF preconditions:
- (1) A control relationship exists between the SCF and the SSF;
 - (2) An SLPI has determined, that a Send charging information has to be sent by the SCF.

SCF Postcondition: None.

- SSF Preconditions:
- (1) Call origination attempt has been initiated.

SSF Postconditions: None.

6.4.2.27 Service Filtering Response

a. FE Relationship: SSF to SCF

b. Synopsis

This IF is used to report the values of counters specified in a previously sent "Activate Service Filtering" IF to the SCF.

c. Information Elements:

Counters Value (M)

Filtering Criteria (M)

d. IE Descriptions

Counters Value contains the count of calls filtered during the filtering period. It is a list of counter identifications and the related values.

Filtering Criteria is used to address the concerned service logic at the SCF.

e. Mapping to FE Model(s)

This IF applies outside the context of an existing control relationship between the SCF and the SSF.

- SSF preconditions:
- (1) Service filtering is active and the interval time is expired and a call is received; or
 - (2) Service filtering is active and the threshold value is reached; or
 - (3) Service filtering has been finished (duration time expired or stop time met); or
 - (4) The IF "Activate Service Filtering" is received and encounters an active service filtering entity.

SSF Postcondition: (1) Service filtering proceeds or is ended depending on the duration time.

SCF Precondition: (1) Service filtering is active

SCF Postcondition: (1) Processing of the received counter values by the SLPI

3.5 Section 6.5.2: Information flows between SCF and SRF

The following replaces the text of the whole section:

6.5.2.1 Cancel

- a. FE Relationship: SCF to SRF
- b. Synopsis

The SCF uses this class 2 operation to request the SRF to cancel a correlated previous operation. The operation to be deleted can be either a Play Announcement operation or a Prompt and Collect User Information operation.

- c. Information Elements

Invoke ID (M)

- d. IE Descriptions

Invoke ID specifies which operation is to be cancelled.

- e. Mapping to FE Model(s)

The SCF sends this information flow to an SRF to terminate user interaction for a two-party Call Segment in an SSF.

- SCF Preconditions:
- (1) A control relationship exists between the SCF and the SRF
 - (2) An SLPI has determined that a previously requested operation is to be cancelled

SCF Postcondition: None.

SRF Preconditions: (1) A PA/P&CUI has been received.

SRF Postconditions: (1) The execution of the PA/P&CUI has been aborted.

For further details refer to the Stage 2 description of the User Interaction SIB in section 5 of the Rec. Q.1214.

6.5.2.2 Play Announcement

- a. FE Relationship: SCF to SRF
- b. Synopsis

This IF is used for in-band interaction with an analogue user or for interaction with an ISDN user.

- c. Information Elements

Information To Send (M)

Disconnect From SRF Forbidden (M)

Request Announcement Complete (M)

d. IE descriptions

Information To Send identifies the information to be sent to the user. This can be a combination of:

- Duration, Interval, Message ID and Number of Repetitions;
- Duration and Tone ID; or
- Display Information

Disconnect From SRF Forbidden indicates whether or not the SRF should be disconnected from the user when all information has been sent.

Request Announcement Complete indicates whether or not a Specialized Resource Report shall be sent to the SCF when all information has been sent.

e. Mapping of the FE Model(s)

The SCF sends this IF to the SRF to initiate user interaction for a two-party Call Segment in an SSF.

- SCF Preconditions: (1) The SLPI detects that information should be sent to the user
- SCF Postconditions: (1) If Request Announcement Complete was set TRUE, the SCF waits for the Specialized Resource Report;
- (2) If Request Announcement Complete was set FALSE, the SLPI execution continues.
- SRF Preconditions: (1) A connection between the user and SRF has been established.
- SRF Postconditions: (1) The SRF sends the information to the user as indicated by Information to send;
- (2) If all information has been sent and Request Announcement Complete was set TRUE, the SRF sends a Specialized Resource Report to the SCF
- (3) If all information has been sent and Disconnect From SRF Forbidden was set FALSE, the SRF is disconnected from the user.

For further details refer to the Stage 2 description of the User Interaction SIB in section 5 of the Rec. Q.1214.

6.5.2.3 Prompt And Collect User Information

- a. FE Relationship: SCF to SRF
- b. Synopsis

This IF is used to interact with the user in order to collect information.

c. Information Elements

- | | |
|-------------------------------|-----|
| Collected Info | (M) |
| Disconnect From SRF Forbidden | (O) |
| Information To Send | (M) |
| Digits Response | (M) |

d. IE descriptions

Collected Info describes how the information is to be collected from the user. Possible criterion is a combination of the following:

- Cancel Digit
- End of Reply Digit
- Error Treatment
- First Digit Timeout
- Inter Digit Timeout
- Interruptable Announcement Indicator
- Maximum Number of Digits
- Minimum Number of Digits
- Start Digit
- Voice Info
- Voiceback

Disconnect From SRF Forbidden indicates whether the SRF should initiate disconnection to the SSF/CCF after the interaction has been completed. If the IE is not present or set to TRUE, the SRF shall not initiate connection.

Information To Send identifies the information (in-band information, tone or text string) the SRF should send to the end user.

Digits Response contains the information collected from the end user.

e. Mapping of the FE Model(s)

The SCF sends this IF to the SRF to initiate user interaction for a two-party Call Segment in an SSF.

- SCF Preconditions:
- (1) The SLPI detects that information should be collected from the end user;
 - (2) A connection between the end user and SRF has been established.

- SCF Postconditions:
- (1) The collected information is received from the SRF as response to the Prompt and collect user information IF.

- SRF Preconditions:
- (1) A control relationship exists between the SCF and the SRF.

- SRF Postconditions:
- (1) The SRF has sent the information to the end user as indicated by Information to send;
 - (2) The collected information from the end user is sent to the SCF as a result of the Prompt And Collect User Information.

For further details refer to the Stage 2 description of the User Interaction SIB in section 5 of the Rec. Q.1214.

6.5.2.4 Specialized Resource Report

- a. FE Relationship: SRF to SCF
- b. Synopsis

This IF is used as a response to a Play Announcement IF when the announcement completed indication is set.

- c. Information Elements:

None.

- d. IE Descriptions

Not applicable.

- e. Mapping to FE Model(s)

- SRF Preconditions:
- (1) A control relationship exists between the SRF and the SCF;
 - (2) All information has been sent to the user (e.g. an announcement).

- SRF Postconditions:
- (1) If the "Disconnect from SRF forbidden" was set FALSE, the SRF initiates a bearer channel disconnect sequence to the SSF after sending the Specialized Resource Report IF to the SCF.

- SCF Precondition:
- (1) SCF waits for the response from the SRF.

- SCF Postconditions:
- (1) If the Specialized Resource Report IF from the SRF contains an indication to disconnect the SRF from the SSF, the SCF starts to prepare SSF instructions.

3.6 Section 6.6.2: Information flows between SCF and SDF

The following replaces the text of the whole section:

6.6.2.1 Retrieve

- a. FE Relationship: SCF to SDF
- b. Synopsis

This information flow is used to extract information held in the database.

- c. Information Elements

Object Name	(M)
Subset	(M)
Filter	(O)
Selection	(O)

d. IE Descriptions

Object Name contains the name of the object from which the search for information should start.

Subset gives the scope of the Retrieve operation, i.e. the (set of) object(s) for which to apply the operation.

Filter is used to eliminate objects from the search space that are not of interest. Information shall be returned on objects which satisfy the filter.

Selection indicates what information should be retrieved from the objects of the subset that fulfil the filtering conditions.

e. Mapping to FE Model(s)

The SCF sends this information flow to an SDF to extract information from the database.

SCF Precondition: (1) A SLPI has determined to retrieve information from the database.

SCF Postcondition: (1) SCF waits for SDF Response.

SDF Preconditions: (1) A dialogue between the SCF and the SDF has been established.

SDF Postcondition: (1) Processing of the SCF request.

6.6.2.2 Retrieve result

a. FE Relationship: SDF to SCF

b. Synopsis

This information flow is used to send to the SCF the extracted information held in the database.

c. Information Elements

Entries (O)

d. IE Descriptions

Entries conveys the requested information from each object considered.

e. Mapping to FE Model(s)

The SCF sends this information flow to an SDF to extract information from the database.

SCF Precondition: (1) Waiting for SDF Response

SCF Postcondition: None.

SDF Preconditions: (1) A dialogue between the SCF and the SDF has been established;

(2) A Retrieve IF has been received.

SDF Postcondition: None.

6.6.2.3 Screen

- a. FE Relationship: SCF to SDF
- b. Synopsis

This information flow is used to compare a purported value with the value(s) stored in the database for a given attribute.

- c. Information Elements

Object Name	(M)
Purported	(M)

- d. IE Descriptions

Object Name contains the name of the object for which the comparison should be made.

Purported identifies the attribute type and the value with which the comparison should be made.

Example of the usage of the Screen operation: It can be used for checking if a number (or the "purported") such as a calling party number or a destination routing address, belongs to a given list (or the "object name"). Another usage is authentication, where the identification to be authenticated (or the "purported") is to be checked with an external security algorithm. In that case, the object designates an external security device. Note that such usage may have an impact on the SDF implementation.

- e. Mapping to FE Model(s)

The SCF sends this information flow to an SDF to compare a data object with information in the database.

SCF Precondition: (1) A SLPI has determined to perform screening activity.

SCF Postcondition: (1) SCF waits for SDF response.

SDF Preconditions: (1) A dialogue between the SCF and the SDF has been established.

SDF Postcondition: (1) Processing of the SCF request.

6.6.2.4 Screen Result

- a. FE Relationship: SDF to SCF
- b. Synopsis

This information flow is used to provide the SCF with the result of the comparison of a purported value with the value(s) stored in the database for a given attribute.

- c. Information Elements

Matched	(M)
---------	-----

- d. IE Descriptions

Matched holds the result (True/False) of the comparison.

e. Mapping to FE Model(s)

The SDF sends this information flow to the SCF after comparing information from the database with the data object(s) sent by the SCF.

SCF Precondition: (1) Waiting for SDF Response.

SCF Postcondition: None.

SDF Preconditions: (1) A dialogue between the SCF and the SDF has been established;
(2) A Screen IF has been received.

SDF Postcondition: None.

6.6.2.5 Update

a. FE Relationship: SCF to SDF

b. Synopsis

This information flow is used to request the SDF to make several modifications to a data object.

c. Information Elements

Object Name (M)

Changes (M)

d. IE Descriptions

Object Name contains the name of the object to which the modifications should be applied.

Changes gives an ordered set of modifications to perform on a data object. It also provides the name of the attributes to modify and, if necessary, the new values of these attributes.

e. Mapping to FE Model(s)

SCF Precondition: (1) A SLPI has determined to update information held in the database.

SCF Postcondition: (1) SCF waits for SDF response.

SDF Preconditions: (1) A dialogue between the SCF and the SDF has been established.

SDF Postcondition: (1) Processing of the SCF request.

6.6.2.6 Update Result

- a. FE Relationship: SDF to SCF
- b. Synopsis

This information flow is used as a response to a previously received Update IF from the SDF.

- c. Information Elements

Update Result (O)

- d. IE Descriptions

Update Result contains the name of the object that has been modified as well as the modified attributes and their new values. The modified attributes are returned to the SCF if they are readable attributes and if the requested changes are increment attribute or decrement attribute.

- e. Mapping to FE Model(s)

The SDF sends this information flow to the SCF after updating the database.

SCF Precondition: (1) Waiting for SDF response.

SCF Postcondition: None.

SDF Preconditions: (1) A dialogue between the SCF and the SDF has been established;

(2) An Update IF has been received.

SDF Postcondition: None.

3.7 Section 6.7: Summary of information flows and related SIBs

The following tables replace the existing summary tables in the Rec. Q.1214:

Information Flows and Information Elements

SSF -> SCF INFORMATION FLOWS 1/1

	Event Notification Charging	Service Filtering Response	Assist Request Instructions	Call Information Report	Event Report BCSM	Apply Charging Report	Activity Test Response	Initial DP
 	: IE described in this IF							
CHG	: Charge							
SN	: Status Notification							
LCI	: Log Call Information							
UI	: User Interaction							
BCP	: Basic Call Process							

Information Elements								
Additional Calling Party Number								O
Bearer Capability								O
Call Result						M		
Called Party Number								O
Calling Party Number								O
CGE Encountered								O
Calling Partys Category								O
Correlation ID			M					
Counters Value		M						
Event Specific Info BCSM					O			
Event Specific Info Charging	O							
Event Type BCSM					M			O
Event Type Charging	M							
Filtering Criteria		M						
Forward Call Indicators								O
High Layer Compatibility								O
SRF Available			O					O
SRF SSF Capabilities			O					O
Leg ID	O				O			
Location Number								O
Misc Call Info					O			
Original Called Party ID								O
Requested Information List				M				
Redirecting Party ID								O
Redirection Information								O
Service Interaction Indicators								O
Service Key								M
MOTIVATING SIBs	CHG	Limit	UI	LCI	BCP	CHG		BCP

SCF -> SSF INFORMATION FLOWS 1/3

Information Elements	Apply Charging	Furnish Charging Information	Request Notification Charging Event	Activate Service Filtering	Send Charging Information	Activity Test	Cancel
ACh Billing Charging Characteristics	M						
All Requests							M
FCI Billing Charging Characteristics		M					
Filtered Call Treatment				M			
Filtering Characteristics				M			
Filtering Criteria				M			
Filtering Timeout				M			
Hold Cause							
Party to Charge							
SCI Billing Charging Characteristics					M		
Send Calculation To SCF Indicator	M						
Sequence of Charging Events			M				
Event Type Charging			M				
Leg ID			M		M		
Monitor Mode			M				
Start Time				O			
MOTIVATING SIBs	CHG	CHG	CHG	Limit	CHG		

SCF -> SSF INFORMATION FLOWS 2/3

Reset Timer
 Connect To Resource
 Disconnect Forward Connection
 Establish Temporary Connection
 Call Gap
 Call Information Request

Information Elements						
Assisting SSF/SRF Routing Address				M		
Control Type					O	
Correlation ID				O		
Gap Criteria					M	
Gap Indicators					M	
Gap Treatment					O	
Requested Information Type List						M
Resource Address		M				
SCF ID				O		
Service Interaction Indicators		O		O		
Timer ID	M					
Timer Value	M					
MOTIVATING SIBs	Que UI	UI	UI	UI		LCI

SCF -> SSF INFORMATION FLOWS 3/3

Information Elements	Collect Information	Connect	Continue	Initiate Call Attempt	Release Call	Request Report BCSM Event
Alerting Pattern		O		O		
BCSM Events						M
DP Specific Criteria						O
Event Type BCSM						M
Leg ID						O
Monitor Mode						M
Cause					M	
Calling Party Number		O		O		
Calling Party Category		O				
Correlation ID		O				
Cut And Paste		O				
Destination Routing Address		M		M		
Original Called Party ID		O				
Redirecting Party ID		O				
Redirection Information		O				
Route List		O				
SCF ID		O				
Service Interaction Indicators		O		O		
MOTIVATING SIBs	BCP	BCP	BCP	BCP	BCP	BCP

SCF -> SRF INFORMATION FLOWS 1/1

Cancel
 Play Announcement
 Prompt & Collect User Info

Information Elements			
Collected Info			M
Cancel Digit			O
End of Reply Digit			O
Error Treatment			M
First Digit Timeout			O
Inter Digit Timeout			O
Interruptable Announcement Indicator			M
Maximum Number of Digits			M
Minimum Number of Digits			M
Start Digit			O
Voice Info			O
Voiceback			O
Digits Response			M
Disconnect From SRF Forbidden		M	M
Information To Send		M	M
Duration		M	M
Interval		M	M
Message ID		M	M
Number of Repetitions		M	M
or			
Duration		M	M
Tone ID		M	M
or			
Display Information		M	M
Invoke ID	M		
Request Announcement Complete Indicator		M	
MOTIVATING SIBs	UI	UI	UI

SRF -> SCF INFORMATION FLOWS 1/1

Specialized
 Resource
 Report

Information Elements	
MOTIVATING SIBs	UI

SCF -> SDF INFORMATION FLOWS 1/1

Retrieve
 Screen
 Update

Information Elements			
Object Name	M	M	M
Subset	M		
Filter	O		
Selection	O		
Purported		M	
Changes			M
MOTIVATING SIBs	SDM	SCR	SDM

SCF -> SDF INFORMATION FLOWS 1/1

Retrieve Result
 Screen Result
 Update Result

Information Elements			
Entries	O		
Matched		M	
Update Result			O
MOTIVATING SIBs	SDM	SCR	SDM

History

Document history	
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