Telrad **DIGITAL**

DIGITAL FAMILY OF SYSTEMS
Feature Description Addendum

Telrad

76-110-0690/G, Issue 1

Telrad

Telrad _DIGITAL_

DIGITAL
FAMILY OF SYSTEMS
Feature Description Addendum

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NOTICE

The information in this addendum refers to the Telrad DIGITAL family of telephone systems: the DIGITAL 26 system, DIGITAL 32 system, DIGITAL KEY BX system (Release SB7), the DIGITAL 400 system (Release DB7), and the DIGITAL 1000 system (Release LB7) and the ImaGEN system (Release 7.00), June 1999. Telrad, Ltd., reserves the right to make changes in the equipment described in this manual without notification. However, changes in the equipment do not necessarily render this manual invalid.

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ACD I.Q.	Telrad Telecommunications, Inc.	Pentium	Intel Corporation
ImaGEN	Telrad Telecommunications, Inc.	Windows95	Microsoft Corporation

FCC Regulations
Warning

This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user should contact the Telrad Field Service Department, at the telephone number listed below, to correct the interference problem. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of the FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment.

Registration

The Telrad DIGITAL family of telephone systems are registered with the FCC based upon compliance with part 68 of its rules. Connection of these systems to the nationwide telecommunications network is made through a standard network interface jack, which you can order from your telephone company. Jacks for this type of customer-provided equipment will not be provided on party lines or coin lines.

Hearing Aid Compatibility

The DIGITAL systems' Avanti Collection of telephones are Hearing Aid compatible, as defined in Section 68.316 of Part 68 FCC Rules.

Telephone Company Registration

It is usually not necessary to call the telephone company with information on the equipment before connecting the DIGITAL family system cabinet to the telephone network. But, if the telephone company should require this information, provide the following:

FCC Registration Number
(on label affixed to cabinet):
- Key system — ARAISR-18430-KF-E
- Multi-function (Hybrid Key/PBX) system — ARAISR-18427-MF-E

AC Ringer Equivalence Number: 2.4B

USOC Jack: DB15, RJ2EX, RJ2FX, RJSGX, RJ2HX, RJ21X, RJ48C

Service Order Code (SOC):
- for off premise extensions and all analog trunk cards, except the DID card — 9.OF
- for DID cards — AS.2
- for digital trunks — 6.0P

Facility Interface Code (FIC):
- Central Office Ground-start trunk — 02GS2
- Central Office Loop-start trunk — 02LS2
- Direct Inward Dialing — 02RV2-T
- Off-premises extension — OL13C
- Primary Rate Interface (PRI24) — 04DU9-1SN
- DPNSS/QSIG Interface (N24 and N12) — 04DU9-1SN
- Basic Rate Interface (BRT and BHT) — 04DU9-1SN
- T1 (Digital Trunk) — 04DU9-BN, 04DU9-DN, 04-DU9-1KN, 04DU9-1SN, 04-DU9-1ZN
- E&M (Tie Trunk Interface -- 2-wire) — RJ2EX, RJ2FX
- E&M (Tie Trunk Interface -- 4-wire) — RJ2GX, RJ2HX

Rights of the Telephone Company

If the system is determined to be causing harm to the telephone network, the telephone company may discontinue your service temporarily. If possible, the telephone company will notify you as soon as possible. You will be given the opportunity to correct the situation, and you will be informed of your right to file a complaint to the FCC. Your telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the proper functioning of your system. If it does this, you will be notified in advance to give you the opportunity to maintain uninterrupted telephone service.

In the event of an equipment malfunction, all repairs will be performed by Telrad Telecommunications, Inc., or by one of its authorized dealers.

Address of repair facility in the USA

Telrad Service Center, 135 Crossways Park Drive, Woodbury, NY 11797. Phone: 1-516-921-8300.

Section 1
INTRODUCTION

1.1   GENERAL

This section provides introductory information about this addendum and a general overview of the unique characteristics added in Release 7 of the following member systems of the DIGITAL family of telephone systems, referred to as DIGITAL systems:

- DIGITAL 26 -- a 26 port system
- DIGITAL 32 -- a 32 port system;
- DIGITAL KEY BX -- a 128 port system;
- DIGITAL 400 -- a 384 port system;
- DIGITAL 1000 -- a 925 port system;

and to the Release 7.00 ImaGEN system.

Where not otherwise stated, it can be assumed that the characteristics and features of the various DIGITAL systems are identical.

1.2   PRODUCT DEFINITION

This addendum includes a description of the features that are new to Release SB7 of the DIGITAL 26, DIGITAL 32, DIGITAL KEY BX, Release DB7 of the DIGITAL 400, and Release LB7 of the DIGITAL 1000 systems and features new to Release 7.00 of the ImaGEN voice mail and application generator. It is intended to be used in conjunction with the Release 6 Feature Description manual, Release 6.5 ImaGEN Integrated Multi-Application Generator System Manual, and the DIGITAL 1000 Addendum. Together they provide a description of the Release SB7/DB7/LB7 DIGITAL system features, detail criteria for configuring the DIGITAL systems, and a description of the Release 7.00 ImaGEN system features.

1.3 PURPOSE OF ADDENDUM

This addendum is intended to document the features and technology new to Release SB7 of the DIGITAL 26, DIGITAL 32, DIGITAL KEY BX, Release DB7 of the DIGITAL 400, and Release LB7 of the DIGTIAL 1000 systems and to Release 7.00 of the ImaGEN system.

Sections 1.3.1 and 1.3.2 describe the major areas of change in the Release 7 DIGITAL systems.

Section 1.3.3 lists the new features in the Release 7.00 ImaGEN system.

1.3.1 New system features

The DIGITAL systems' Release 7 new features:
• New Avanti Collection of telephone sets including graphic display and wider use of softkeys.
• Multi-system networking capability -- expanded to include Digital Private Network Signaling System (DPNSS) protocol and QSIG basic call protocol;
• Phone Book feature enabling system users with either Avanti Collection or DIGITAL family display telephone sets, to enter, delete, revise, save in memory, search for, and dial, selected name and telephone number entries.

1.3.2 New technology

Release 7 of the DIGITAL systems incorporated the following advanced technology:
• Integrated voice and data including ISDN technology and U bus interface, to enable connection of advanced design proprietary Avanti telephone sets;
• New line of advanced design proprietary Avanti telephone sets, led by a model with 128 x 240 pixel graphic display;
• DPNSS and QSIG networking interfaces.

1.3.3 New ImaGEN features

The Imagen system's Release 7.00 new features:
• Carbon copy;
• Continuous message listening;
• Revert a message to new message status;
• Continuous use of the selected language when transferring and recalling;
• Direct dialing to the message sender from the Visual message list.

1.4   SCOPE OF ADDENDUM

This Feature Description addendum covers the features new for Release 7 of the DIGITAL 26, DIGITAL 32, DIGITAL KEY BX, DIGITAL 400, and DIGITAL 1000 systems and Release 7.00 of the ImaGEN system, and applies to these systems for all countries.

This issue includes revisions and enhancements to the DIGITAL family of systems the ImaGEN system, and supersedes the relevant sections of Issue 1 of the Release 6 DIGITAL Feature Description and Issue 1 of the ImaGEN Integrated multi-application generator System manual, which were published in February, 1998.

All the Release 7 revisions and enhancements apply to the DIGITAL 26 system, DIGITAL 32 system, DIGITAL KEY BX system, the DIGITAL 400 system, and the DIGITAL 1000 system, unless specified otherwise.

1.5   ADDENDUM STRUCTURE

This addendum includes the following sections:

Section 1   Includes a general explanation of the contents of the addendum and information on applicable documents.

Section 2   Describes all Release 7 DIGITAL system features.

Section 3   Details alternative configuration applications for private networks comprising Release 7 DIGITAL and possibly other telephone systems.

Section 4   Describes all ImaGEN Release 7.00 features.

1.6   INTENDED AUDIENCE

This addendum is intended for DIGITAL systems' and the ImaGEN system's customers and distributors, as well as for personnel involved in DIGITAL system installation, servicing and customer training.

1.7 APPLICABLE DOCUMENTATION

This manual is one of a series on the DIGITAL systems, including the following documents. Except where specifically identified as being applicable to only the DIGITAL KEY BX system, the DIGITAL 400 system, or the DIGITAL 1000 system -- the documents listed below are applicable to *all* the systems.

	document	catalog number
System manuals	**Operating Instructions -- Release 6:** Details the operation of the many system and user features.	76-110-0165/F
	Operating Instruction Addendum -- Release 7: Contains Release 7 additions and revisions to the Release 6 Operating Instructions manual.	76-110-0165/G
	Administration manual -- Release 6: Contains a detailed explanation of the programmable features and parameters and a guide to the programming of each of them on a personal computer.	76-110-0175/F
	Administration, Installation and Upgrade Addendum -- Release 7: Contains Release 7 additions and revisions to the Release 6 Administration and Installation manuals.	76-110-0175/G
	Administration forms -- Release 6: Contains a copy of each of the programming forms.	76-110-0405/F
	Feature Description manual -- Release 6: Provides a description of DIGITAL systems features, and details criteria for configuring the DIGITAL systems	76-110-0690/F
	Hardware Description manual -- Release 6: Contains a functional and physical description of DIGITAL system equipment, as well as criteria for external equipment to be connected to a DIGITAL system.	76-110-0685/F
	Installation manual -- Release 6: Contains a detailed explanation of the hardware installation and functional verifications.	76-110-0410/F
	Maintenance manual -- Release 7: Contains a detailed testing and maintenance guide.	76-110-0170/G

ACD documentation	ACD agent user guide	76-110-0425/F
	ACD system manual	76-110-0430/F
	ACD I.Q. user manual	76-110-0675/F
	ACD supervisor user guide	76-110-0440/F
	ACD I.Q. Wallboard Installation and Programming guide	76-110-0585/E
Data options	TAPI/TelradLINK Installation and Programming manual	79-123-0410/E
	TSAPI Installation and Programming manual	76-110-0790/0
	Universal data card manual	79-125-0410/E
	Avanti station option module installation sheet	76-110-0530/0
	Voice Dialing Kit installation guide	79-020-1206/F
	Data card installation for Executive stations	79-020-0306/C
	Data card installation for Standard stations	76-020-0406/C
	Electronic Business Card Installation and Programming manual	76-110-0380/F
	Remote modem mode quick reference sheet	
System user documentation	Avanti set 3025 user guide	79-610-0010/A
	Avanti set 3020/3015D user guide	79-620-0010/A
	Avanti set 3015/3000 user guide	79-650-0010/A
	Avanti set Attendant user guide	79-660-0010/A
	Avanti set 3025 quick reference guide	79-610-0001/A
	Avanti set 3020 quick reference guide	79-620-0001/A
	Avanti set 3015D quick reference guide	79-630-0001/A
	Avanti set 3015/3000 quick reference guide	79-650-0001/A
	Executive set with expanded display user guide	79-100-0009/F
	Executive set and Executive set with display user guide	79-100-0006/F
	Attendant Console user guide	79-120-0006/F
	Speakerphone set and Display Speakerphone set user guide	79-500-0006/F
	4 Button set and 16 Button set user guide	79-400-0006/F

	Single Line Telephone user guide	76-110-1706/F
	Analog telephone set user guide	73-510-3000/F
	Voice Dialing user guide	79-020-1207/F
	Executive set with expanded display quick reference guide	79-100-0021/F
	Executive set and Executive set with display quick reference guide	79-100-0020/F
	Speakerphone set and Display Speakerphone set quick reference guide	79-500-0009/F
	4 Button set and 16 Button set quick reference guide	79-400-0009/F
	Single Line Telephone quick reference guide	79-110-0007/F
ImaGEN documentation	**ImaGEN -- Integrated Voice Mail Application Generator User manual**	76-110-0570/I
	ImaGEN Integrated multi-application generator System manual	83-130-8050/I
	Integrated SMDR Call accounting manual	83-110-0270/H
	ImaGEN Avanti set 3025 user guide	76-110-0500/0
	ImaGEN Avanti set 3020/3015D user guide	76-110-0505/0
	ImaGEN Executive set with expanded display user guide	76-110-0190/I
	ImaGEN digital telephone set and SLT user guide	76-110-0205/I
	ImaGEN quick reference guide	76-110-0620/I
	Unified Message Installation manual	76-110-0760/I
	Unified Message user guide	76-110-0765/I

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Section 2
SYSTEM FEATURES

2.1　　GENERAL

This section describes the Release 7 revisions and enhancements to features and services applicable to the DIGITAL 26, DIGITAL 32, DIGITAL KEY BX, DIGITAL 400, and DIGITAL 1000 systems -- hereinafter referred to as DIGITAL systems.

These characteristics and features apply to each of the DIGITAL systems unless stated otherwise.

2.2　　AVANTI COLLECTION OF TELEPHONE SETS

Description
Table 2-1 summarizes the main features of the Avanti Collection of telephone sets -- the new standard for Release 7 DIGITAL systems -- which includes the:

- Avanti 3025 set;
- Avanti 3020F set;
- Avanti 3020H set;
- Avanti 3015DF set;
- Avanti 3015DH set;
- Avanti 3015H set;
- Avanti 3000 set.

For a complete description and figures showing the various telephone sets and optional DSS units, refer to the Release 7 DIGITAL family of systems Operating Instructions Addendum.

For additional information on Avanti Collection telephone sets, DSS units, data interface cards and system cards, refer to the Release 7 DIGITAL family of systems Administration, Installation and Upgrade Addendum.

Table 2-1   Avanti Collection Telephone Set Characteristics

features		telephone set type				
		Avanti 3025 set	Avanti 3020 sets	Avanti 3015D sets	Avanti 3015 sets	Avanti 3000 set
speakerphone	full duplex	3025	3020F	3015DF	--	--
	half duplex	--	3020H	3015DH	3015H	3000
display		graphic 128x240	4x24 characters	2x20 characters	none	none
software download		yes	yes	yes	yes	no
buttons	menu and worktable softkeys	16	6	3	none	none
	dual color indicator programmable buttons	29	24	19	19	4
	fixed function buttons	9	9	9	9	9
	dialing buttons	12	12	12	12	12
	cursor movement buttons and enter button	yes	no	no	no	no
handsfree answerback		yes	yes	yes	yes	no
onhook dialing		yes	yes	yes	yes	yes
audio path	dual (DAP)	yes	yes	yes	--	--
	single (SAP)	--	--	--	yes	yes
available options	data interface	yes	yes	yes	yes	no
	DSS unit(s)	yes 1 to 4	yes 1 to 4	yes 1 to 4	yes 1 to 4	no
	voice recognition	yes	yes	yes	yes	no
PC programming (PCP) abbreviation	Station type	E30	D30	S30	B30	M30
	Map type	ED[*]	ED[*]	SM[**]	SM[**]	BA

[*]   Map ED serves both the model 3020 and the model 3025 Avanti telephone sets. When using the map to program the buttons on the model 3020 sets, disregard the bottom row of buttons.

[**]   Map SM serves both the model 3015D and the model 3015 Avanti telephone sets.

Avanti CTI data interface cards
Two types of data interface cards --
- the Avanti APP*Lync* interface card and
- the Avanti DATA*Lync* interface card
-- are available for plugging into Avanti Collection telephone sets (except for the Avanti 3000 set), enabling a variety of Computer Telephone Integration (CTI) applications. Each of the applicable Avanti telephone sets can accomodate only one of these two cards.

Avanti APPLync interface card
The Avanti APP*Lync* interface card supports the TSAPI (Telephone Services Application Programming Interface) and ACD I.Q., utilized to provide an interface for various CTI applications.

Avanti DATALync interface card
The Avanti DATA*Lync* interface card supports the PC applications operational mode that is used to transfer data from PC applications toward any DIGITAL system resource. Currently supported PC applications are TAPI (Telephone Application Programming Interface) and applications using TelradLINK protocol.

DSS units
Up to four DSS units can be connected to most Avanti Collection telephone sets (see Table 2-1). Each DSS has 30 DSS buttons and four map buttons, allowing in total 120 programmable extension busy lamp field (BLF) and speed dial buttons.

Voice activated speed dialing
A voice recognition card can be plugged into most Avanti Collection telephone sets (see Table 2-1). This card facilitates performance of voice activated dialing, recording of dialing instructions and programming of up to 56 voice dial numbers.

Conditions
Each Avanti Collection telephone set must be:
• cabled to an extension port on a ULD (16 U-bus line card) or UHD (8 U-bus line card) card;
• defined in system Administration as an extension port of a ULD or UHD card.

The TAPI or PC applications operational mode used by one of the Avanti Collection interface cards must be defined in PCP programming.

The number of Avanti Collection telephone sets utilizing TAPI cards is unlimited.

A maximum of 20 Avanti Collection telephone sets can simultaneously utilize the PC applications mode in a DIGITAL system.

Related features

feature	see section number in	
	this Release 7 addendum	Release 6 Feature Description manual
Software Downloading	2.5	--
Computer Telephone Integration (CTI)	--	2.34
Telephony Application Programming Interface (TAPI)	--	2.136
Voice Dialing	--	2.144

NOTE
There is no technician station for Release 7
of the DIGITAL systems.

2.3 NETWORK ENHANCEMENTS

The networking capabilities of the DIGITAL systems have been
enhanced to include the following network features:

- Digital Private Network Signaling System (DPNSS) support;
- QSIG support;
- Automated Attendant/ImaGEN network enhancement.

For a detailed description of these features, see Private
Networks Between Telephone Systems, Section 3.

2.4 PHONE BOOK

Description
The Phone Book feature enables DIGITAL system users, with
either Avanti Collection or DIGITAL family display telephone
sets, to enter, delete, revise, save in memory, search for, and
dial selected name and telephone number entries.

Two types of Phone Book can be utilized:
- a Private Phone Book:
  including the private list of names and telephone numbers
  selected exclusively by each user in the system, for that
  user's convenience.
- a System Phone Book:
  containing a series of up to 10 separate lists, each of which
  includes a logical group of names and telephone numbers.

Speed dial bin enhancement
A speed dial bin, containing the user's personal speed dial list
or any of the system speed dial lists, can contain not only the
telephone number corresponding to the speed dial number, but
also the name of the person at that telephone number. The
speed dial lists, expanded to include names, now serve as the
Private Phone Book and System Phone Book lists. The
personal and system speed dial features are described in detail
in Sections 2.129 and 2.130 of the Release 6 Feature
Description manual.

Phone Book maintenance
The system speed dial group programming station is
designated to maintain each system Phone Book list.
Maintenance includes defining new entries and updating or
removing existing entries. All other users given access to a
system phone book list *will not* be allowed to make changes to
the list, but *will* be able to search for and dial that list's names
and numbers.

Maintenance of each system phone book list can be done,
either from the authorized user's telephone set or from the
system administration PC (PCP).

In a private phone book list, however, the individual user is
solely responsible for new entries, as well as entry updating and
removal.

Display telephone sets
The Phone Book feature is available for any Avanti or DIGITAL
telephone sets with displays.

Phone Book operation
Depending on the type of telephone set and the facilities it has,
the user can activate Phone Book in one of the following four
ways, by:
* pressing the ***{phone book}*** softkey
  -- on Avanti 3025 and Avanti 3020 telephone sets, and
     on DIGITAL family Executive set with expanded display;
* pressing the programmed **[PHONE BOOK]** button
  -- on all Avanti Collection and DIGITAL family display
     telephone sets;
* dialing the Phone Book FNP code
  -- on all Avanti Collection and DIGITAL family display
     telephone sets;
* pressing the fixed **[PROGRAM]** button
  and
  dialing a free speed dial bin number
  -- on all Avanti Collection and DIGITAL family display
     telephone sets.

The user can activate Phone Book dialing only if the telephone set is in the "idle" state, or during speed dial programming, but not during a telephone conversation.

However, the Phone Book can be used to enter, update and remove names and telephone numbers, either when the telephone set is in the "idle" state, or, during a telephone conversation.

The user can dial the desired party by alphabetic dialing -- dial by name -- or by selecting the desired party from the display page of the Phone Book list.

Phone Book entries
Each name entry defined can contain up to 16 characters -- including letters, digits and the following three symbols: underscore, slash, and space.

The Phone Book dialing approach assures unambiguous name entry. Most dialpad buttons already commonly represent four characters, including three letters and one digit. With the addition of the underscore, slash, and space symbols, as well as special characters for foreign languages (in selected countries), some dialpad buttons may be used to represent up to five characters. Therefore, when pressing each telephone dialpad button, it may be necessary to press the button once, or a series of times in rapid succession, as shown in Table 2-2.

With each press of the dialpad button, the corresponding character -- letter, number, or symbol -- appears on the telephone set display.

Table 2-2 Phone Book Dialing Equivalents

dialpad number	for the following character -- press the dialpad button the following number of times, rapidly				
	one	two	three	four	five
1	1	_	"space"	/	
2	A	B	C	2	
3	D	E	F	3	
4	G	H	I	4	
5	J	K	L	5	
6	M	N	O	6	
7	P	Q	R	S	7
8	T	U	V	8	
9	W	X	Y	Z	9
0	0				

Each telephone number defined can contain up to 16 digits.

The names in both private and system Phone Book lists are sorted alphabetically.

As indicated in Table 2-3, the number of the entries that can appear on a telephone set display varies with the telephone model. Each entry occupies one line on the display.

Table 2-3 Phone Book Display

Telephone model	Number of Phone Book entries displayed
Avanti 3025	6
Avanti 3020	3
Avanti 3015D	1
DIGITAL Executive set with expanded display	6
DIGITAL Executive set with display	1
DIGITAL Display Speakerphone	1

For further detail regarding the Phone Book operation, see the DIGITAL family of systems Release 7 Operating Instructions Addendum.

Searching
The user is able to search the Phone Book for a name, a telephone number or a speed dial bin, by:
• scrolling display pages;
• pressing dialpad buttons corresponding to the name sought;
• a combination of the two methods.

Caller Identification -- automatic search
The type of Caller Identification for an incoming call depends on the type of outside line on which it arrives -- either Caller Identification, Calling Line Identification, or Automated Number Identification -- appears on the called telephone set display. By default, the name of the caller will automatically be searched for in all Phone Book lists, and -- if it has been defined in Phone Book -- the name will appear on the called telephone set display. If no name has been defined, the calling number will appear.

Conditions
Avanti Collection and DIGITAL family telephone sets that have a display can use the Phone Book feature.

Analog family telephone sets and all telephone sets without display cannot access the Phone Book feature.

When entering the number of a Private or System Speed Dial bin, make certain to include the lead zeros. For example, if the system is programmed for two-digit bin numbers, for bin 1: enter *01*; if the system is programmed for three-digit bin numbers, for bin 1: enter *001*.

In order to access the Phone Book feature on a telephone set that has no softkeys, an available programmable button, on that set, must be defined for this purpose in system administration.

The maximum permissible length of Phone Book entries is as follows:
* list name -- 10 characters;
* entry name -- 16 characters;
* entry telephone number -- 16 digits.

The maximum permissible number of entries in system Phone Book lists is the actual system number of speed dial numbers available to the user(s), as defined in system administration programming (PCP).

For further details on Phone Book programming, refer to the DIGITAL family of systems Release 7 Administration, Installation and Upgrade addendum.

Related features

feature	see section number in	
	this Release 7 addendum	Release 6 Feature Description manual
Caller Identification	--	2.28
Flexible Numbering Plan (FNP)	--	2.69
Avanti Collection Telephone Sets	2.2	--
Programmable Buttons	--	2.117
Speed Dial	--	2.129, 2.130

2.5   SOFTWARE DOWNLOADING

Software can be downloaded to the Avanti Collection telephone sets and the Avanti DSS unit, except for the Avanti 3000 telephone set. The software download can be used to updated the firmware version in the telephone.

Appropriate software can be:
* selected for each type of telephone set that supports the software downloading function
  and
* down loaded to the telephone set.

Software downloading is activated as a standalone program under the Windows95 operating system, using a PC:
- with a Pentium 16MB RAM CPU, or higher; and
- equipped with the downloading software package.

Software downloading can be carried out to one of a variety of individual destinations, or can be "broadcast" to composite destinations, such as the following:
- all Avanti telephone sets in the system;
- a list of specific telephone sets
  -- for example, for telephone set extension DNs 200, 240, 300, and 334.
- a telephone set DN
  -- for example, only telephone set extension DN 224;

An initial list of resources capable of receiving a download is prepared by the software downloading program, and then modified by the user.

Following each download operation, the program advises the operator whether the software downloading has succeeded for each unit, and if not the reasons for its failure.

The software downloading program maintains a running history of the operations that have been carried out.

For further detail on software downloading, refer to Release 7 of the DIGITAL Family of Systems Maintenance Manual.

Conditions
The following system resources can receive software downloading:
- Avanti Collection telephone sets, except for the Avanti 3000 telephone set;
- Avanti DSS units.

Related features

feature	see section number in	
	this Release 7 addendum	Release 6 Feature Description manual
Avanti Collection of Telephone Sets	2.2	--

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Section 3
PRIVATE NETWORKING BETWEEN TELEPHONE SYSTEMS

3.1   GENERAL

The DIGITAL systems' Release 7 networking capability enhancement presented in this section:

- utilizes -- in addition to the existing NAP protocol -- the Digital Private Network Signaling System (DPNSS) and QSIG standard digital protocols.
- provides an expanded set of improved network-wide features and services;
- facilitates installation and operation of inter-system private networks of all sizes, comprised of both Telrad DIGITAL systems and telephone systems of other PBX manufacturers.

3.2   NETWORK ANALOG PROTOCOL (NAP)

Public networking between telephone systems described in previous DIGITAL system releases utilizes a Telrad proprietary Network Analog Protocol (NAP). Since this protocol facilitates the treatment of various network call communication features in a manner satisfactory for small networks comprised of DIGITAL systems only, the NAP protocol will remain in service.

System cards supporting NAP
NAP (Network Analog Protocol) operates via the following interfaces, represented by the respective DIGITAL system cabinet cards:

- E&M
- DC5
- T1
- E1

The availability of these cards depends on the country where the system is installed.

Network-wide availability of system communication features under NAP
As detailed in the Release 6 DIGITAL family of systems Operating Instructions manual, the following communication features can be accessed and activated between DIGITAL network member systems -- under NAP -- as within an individual DIGITAL system:

- Basic messages
- Call Forward No Answer;
- Internal Page;
- External Page;

- Call Forward;
- Call Forward Busy;
- Callback;
- ImaGEN messages

3.3 DIGITAL PRIVATE NETWORK SIGNALING SYSTEM (DPNSS)

3.3.1 What is DPNSS?

DPNSS is a British Telecommunications (BT) protocol, which is mandatory in the UK, can provide a good private networking option in other parts of Europe, the US, and Israel.

DPNSS:
- works on a number of interface types -- 2M, 1.5M, as well as some V- and X-series);
- has many supplementary services defined and already deployed;
- allows networking with many PBXs from different manufacturers;
- has been selected to serve as:
  - the standard DIGITAL system network protocol for mixed networks;
  - as a proprietary protocol for private networks comprised of DIGITAL systems alone;
- operates only on PRI-type ISDN interfaces.

3.3.2 Interworking

With DPNSS, the DIGITAL systems can serve:
- as a transit exchange between switches of other manufacturers.
- as a gateway for trunk calls that pass to the network.

3.4 QSIG

QSIG is a standard protocol that defines signaling requirements at a Q reference point. QSIG protocol is a multi-vendor signaling system.

QSIG has been incorporated in DIGITAL systems -- for the time being, on a minimal level -- for basic calls only.

3.5   PRIVATE NETWORK MEDIA AND CONNECTIVITY

A DIGITAL system will be connected to the private network in either of the following ways:
- digital lines running the DPNSS or QSIG protocol:
  - 2M   -- in ETSI domain, or
  - 1.5M -- in US interfaces,
- analog lines -- in the case of very small systems, where:
  - a DIGITAL-system-only network is built, and
  - only features available on NAP protocol are used.

3.5.1   USA

In the USA:
- the interface for DPNSS is 1544 kbps -- 23B + D, while standard requirements confine the D-channel to slot 24, exclusively;
- in order to answer the demands of smaller systems, a partial span interface -- 12B + D -- will also be supported;
- on DPNSS, the DIGITAL system supports the previous set of features, enriched with some centralized voice mail functions (see Section 3.7.3, for a list of features supported);
- on NAP it is supported on E&M and T1 interfaces. The standard requirements confine the D-channel to slot 24, exclusively. There are no changes;
- NAP will be continue to be used for existing networks, to avoid forced upgrade to Release 7 DIGITAL systems.

3.5.2   UK

In the UK:
- the interface for DPNSS is 2048 kbps -- 30B + D;
- in order to answer the demands of smaller systems, partial span interfaces -- 10B + D and 20B + D, as for PRI -- will also be supported;
- NAP will work on the DC5 interface, as in previous releases.

3.5.3   Other countries

In most other countries:
- the interface for DPNSS in most other countries is 2048 kbps -- 30B + D;
- NAP will work on the E1 interface, as in previous releases;
- on DPNSS, the DIGITAL system supports the previous set of features, enriched with some centralized voice mail functions (see Section 3.7.3, for a list of features supported);
- NAP will be continue to be used for existing networks, to avoid forced upgrade to Release 7 DIGITAL systems;
- Basic call on QSIG will be supported.

3.6 NETWORK CARDS

Special system cabinet cards for DIGITAL systems in private networks have been introduced for DPNSS and QSIG. Cards for both protocols are prefixed by the letter N, followed by the number of connected channels, as follows:
• USA: N12 and N24;
• ETSI: N10, N20, and N30.

These network cards are based on the DIGITAL system PRI card platform:
• USA: PRI12 and PRI24;
• ETSI: PRI30 (in the UK: also PRI10 and PRI20).

A DPNSS or QSIG networking card can be switched from one protocol to the other by changing the firmware chip.

3.7 NETWORKING FEATURES -- SUPPLEMENTARY SERVICES

Networking features belong to two categories:
• protocol independent features;
• protocol dependent features.

3.7.1 Protocol independent features

Protocol independent features do not require inter-node signaling -- between the systems that comprise the private network.

Most important among these features are:
• uniform numbering plan;
   and
• flexible translation between public and private numbering plans.

These features are achieved by integrating the following relevant DIGITAL system capabilities with the network:
• LCR;
• system speed dialing;
• flexible DID number analysis.

There are no new requirements in Release 7 concerning this feature group.

3.7.2 Protocol dependent features

Protocol dependent features require inter-node signaling, between the systems that comprise the private network.

Most of these features in Release 7 DIGITAL systems will based on the DPNSS protocol.

3.7.3 Feature list

Table 3-1 shows the list of private network features supported by Release 7 DIGITAL systems, according to the protocols with which they comply.

Table 3-1 DIGITAL System Release 7 Private Network Features

feature name		NAP	DPNSS*	QSIG
Basic Call		Y	Y	Y
Call Back on Busy		Y	Y	-
Call Back on No Answer		-	Y	-
Call Forward (Call Diversion)		Y	Y	-
Calling Line Identification Presentation (CLIP)		Y	Y	Y
Centralized voice mail	Call Forward to Mailbox	Y	Y	-
	Call Record	-	Y	-
	Message LED	Y	Y	-
	Message Retrieval from Mailbox	Y	Y	-
	Voice Mail Screens	-	Y	-
	Voice Memo	Y	Y	-
Conference Add-on		Y	Y	-
Hold + Transfer + Conference (3-party)		Y	Y	Y
Infinite Loop Avoidance		-	Y	Y
Interworking for Basic Call Services		-	Y	Y
Message		Y	Y	-
Name Display		-	Y	-
Page		Y	Y	-
Transit Capability		-	Y	-
Trunk Optimization		Y	Y	-

* In the UK, the DPNSS supported features are the same features as supported on NAP, except for the addition of Call Back on No-answer, Name Display, and Infinite Loop Avoidance and the elimination of Page, which is considered unnecessary in the UK.

3.7.4 Interprotocol feature names

Some of the names of supplementary services and system features vary from one protocol to another. The following name variations apply to Release 7 features.

CBWF
Call Back when Free (CBWF) is also known as:
- Call Back on Busy (CCB)   -- DPNSS;
- Completion of Calls to Busy Subscribers (CCBS) -- QSIG.

CBNU
Call Back when Next Used (CBNU) is also known as:
- Call Back on No Answer (CCNA)   -- DPNSS;
- Completion of Calls on No Reply (CCNR)   -- QSIG.

CF
Call Forward (CF) is also known as:
- Call Diversion (CD)   -- DPNSS;
- Call Forwarding Unconditional (CFU)   -- QSIG.

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Section 4
ImaGEN FEATURES

4.1   GENERAL

This section describes the Release 7.00 revisions and enhancements to ImaGEN features.

4.2   CARBON COPY

An internal or external user of ImaGEN can leave a message in a single mailbox, the mailboxes of a pre-defined group, or carbon copy the message to an individually selected list of mailboxes.

A user listening to a message can also send or copy it to a single mailbox, the mailboxes of a pre-defined group, or to an individually selected list of mailboxes.

4.3   CONTINUOUS MESSAGE LISTENING

The continuous message listening feature allows you to listen to all messages in any messages category, without having to request each message individually.

This feature is useful when using the ImaGEN from an external location, such as a mobile phone.

During continuous message listening, the user is able to apply to a message any features from the ImaGEN menus. The continuous message listening will continue after you complete your action, unless you enter the Visual message list or activate the Unified message feature.

You can program this feature to operate all the time or only when retrieving messages externally.

4.4 REVERT MESSAGE TO NEW MESSAGE STATUS

After reading a message, you can have it revert to new message status. This returns the message to the list of new messages in the mailbox and relights the message indicator.

4.5 CONTINUOUS USE OF LANGUAGE

In ImaGEN systems using multiple languages, you can remain in the selected language after transferring an external call to an extension, answering a recall, returning to ImaGEN, or forwarding a call back to the ImaGEN.

4.6 DIRECT DIALING TO MESSAGE SENDER

From the Visual message list, you can now dial out directly to the message sender.

You can dial out directly to any internal caller appearing on the Visual message list and to any external caller whose caller ID appears on the Visual message list.