Chapter 8
Peripherals

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Call account & Billing

FEATURE DESCRIPTION

The result of the services that take place in DCS Gateway System can be confirmed through System input/output device. Devices accompanied with the System include billing printer(CDR), billing machine(SMDR Machine). Billing printer (CDR) prints out in the form of ASCII that is recognizable by the user, supporting 80 or 132 column. Communication protocol in use is RS232C H/W specification, XON/XOFF(S/W). Billing machine(SMDR Machine) is an external device for receiving billing data for the calls that take place in System. Communication protocol in use is RS232C H/W specification, ENQ/ACK(S/W).

SETTING THE MAP

Setting the Node and Port number for each input/out device in the Map

1. In the MAP, select the Menu below.

    [System Management] ⇒ [System I/O Device Management] ⇒ [I/O Device in Each Node]

2. Enter node number for billing printer and SMDR machine installation. Press [Rx] button to receive input/output device information for each node from System Node

3. Select Node number and port number for "[0] Account Output Printer" and "[5] SMDR Output Machine". Then press [Tx] button to transmit to System.

I/O Device in Each Node/System I/O Device M...

Node [0]

No.	I/O Device	Node	Port
0	Account Output Printer	0	Async 1
1	System Error Printer		
2	Statistics Output Printer		
3	Data Printer		
4	Hotel Billing Printer		
5	SMDR Output Machine	0	Async 2
6	KT EDS		
7	PMS 2		
8	VMS		
9	OAI Computer		
10	OAI VRU		
11	Alarm Box		
12	Remote MAP		
13	RPM		
14	CFP Monitoring		
15	System Error Saving Node		-

Node [0 - 7] 0

Update

Setting the billing printer (CDR) function in the MAP

1. In the MAP, select the Menu below.

   [System Management] ⇒ [System I/O Device Management] ⇒ [I/O Port Para]

2. Select the Node number and the Port number for the billing printer and press [Rx] button to receive the Port information.

3. Press the hold selection in the "[16]Port Block Status" field to "Enable" the Port holding.

4. Define the communication protocol parameter to use for the printer as follows;

- [2]. Bits per Character – 8 Bits

- [14] Communication Control - XON/XOFF

- Specify other fields as appropriately.

NOTE the two fields above are different depending on the types of the printer

5. Press [Tx] button to transmit the changed DB to System.

6. Press the hold selection in the " [16] Port Block Status" field to "Disable" Port holding.

No.	Item	Option
0	Baud Rate	9600 bps
1	Parity	No Parity
2	Bits Per Character	8 Bits
3	-	-
4	CR Followed by LF	☑
5	n-CR Followed by FF [0 - 127]	0
6	FF Prior to New Message	☐
7	Insert Heading Message	By Message Type
8	Port Message Type	
9	-	-
10	-	-
11	-	-
12	-	-
13	DTR Check	☐
14	Communication Control	Xon/Off
15	DTR Status	Off
16	Port Block Status	Disable
17	Port Status	Fault

I/O Port Para./System I/O Device Management/System Mana...
Node [0]   Port [ ]
Node [0 - 7] 0   Port [1 - 6] 1
Successfully received a response.   Update

7. Select the Menu below in MAP to define the printer size.

[Database Management] ⇒ [System DB Management I] ⇒ [IPM Info]

8. Select the "Printer Size" number 5.

No.	Item	Content
0	Site Identification	V340 Site
1	Remote Manage. Admin. Tel.	
2	Modem Answer Time [sec]	
3	SMDR Print Type	
4	Country Code	English
5	Printer Size	132 Column
6	SMDR Format	
7	Infolink Version	Flexible Format(V340~)

IPM Info./System DB Management I/Data Base Management
Update

9. Press [Tx] button to transmit to System.

10. The billing information of the call selected to print billing in System is printed out.

Selecting the billing machine (SMDR Machine) function in MAP

1. In the MAP, select the Menu below.

   [System Management] ⇒ [System I/O Device Management] ⇒ [I/O Port Para]

2. Enter the Node number and Port number for billing machine and press [Rx] button to receive the Port information.

3. Press the hold selection button in "[16] Port on hold" field to enable Port on hold

4. Define the communication protocol parameters for the use of billing machine as follows.

   - [2]. Bit per Character– 8 Bits

   - [14] Communication control – Enq/Ack

   - Select as you wish for the rest of the fields.

5. Press [Tx] button to transmit the changed DB to System.

6. Press the hold selection button in the "[16] Port Block Status" field to disable Port holding.

7. The billing information of the call selected to print billing is transmitted to the billing machine.

Selecting the billing print option.

By selecting the billing printer output type in [Billing Service Option] DB, you can specify the caller name to be included when billing information is printed.

1. In the MAP, select the Menu below.

   [Statistics billing Management] ⇒ [Billing Management] ⇒ [Billing Service Option]

2. Select and define the following field option. Select "W/O CID, CO" not to include the caller name, or select "V340(WITH CID)" to include the caller name in the printed billing information.

   • [243]. CDR Printout Type

3. Press [Tx] button to transmit the changes to System.

Selecting the type of the call to print in billing printer and billing machine from MAP

1. In the MAP, select the Menu below.

   [Statistics billing Management] ⇒ [Billing Management] ⇒ [Set Billing Output Device]

2. Select the "CDR" or "SMDR Machine" for each call type to print out the billing information.

3. Press [Tx] button to transmit the changes to System.

> **NOTE**
> Billing information will not be printed if' Outgoing Call' field is not specified although other specific fields(call type) is specified to print during the registration of CDR print selection, or vice versa. This applies to the "Incoming Call" and to billing print devices such as "SMDR Machine" and "PMS".

OPERATING PROCEDURES

1. Billing printer (CDR) function

   • Connect the printer device with the serial Port to the external input/out port of the System.

   • Use 25-25 pin cable that supports RS232C H/W SPEC

2. Billing machine(SMDR Machine) function

   • connect PC with built-in billing S/W Package with applicable protocol for System.

   • Use 25-25,25-9 pin cable that supports RS232C H/W SPEC .

RESTRICTIONS

1. Billing machine must be compliant with ENQ/ACK protocol provided by System.

2. Following is the billing data storage capacity prepared for the abnormal communication.

   ❶ billing printer(CDR)   : 2*1024 calls

   ❷ billing machine(SMDR Machine): 32*1024 calls

3. Billing output type can be selected according to Main Package and the characteristics
   According to the selection of field number 243 of [Statistics & Billing => Billing Management => Billing Service Option] DB. Printing options are available.

   ❶ V302 With CO. if selected : long distance call pre-selection DB
   (applicable for the main Package V302 version or higher)

   ❷ V302 With CID Name, if selected : caller name DB (applicable for the main Package V340 version or higher)

     • 132 Column Printer Output Format
     ```
     -------------------------------------------------------------------------------------------------------
     Date    Time    Duration     Flag     Ctype Dtype Tgroup Ten. Caller No. Called No.
     Co. Dialed   Digit       FAC/ACC Code   Bulk   Caller Name
     -------------------------------------------------------------------------------------------------------
     ```

     • 80 Column Printer Output Format
     ```
     -------------------------------------------------------------------------------------------------------
     Date    Time    Duration     Flag     Ctype Dtype Tgroup Ten. Caller No. Called No.
     Co. Dialed   Digit       FAC/ACC Code     Bulk
     CallerName "
     -------------------------------------------------------------------------------------------------------
     ```

     • Output example (132 Column output example)
     ```
     -------------------------------------------------------------------------------------------------------
     Date    Time    Duration     Flag      CT   DType    TGrp Ten. Caller_No. Called_No.
      Co._Dialed_Digit   FAC/ACC_Code Bulk CID-Name
     -------------------------------------------------------------------------------------------------------
     ```

     ✓ Incoming Call
     ```
     5.18 14:20:35 00:00:05 I0000000100 0 00000000    1    0        0-0020     2008
     2008                              -       -        -
     ```

✓ Outgoing Call
```
5.18 14:20:35 00:00:05 O1001000001 0 00001001   0   0      2009        0-000(90   )
2008                         -        -        -
```

✓ Malicious Call / CID / ANI
```
5.18 14:20:45 00:00:02 I0000000100 6 00000000   3   0      4322009     2008
2008                         -        -    SAMSUNG C.O
5.18 14:20:46 00:00:02 O1001000010 0 00001001   2   0      2009        0-000A(92  )
2008                         -        -        -
```

✓ Offsite Forward Call
-> Trunk Incoming Call OFWD
```
5.18 14:22:58 00:00:05 I0000000100 0 00000000   1   0      0-0021      2002
2002                         -        -        -
5.18 14:22:58 00:00:05 T0001000001 2 10000000   0   0      2007        0-0001(90  )
2002                         -        -        -
5.18 14:22:58 00:00:05 O1001000001 0 00001001   0   0      2009        0-0000(90  )
2007                         -        -        -
```
-> Station Call OFWD
```
5.18 14:23:51 00:00:03 I0000000100 0 00000000   1   0      0-0020      2002
2002                         -        -        -
5.18 14:23:51 00:00:03 O1001000001 2 10001001   0   0      2007        0-0000(90  )
2002                         -        -        -
```

✓ Transfer Call
-> Incoming Trunk -> Station -> Outgoing Trunk
```
5.18 14:25:19 00:00:04 I0000000100 0 00000000   1   0      0-0021      2007
 2007                        -        -        -
5.18 14:25:19 00:00:04 T0000000001 a 00000000   0   0      2008        0-0001(90  )
 2007                        -        -        -
5.18 14:25:10 00:00:13 O1001000001 0 00001001   0   0      2009        0-0000(90  )
 2008                        -        -        -
```
-> Station -> Station -> Outgoing Transfer
```
5.18 14:25:52 00:00:00 S0000000000 0 00000000  ---  0      2009        2008
 2008                        -        -        -
5.18 14:25:54 00:00:05 I0000000100 0 00000000   1   0      0-0020      2007
 2007                        -        -        -
5.18 14:25:54 00:00:06 O1001000001 8 00001001   0   0      2008        0-0000(90  )
 2007                        -        -        -
```

✓ FAC Code (max 12 digits)
```
5.19 08:01:13 00:00:03 I0000000100 0 00000000   1   0      0-0020      2007
 2007                        -        -        -
5.19 08:01:13 00:00:03 O1001000001 2 00001001   0   0      2000        0-0000(90  )
 2007              F123456        -        -
```

✓ ACC Code (max 12 digits)
```
5.19 08:02:49 00:00:14 I0000000100 0 00000000   1   0      0-0020      2007
 2007                        -        -        -
5.19 08:02:49 00:00:14 O1001000001 0 00001001   0   0      2008        0-0000(90  )
 2007              A123456        -        -
```
```
==============================================
```

4. A specific server module for billing printer / billing machine and TCP/IP communication is implemented independently from RS232C Serial Port. communication. But, cannot access both at the same time.

Windows MAP

FEATURE DESCRIPTION

MAP(Maintenance & Administration Program) is a PC Software package for maintaining and repairing DCS Gateway System. MMC(Man Machine Communication) feature plays its very important role in PABX System with super-multi feature such as DCS Gateway. MAP provides MMC(Man Machine Communication) feature, enabling the user to understand the System to use it.

In a MAP-installed PC, connect to DCS Gateway System's LPM3 by using LAN communications and manage Database in DCS Gateway System when Online.

The following is a summary of key features of MAP including Database Management feature in the System.

- Inquiry and correction of System's Database by its feature

- Inquiry and management of System's Statistics and billing data

- System diagnosis and control

- Installation of Main Software, Package, Database and Firmware in the System online or offline.

NOTE MAP is programmed to communicate by connecting to the System either 1 to 1 or N to 1. Even in the case of MAPs connecting to one System N to 1, only one MAP completely controls the System. When a MAP wants to connect to SUPER mode to completely control the System, and another MAP has already connected to SUPER mode to communicate with the System, other MAPs attempting to connect will be connected only as inquiry mode.

SETTING THE MAP

Installing Windows MAP Package in PC

1. Insert the MAP Installation CD into the CD-ROM Driver in your PC to install Windows MAP. Click "SETUP.EXE" and start to install Windows MAP.

2. Except the case if you need to change the installation folder displayed in installation process, go to the next step by pressing "NEXT" button. In installation process, you don't need to enter your "User ID".

3. In BDE installation, except the case if you re-specify installation directory, press "NEXT" button to go to the next step in the same way as Windows MAP installation.

OPERATING PROCEDURES

Installing Main Software, Package and Database in DCS Gateway System

NOTE You can install Main Software, Package and Database in the System in two ways. One is Online install and the other is Offline install. Online install is to load Main Software, Package or System Database in the System without stopping the System in operation. Offline install is to load Main Software, Package and Database after ABORT during system restarting. For the first time to setup the System, use Offline to install Main Software, Package and Database.

Offline Install

1. Place Database or Main Software Package under "Main_DB" or "Main_PGM", according to what you want to install under "Prog/Inst" directory of the directory where Windows MAP installed.

2. Connect a Q-MODEM to DCS Gateway System and set environment appropriately to monitor System using use the Q-MODEM PC.

3. Make the System Restart by turning DCS Gateway System's MCPU Main Power On and Off.

4. When the System Restarts, it initially conducts a DRAM-test. You can verify this by the Q-MODEM PC. When the DRAM test reaches 100%, enter "n" in the Q-MODEM PC to abort the System.

5. If the System asks you for Password, enter "0815".

6. You can verify System's network parameter settings as follows:

   > set network read ⏎

   The current System has network parameters such as IP Address, Gateway, Subnet Mask.
   If you need to change network parameters, you can change them as follows:

   > set ip XXX.XXX.XXX.XXX ⏎   ✂

   > set gateway XXX.XXX.XXX.XXX ⏎   ✄

   > set subnetmask XXX.XXX.XXX.XXX ⏎   〰

   > set network write ⏎   🔔

   After changing network parameters by ✂, ✄, 〰, you must go through the number 🔔 process. This enables the System to have changed network parameters reflected.

   To confirm that you have properly changed the values of network parameters, use this command below.

   > set network read ⏎

7. If you don't need to change the System's network parameter settings, skip step 6.

8. In a MAP-installed PC, click "Enable Windows MAP" icon to enable MAP.

9. A log-in screen appears as MAP is enabled. Select a site from registered site list to install Offline. If you cannot find the site you want, right-click site list and select " register new sites" menu from Short Cut Menu to register new site name and IP address, and then select the newly registered site.

10. As you select the site, press "Offline Install" button.

11. If you are asked to enter the password, enter "ixsmap".
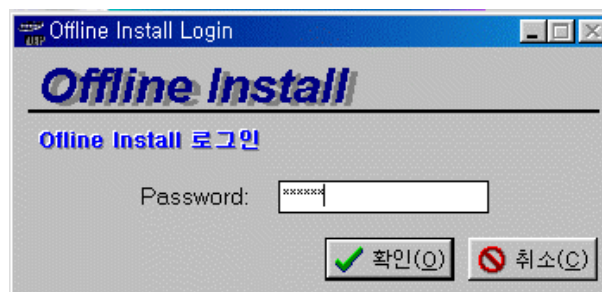
12. After selecting "install mode" and "install version", select "install Package". And press "Start" button. If you want to change Main Package comment before starting Offline Install, check "override" after writing the comment.
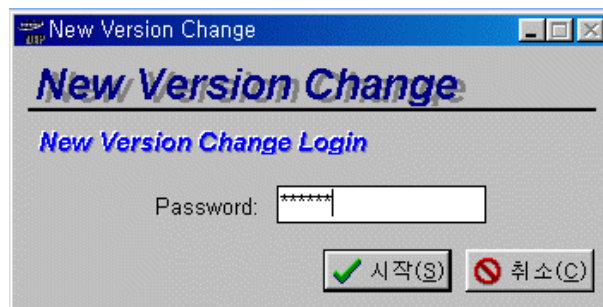
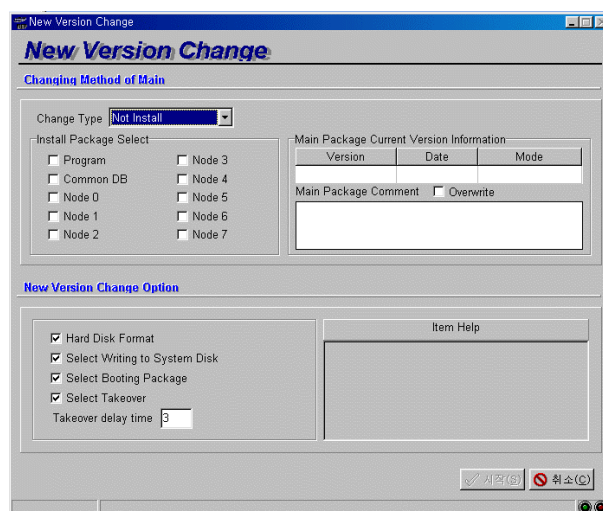13. When Offline Install is done, the System Restarts.

14. When Package Install is done, the System Restarts. Therefore Re-log in the System.

Online Install

1. Place Database or Main Software Package under "Main_DB" or "Main_PGM", according to what you want to install under "Prog/Inst" directory of the directory where Windows MAP installed.

2. Click "Enable Window MAP" icon in a MAP-installed PC to enable MAP.

3. The Log-in screen appears as MAP is enabled. Select the System to connect and enter the password. And press "OK" button.

4. When it is logged in through Windows MAP, select "New Version Change" in "Tool" Menu. And enter the password, "ixsmap".

5. Select "Change Types", "Select Install Package" and "New Version Change Options" for your purpose, press "Start" button.

6. In case of selecting "Select Booting Package" in "New Version Change Options", the System Restarts after Online Install is done. In case of selecting "Select Takeover", the System Restarts after Online Install as Take-Over occurs between Stand-By and Active.

7. When the System Restarts, current link to the System will be disconnected.

8. When Package Install is done, the System Restarts so that you need to log on the System again.

RESTRICTIONS

1. To install Windows MAP program, minimum PC requirement is as follow:

   - System   Pentium 133 MHz (minimum)
     400MHz(recommendation)

   - Hard disk capacity   Over 400MB (not fixed)

   - Memory capacity   16MB (minimum), 32MB (recommendation)

   - Operator   Windows 95/Windows 98

   - Monitor   VGA Color Monitor (resolution: 1024 x 768)

   - Printer   Supported in Windows 95/Windows 98

2. Install Windows MAP for each System Version.

RMAP alarm reporting and access

FEATURE DESCRIPTION

RMAP(Remote Maintenance & Administration PC Package) is a program to monitor the condition of Systems by receiving alert messages from remote Systems or reading information about System's Node configuration and condition, Port condition for shelves and slots of each Node connecting to the specified System. In addition, RMAP schedules various types of diagnostic test fields for each System to be managed, or conducts a test at a random time. And it also observes conditions of the Systems with test results.

A summary of RMAP's features are as follows:

- Receive alert messages from Systems

- System's Node configuration information, each Node's conditions, Port condition for shelves and slots of each Node

- Conducts a scheduled test or instant test for System's various fields.

- Views the Report consisting of RMAP usage history, alert message received records for a System, condition check records and test records

NOTE

1. While MAP can communicate with Systems N to 1, RMAP can communicate with Systems only 1 to N. In other words, while Systems can accept RMAP connection request only one by one, RMAP can communicate with more than one System at the same time.

2. Both RMAP and MAP can communicate with the same System at the same time.

3. RMAP is a Package designed to seamlessly monitor Systems distributed into sites in a RMAP-installed PC.

4. RMAP can be confused with MAP in its feature. The following table will distinguish RMAP from MAP by comparisons.

Compariso n Fileds	RMAP	MAP
Name	Remote Maintenance & Administration PC	Maintenance & Administration Package PC
communication method	LAN or MODEM	LAN or MODEM
Communication with Systems	1 to N	N to 1
Unique features	- Receipt of the Alert Message - System conditions check - Scheduled test for Systems - Report of performance, alert, and test records	- System Database check and correction - System Statistics and billing data check and Management - System diagnosis and control - Updating Systems with Firmware, Database, and Main Software Package

SETTING THE MAP

To transmit the alarm message that occurred in System to RMAP, or to allow MAP to freely access to monitor, following settings in the MAP are necessary.

## RMAP Modem initialization Menu setting

In case that connection through modem to transmit the alarm that occurred in System to RMAP, select the modem type in the following Menu to use RMAP by Node.

1. Selecting Menu

   System Management ⇒ System I/O Device Management ⇒ Modem Initialization

2. Select the following fields.

   - **Node no.** : enter the node number for the input/output port with connection to modem
   - **Modem Type :** select the modem type you wish to initialize.
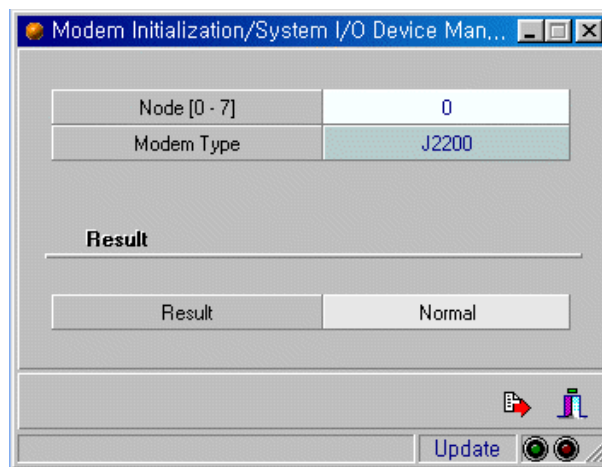
3. Press [Tx] button to transmit settings to System.

Setting the Network Parameter menu

In case of attempting to connect through LAN to transmit the alarm message that occurred in the System to RMAP, select the network parameters in the Menu below to use by Node. In addition, select the system network parameter to assess System from RMAP or to monitor the state of the System.

1. Selecting Menu

   System Management ⇛ System I/O Device Management ⇛ Lan Device Register

2. Set the following fields.

   - **RMAP – IP Address** : Selects the RMAP IP address.
   - **RMAP – Port** : Selects the LAN communication Port for the connection to RMAP.
   - **IPM – IP Address** : Selects the System IPM card IP address.
   - **IPM – Subnet Mask** : Selects the System Subnet Mask.
   - **IPM – Gateway** : Selects the System Gateway.

3. Press [Tx] button to transmit the input value to System.
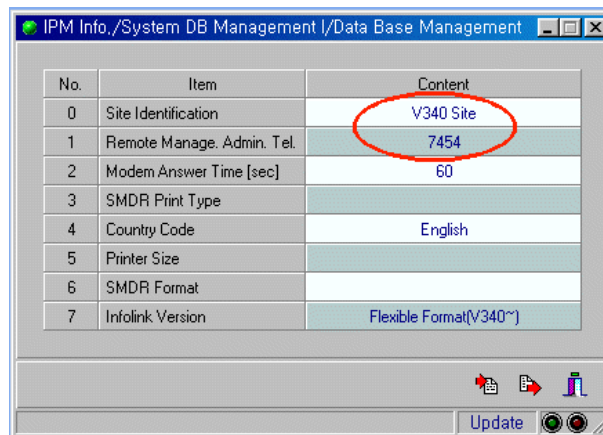
Setting IPM information

Sets or browses IPM information (site, remote maintenance/service phone number, modem responding time) and information related to system alarm, system reboot, etc, when remotely accessed to the IPM board through a modem.

1. Selecting Menu

    Database Management ⇒ System DB Management I ⇒ IPM Information

2. Set the following items.

    - **Site Identification** : The information of a site which reports errors to the RMAP.

    - **Remote Manage. Admin.Tel.** : The telephone number where the RMAP is located to get error reports.

    - **Modem Answer Time[sec]** : The maximum time it takes for a response to be sent from RMAP to the modem.

No.	Item	Content
0	Site Identification	V340 Site
1	Remote Manage. Admin. Tel.	7454
2	Modem Answer Time [sec]	60
3	SMDR Print Type	
4	Country Code	English
5	Printer Size	
6	SMDR Format	
7	Infolink Version	Flexible Format(V340~)

3. Press the [Tx] button to send the values to the system.

OPERATING PROCEDURES

For the RMAP setting and how to use, please refer to the "RMAP User Guide" that comes with program.

RESTRICTIONS

1. To execute RMAP program Package, make sure the PC is at least equipped with following specification.

Item	Recommended Specification	Reference
PC specification	• CPU : Pentium 100 MHz or higher • Memory : 64 Mbytes or more (recommended) • HDD : 300 Mbytes or more • OS : Windows 95	
LAN Card	• 10 Mbps Ethernet Card	
External Modem	• Speed : 28.8 K or faster	
Multi Port Card	• Number of Port : 4 Ports • Driver : Windows 95 Driver	Equinox
Required S/Ws for Operation	• Web Server : MS Personal Web Server • Web Browser : MS IE4.0 or higher • S/W Component for Alarm Receipt	ActiveX technology

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