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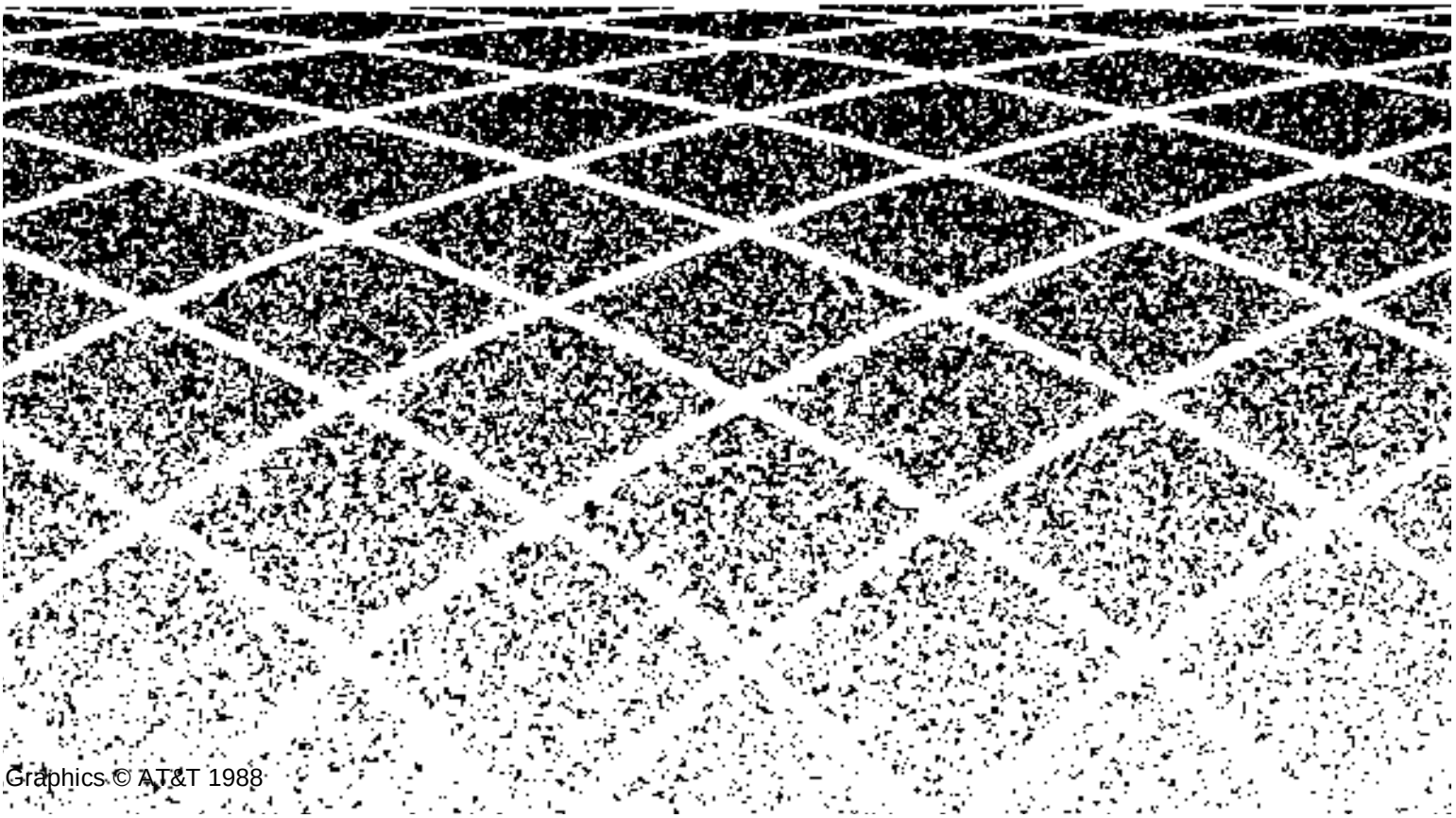
Call Management System
Release 3 Version 2
Change Description



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Call Management System
Release 3 Version 2
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General Information

The *Call Management System Release 3 Version 2 Change Description, Issue 7* (AT&T 585-215-421) document is written for call center customers who are:

- Upgrading from a 3B Release 2 (R2) CMS to R3V2 CMS (Chapter 1).
- Upgrading from a Release 3.0 (R3) CMS to R3V2 CMS. (Chapter 2).
- Upgrading from an earlier Call Management System (CMS) Release 3 Version 2 (R3V2) software load to the latest R3V2 CMS software, Issue 1.11. (Chapter 8).

Other than chapters 1 and 2, this document identifies the differences between R3V2 CMS software load issues.

Organization and Use of This Document

Organization of Document

This document is organized as follows:

Chapter 1	**Differences Between R2 CMS and R3V2 CMS**
Chapter 2	**Differences Between R3.0 CMS and R3V2 CMS**
Chapter 3	**Differences Between Version 1.2 and 1.4**
Chapter 4	**Differences Between Version 1.4 and 1.6**
Chapter 5	**Differences Between Version 1.6 and 1.8**
Chapter 6	**Differences Between Version 1.8 and 1.9**
Chapter 7	**Differences Between Issue 1.9 and 1.10**
Chapter 8	**Differences Between Issue 1.10 and 1.11**

Use of Document

You will use this document differently, depending on which upgrade you are performing.

Upgrade from earlier release (R2 or R3) of CMS

You will use Chapter 1 (R2 upgrade) or Chapter 2 (R3 upgrade) to understand the major differences between your current issue of CMS and the R3V2 CMS.

Upgrade of R3V2 from one CMS software load to the next

You will use Chapters 3 through 8 to identify the changes to the system that might affect your use of the CMS. You will also use the included upgrade instructions to perform the actual load upgrade on your system.

General Information

Audience

This chapter is written for customers who are upgrading from a Release 2 3B Call Management System (R2 CMS) to a Release 3 Version 2 Call Management System (R3V2 CMS).

Introduction

This chapter describes the differences between the R2 CMS and the R3V2 CMS. Although the concept of tracking calls processed through the Automatic Call Distribution (ACD) feature of the switch is the same, R3V2 CMS is quite different from R2 CMS.

The chapter is organized in the following sections:

- General Differences/Enhancement
- Data Differences
- CMS and Expert Agent Selection (EAS)
- Personal Call Tracking
- R3V2 CMS User Interface
- Reports
- Timetables and Shortcuts
- Dictionary
- Exceptions
- ACD Administration
- User Permissions
- System Setup
- Maintenance
- UNIX System
- Custom Reports
- Forecasting

General Differences/Enhancement

Major Differences

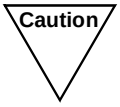
- R3V2 CMS runs on a faster computer.
- R3V2 CMS supports multiple ACDs differently on a single CMS.
- R3V2 CMS supports the following:
  - — Better reporting of call data
  - — More database items and calculations
  - — Support for additional Call Vectoring steps with Generic 3 Version 2
  - — More Real-Time reports
  - — More Historical reports
  - — More Exceptions conditions
  - — Enhanced Custom Reports Creation tool
  - — Call history (call record) capabilities.
- R3V2 CMS uses switch time and not UNIX system time as R2 CMS did.
- R3V2 CMS supports Expert Agent Selection (EAS) on the Generic 3 Version 2 and Generic 2.2 switches.
- R3V2 CMS tracks extension calls made by an agent and extension to an agent using the Personal Call Tracking feature on Generic 3 and Generic 2.2 switches.

Increased Capacities

CMS now supports the following switch capacities:

- 5200 agent/split combinations for Generic 3 Version 2
- 5200 agent/skill combinations for Generic 3 Version 2 with Expert Agent Selection (EAS)
- 5115 agent/skill combinations for Generic 2.2 with EAS
- 255 split/skills for Generic 3 Version 2
- 600 skills (numbered 10 to 609) for Generic 2.2 with EAS

- 665 trunk groups for Generic 3 Version 2 (255 trunk groups for Generic 2.2)
- Generic 3 Version 2 agents may log into up to four splits or skills (an increase from three).
- Generic 2.2 agents may log into up to four skills plus the default skill.



Even though R3V2 CMS supports these additional capacities, you will not be able to upgrade unless you have sufficient free space on your disk to accommodate all the data you want to collect. Your current disk space allocation may specify more items to be measured for longer lengths of time than you actually have space on your disk. This means that you must purchase more disks, or change the length of time data is stored, or the number of entities measured before you can upgrade.

Call Vectoring

- CMS now supports 32 vector steps per vector with the Generic 3 Version 2 switch. The Vector Contents window in the ACD Administration subsystem is a multipage window.
- CMS now supports the *converse* step. This vector step is only available with the Generic 3 Version 2 switch as part of the Call Vectoring feature.
- If you will be using *converse*, you will need to administer more unmeasured trunks, since the *converse* command reports about a call using an unmeasured trunk.
- If you are upgrading from R2 CMS and you are upgrading your switch as well, you will see other new vector steps like call prompting, adjunct routing, etc.

Multiple ACD Support

R3V2 CMS supports multiple ACDs in the following CMS areas:

- **Title bar**: The link status for each ACD link is shown on the CMS title bar.
- **Reports**: Real-Time Multi-ACD reports are available to you. These reports allow you to access data from multiple ACDs on the same reports. This could be different splits/skills from different ACDs, for example.
- **Exceptions**: The Exception Count, exception alerting, and entries in the exception log are for all ACDs for which the user has exceptions permissions.

  The Exceptions Log specifies the ACD where the exception occurred.
- **User permissions**: You can set up permissions for each user for each ACD. Also, you can set up permissions by each ACD (for example, you might want to give a CMS user permission for an entire ACD).
- **Commands SLK**: You can change the ACD you are accessing from the `Commands:Options:Current ACD` menu item.
- **Windows**: You can have windows from different ACDs open at the same time. The current ACD name or number appears in the upper right corner of each window so you will know which windows apply to which ACD.

Data Differences

Major Differences

The real-time and historical databases in R3V2 CMS **are not** identical to those in R2 CMS. This section outlines the main differences in data handling, the capability of agents to log into multiple splits/skills, and the process of multiple split/skills queuing.

The changes in composition are due primarily to the following:

- The following new items have been added to the R3V2 CMS database tables to increase tracking accuracy and to support new switch features.
  - Transfers
  - Conferences
  - Call work codes
  - Lookahead attempts
  - Adjunct routed calls
  - Personal calls
  - Internal versus external outgoing calls
  - Outbound ACD calls
  - Direct agent calls
  - Busy-hour calls.
- R3V2 CMS has three times as many database items as R2 CMS, thus offering more detailed information about the calls handled by your call center. Items have been added to the database to support tracking for new switch features (for example, Expert Agent Selection) and to provide some detailed tracking when used with newer switch releases. For example, a Generic 2.2 or Generic 3 switch notifies CMS when agents transfer or conference calls or put them on hold. R3V2 CMS tracks these events; R2 CMS does not. This also means that the database tables require more space than they did in R2 CMS.
- Most R3V2 CMS database items are **call-based**, meaning that the **data for a given call are not recorded until the call and any associated after call work have completed**. This is different from R2 CMS, in which data are recorded for a call at several points during the call.

  In R3V2 CMS, average times (like average ACW time, average talk time) are calculated using call-based times and counts (for example, ACDTIME/ACDCALLS for average talk time). This means that an average for an interval is the average time for calls that *ended* in the

interval. In R2 CMS, average times are calculated using interval-based times and counts which meant that it was possible to calculate an average for an interval in which there was no call recorded, resulting in a “divide-by-0” error. There are very few interval-based items in R3V2 CMS. R3V2 CMS data is recorded only for completed calls, so the data will be consistent.

This change also eliminates duplicate database items (call-based and interval-based items as in R2 CMS) and changes the way some items are recorded in R3V2 CMS. For example, R2 CMS had the items *ACDCALLS* (interval-based) and *ANSWERED* (call-based); both items represented the number of answered ACD calls for the split, agent, VDN, etc. In R3V2 CMS, there is a single, call-based item, **ACDCALLS**, across all the tables (agent, split, VDN, etc.).

Note

See the *CMS R3V2 Migration* (AT&T 585-215-113, Issue 2) document for the R2 and R3V2 CMS database mapping references. Also, all R3V2 CMS database items and calculations are described in Appendix A, “Database Items and Calculations,” in the *CMS R3V2 Administration* (AT&T 585-215-521) document.

- The number of ACD calls shown on a report may be lower in R3V2 CMS than in R2 CMS because R3V2 CMS does not count the call until it has completed successfully (call-based). Calls that do not complete successfully (for example, due to hardware failures on the trunk) are not recorded as ACD calls in R3V2 CMS. ACDCALLS in R2 CMS was interval-based and thus recorded the call when it began, even if it failed later. (Failed calls are recorded in error logs on the R3V2 CMS.)
- When the link to the switch comes up, R3V2 CMS places all staffed agents in the OTHER state, which is considered staffed. These agents accrue staffed time during translations pumpup. With the same situation in R2 CMS, agents are put in the INIT state, which is not considered staffed, until they change states or an audit tells CMS the agents’ states. Thus, R2 CMS agents accrue less staffed time when the link drops than R3V2 CMS agents do.
- In R3V2 CMS, ASSISTS and events counts are recorded **only** if the agent is on a call or in call-related after call work. In R2 CMS, an agent could press an event count or ASSIST button at any time and the event was recorded.
- In R3V2 CMS, agent time staffed is subdivided into two additional states: agent time with ACD calls ringing at the set and agent time doing other work. In R2 CMS, time spent with calls ringing at the set and time spent making or receiving personal calls was collected as

available time. In most cases, time spent with a call on hold was tracked as talk time in R2 CMS, whereas that time is tracked as time doing other work in R3V2 CMS.

Note

R2 CMS was enhanced to track the time an ACD call rings at an agent's set, but this enhancement only works with appropriate changes to the Generic 2.

- If you have a Generic 3 Version 2 switch with an R3V2 CMS. you can now add, delete, or change measured trunks, trunk groups, agent extensions, agent login IDs, VDN extensions, splits, and skills without busying out the link to CMS and losing CMS data.

  CMS now tells the Generic 3 Version 2 switch how many of each facility it can support, and if an agent or the switch administrator attempts to exceed the CMS limits, they are blocked by the switch until the CMS configuration is increased. This means the agent is denied the ability to log in, and the switch administrator would not be able to make the change. In order to make the change, you need to put CMS into single-user mode with data collection off, and then increase the storage parameters in the Data Storage Allocation window. When you return CMS to the multiuser mode with data collection on, CMS will renegotiate the CMS configuration parameters with the switch, the agent will be allowed to log in, and the switch administrator will be allowed to make the change.

- In R3V2 CMS, if an agent uses call pickup to answer another agent's ACD call, that call is counted as an extension-in call for the answering agent instead of an ACD call, as in most R2 CMS releases. (The call will be recorded as an outflow from the split, in the same way it would be recorded if it had covered to a station.)

- The database tables have been restructured in R3V2 CMS. For example, the agent login/logout information has its own database table rather than being stored in the agent table, as in R2 CMS. This means much faster report of login/logout data.

- Some R2 CMS items have no direct equivalent in R3V2 CMS because the data for those items have been restructured. The information conveyed by the R2 CMS items has been preserved in R3V2 CMS, but it is accessed in a different way. For example, R2 CMS had items to track ANSMAIN and ANSBACK in the vector table. In R3V2 CMS, there are items for ACDCALLS and BACKUPCALLS. The number of calls answered in the vector by the main split can be calculated by subtracting BACKUPCALLS from ACDCALLS.

Also, the R2 CMS database item EVENT, which could have the values ASSIST or MCT, corresponds to the ASSIST and MALICIOUS database items in R3V2 CMS.

- Many items with essentially the same meaning as in R2 CMS have been renamed in R3V2 CMS for consistency, clarity, or accuracy. For example, the R2 CMS item *CARRIED* in the vector table has been renamed **INCALLS** for R3V2 CMS to be consistent with items in other R3V2 CMS tables with the same meaning and the name INCALLS.
- The calculation for "% answered" (for split calls) has been changed to percentage of calls *offered* that were answered. This makes it possible to compare the "% Answered" with the "% Abandoned." This was not possible in R2 CMS, since in R2 CMS the "% Abandoned" was the percentage of calls *offered* that abandoned, but the "% Answered" was the percentage of calls *answered or abandoned* that were answered. The R2 CMS calculation was "ACDCALLS/(ACDCALLS+ABANDONS)". In R3V2 CMS, the calculation is "ACDCALLS/CALLSOFFERRED", where CALLSOFFERRED includes answered, abandoned, and outflowed calls.
- R3V2 CMS stores data differently than R2 CMS. For example, the R2 CMS item INTERVAL was a number that represented the interval during the day for which data was collected (1 to 48). In R3V2 CMS, interval data is retrieved by the start time of the interval, rather than by an interval number, and the database item INTRVL is the number of minutes contained in an interval (15, 30, or 60 minutes).
- The number of calls waiting in a vector is more accurate in R3V2 CMS than in R2 CMS, because R3V2 CMS includes all calls in vector processing as waiting calls, while R2 CMS includes only those calls in the vector that are queued to splits.
- The number of calls waiting in a VDN now reflects more accurately the caller's point of view, because R3V2 CMS counts calls in vector processing, in split/skill queues and ringing as VDN calls waiting. R2 CMS counts only those calls in split/skill queues as VDN calls waiting.
- The number of calls that abandoned from a vector may be greater in R3V2 than in R2 CMS, because R3V2 CMS counts calls that abandoned while in vector processing, in split/skill queues and from ringing. R2 CMS counts only those calls that abandoned from split/skill queues.

- In the vectoring environment, the percent within service level calculated in R3V2 CMS may be lower than in R2 CMS, because calls given a forced busy or disconnect by the vector will also count against the service level. In R2 CMS, only calls answered, abandoned, and outflowed count against the service level.
- The number of backup calls shown in R3V2 CMS may be greater than the number in R2 CMS, since R3V2 CMS counts as backup calls any calls answered in a split/skill as a result of any vector command other than a “queue to main” command (for example, calls that route to a split or are queued via the “messaging split” command). R2 CMS counts only calls answered in a split as the result of the “check backup” vector command.
- In R3V2 CMS, vector outflows are calls that routed to another destination via the “go to vector” command or via “route to” or “adjunct routing” to a destination other than a split/skill. In R2 CMS, vector outflows are calls routed to internal destinations via a “route to” command. R2 CMS has a separate item to count vector calls that route to external (off-switch) destinations.
- In R3V2 CMS, VDN outflows are calls that routed to another VDN or to an external (off-switch) destination. In R2 CMS, VDN outflows are any calls routed via the “route to” command.
- Calls unsuccessful due to hardware or software failures are no longer included in the calls carried counts for trunk/trunk groups in R3V2 CMS. R2 CMS includes these calls in the calls carried counts.
- R3V2 CMS records calls with short holding times (less than 2 seconds) separately from calls that experienced hardware failures (see the following definition). R2 CMS includes these short calls in the count of hardware failures.
- **SHORTCALLS** — The number of inbound and outbound calls that occupied the trunk for less than 2 seconds and that did not:
  - — queue to a split or skill,
  - — forward to a split or skill,
  - — get answered by an agent,
  - — get a forced busy or forced disconnect from the switch,
  - — or produce a trunk failure or maintenance busy.

Agents in Multiple Splits/Skills

R3V2 CMS tracks an agent working in multiple splits/skills as a single agent. R3V2 CMS requires agents to log into multiple splits/skills using the **same login ID** for all splits/skills. This allows CMS to track the agent as a single person and to coordinate data for that agent. In R2 CMS, agents working in multiple splits are tracked as separate agents, one for each split/skill. This makes it difficult to track the agent's time accurately.

Real-Time reports assume that agents can only be doing one thing at a time. Agents can be in the following states: AVAIL, ACD, ACW, AUX, DACD, DACW, RING, UNKNOWN, OTHER, or UNSTAFFED. When an agent logs into multiple splits/skills, the split/skill number(s) will be shown on the report(s) for the states (ACD, DACD, AVAIL, ACW, and RING) associated with the call. For example, if an agent logged into Split/Skill 1 and Split/Skill 2 and answered an ACD call for Split/Skill 2, the split/skill number shown in the standard real-time report(s) will be "**2**".

In CMS, you can get two views of an agent's work:

- By viewing the agent's work consolidated across all splits or skill (most CMS Agent reports who this view).
- Or, by viewing the agent's work from the perspective of a particular split or skill. Split-oriented reports show this (agent by split).

Note

Summing the split views (I_TIME items) across splits will **not** match the TI items.

For splits, as long as the agent is not on a call or the agent is in AUX and is available in at least some splits, real-time reports will show all the splits in which the agent is available.

For skills, the agent cannot be available in some skills and in AUX in others. The Skill Status report shows all the agent's login skills.

If an ACD call is ringing the agent's voice terminal, the real-time report will show the RING state. If a personal call is ringing at the agent's voice terminal, the real-time report will show the OTHER state.

No split/skill will be shown for the AUX and UNKNOWN states because these states are not split/skill related. The agent will be shown as being in AUX **only** if the agent is in AUX in **all** splits/skills.

With real-time split/skill reports, if an agent is available in Split 1 and in AUX in Split 2 and you request the Split/Skill report which displays both splits, the report will show the agent as AVAIL in Split 1 and as OTHER in Split 2.

Multiple Split/Skill Queuing

On a Generic 3, calls can be queued to as many as three splits/skills simultaneously. For the first split/skill to which a call is queued (primary split/skill), CMS pegs an answer, outflow (leaves vector processing or is answered by an agent in another split/skill), or abandon. For the second or third split/skill to which a call is queued, CMS pegs an answer and an inflow if the call is answered in that split/skill. If the call is answered in another split, the call outflows, or the caller abandons, CMS pegs a dequeued for the second and third split/skill.

Note

If a call rings in a second or third split/skill and then abandons, an inflow and abandon will be counted for that split/skill; an outflow or dequeue will be counted for the other splits/skills.

See Appendix A, “Database Items and Calculations” in the *CMS R3V2 Administration* (AT&T 585-215-521) document for more specific information.

CMS and Expert Agent Selection (EAS)

Expert Agent Selection (EAS) is an optional feature that builds on the power of the Call Vectoring and ACD features of the switch by routing incoming calls to the correct agent on the first try. By using the ACD queuing and the vector commands *Queue-to-Main* and *Check-Backup*, a call routes to an agent that has the **skills** required to handle that call.

With EAS, call distribution is based on **skill**. Calls are queued to skills and handled by an agent who is a member of at least one of the skills associated with the skills the caller requires.

Note

The EAS feature requires extensive planning before implementing, and Generic 2.2 EAS and Generic 3 Version 2 EAS have different capabilities. This section gives a very high-level description of EAS and the changes on CMS to track this feature. See Appendix E, "CMS and the Expert Agent Selection Feature," in the *CMS R3V2 Administration* (AT&T 585-215-521) document for a more in-depth description.

Generic 3 Version 2 EAS

With Generic 3 Version 2 switches, EAS and logical agent, agent login IDs must be part of the extension dialing plan and must also be different from the agent voice terminal extensions administered. Skills are assigned to agent logins using switch administration, and agents become members of skills when they log into the ACD.

Generic 2.2 EAS

With Generic 2.2 switches, EAS increases the number of agent groups by expanding each ACD split into a set of 10 skills called a *skill tens group*. That is, when EAS is active, each ACD split becomes a skill tens group (for example, 10, 20, 30 ... up to 600, see example).

Split		Skill Group
1	→	10-19
2	→	20-29
3	→	30-39
4	→	40-40
	•	
	•	
	•	
60	→	600-609

When creating vectors, a call can be queued to up to three skills at the same time (Multiple Skill Queuing) as long as the skills all belong to the same skill tens group. For example, queuing to skills 26 and 21 is multiple skill queuing, but queuing to skills 21, and 53 is not; the call outflows from skill 21 and inflows to skill 53 (the call is moving from one skill group to another). Likewise, queuing to skills 24, 21, and 33 results in an outflow from 24 and 21 and an inflow to skill 33 because it is in a different skill group.

Skill groups ending in zero (20, 30, 40, etc.) are default skill groups. These are super groups for the skill tens group; that is, a call to skill 10 can be delivered to anyone with skills 10-19, since all agents in the skill group have skill 10. Agents are administered to defaults and then enter other skills via their voice terminals.

Additions to CMS for EAS

The following items have been added to CMS to track the EAS feature.

- **Real-Time Reports**
  - — On menus and input fields, Split now displays as Split/Skill. Valid minimum and maximum values are determined by switch type and release (for Generic 3 Version 2, skills range from 1 to 255; and on Generic 2.2, skills range from 10 to 609).
  - — New Skill Status report shows logged in skills (different from the Split Status report).
  - — New VDN Skill Preference report shows the call handling for the VDN as a whole and lists the number of calls handled by each of the VDN skill preferences.
- **Historical Reports**
  - — On menus and input fields, Split now displays as Split/Skill. Valid minimum and maximum values are determined by switch type and release.
  - — New VDN Skill Preference report
  - — The Agent Login/Logout report shows skills logged into by agents.
- **Dictionary (see Chapter 7, “Dictionary”)**
  - — Split/Skill names

    Assign names to skills so skill names appear on CMS reports.

— Split/Skill string values.

Change the descriptive words that appear on the Skill Call Profile reports. The *words* are used to describe the value of the data.

- **Exceptions** (see Chapter 8, "Exceptions").

  Split exceptions are now Split/Skill exceptions.

- **ACD Administration** (see Chapter 9, “ACD Administration”)

  From CMS, you can do the following:

  — **VDN Skill Preferences**

  Change VDN skill preferences is a new menu item.

  Generic 2.2 Switch — When the VDN skill preferences are changed on a Generic 2.2 switch, the new skill preferences take effect for the new calls to the VDN. Any calls currently in progress in the VDN at the time the change is made are processed with the *old* VDN skill preferences.

  Generic 3 Version 2 Switch — When the VDN skill preferences are changed on a G3V2 switch, the change takes effect immediately and can affect the processing of any calls currently in the VDN at the time of the change.

  — **Change Agent Skills** (Generic 3 Version 2)

  Add, change or delete agent skills using the Change Agent Skills window. Agents must log out and then back in for changes to take effect. Agent login IDs must be one to five digits in length. An agent can have up to four skills and each skill is assigned a type, either primary or secondary.

  — Use the Vector Contents window to create, modify, or delete skill vectors.

  — **Move Agent Extensions** (Generic 2.2 with EAS only).

  This window allows you to move agent extensions between skill tens groups. It also allows you to get a list of the extensions assigned to a particular skill group. Valid entries in the Skill group field must be a positive integer ending in “0” representing a skill group number. The skill group 0 can be entered to list extensions assigned to skill 0, where they are measured, but are not members of any skill group. Extensions must be up to 5 digits.

  — The Vector Configuration report contains VDN skill information and is called Vector Configuration with Skills on the report.

- **User Permissions** (see Chapter 10, “User Permissions”)

  Grant skill access from the Split/Skill Access window.

- **Custom Reports**

  The Get copy of design window will list all the Skill reports with EAS.

- **Maintenance**

  With EAS, the ACD Status window has the following changes:

  — `Maximum skill members` is new and displays the total skill members allowed for your system.

  — `Skill members in use` is new and displays the number of agent/skill pairs currently logged in.

  — `Measured split` field has been removed.

  — `Split members, summed over all splits` field has been removed.

EAS Vector Commands

The following vector commands have been changed from split usage to skill usage with EAS. These commands can queue to a specific skill or can reference a VDN skill preference and can check the conditions in the skill.

- Check backup skill
- Go to step
- Go to vector
- Messaging skill
- Queue to main skill.

Note

See Chapter 9, “Vector Contents - ACD Administration” for a description.

Additional Call Data with EAS

With EAS, the following additional data tracking is available.

- **Direct Agent Calls** (Generic 3)

  With the proper class-of-restriction settings, calls to agent login IDs can be tracked as direct agent calls. These calls are queued to a specific agent and are tracked as a special type of ACD call for the agent.

  Direct agent calls queue to the agent but use a queue slot in the first primary skill the agent is logged into. CMS tracks the queue time for the direct agent call to the agent and the skill the call queues to, unless that skill is unmeasured.

  Note
  It is recommended (if possible) to either expand the queue size for the first skill the agent logged into or to assign a special “direct agent” skill as the first primary skill for all logical agents so that the queue slots for the other skills the agent is logged into are not used by direct agent calls.

  Agent Tables

  The agent tables separate direct agent calls from skill calls, and direct agent call tracking provides the same information as for other agent calls.

  Note
  The standard real-time and historical reports combine direct agent calls and split/skill calls. For agents, you can separate these items by creating a custom report. See the *CMS R3V2 Custom Reports* (AT&T 585-215-523) document for custom report creation information

  Skill/Split Tables

  The Skill/Split tables keep the following direct agent call information.

  — Number of direct agent calls in queue.

  — Number of direct agent calls ringing.

  — Oldest direct agent call.

  — Number of agents on direct agent calls or in direct agent after call work.

  — Direct agent calls using the skill queue slots.

- Agent time on direct agent calls is tracked as OTHER time in skill tables.
- No call data is kept for direct agent calls in these tables, since direct agent calls are not calls to the split or skill but are to a specific agent.

VDN/Vector Tables

The VDN and vector tables include direct agent calls with skill calls as ACD calls.

- **Personal calls**

  The first measured skill a logical agent is logged into (whether primary or secondary) is used by CMS to track non-ACD calls unless the agent has an ACD call on hold, and the agent is not yet available for other ACD calls. In this case, the call is counted for the skill associated with the ACD call on hold.

Personal Call Tracking

The Personal Call Tracking (PCT) feature on the Generic 3 and Generic 2.2 switches sends CMS information to track all personal calls an agent makes and receives. This includes calls made or received when the agent has a call on **hold**.

Older switches did not notify CMS when an agent put an ACD call on hold, so agent time with an ACD call on hold was counted as ACD talk time. There was also no tracking of any calls an agent may have made (for example, to consult with a supervisor or to transfer or conference an ACD call) or received while the ACD call was on hold.

New Capabilities

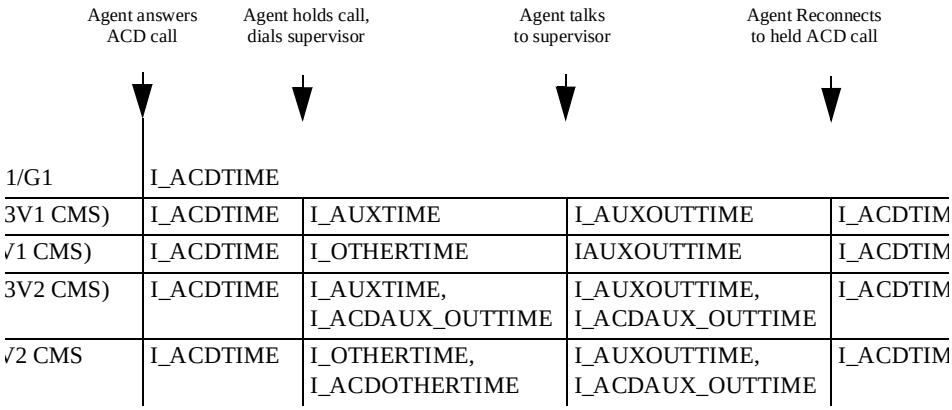
With the Personal Call Tracking feature, CMS now tracks calls an agent makes or receives with a call on hold. Calls are tracked as AUXIN or AUXOUT calls. Time is tracked as OTHER or AUX. If you upgraded from an older switch release to a Generic 3 or Generic 2.2 switch, you will see the following data tracking changes:

- An increase in the number of extension in/out calls made or received by agents, if agents make or receive calls while they have a call on hold (including calls made when an agent transfers or conferences an ACD call).
- Agent time on AUXIN/AUXOUT calls will increase.
- If agents do a lot of conferences and transfers, the average talk time for extension out calls will probably drop, since time spent in AUX for conferences and transfers is very short (a matter of seconds).
- The average talk time on ACD calls will drop if agents put calls on hold, since the time on hold is no longer included as ACD talk time.
- The first measured split or skill an agent is logged into is used by CMS to track non-ACD calls unless the agent has an ACD call on hold, and the agent is not yet available for other ACD calls. In this case, the call is counted for the split or skill associated with the held ACD call.

Hold Calls/Agent States

- Data is now available for calls on hold, time for calls on hold, and calls abandoned from hold. Without personal call tracking, time for calls on hold was counted as talk time.
- CMS split/skill and agent data now reflect calls made while another call is on hold.
- When an agent places a call on hold, the agent returns to his/her previous state before the call unless the previous state was AVAIL. If the agent was in the AVAIL state, the agent is placed in the OTHER state until the agent dials a valid number (if the number dialed is invalid, the agent remains in OTHER), reconnects with the call on hold, answers a personal call, or the call on hold abandons. When the agent reconnects to the call on hold, the original agent state for the call displays.

  The following example shows how R3V2 CMS tracks agent time.



1/G1	I_ACDTIME			
3V1 CMS)	I_ACDTIME	I_AUXTIME	I_AUXOUTTIME	I_ACDTIM
/1 CMS)	I_ACDTIME	I_OTHERTIME	IAUXOUTTIME	I_ACDTIM
3V2 CMS)	I_ACDTIME	I_AUXTIME, I_ACDAUX_OUTTIME	I_AUXOUTTIME, I_ACDAUX_OUTTIME	I_ACDTIM
/2 CMS	I_ACDTIME	I_OTHERTIME, I_ACDOTHERTIME	I_AUXOUTTIME, I_ACDAUX_OUTTIME	I_ACDTIM

Figure 1-1: Tracking Agent Time for Supervisor Assist Example

Agents do not have a **hold** state. Hold time is associated with a call placed on hold. Agent states reflect the current activity of the agent.

Hold time (HOLDTIME) is the time the call spent on hold. HOLDCALLS is the number of calls that were placed on hold at least once, and HOLDABNCALLS is the number of calls that abandoned while on hold.

I_OTHERTIME is the time during the collection interval that the agent was doing other work.

For Generic 3, this includes time while in the Auto-In or Manual-In mode during which the agent put a call on hold and performed no further action, the agent placed a call or activated a feature, or a personal call rang with no further activity.

- When an agent dials a valid extension, the agent's state changes to AUX OUT (if the agent was in AUX or OTHER) or to ACW OUT (if the agent was in ACW). See Figure 2-2, "Personal Call Tracking Historical Database Items", for other items.

Abandoned Calls

VDN calls that route to extensions and are then abandoned are counted as abandoned calls for the VDN.

Transferred and Conferenced Calls

- Transferred and conferenced calls are tracked as held calls while the call(s) wait to be transferred or added to a conference.
- When an agent ends a conference call, the agent returns to the call state prior to setting up the conference.
- If an agent is talking, then places the ACD call on hold to transfer that call, and then completes the transfer, the agent then goes to the AVAIL state (Auto-In) or to ACW (Manual-In) following the transfer.
- Transferred or conferenced unmeasured split, trunk group, or VDN calls are now tracked. Prior to Personal Call Tracking, these calls were not tracked.

Audio Difficulty

You now get the trunk associated with audio difficulty for personal calls if the trunk group is measured. Prior to Personal Call Tracking, audio difficulty was restricted to ACD calls.

R3V2 CMS User Interface

The user interface for R3V2 CMS has been totally redesigned. When you log into R3V2 CMS you will notice:

- The title bar has changed; it has more information.
- The Main Menu is different.
- A “>” behind a menu selection indicates another menu will display. You will see a “>” on the Main Menu, subsystem menus (for example, Reports >), and screen-labeled keys (SLKs).
- The SLKs are different from R2 CMS. The SLKs in R3V2 CMS are always the same, no matter where you are in the system.
- R3V2 CMS has windowing capabilities.
- How you move through the menus and windows has changed.
- There is an Action List, in menu format, in the upper right corner of user windows. Action Lists display the different actions that can be performed in each user window (like CHANGE in R2 CMS on an SLK).
- How you select actions and perform procedures is consistent throughout most of R3V2 CMS.

Note

Because the user interface for R3V2 CMS is totally different from R2 CMS, it is extremely important that you read Chapter 2 “User Basics,” in the *CMS R3V2 Administration* (AT&T 585-215-521) document before trying to complete any CMS task. This chapter gives action list procedures, special key movement, terminology used in R3V2 CMS, describes the user interface, and more

The following paragraphs summarize the changes in the CMS user interface.

Title Bar

Figure 1-2 and Figure 1-3 show the differences between the R2 CMS title bar and the R3V2 CMS title bar. A descriptive comparison follows the figures.

```
gement System                          Switch_Name:Up
```

Figure 1-2: R2 CMS Title Bar

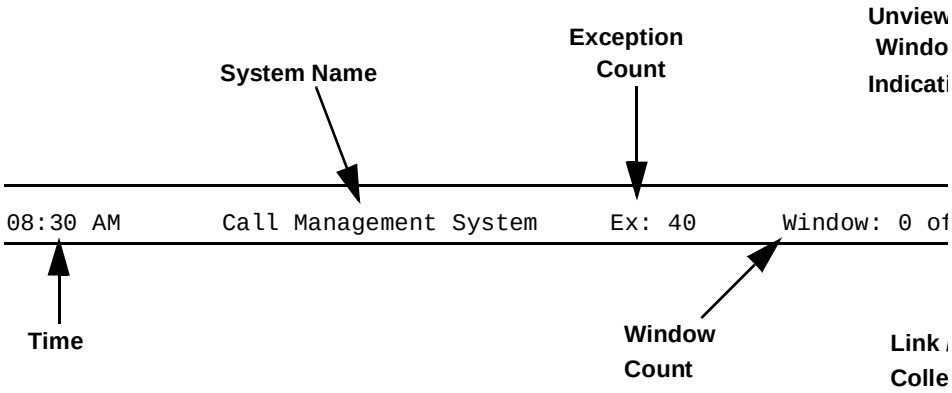


Figure 1-3: R3V2 CMS Title Bar

R3V2 CMS Title Bar displays the following information:

- **Date** — The current month, day, and year.
- **Time** — CMS time. This is the switch time of the master ACD in hours and minutes. The time is updated every 60 seconds.
- **System Name** — Call Management System.
- **Exceptions Count** — The number of current exceptions.
- **Window Count** — The first number is the number of primary windows currently open, and the second number is the maximum number of allowed primary windows.
- ***** — An unviewed window indication. An asterisk appears any time a newly opened window is not made current using the Current SLK or Window SLK— List menu item. The asterisk serves as a reminder that the new window is available but may not be visible.
- **Link Status** — A "^" displays if data collection from the switch is on, and a "v" displays if data collection is turned off or the link is down for some other reason. Link status indications are positional (that is, the left-most position is for ACD 1; the next indication is for ACD 2, etc.).

Main Menu

This section describes the major differences between the R2 CMS and R3V2 CMS main menus (Figure 1-4).The "Reports", "Dictionary", "Exceptions", "Forecasting", "ACD Administration", "Custom Reports", "User Permissions", and "System Setup and Maintenance" sections of this chapter discuss the enhancements to each R3V2 CMS Main Menu selection.

Note A **>** indicates another menu will display when you select this menu item.

R2 CMS Main Menu	**R3V2 CMS Main Menu**
[ ] REPORTS	**Reports >**
[ ] DICTIONARY	**Dictionary >**
[ ] CONFIGURATION	**Exceptions >**
[ ] SCHEDULE	**Forecast**
[ ] FORECAST	**ACD Administration >**
[ ] EXCEPTIONS	**Custom Reports >**
[ ] CUSTOM REPORTS CREATION	**User Permissions >**
[ ] ADMINISTRATION	**System Setup >**
[ ] MAINTENANCE	**Maintenance >**
[ ] UNIX	**Logout**
[ ] MAIL	**;**_____
[ ] PASSWORD	

Figure 1-4: R2 CMS and R3V2 CMS Main Menus

The following list maps the R2 CMS menu items to the R3V2 CMS menu.

- REPORTS maps to **Reports >** in R3V2 CMS. Use **Reports >** to select standard real-time and historical reports here. Custom real-time and historical reports are accessed through **Custom Reports >**.
- DICTIONARY maps to **Dictionary >** in R3V2 CMS.
- CONFIGURATION maps to **ACD Administration >** in R3V2 CMS.
- SCHEDULE is not a main menu selection in R3V2 CMS. In R3V2 CMS, **schedules are called timetables** and are created and scheduled using Timetable. **Timetable** is a menu selection from the Keep SLK.
- FORECAST maps to **Forecast >** in R3V2 CMS.

- EXCEPTIONS maps to **Exceptions >** in R3V2 CMS.
- CUSTOM REPORTS CREATION maps to **Custom Reports >** on R3V2 CMS. You will create *and* run custom reports in R3V2 CMS from the **Custom Reports >** main menu item.
- ADMINISTRATION maps to **User Permissions >** in R3V2 CMS.
- MAINTENANCE maps to **System Setup >** and **Maintenance >** on R3V2 CMS.
- UNIX® System is a menu selection on the Commands SLK.
- MAIL is no longer on **any** R3V2 CMS menu. R3V2 CMS uses error logs (Customer Error Log, Migration Error Log, and Services Error Log) to report failures. R3V2 CMS does not use mail at all.
- PASSWORD is a menu selection on the Commands SLK.

New R3V2 CMS Main Menu Items

- **Custom Reports >** allows you to create *and* run custom reports.
- **System Setup >** allows you to view windows that display how your CMS was configured during installation. You can also turn data collection on and off, go from multiuser to single-user mode, and more. See the "System Setup and Maintenance" section for a complete list.
- **Logout** logs you out of CMS.
- **;**_____is to run a shortcut. See the "Timetables and Shortcuts" section for additional information on this main menu option.

Screen-Labeled Keys

Major Differences

- The R3V2 CMS SLKs never change. In R2 CMS, the SLKs would change depending on your action(s). These actions (like CHANGE) now appear in an Action List on the right-hand side of user windows.
- COMMAND LINE is not on any SLK. When scheduling anything, select the Keep SLK and then the **Timetable** menu item.
- UPDATE is not on any SLK. On R3V2 CMS, you can set refresh rate for real-time reports to automatically refresh from any report input window.

- LOGOUT is now a selection on the R3V2 Main Menu.
- R3V2 CMS has a MainMenu SLK, which takes you immediately to the CMS Main Menu.

R3V2 SLKs

Figure 1-5 shows the R3V2 CMS SLKs. Figure 1-6 is a pictorial listing of the four SLKs with associated menus and submenus. The Exit, Scroll, Current, and MainMenu SLKs do not have menus.

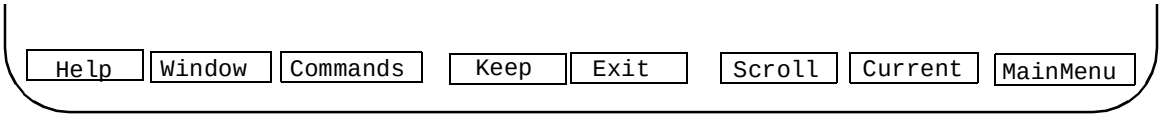


Figure 1-5: R3V2 CMS Screen-Labeled Keys

- **Help** SLK brings up the Help menu that allows access to the basic CMS user information.
- **Window** SLK is used to list, move, and size windows.
- **Commands** SLK allows you to print the current window, create and change passwords, access the UNIX system, select color and video attributes, select a default printer, change your ACD (real or pseudo), save your own default values, restore the system default values, set the type of exception notification you receive, and receive a warning when you try to log off with open windows.
- **Keep** SLK allows you to create, modify, view, or delete timetables and shortcuts.
- **Exit**
  - With **user windows**, closes the current window and moves to the previously opened window, or if no other windows are open, returns you to the Main Menu.
  - With **menus/submenus**, moves the cursor to the previous menu/submenu selection (the current submenu goes away).
  - With **SLK menus**, if the cursor is on the first SLK menu (not an SLK submenu) and you press Exit, the cursor returns to the previous position in the current open window or to the Main Menu if there are no open windows.
- **Scroll** SLK allows you to page (scroll) through certain user windows.
- **Current** rotates through the open windows.

- **MainMenu** returns you to the CMS Main Menu and leaves the current window open.

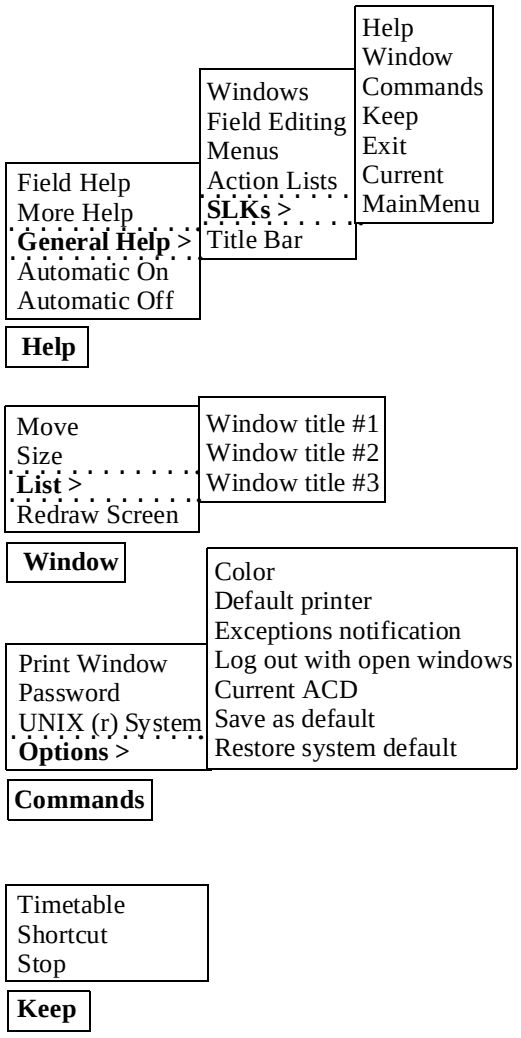


Figure 1-6: SLKs and Their Associated Menus

Reports

This section lists the major differences between R2 CMS and R3V2 CMS reports, shows the real-time and historical menus, and shows R2 CMS to R3V2 CMS cross-references.

Note

See Appendix A, "Database Items and Calculations," in the *CMS R3V2 Administration* (AT&T 585-215-521) document for complete information.

Major Differences for All Standard Reports

- Because R3V2 CMS reports were redesigned, R2 CMS real-time and historical reports do not map exactly to the R3V2 CMS real-time and historical reports. You need to read the "Major Differences" for R3V2 CMS real-time and historical reports included here, the cross-reference tables, and see the *CMS R3V2 Administration* (AT&T 585-215-521) document to become familiar with the differences.
- The column headings for R3V2 CMS reports have been updated to make them more consistent and easier to understand.
- R3V2 CMS report headings and summary lines do not scroll when the reports are displayed on the terminal screen.
- Report titles have been changed for consistency. For example, summary reports generally have one line per entity or time period summarized. Reports without the word *summary* are detail reports. (The R3V2 Interval Trunk Group Summary report shows one line of data summarized over the entire trunk group for each interval in the report. The R2 CMS Trunk Group Summary report shows a detail for each trunk in the trunk group for the date given.)
- Most agent reports include data for all splits/skills in which the agent worked during the period covered in the report.
- R3V2 CMS has three new agent states and one agent state renamed.
  - **DACD**: The agent is on a direct agent ACD call (Generic 3 only).
  - **DACW**: The agent is in the after call work state for a direct agent ACD call (Generic 3 only).

  - — **OTHER**: The agent is working on a direct agent call, working on a call for another split, or has put a call on hold and has not chosen another work mode, is dialing an outbound call, or has a non-ACD call ringing.
  - — **UNKNOWN**: Was INIT in R2 CMS.
- All graph reports use Dictionary calculations in R3V2 CMS. R2 CMS graph reports used hard-coded calculations. You are now able to customize graph reports.
- With R3V2 CMS, agents in multiple splits **must** use the same login for all splits. This allows the agent to be tracked as a single agent. With R2 CMS, agents had to use different logins.

Real-Time Reports

Major differences and the cross-reference table for the R3V2 CMS real-time reports follow the menus (Figure 1-7).

R2 CMS	R3V2 CMS
REPORTS	**Reports >**
Standard	**Real-time >**
[ ] Real-Time	**Split/Skill >**
[ ] Split Status	**Status**
[ ] Group Status	**Report**
[ ] System Status	**Call Profile**
[ ] Agent/Split Comparison	**Agent Report**
[ ] Split Summary	**Agent Group Report**
[ ] Call Profile	**Queue/Agent Summary**
[ ] Trunk Group Summary	**Trunk Group Report**
[ ] Split Performance	**Event Count Summary**
[ ] Split Event Count Summary	**Multi-ACD Report**
[ ] VDN Status	**Graph >**
[ ] Vector Status	**Split/Skill**
[ ] VDN/Trunk Activity Matrix	**Queue**
[ ] System Status Graph	**Split/Skill Call Profile**
[ ] Split Performance Graph	**VDN Call Profile**
[ ] Split Profile Graph	**Vector Report**
[ ] VDN Profile Graph	**VDN >**
	Report
	Call Profile
	Skill Preference Report

Figure 1-7: R2 CMS and R3V2 CMS Real-Time Reports Menu

Major Differences

With R2 CMS you could use an UPDATE SLK to refresh reports. In R3V2 CMS when you order a real-time report, you must specify a refresh rate for the report. This rate determines how often the report updates itself to display new data.

R2 CMS to R3V2 CMS Real-Time Reports Cross-Reference

The following table lists the standard R2 CMS real-time reports and the closest equivalent report in R3V2 CMS. Reports, and individual items within reports, **do not** map exactly between the two releases.

R2 CMS Report	R3V2 CMS Report	Notes
Split Status	Split Report	R2 CMS report has trunk data; R3V2 CMS does not.
System Status	Split Report	
Group Status	Group Status	R2 CMS report is for two groups; R3V2 CMS is for one.
Split Summary	Queue/Agent Status	The R2 CMS report showed total ACD and extension calls for agents; R3V2 report shows the current status.
Agent/Split Comparison		No R3V2 CMS standard report equivalent. Could create a custom report.
Call Profile	Split Call Profile	
Trunk Group Summary	Trunk Group Report	
Split Performance		No R3V2 CMS standard report equivalent. Could create a custom report,
Split Event Count Summary	Event Count Summary	
VDN Status	VDN Report	
Vector Status	Vector Report	The R2 CMS report combines split and vector data. The R3V2 CMS report contains only vector data.
VDN/Trunk Activity Matrix		Could get close with a custom report
System Status Graph	Queue Graph	R3V2 CMS report is smaller; you can use other windows for other split information.
Split Performance Graph	Split Graph	
Split Real-Time Profile Graph	Split Call Profile Graph	
VDN Real-Time Profile Graph	VDN Call Profile Graph	

Historical Reports

Major differences and the cross-reference table for the R3V2 CMS historical reports follow the menus (Figure 1-8).

R2 STANDARD HISTORICAL REPORTS

Split	Split Event	System	Summary
[ ] Daily	[ ] Daily	[ ] Daily	[ ] Split
[ ] Weekly	[ ] Weekly	[ ] Weekly	[ ] Group
[ ] Monthly	[ ] Monthly	[ ] Monthly	[ ] Trunk Group
Agent	**Agent Event**	**Trunk Group**	**Daily-Only**
[ ] Daily	[ ] Daily	[ ] Daily	[ ] Login Logout
[ ] Weekly	[ ] Weekly	[ ] Weekly	[ ] Call Profile
[ ] Monthly	[ ] Monthly	[ ] Monthly	[ ] Trunk
VDN	**Vector**		
[ ] Daily	[ ] Daily		
[ ] Weekly	[ ] Weekly		
[ ] Monthly	[ ] Monthly		

R3V2 CMS Historical Reports

Historical >
- **Agent >**
  - **Summary >**
  - **Split/Skill >**
  - **Attendance >**
  - **Group Attendance >**
  - **Login/Logout**
  - **Trace**
  - **Event Count >**
  - **Group Summary >**
  - **In/Outbound Call >**
- **Split/Skill**
  - **Status**
  - **Split Skill >**
  - **Summary >**
  - **Call Profile >**
  - **Outbound >**
  - **Forecast Summary >**
- **System >**
  - **System >**
  - **Multi-ACD >**
  - **Multi-ACD by Split/Skill >**
- **Trunk/Trunk Group >**
  - **Trunk >**
  - **Trunk Group >**
  - **Trunk Group Summary >**
  - **Busy Hour**
- **Graph >**
  - **Split/Skill Call Profile >**
  - **Split/Skill Service Level >**
  - **Split/Skill Avg Speed Answer >**
  - **VDN Call Profile >**
  - **VDN Service Level >**
- **Call Work Code >**
- **VDN >**
  - **Status**
  - **Report >**
    - **Skill Preference Report**
  - **Call Profile >**
  - **Busy Hour**
  - **Multi-ACD Flow >**
- **Vector >**
- **Call Record**

Figure 1-8: R2 and R3V2 CMS Historical Reports Menus

Major Differences

- Summary lines for historical reports are at the top of the report.
- R3V2 CMS historical reports are available in *interval, daily*, *weekly*, and *monthly* versions.
  - — **Interval** reports contain breakdowns of data by the interval you have defined (15, 30, or 60 minutes).

    Interval reports correspond to R2 CMS Daily reports.
  - — **Daily** reports display summarized interval data, one line for each day, for the day(s) you specify.

    Daily reports correspond to R2 CMS Weekly/Monthly reports.
  - — **Weekly** reports display summarized daily data for the week(s) you specify, one line for each week.

    Note The data for the weekly reports comes from the weekly tables. The weekly tables only contain summarized daily data for complete weeks.

    R2 CMS weekly reports display a daily summary for each day in the week (7 different days) to make up a weekly report.
  - — **Monthly** reports display summarized daily data for the month(s) you specify, one line for each month.

    R2 CMS monthly reports display a daily summary for each day in the month.

    Note The data for the monthly reports comes from the monthly tables. The monthly tables only contain summarized daily data for complete months.
- Time columns in R2 CMS historical reports (columns showing the amount of time spent on some activity) are displayed in minutes and hundredths of minutes (mm.mm). R3V2 CMS shows the time columns in minutes and seconds (mm:ss) and hours, minutes, and seconds (hh:mm:ss).
- The R3V2 Agent Trace report is in the Historical Reports subsystem. All users now have access to this report. In R2 CMS, the agent trace report was in the CONFIGURATION subsystem.

  Note You cannot delete agent trace records in R3V2 CMS. When the agent trace file is full, the oldest records are overwritten by new records. You should periodically print the Agent Trace report before new records overwrite old records.

- R3V2 Historical reports do not appear in 132-column format on the terminal's screen.

Historical Reports Cross-Reference

The following table lists the standard R2 CMS historical reports and the closest equivalent report in R3V2 CMS. Reports, and individual items within reports, **do not** map exactly between the two releases.

R2 CMS Report	R3V2 CMS Report	Notes
Daily Reports	Interval Reports	Global title change
Weekly/Monthly Reports	Daily Reports	Global title change
Split	Split/Skill Summary	
Split Event Count		Could create a custom report.
Agent	Agent Summary	
Agent Event Count	Agent Event Count	
Trunk Group	Trunk Group Summary	
System	System	
Split Summary	Spit/Skill	
Group Summary	Group Summary	
Trunk Group Summary	Trunk Group	
Login and Logout	Login/Logout	
Call Profile	Split/Skill Call Profile	
Trunk	Trunk	
Vector	Vector	
Vector Directory Number	VDN	
Split Historical Profile Graph	Split/Skill Call Profile Graph	

Call Records

Detailed call history reporting for both internal and external call records is available with R3V2 CMS. For example, you might have a caller that complained about being put on hold three times and then transferred. Call Records can give you this information.

- **Internal** call records reside on CMS. The standard CMS internal call records are limited to a maximum of 5000 records.

  Note
  To protect the real-time processing on CMS, internal call records can only be collected if your call center's traffic is under 400 calls in 20 minutes. If you exceed this, CMS will temporarily stop collecting interval call records until the traffic falls below the threshold.

- **External** call records is an optional external call record collection and export application which allows you to store and collect more information even if you have high traffic rates. Records are collected and then shipped to another computer for storage and reporting.

  Note
  The Call Records report menu item only displays on the Historical Reports menu if you have internal call records.

Historical Reports

CMS provides the following Call Records information.

- **Data Collection**: Detailed information is now available for each call.
- **Call Record report**: With this report, you can get a history of calls handled by your call center.

  Most call record reporting will need to be done via custom reports tailored to your application. Use the Standard Call Records report to customize a report that meets your needs. The Call Record menu item does not appear if an external call record collection and reporting application is being used.

Timetables and Shortcuts

Timetable on the Keep, SLK maps to SCHEDULE in R2 CMS. See Chapter 6, “Timetables and Shortcuts,” in the *CMS R3V2 Administration* (AT&T 585-215-521) document for a complete description and procedures.

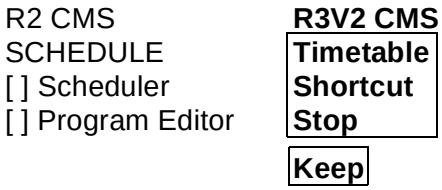


Figure 1-9: R2 SCHEDULE Menu and R3V2 Keep SLK Menu

Timetables

Timetable allows you to schedule tasks for completion at a time convenient for you on a timetable.

Major Differences

- Data summaries are already scheduled to run on a timetable when you receive your system. You cannot access or change data summary timetables.
- A full and incremental backup have been created on a timetable for you, but neither has been scheduled. You will have to schedule full and incremental backups.
- Timetables that fail to run are logged to the Error Log in the Maintenance subsystem.
- Most R3V2 CMS windows can be placed on a timetable. With each window/report description in the *CMS R3V2 Administration* (AT&T 585-215-521) document, you are told if the window can be placed on a timetable.
- To print a report multiple times using a timetable, you must enter the task(s) each time on the timetable. With R2 CMS, you had to edit the command line.
- CMS automatically sends your timetable print requests to your default printer unless you specify another printer.

- You do not have to use the UNIX system and the vi editor with timetable to edit the command line. Use the `Get contents` actions in the Timetable window.
- `Get contents` action item provides a window that lists all the tasks associated with a timetable/shortcut and allows you to enter the task number(s) that you want to copy, delete, global edit, or modify.

  You can also add new tasks with `Get contents`. The `Add` tasks action returns you to the CMS Main Menu to add tasks.

  The Keep SLK *Stop* is still used to stop adding to a timetable/shortcut.

  The `Global edit` action allows you to change the date, time, or printer for all tasks on a timetable. `Global edit` is not available for shortcuts.

  `Modify` brings up a window for each task to allow you to modify the task. You can modify the input values for the task, the action for the task, or both the input and action. It is not possible to change the ACD associated with a task using `Modify`. It is possible to change the "Current ACD" in Keep mode.

  You can also copy specific tasks within the same timetable/shortcut.
- The Timetable List All window shows the status of all timetables.

Shortcuts

Shortcut is new for R3V2 CMS and is a series of tasks saved by CMS. Shortcuts happen immediately and are a fast, easy way to select windows that you might look at every day or several times during the day.

After you have created your shortcut, type the name of the shortcut after the semicolon on the Main Menu and hit Return. The shortcut starts immediately.

Dictionary

R2 CMS DICTIONARY maps to R3V2 CMS **Dictionary >** (Figure 1-9). For complete information, see Chapter 7, “Dictionary,” in the *CMS R3V2 Administration* (AT&T 585-215-521) document.

R2 CMS	**R3V2 CMS**
DICTIONARY	**Dictionary >**
[ ] Login-Identification	**Login Identification**
[ ] Agent Groups	**Agent Groups**
[ ] Extension-Groups	**Calculations**
[ ] Calculations	**Constants**
[ ] Constants	**Database Items >**
[ ] Database-Items	**Agent String Values**
[ ] Split-Synonyms	**Split/Skill String Values**
[ ] Trunk-Group-Synonyms	**Trunk String Values**
[ ] VDN-Synonyms	**Standard CMS Items**
[ ] Vector-Synonyms	**Custom Items**
	ACDs
	Splits/Skills
	Trunk Groups
	Global Search
	Report
	Call Work Codes
	VDNs
	Vectors

Figure 1-10: R2 and R3V2 CMS Dictionary Menus

Major Differences

- R3V2 CMS uses the word **name** instead of the word **synonym**.
- Extension Groups do not exist on R3V2 CMS.
- You can assign names to ACDs (real and pseudo) and call work codes in R3V2 CMS.
- R3V2 CMS Dictionary subsystem allows searching for patterns in all fields (names, numbers, and descriptions) and in all sections of the Dictionary using the “Global Search” window.

- You can get a listing of all your split/skill, trunk group, call work code, VDN, vector, agent group names and login IDs at any time with the `List all` action list selection.
- You can change the descriptive words that appear on reports dealing with agents (for example, AVAIL, ACD, IN, OUT, PHONE, etc.) to meet your call center's needs.
- You can change the descriptive words that appear on the Split/Skill Call Profile reports to meet your call center's needs.
- You can change the descriptive words that you see on trunk reports (for example, IDLE, HOLD, LOW, IN, YES, etc.) to meet your call center's needs.
- You can select any section of the Dictionary listed on the Report window to be printed or displayed in a set of reports (one report for each section of the Dictionary), or you can have a report on all the Dictionary sections listed.

Exceptions

R2 CMS EXCEPTIONS map to **Exceptions >** in R3V2 CMS (see Figure 1-10). For complete information, see Chapter 8, “Exceptions,” in the *CMS R3V2 Administration* (AT&T 585-215-521) document.

R2 CMS	**R3V2 CMS**
EXCEPTIONS	**Exceptions >**
	Real-time Exceptions Log
Reports	**Historical Reports >**
[ ] Splits	**Agent Exceptions**
[ ] Trunk-Groups	**Split/Skill Exceptions**
[ ] Vectors	**Trunk Group Exceptions**
	Vector Exceptions
Administration	**VDN Exceptions**
[ ] Splits	**Other Exceptions >**
[ ] Trunk-Groups	**Malicious Call Trace**
[ ] Vectors	**Data Collection**
	Administration >
	Agent Exceptions
	Split/Skill Exceptions
	Trunk Group Exceptions
	Vector Exceptions
	VDN Exceptions

Figure 1-11: R2 and R3V2 CMS Exception Menus

Major Differences

- In R3V2 CMS, when the occurrences of an exception **exceed** the threshold, you are notified of an exception. This is different from R2 CMS. In R2 CMS, when the occurrences of an exception *met* the threshold, you were notified of an exception.
- The text of reported exceptions in R3V2 CMS includes the Dictionary names for agents, splits/skills, trunk groups, VDNs, and vectors, instead of the numbers which R2 CMS used.
- In R3V2 CMS, exception permissions are turned on/off based on a user’s ID. In R2 CMS, exceptions permissions were tied to read permission for a split, trunk group, etc.
- Exception alerting (screen flash, beep) is basically the same in both releases.

- In the CMS title bar, the Ex field shows a running count of current exceptions. The count is reset to zero when a new intrahour interval starts.
- In R3V2 CMS, you will look in the Real-Time Exceptions Log for recent exceptions. Exceptions do not pop up at the bottom of your screen as they did in R2 CMS.
- You have more agent, split/skill, trunk group, vector, and VDN exceptions to choose from.
- By default in R3V2 CMS, most exceptions are turned off. However, exceptions checking for the following events are **always turned on** and **cannot** be turned off in R3V2 CMS.
  - Malicious call traces (Generic 2 and Generic 3r only)
  - Data collection disruptions (for example, link down)
  - Agent login attempts that are not permitted.
- The Agent Exceptions for time in state can occur multiple times during an interval. The threshold counter is no longer cleared at the start of each data collection interval. Instead, it is cleared when the agent state causing the exception changes or when the agent logs off.
  - Time available
  - Time on inbound ACD call (min)
  - Time on inbound ACD call (max)
  - Time in after call work
  - Time on inbound ACW call
  - Time on outbound ACW call
  - Time in AUX work
  - Time on inbound AUX call
  - Time on outbound AUX call
  - Time on outbound ACD call (min)
  - Time on outbound ACD call (max)
  - Time ACD call spent on hold
  - Time ACD call spends ringing
  - Time on direct agent call
  - Time call waited in direct agent queue

  - — Time on external outbound ACW call
  - — Time on external outbound AUX call.

- Ringing call automatically redirected from agent

  A new exception for the Redirection on No Answer feature that indicates an agent has been put into the AUX work mode automatically because the agent did not answer an ACD call that was ringing at the agent's station, and the switch attempted to requeue the call automatically to a split/skill. This exception applies only to the Generic 3 Version 2 switch.

ACD Administration

R2 CMS CONFIGURATION maps to **ACD Administration >** in R3V2 CMS (Figure 1-12). For complete information, see Chapter 9, “ACD Administration,” in the *CMS R3V2 Administration* (AT&T 585-215-521) document.

R2 CMS	**R3V2 CMS**
CONFIGURATION	**ACD Administration >**
	Change Agent Skills (G3V2 EAS)
Split	**Move Agent Exceptions**
[ ] Extension-Assignments	**Trunk Group Assignments**
[ ] Trunk-Group-Assignments	**Split Parameters** (No Vectoring/EAS**)**
[ ] Parameter-Administration	**Split/Skill Call Profile Setup**
[ ] Call-Profile-Administration	**Activate Agent Trace**
	List Agents Traced
Vector	**Configuration Reports >**
[ ] Trunk-Group Assignments	**Split Members** (No G3V2 EAS)
[ ] Directory-Number Assignments	**Trunk Group Members**
[ ] Specifications	**Vector**
[ ] Split-References	**Call Work Codes**
	VDN Assignments
[ ] Agent Trace	**Change VDN Skill Preferences**
	VDN Call Profile Setup
	Vector Contents
	Split References in Vectors (No EAS**)**

Figure 1-12: R2 CONFIGURATION Menu and R3V2 ACD Administration Menu

Major Differences

- R2 CMS Split Extension Assignments maps to the **Move Agent Extensions** window on R3V2 CMS.
- R2 CMS Split/Vector Trunk Group Assignments maps to the **Trunk Group Assignments** window (depending on your switch).
- R2 CMS Split Parameter-Administration maps to the **Split Parameters** window on R3V2 CMS.
- R2 CMS Split Call Profile-Administration maps to **Split/Skill Call Profile Setup** on R3V2 CMS.
- R2 CMS Vector Directory-Number-Assignments map to **VDN Assignments** on R3V2 CMS.

- R2 CMS Vector Specification maps to **Vector Contents** on R3V2 CMS.
- R2 CMS Split References map to **Split References in Vector** on R3V2 CMS.
- Agent Trace is different on R3V2 CMS. In the **Activate Agent Trace** window, you turn on or off an agent trace for one or more agents. The agent trace report is in the Reports subsystem in R3V2 CMS.

  You cannot delete agent trace records in R3V2 CMS. When the agent trace file is full, the oldest records are overwritten by new records. If you want certain agent trace information on a particular agent, you should periodically print the Agent Trace report before new records overwrite old records.
- The default for split/skill and VDN call profile intervals and service level is “0” in R3V2 CMS. On R3V2 CMS, you are allowed to set your intervals to different lengths (for example, 15, 20, 35). R2 CMS had defaults of 10 seconds for profile intervals and 30 seconds for service level. If you set your split call profile values on R2 CMS, these values migrate to R3V2 CMS. If you were using the R2 CMS default values, you will have to enter values in the Split/Skill Call Profile Setup window.
- To intraflow calls in R2 CMS you needed access permission for the split receiving the calls. This is no longer necessary on R3V2 CMS.

New Menu Items

New additions to R3V2 CMS ACD Administration subsystem are:

- Configuration Reports for Split Members, Trunk Group Members, and Vectors
- Call Work Code administration
- VDN Call Profile Setup.
- List Agents Traced
- Change VDN Skill Preferences
- Change Agent Skills.

User Permissions

R2 CMS ADMINISTRATION maps to **User Permissions >** in R3V2 CMS (Figure 1-16). For complete information, see Chapter 10, “User Permissions,” in the *CMS R3V2 Administration* (AT&T 585-215-521) document.

R2 CMS	**R3V2 CMS**
ADMINISTRATION	**User Permissions >**
[ ] System Access	**User Data**
[ ] Split Access	**Feature Access**
[ ] Trunk-Group Access	**Main Menu Addition Access**
[ ] Vector-Access	**Split/Skill Access**
	Trunk Group Access
	ACD Access
	Vector Access
	VDN Access

Figure 1-13: R2 CMS ADMINISTRATION and R3V2 CMS User Permissions Menus

Major Differences

- R2 CMS System Access maps to the **User Data** and **Feature Access** windows in the User Permissions subsystem.
- R2 CMS Split Access maps to **Split/Skill Access** in R3V2 CMS.
- R2 CMS Trunk Group Access maps to **Trunk Group Access** in R3V2 CMS.
- R2 CMS Vector Access maps to **Vector Access** in R3V2 CMS.
- *Remove Existing Password* and *Add/Change Password On Next Login* do not exist on any window in R3V2 CMS.
- You also turn on or off the exception alerting (beep/flash) from the Split/Skill Access, Trunk Group Access, ACD Access, VDN Access, or Vector Access windows.
- Default access is no (except ACD access).

New Menu Items

- **Main Menu Addition Access** — Allows you to assign, view, modify, or delete a CMS user's access permissions to additional Main Menu items.
- **ACD Access** — Allows you to assign, view, modify, or delete a user's access to real or pseudo ACDs.
- **VDN Access** — Allows you to assign, view, modify, or delete a CMS user's access permissions to specific VDNs.

System Setup and Maintenance

R2 CMS MAINTENANCE maps to either the R3V2 CMS **System Setup >** subsystem or the **Maintenance >** subsystem. For complete information, see Chapter 11, “System Setup,” and Chapter 12, “Maintenance,” in the *CMS R3V2 Administration* (AT&T 585-215-521) document.

R2 CMS	R3V2 CMS	
MAINTENANCE	**Maintenance >**	**System Setup >**
	Back Up Data	**Switch Setup**
[ ] Backup-Data	**Restore Data**	**Pseudo-ACD Setup**
[ ] Restore-Data	**Backup/Restore Devices**	**Load Pseudo-ACD Data**
	Printer Administration	**Data Storage Allocation**
[ ] Archive-Parameters	**Connection Status**	**Free Space Allocation**
[ ] Daily-Data-Archive	**ACD Status**	**Store Intervals**
	Archiving Status	**Agent Trace Record Contents**
[ ] Session-Status	**Error Log Report**	**Main Menu Addition**
		CMS State
[ ] Error-Log		**Data Collection**
		Data Summarizing
[ ] Forecast Manager		**R3 Migrate Data**
		R2 Migrate Data

Figure 1-14: R2/R3V2 CMS Maintenance and R3V2 CMS System Setup Menus

Major Differences

- R2 CMS Backup-Data maps to **Back Up Data** in the **Maintenance >** subsystem. An **incremental** backup has been added as well as the ability to back up individual tables

  Note A full and **incremental** backup have been created on a timetable for you, but you must schedule the time for either of these to run.

- R2 CMS Restore-Data maps to **Restore Data** in the **Maintenance >** subsystem.
- R2 CMS Archive Parameters maps to **Data Storage Allocation** in the **System Setup** subsystem. CMS can store data as follows:
  - — Intrahour Storage up to 62 days.
  - — Daily Storage up to 5 years (1825 days, 260 weeks, 60 months).

- Weekly/Monthly Storage up to 10 years (3650 days, 520 weeks, 120 months).
- Exception data up to 2000 records for each type of exception.

- R2 CMS Daily Data Archive maps to:
  - **Storage Intervals** in the **System Setup >** subsystem. R3V2 CMS uses the entries in this window to automatically archive your data. Intrahour intervals in R3V2 CMS can be 15, 30, or 60 minutes. The Storage Intervals window is also used to select the days of the week that your call center is in operation and CMS is actively collecting data.
  - **Data Summarizing** in the **System Setup >** subsystem will do archiving on demand and should only be used if the previous archive did not work.

    Note

    In R2 CMS with Daily Data Archive, you could enter a date of "-4" and R2 CMS would summarize data from four days ago through today. In R3V2 CMS if you enter "-4", data is summarized for just one day that occurred four days ago.

- R2 CMS Error Log maps to **Error Log Report** in the **Maintenance >** subsystem. The Error Log Report only logs errors that you can correct. This log also includes entries that were previously placed in R2 MAIL.
- R2 CMS Forecast Manager maps to **Forecast Manager** in the **Forecasting >** subsystem.
- R2 CMS Session Status maps to:
  - **Switch Setup** window in **System Setup >** and gives the switch name, switch release, CMS administrable switch features (for example, Vectoring).
  - **Archiving Status** window in the **Maintenance >** subsystem and gives the type of archives (i.e., interval, daily, weekly or monthly), status (for example, success, failure, not run, running), the date, and time.
  - **Data Storage Allocation** in the **System Setup >** subsystem. This window also allows you to enter the number of splits/skills, agent logins, trunk groups, trunks, call work codes, vectors, and VDNs for which you want space allocated.
  - **Connection Status** window in the **Maintenance >** subsystem and allows you to monitor the data link between the CMS processor and the switch.

- — **Data Collection** window in the **System Setup >** subsystems and turns data collection on or off.
- — **ACD Status** in the **Maintenance >** subsystem and displays information about the current ACD.

New Menu Items

- **Free Space Allocation** window in the **System Setup >** subsystem. This window lists the number of administered splits, agents, trunk groups, exceptions, etc., as set up during installation. This window allows you to identify and specify where you would like to store specific CMS files.
- **Pseudo-ACD Setup** and **Load Pseudo-ACD Data** in the **System Setup >** subsystem allow you to create an area on your CMS for a model ACD (Pseudo-ACD). One use for a pseudo-ACD is running historical multi-ACD reports.
- **Agent Trace Record Contents** in the **System Setup >** subsystem allows you to specify what agent data and how much agent data to collect for later use in the Agent Trace historical report.
- **Main Menu Addition** in the **System Setup >** subsystem allows you to add up to eight additional items to the CMS Main Menu.
- **CMS State** in the **System Setup >** subsystem allows you to take CMS from single-user to multiuser mode and vice versa.
- **R2 CMS Migrate Data** window in the **System Setup >** subsystem will be used when you are ready to migrate R2 CMS data to R3V2 CMS. See the *CMS R3V2 Migration* (AT&T 585-215-113, Issue 2) document for all the procedures and information.
- **Back Up/Restore Devices** in the **Maintenance >** subsystem allows you to name and describe a full path name for a device used for data backup, data migration, data restore, and loading pseudo-ACDs.
- **Printer Administration** in the **Maintenance >** subsystem allows you to assign a name, description, and some options to a printer. This printer then becomes known by CMS and can be used for printing any CMS report or window.

Custom Reports

The R3V2 CMS custom reports interface has been totally redesigned. See the *CMS R3V2 Custom Reports* (AT&T 585-215-523) document for all necessary information.

You create and run custom reports from this menu selection.

R2 CMS	**R3V2 CMS**
[ ] CUSTOM REPORTS CREATION	**Custom Reports >**
Standard Reports	**Real-time >**
[ ] Real-time Reports	**Historical >**
[ ] Historical Reports	**Edit Report >**
Custom Reports	
[ ] Real-time Reports	
[ ] Historical Reports	

Figure 1-15: R2 and R3V2 CMS Custom Reports Menus

New Capabilities

The R3V2 CMS Custom Reports subsystem gives you more options and flexibility than you had in R2 CMS Custom Reports. The things you can do in R3V2 CMS that you cannot do in R2 CMS are:

- Design custom bar graphs (if you have purchased the R3V2 CMS Graphics package).
- Include Current Day Forecast data and exceptions data in custom historical reports.
- Create custom data tables in INFORMIX into which you can enter any data you wish. Then, you can include that data in custom historical reports.
- Copy the designs of multiple reports, standard or custom, into one custom report.
- Assign additional video attributes to the elements of a custom report, including color (if you have color terminals).
- Define areas of a report (for example, column headings, column totals, and row identifiers) that do not. Thus, the headings and totals remain in place while you scroll through the associated data.
- Merge data from two tables (for example, the Intrahour Agent and Intrahour Split tables) in a report field calculation.

- Create intrahour historical reports that include intrahour data for multiple days.
- Create data functions with multiple values (SUM, MAX, MIN) that display just one. In addition, another data function, AVG, is available. AVG displays the average of all values found by the search criteria.

  Note — R2 CMS "data functions" are called "aggregate functions" in R3V2 CMS.

- Merge data from multiple ACDs (the real ACD and pseudo-ACDs).

Use **`count(*)`** to count and display the number of occurrences of a particular piece of data (for example, the number of agents with fewer than 15 ACD calls in the hour).

Major Differences

The following list discusses significant areas of difference between R2 CMS Custom Reports and R3V2 CMS Custom Reports.

- **Running Reports**

  You run R3V2 CMS custom reports via the `Custom Reports` main menu option, **not** via the `Reports` option as in R2 CMS.

- **Defining Report Fields and Criteria Statements**

  In R2 CMS, you define the data expression for a field and the criteria statement in a single window — the Data Item window.

  In R3V2 CMS, you define the data expression for a field in the Field window and the criteria statement in the Row Search window. You then assign the criteria statement to the field. This separation of tasks in R3V2 CMS allows you to assign a criteria statement to multiple fields at one time, which in turn allows you to avoid repetitious typing of criteria statements.

- **Defining Dates**

  In R2 CMS, you define the dates for custom reports using two fields in the Data Item Window — the **`Start Date`** and **`Number of Days`** fields. In R3V2 CMS, you define the dates for custom reports using criteria statements that select on the database item **`ROW_DATE`**, using syntax that is almost identical to the criteria statements used for any other type of data.

- **Creating Report Input Screens/Windows**

In the R2 CMS Data Item window, you can define variable criteria statements and variable Start Date and Number of Days statements. With variable criteria statements, R2 CMS automatically places input fields on the Report Parameters screens (called Report Input windows in R3V2 CMS) so that a user can select the data the report will include. See Figure 1-14.

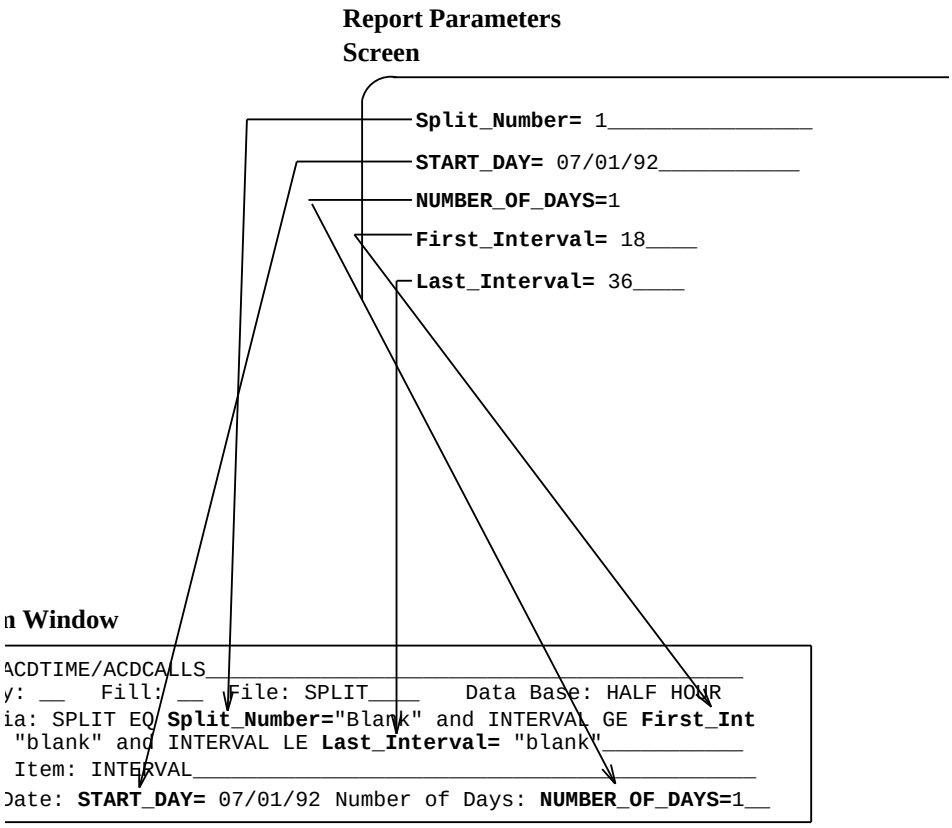


Figure 1-16: R2 CMS Definition of Report Parameters Screens

R3V2 CMS does not automatically create input fields from your variable criteria. In addition, you do not enter the input field's prompt as part of the criteria statement. Instead, the definition of report input fields (done in the Define Input window) has been separated from the definition of fields (done in the Field window) and data search criteria (done in the Row Search window). See Figure 1-15.

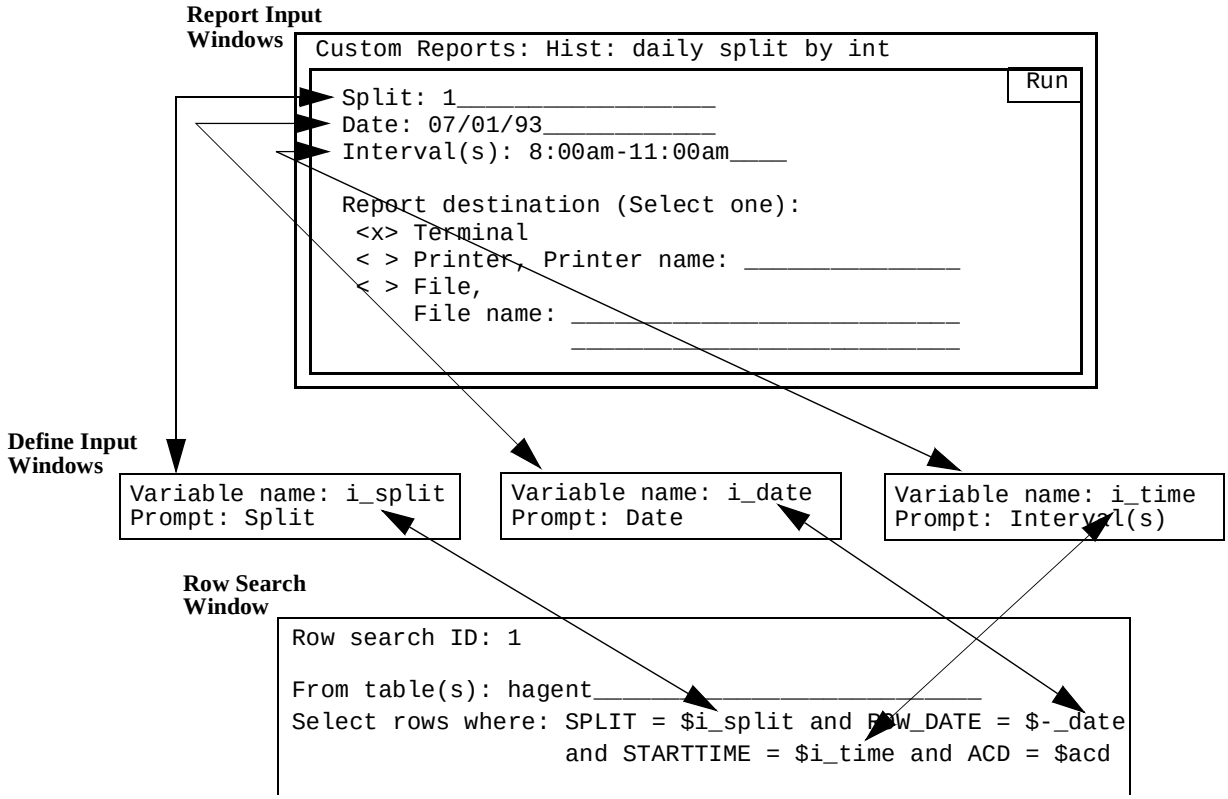


Figure 1-17: R3V2 CMS Definition of Report Input Windows

- **Defining Ranges in Criteria Statements**

  In R2 CMS, you can define ranges of values with criteria statements that use the greater than (**>**) and less than (**<**) symbols. In R3V2 CMS, you can specify that a report input field allow the user to enter a range. R3V2 CMS automatically converts a criteria statement that uses an equals sign (**=**) to a criteria statement that defines a range.

What You Cannot Do in R3V2 CMS

In R3V2 CMS Custom Reports, you cannot design reports that have hard-coded relative dates. That is, you cannot, as you could in R2 CMS, specify a relative date (for example, `-1` for yesterday) for a report so that the report will always run for that relative date.

Forecasting

R2 CMS FORECAST maps to **Forecast >** in R3V2 CMS (Figure 1-11). For complete information, see Chapter 14, “Forecasting,” in the *CMS R3V2 Administration* (AT&T 585-215-521) document.

R2 CMS	**R3V2 CMS**
FORECAST	**Forecast >**
	Reports >
Reports	**Longterm**
[ ] Long-Term	**Financial**
[ ] Intraday	**Current Day**
[ ] Current-Day	**Intraday**
[ ] Special-Day	**Special Day**
[ ] Agent-Position-Required	**Agent Positions Required**
[ ] Trunk-Engineering	**Trunks Required**
	Trunk Performance
Administration	**Hypothetical >**
[ ] Special-Days	**Data >**
[ ] Call-Characteristics	**Copy Historical Data**
[ ] Trunk-Group-Blocking	**Edit Values**
[ ] Weighting-Coefficients	**Report**
	Financial Report
	Administration >
	Call Handling Profiles
	Costs Profiles
	Trunk Group Profiles
	Current Day Configuration
	Special Days
	Data Storage Allocation
	Forecast Manager

Figure 1-18: R2 and R3V2 CMS Forecast Menus

New Capabilities

The R3V2 CMS Forecast subsystem gives you more options and flexibility than you had in R2 CMS Forecasting. The things you can do in R3V2 CMS that you cannot do in R2 CMS are:

- Create and use hypothetical data in forecasts.
- Calculate profit margins based on forecasted call traffic, costs, and revenue.
- Select past days that are either one day apart or seven days apart to supply the historical input data for your forecasts.

- Store current day forecast data for later retrieval in the standard Forecast Summary Report, in current day forecasts, or in custom reports.
- Store forecast input data for definite periods of time so you can use it for forecasts that you want to rerun or for forecasts where seasonal trending or special day data is much older than a year.
- Run a forecast based on the number of calls you expect, not just on historical data.
- Select one of several forecast methods or algorithms to calculate your report. A new method you can select finds the current trend (in the last 4 weeks) and projects that trend in the forecast.

Major Differences

The following list discusses significant areas of difference between R2 CMS Forecasting and R3V2 CMS Forecasting.

- In R2 CMS, you create a set of Forecast Call Characteristics and assign it to a split at the same time. In R3V2 CMS, sets of Call Characteristics (called Call Handling Profiles in R3V2 CMS) are created generically and then selected for a split/skill when you run a forecast on the split/skill. In this way, you can avoid unnecessary duplication of effort when splits/skills have the same call handling objectives. In addition, you can define several call handling profiles for a single split/skill, if desired, and use different profiles as forecast conditions change.
- In R2 CMS, you can define a special set of call characteristics (defined for Split 0) that can be used for forecasts on any split/skill. In R3V2 CMS, the fact that you can create numerous call handling profiles and use them in forecasts for any split means that a special set of call characteristics for Split 0 is unnecessary.
- In R3V2 CMS, you access the Forecast Manager via the **Forecast** main menu option, not via the **Maintenance** option as in R2 CMS.
- In R3V2 CMS, you can specify how long to store forecast input data and current day forecast data, a special Data Storage window is available via the **Forecast** main menu option. In R2 CMS, you can administer, via the **Maintenance: Data Storage Allocation** window, only the length of special day data storage.

General Information

Audience

This chapter is written for customers who are upgrading from a Release 3 Call Management System (R3 CMS) to a Release 3 Version 2 Call Management System (R3V2 CMS).

Introduction

This chapter describes the differences between the R3 CMS and the R3V2 CMS.

The chapter is organized in the following sections:

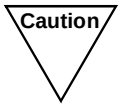
- General Differences/Enhancements
- Data, Database Items, and Calculations
- Multi-ACDs
- CMS and Expert Agent Selection (EAS)
- Personal Call Tracking
- Call Records
- R3.0 to R3V2 Migration
- Reports
- Timetables and Shortcuts
- Exceptions
- System Setup
- Custom Reports

General Differences/Enhancements

Increased Capacities

CMS now supports the following switch capacities:

- 5200 agent/split combinations for Generic 3 Version 2
- 5200 agent/skill combinations for Generic 3 Version 2 with Expert Agent Selection (EAS)
- 5115 agent/skill combinations for Generic 2.2 with EAS
- 255 split/skills for Generic 3 Version 2
- 600 skills (numbered 10 to 609) for Generic 2.2 with EAS
- 665 trunk groups for Generic 3 Version 2 (255 trunk groups for Generic 2.2)
- Generic 3 Version 2 agents may log into up to four splits or skills (an increase from three).
- Generic 2.2 agents may log into up to four skills plus the default skill.



Even though R3V2 CMS supports these additional capacities, you will not be able to upgrade unless you have sufficient free space on your disk to accommodate all the data you want to collect. Your current disk space allocation may specify more items to be measured for longer lengths of time than you actually have space on your disk. This means, you must purchase more disk, or change the length of time data is stored, or the number of entities measured before you can upgrade.

Personal Calls

The first measured split or skill an agent is logged into is used by CMS to track non-ACD calls unless the agent has an ACD call on hold, and the agent is not yet available for other ACD calls. In this case, the call is counted for the split or skill associated with the held ACD call.

Performance

If you have the same configuration on R3V2 CMS as you did on R3.0 CMS, the performance should be similar.

Expert Agent Selection should not have any direct impact on performance. From a performance standpoint, skills are equivalent to splits. For large CMS call centers, you may require additional memory because a larger number of skills may be used with R3V2 CMS than the number of splits used with R3.0 CMS.

The maximum allowed values of the various parameters have been increased in R3V2 CMS, and this has an indirect effect on performance. For example, the maximum number of agent-skill pairs is about five times larger on R3V2 CMS than on R3.0 CMS. This obviously can result in more disk and RAM being needed.

Internal call history (call records), when enabled, will cause additional load on processor occupancy and may require that you slow your refresh rates. Internal call history will only be used by small call centers with low call rates, so the effect on performance should be small. The effect of external call history on performance should also be small.

Call Vectoring

- CMS now supports 32 vector steps per vector with the Generic 3 Version 2 switch. The Vector Contents window in the ACD Administration subsystem is a multipage screen.
- CMS now supports the *converse* step. This vector step is only available with the Generic 3 Version 2 switch as part of the Call Vectoring feature.

  If you will be using converse, you will need to administer more unmeasured trunks, since the *converse* command reports about a call using an unmeasured trunk.

Data, Database Items, and Calculations

The following data, database items, and calculations have changed between R3.0 CMS and R3V2 CMS.

Data

You can now add, delete, or change measured trunks, trunk groups, agent extensions, agent login IDs, VDN extensions, splits, and skills (on a Generic 3 Version 2) without busying out the link to CMS and losing CMS data.

CMS now tells the Generic 3 Version 2 switch how many of each facility it can support, and if an agent or the switch administrator attempts to exceed the CMS limits, they are blocked by the switch until the CMS configuration is increased. This means the agent is denied the ability to log in, and the switch administrator would not be able to make the change. In order to make the change, you need to put CMS into single-user mode with data collection off and then increase the storage parameters in the Data Storage Allocation window. When you return CMS to the multiuser mode with data collection on, CMS will renegotiate the CMS configuration parameters with the switch, and the agent would be allowed to log in, and the switch administrator would be allowed to make the change.

Database Items

INTERVAL in R3.0 has been changed to **INTRVL** in R3V2 CMS.

Calculations

No new calculations have been added.

Multi-ACDs

Release 3 Version 2 CMS now supports multiple ACDs. The areas that have changed follow.

Title Bar

Multi-ACD link status on the title bar.

Reports

New Real-Time Multi-ACD reports

These reports allow you to access data from multiple ACDs on the same reports. This could be different splits/skills from different ACDs.

Exceptions

- The Exception Count, exception alerting, and entries in the exception log are for all ACDs for which the user has exceptions permissions.
- The Exceptions Log now specifies the ACD where the exception occurred.

User Permissions

You can set up permissions for each user for each ACD. Also, you can set up permissions by each ACD (e.g., you might want to give a CMS user permission for an entire ACD).

Commands SLK

Change ACDs from the `Commands:Options:Current ACD` menu item.

Windows

The current ACD name or number appears in the upper right corner of each window so you will know which windows apply to which ACD.

CMS and Expert Agent Selection (EAS)

Expert Agent Selection (EAS) is an optional feature that builds on the power of the Call Vectoring and ACD features of the switch by routing incoming calls to the correct agent on the first try. By using the ACD queuing and the vector commands *Queue-to-Main* and *Check-Backup*, a call routes to an agent that has the **skills** required to handle that call.

With EAS, call distribution is based on **skill**. Calls are queued to skills and handled by an agent who is a member of at least one of the skills associated with the skills that a caller requires.

Note

The EAS feature requires extensive planning before implementing, and Generic 2.2 EAS and Generic 3 Version 2 EAS have different capabilities. This section gives a very high-level description of EAS and the changes on CMS to track this feature. See Appendix E, "CMS and the Expert Agent Selection Feature," in the *CMS R3V2 Administration* (AT&T 585-215-521) document for a more in-depth description.

Generic 3 Version 2 EAS

With Generic 3 Version 2 Expert Agent Selection and logical agent, agent login IDs must be part of the extension dialing plan and must also be different from the agent voice terminal extensions. It may be necessary if you have already have an R3.0 CMS to readminister the CMS agent login ID synonyms in the Dictionary. If you must change login IDs, the agent data collected prior to the EAS cut will have a different login ID and will require a separate report invocation.

Generic 2.2 EAS

With Generic 2.2, EAS increases the number of agent groups by expanding each ACD split into a set of 10 skills called a *skill tens group*. That is, when EAS is active, each ACD split becomes a skill tens group (e.g., 10, 20, 30 ... up to 600, see example).

Split		Skill Group
1	→	10-19
2	→	20-29
3	→	30-39
4	→	40-40
	•	
	•	
	•	
60	→	600-609

When creating vectors, a call can be queued to up to three skills at the same time (Multiple Skill Queuing) as long as the skills all belong to the same skill tens group. For example, queuing to skills 26 and 21 is multiple skill queuing, but queuing to skills 21, and 53 is not, the call outflows from skill 21 and inflows to skill group 53. Likewise, queuing to skills 24, 21, and 33 results in an outflow from 24 and 21 and an inflow to skill 33 because it is in a different skill group.

Skill groups ending in zero (20, 30, 40, etc.) are default skill groups. These are super groups for the skill tens group, that is, a call to skill 10 can be delivered to anyone with skills 10-19. Agents are administered to defaults and then enter other skills via their voice terminals.

Additions to CMS for EAS

The following items have been added to CMS to track the Expert Agent Selection feature.

- **Real-Time Reports**
  - — On menus and input fields, Split now displays as Split/Skill. Valid minimum and maximum values are determined by switch type and release (for Generic 3 Version 2, skills range from 1 to 255; and on Generic 2.2, skills range from 10 to 609).
  - — New Skill Status report shows logged in skills (different from the Split Status report).
  - — New VDN Skill Preference report shows the call handling for the VDN as a whole and lists the number of calls handled by each of the VDN skill preferences.

- **Historical Reports**
  - — On menus and input fields, Split now displays as Split/Skill. Valid minimum and maximum values are determined by switch type and release.
  - — New VDN Skill Preference report
  - — The Agent Login/Logout report shows skills logged into by agents.
- **Dictionary** (see Chapter 7, “Dictionary”)
  - — Split/Skill names

    Assign names to skills so skill names appear on CMS reports.
  - — Split/Skill string values.

    Change the descriptive words that appear on the Skill Call Profile reports. The *words* are used to describe the value of the data.
- **Exceptions** (see Chapter 8, “Exceptions”).

  Split exceptions are now Split/Skill exceptions.
- **ACD Administration** (see Chapter 9, “ACD Administration”)

  From CMS, you can do the following at any time:
  - — **VDN Skill Preferences**

    Change VDN skill preferences is a new menu item.

    Generic 2.2 Switch — When the VDN skill preferences are changed on a Generic 2.2 switch, the new skill preferences take effect for the new calls to the VDN. Any calls currently in progress in the VDN at the time the change is made are processed with the *old* VDN skill preferences.

    Generic 3 Version 2 Switch — When the VDN skill preferences are changed on a G3V2 switch, the change takes effect immediately and can affect the processing of any calls currently in the VDN at the time of the change.
  - — **Change Agent Skills** (Generic 3 Version 2)

    Add, change or delete agent skills using the Change Agent Skills window. Agent must log out and then back in for changes to take effect. Agent login IDs must be one to five digits in length. An agent can have up to four skills and each skill is assigned a type, either primary or secondary.
  - — Use the **Vector Contents** window to create, modify, or delete skill vectors.

- — **Move Agent Extensions** (Generic 2.2 with EAS only).

  This window allows you to move agent extensions between skill tens groups. It also allows you to get a list of the extensions assigned to a particular skill group. Valid entries in the Skill group field must be a positive integer ending in “0” representing a skill group number. The skill group 0 can be entered to list extensions assigned to skill 0, where they are measured, but are not members of any skill group. Extensions must be up to 5 digits.

- — The **Vector Configuration** report contains VDN skill information and is called Vector Configuration with Skills on the report.

- **User Permissions** (see Chapter 10, “User Permissions”)

  Grant skill access from the Split/Skill Access window.

- **Custom Reports**

  The *Get copy of design* window will list all the Skill reports with EAS.

- **Maintenance**

  With EAS, the ACD Status window has the following changes:

  - — `Maximum skill members` is new and displays the total skill members allowed for your system.
  - — `Skill members in use` is new and displays the number of agent/skill pairs currently logged in.
  - — `Measured split` field has been removed.
  - — `Split members, summed over all splits` field has been removed.

EAS Vector Commands

- The following vector commands have been changed from the split usage to skill usage with EAS. These commands can queue to a specific skill, or can reference a VDN skill preference, or can check the conditions in the skill.
- check backup skill
- go to step
- go to vector
- messaging skill
- queue to main skill.

Note

See Chapter 9, “Vector Contents — ACD Administration” for a description.

Additional Call Data with EAS

With EAS, the following additional data tracking is available.

- **Direct Agent Calls (Generic 3)**

  With the proper class-of-restriction settings, calls to agent login IDs can be tracked as direct agent calls. These calls are queued to a specific agent and are tracked as a special type of ACD call for the agent.

  Direct agent calls queue to the agent but use a queue slot in the first primary skill the agent is logged into. CMS tracks the queue time for the direct agent call to the agent and the skill the call queues to, unless that skill is unmeasured.

  Note

  It is recommended (if possible) to either expand the queue size for the first skill the agent logged into or to assign a special “direct agent” skill as the first primary skill for all logical agents so that the queue slots for the other skills the agent is logged into are not used by direct agent calls.

Agent Tables

The agent tables separate direct agent calls from skill calls, and direct agent call tracking provides the same information as other agent calls.

Note

The standard real-time and historical reports combine direct agent calls and split/skill calls. For agents, you can separate these items by creating a custom report. See the *CMS R3V2 Custom Reports* (AT&T 585-215-523) document for custom report creation information.

Skill/Split Tables

The Skill/Split tables keep the following direct agent call information.

- Number of direct agent calls in queue.
- Number of direct agent calls ringing.
- Oldest direct agent call.
- Number of agents on direct agent calls or in direct agent after call work.
- Direct agent calls using the skill queue slots.
- Agent time on direct agent calls is tracked as OTHER time in skill tables.
- No call data is kept for direct agent calls.

VDN/Vector Tables

The VDN and vector tables include direct agent calls with skill calls as ACD calls.

- **Personal calls**

  The first measured skill a logical agent is logged into (whether primary or secondary) is used by CMS to track non-ACD calls unless the agent has an ACD call on hold, and the agent is not yet available for other ACD calls. In this case, the call is counted for the skill associated with the held ACD call.

Personal Call Tracking

Enhanced Data Tracking Capabilities

The Personal Call Tracking (PCT) feature on the Generic 3 and Generic 2.2 switches sends CMS information to track all personal calls an agent makes and receives. This includes calls made or received when the agent has a call on **hold**.

Before Personal Call Tracking

Older switches did not notify CMS when an agent put an ACD call on hold, so agent time with an ACD call on hold was counted as ACD talk time. There was also no tracking of any calls an agent may have made (for example, to consult with a supervisor or to transfer or conference an ACD call) or received while the ACD call was on hold.

With Personal Call Tracking

With the Personal Call Tracking feature, CMS now tracks calls an agent makes or receives with a call on hold. Calls are tracked as AUX IN or AUX OUT calls. Time is tracked as OTHER or AUX. If you upgraded from an older switch release to a Generic 3 or Generic 2.2 switch, you will see the following data tracking changes:

- An increase in the number of extension in/out calls made or received by agents, if agents make or receive calls while they have a call on hold.
- Agent time on AUXIN/AUXOUT calls will increase.
- If agents do a lot of conferences and transfers, the average talk time for extension out calls will probably drop, since time spent in AUX for conferences and transfers is very short (a matter of seconds).
- The average talk time on ACD calls will drop if agents put calls on hold, since the time on hold is no longer included as ACD talk time.

New Database Items

New database items have been added to the R3V2 CMS to provide better tracking of agent time with ACD calls on hold.

Note

The new personal call tracking database items are not in any of the standard real-time or historical reports. If you want to use these, you must create a custom report.

Table 2-1: Personal Call Tracking Real-Time Status Database Items

Database Item	Description	Table
ACDONHOLD	The number of direct agent and split/skill ACD calls on hold at the agent. (System 85 R2V4, Generic 2, and Generic 3)	Agent
DA_INRING	The current number of direct agent ACD calls ringing at an agent in this split/skill. (Generic 3 only)	Split

Table 2-2: Personal Call Tracking Historical Database Items

Database Item	Description	Table
ACDAUXOUTCALLS	The number of AUXOUTCALLS the agent made with at least one split/skill or direct agent ACD call on hold. This includes calls made to transfer or conference the ACD call. (Generic 2.2 and Generic 3)	Agent
I_ACDAUX_OUTTIME	Time during the collection interval that the agent spent dialing (Generic 2.2) and talking on AUXOUT calls with at least one split/skill or direct agent ACD call on hold. (Generic 2.2 and Generic 3)	Agent
I_ACDAUXINTIME	Time during the collection interval that the agent spent talking on AUXIN calls with at least one split/skill or direct agent ACD on hold. (Generic 2.2 and Generic 3)	Agent
I_ACDOTHERTIME	Time during the collection interval that the agent spent in the OTHER state (dialing an outgoing call [Generic 3], with a ringing personal call [Generic 3], or with calls on hold and with no other state selected) with at least one split/skill or direct agent ACD call on hold. (Generic 2.2 and Generic 3)	Agent
ACDAUXOUTCALLS	The number of AUXOUTCALLS agents in the split/skill made with at least one split/skill ACD call on hold. For agents in multiple splits (Generic 3), the call is counted for the split/skill of the last ACD call the agent put on hold. ACDAUXOUTCALLS includes calls made to transfer or conference the ACD call. (Generic 2.2 and Generic 3)	Split

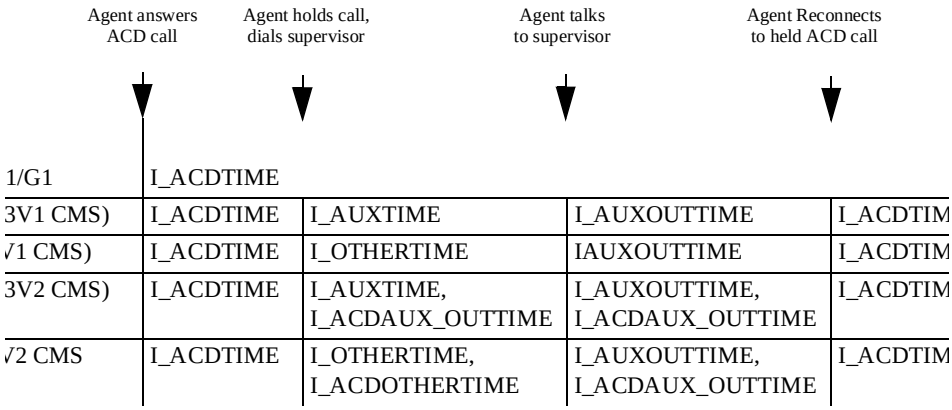
Database Item	Description	Table
I_ACDAUX_OUTTIME	Time during the collection interval that the positions spent dialing (Generic 2.2) and talking on AUXOUT calls with at least one split/skill ACD call on hold. (Generic 2.2 and Generic 3)	Split
I_ACDAUXINTIME	Time during the collection interval that positions were talking on AUXIN calls with at least one split/skill or direct agent ACD on hold. (Generic 2.2 and Generic 3)	Split
I_ACDOTHERTIME	Time during the collection interval the positions spent in the OTHER state (dialing an outgoing call [Generic 3], with a ringing personal call [Generic 3] or with calls on hold and with no other state selected) with at least one split/skill ACD call on hold. (Generic 2.2 and Generic 3)	Split
HOLDACDCALLS	The number of split/skill or direct agent ACD calls that were placed on hold at least once. (Generic 2, Generic 3, System 85 R2V4)	VDN
HOLDACDTIME	The time spent by split/skill or direct agent ACD callers on hold. (Generic 2, Generic 3, System 85 R2V4)	VDN

Hold Calls/Agent States

Personal Call Tracking offers the following additional data tracking capabilities:

- Data is now available for calls on hold, time for calls on hold, and calls abandoned from hold. Without personal call tracking, time for calls on hold was counted as talk time.
- CMS split and agent data now reflect calls made while another call is on hold.
- When an agent places a call on hold, the agent returns to his/her previous state before the call unless the previous state was AVAIL. If the agent was in the AVAIL state, the agent is placed in the OTHER state until the agent dials a valid number (if the number dialed in invalid, the agent remains in OTHER), reconnects with the held call, or the held call abandons. When the agent reconnects to the held call, the original agent state for the call displays.

The following example shows how R3V2 CMS tracks hold calls with the new database items.



1/G1	I_ACDTIME			
3V1 CMS)	I_ACDTIME	I_AUXTIME	I_AUXOUTTIME	I_ACDTIM
√1 CMS)	I_ACDTIME	I_OTHERTIME	IAUXOUTTIME	I_ACDTIM
3V2 CMS)	I_ACDTIME	I_AUXTIME, I_ACDAUX_OUTTIME	I_AUXOUTTIME, I_ACDAUX_OUTTIME	I_ACDTIM
√2 CMS	I_ACDTIME	I_OTHERTIME, I_ACDOTHERTIME	I_AUXOUTTIME, I_ACDAUX_OUTTIME	I_ACDTIM

Figure 2-1: Hold Tracking for Supervisor Assist Example

Agents do not have a **hold** state. Hold time is associated with a call placed on hold. Agent states reflect the current activity of the agent.

Hold time (HOLDTIME) is the time the call spent on hold. HOLDCALLS is the number of calls that were placed on hold at least once, and HOLDABNCALLS is the number of calls that abandoned while on hold.

I_OTHERTIME is the time during the collection interval that the agent was doing other work.

For Generic 3, this includes time while in the Auto-In or Manual-In mode during which the agent put a call on hold and performed no further action, the agent placed a call or activated a feature, or a personal call rang with no further activity.

- When an agent dials a valid extension, the agent's state changes to AUX OUT (if the agent was in AUX or OTHER) or to ACW OUT (if the agent was in ACW). See Table 2-2, “Personal Call Tracking Historical Database Items,” for other items.

Abandoned Calls

VDN calls that route to extensions and are then abandoned are counted as abandoned calls for the VDN.

Transferred and Conferenced Calls

- Transferred and conferenced calls are tracked as held calls while the call(s) wait to be transferred or added to a conference.
- When an agent ends a conference call, the agent returns to the call state prior to setting up the conference.
- If an agent is talking, then places the ACD call on hold to transfer that call, and then completes the transfer, the agent then goes to the AVAIL state (Auto-In) or to ACW (Manual-In) following the transfer.
- Transferred or conferenced unmeasured split, trunk group, or VDN calls are now tracked. Prior to Personal Call Tracking, these calls were not tracked.

Audio Difficulty

You now get the trunk associated with audio difficulty for personal calls if the trunk group is measured. Prior to Personal Call Tracking, audio difficulty was restricted to ACD calls.

Call Records

You can now get detailed call history reporting from both internal and external call records. For example, you might have a caller that complained about being put on hold three times and then transferred. Call Records give you this information.

Internal call records reside on CMS. The standard CMS internal call records are limited to a maximum of 5000 records.

Note
To protect the real-time processing on CMS, internal call records can only be collected if your call center's traffic is under 400 calls in 20 minutes.

External call records is an optional external call record collection and export application which allows you to store and collect more information even if you have high traffic rates.

Note
The Call Records report menu item will only appear on your Historical Reports menu, if you have internal call records.

Historical Reports

CMS provides the following Call Records information.

- Data Collection

  Detailed information is now available for each call.

- New Call Record report

  With this report, you can get a history of calls handled by your call center.
  Most call record reporting will need to be done via custom reports tailored to your application. This standard report is to be used for customizing. The Call Record menu item will not appear if an external call record collection and reporting application is being used.

Call Record Report

Start: mm/dd/yy hh:mm AM
Stop: mm/dd/yy hh:mm PM

Printed: mm/dd/yy hh:mm AM
ACD: xxxxxxxxxxxxxxxxxxx

Callid	Seg No.	Start Date	Start Time	Calling Party	Dialed Number	Call Disp	Disp Time	Split/ Skill	Ans Agent	Talk Time	Hold Time	After Call	Trs	Cnf	Ast	Last Call Work Code
xxxxxxxxxx	xx	mm/dd/yy	hh:mm:ss	xxxxxxxxx	xxxxxxxxx	xxxx	mm:ss	xxx	xxxxx	mm:ss	mm:ss	mm:ss	x	x	x	xxxxxxxxxxxxxxx
xxxxxxxxxx	xx	mm/dd/yy	hh:mm:ss	xxxxxxxxx	xxxxxxxxx	xxxx	mm:ss	xxx	xxxxx	mm:ss	mm:ss	mm:ss	x	x	x	xxxxxxxxxxxxxxx
xxxxxxxxxx	xx	mm/dd/yy	hh:mm:ss	xxxxxxxxx	xxxxxxxxx	xxxx	mm:ss	xxx	xxxxx	mm:ss	mm:ss	mm:ss	x	x	x	xxxxxxxxxxxxxxx
xxxxxxxxxx	xx	mm/dd/yy	hh:mm:ss	xxxxxxxxx	xxxxxxxxx	xxxx	mm:ss	xxx	xxxxx	mm:ss	mm:ss	mm:ss	x	x	x	xxxxxxxxxxxxxxx

Figure 2-2: Call Record Report Example

R3.0 to R3V2 Migration

When migrating your R3.0 CMS data to R3V2 CMS, you need to be aware of the following:

- Obsolete database items
  - — I_AUXTIME in the **agent** table was removed because it is a duplicate of TI_AUXTIME (these values were identical). You will need to change any **agent** custom report references to I_AUXTIME to TI_AUXTIME.
  - — Split/skill custom reports that use I_AUXTIME should **not** be modified to refer to TI_AUXTIME because TI_AUXTIME does not exist in the split/skill tables.
  - — Custom reports with obsolete database items will be flagged, and the obsolete columns need to be removed or changed.
  - — Dictionary calculations with obsolete database items in their formulas will be flagged, and these columns need to be removed.

    Note If you have a custom report that will not run, check to see if any calculation is using an obsolete database item.
- Your INFORMIX data (not CMS data) is your responsibility to migrate.
- All conflicts with report, timetables, and shortcuts names will be reported in the customer migration log and conflicting names will have temporary new names. You will need to resolve these conflicts.
- All conflicts in the Dictionary and MainMenu addition items are discarded. These conflicts are reported in the customer migration log.
- In a multi-ACD configuration, if you try to migrate a CMS login ID to a target machine that already has that same login ID, the migrating login ID will **not** be migrated. However, any files (e.g., custom reports, timetables, shortcut, etc.) under those login IDs will be migrated and the ownership will be changed to *cms*. You must recreate the CMS user IDs in User Permissions: User Data window and then change ownership of the files to the appropriate CMS login ID.

Reports

Real-Time Reports

- New Queue/Agent Status report

  This report combines the Queue/Agent Summary report with the Agent report to show overall split/skill information, such as the number of calls waiting, oldest call, percent answered within service level, and the number of agents available, on ACD calls, staffed, with calls ringing, and on after call work. This report also shows what each agent in the split/skill is doing.

Historical Reports

The `Set dest` action list item has been removed from the action list and the information now appears on the input window for all historical reports (i.e., Reports, Dictionary, Exceptions, ACD Administration Configuration, and Forecasting subsystems).

This change lessens the confusion with Timetable tasks and running a report. Also, you can run up to 100 reports on a Timetable, even if you send the output to different destinations.

Agent Trace Report

You will no longer see extraneous OTHER activities with no time (CMS will filter these activities).

You will no longer get a misplaced summary line for AUX and ACW. The trace will, instead, be interspersed with AUX and ACW activities between calls, which better reflects what the agent was doing.

Timetables and Shortcuts

The Timetable/Shortcut subsystem has been enhanced and now provides the following:

- **`Get contents`** provides a window that lists all the tasks associated with a timetable/shortcut and allows you to enter the task number(s) that you want to copy, delete, global edit, or modify.

  You can also add new tasks with `Get contents`. The `Add` tasks action returns you to the CMS Main Menu to add tasks.

  The Keep SLK *Stop* is still used to stop adding to a timetable/shortcut.

  The `Global edit` action allows you to change the date, time, or printer for all tasks on a timetable. `Global edit` is not available for shortcuts.

  `Modify` brings up a window for each task to allow you to modify the task. You can modify the input values for the task, the action for the task, or both the input and action. It is not possible to change the ACD associated with a task using `Modify`. It is possible to change the "Current ACD" in Keep mode.

  You can also copy specific tasks within the same timetable/shortcut.

The Keep SLK no longer includes *Delete, Next*, and *Previous*.

Exceptions

The Agent Exceptions for time in state have been redefined so that the following agent exceptions can occur multiple times during an interval. The threshold counter is no longer cleared at the start of each data collection interval. Instead, it is cleared when the agent state causing the exception changes or when the agent logs off.

- Time available
- Time on inbound ACD call (min)
- Time on inbound ACD call (max)
- Time in after call work
- Time on inbound ACW call
- Time on outbound ACW call
- Time in AUX work
- Time on inbound AUX call
- Time on outbound AUX call
- Time on outbound ACD call (min)
- Time on outbound ACD call (max)
- Time ACD call spent on hold
- Time ACD call spends ringing
- Time on direct agent call
- Time call waited in direct agent queue
- Time on external outbound ACW call
- Time on external outbound AUX call

New Exception

Ringing call automatically redirected from agent

A new exception for the Redirection on No Answer feature that indicates an agent has been put into the AUX work mode automatically because the agent did not answer an ACD call that was ringing at the agent's station, and the switch attempted to re-queue the call automatically to a split/skill. This exception applies only to the Generic 3 Version 2 switch.

System Setup

Data Storage Allocation

With R3V2 CMS, the numbers in the `Number of Agent login/logout records` field on the Data Storage Allocation window is the number of records you want to store, not the number of days as in the R3.0 CMS.

Custom Reports

Custom Reports allow the design of custom call record reports. Most of the call record reporting you do will be done via custom reports designed to meet your call center's needs. This report menu item will not appear on the reports menu if you have an external call record application.

Major Differences

This chapter describes the major software differences between Version 1.2 and Version 1.4 of the CMS software.

Data, Database Items, and Calculations

- The calling agent no longer affects the trunk state. The trunk state will display only the inbound call progress. If an agent makes a call, the trunk state will be SEIZED (not CONN). Also, if the calling agent puts a call on hold or reconnects to the call, the trunk state will not change. CMS will continue to track the outbound talk time and hold time, but the state of the trunk will not change.
- HOLDTIME will not be tracked for a VDN call that terminates to an unmeasured agent or extension. The time will be tracked as CONNTALKTIME. Previously, when an unmeasured agent put a call on hold, in some cases CMS could not determine if it was the calling agent or the answering agent that put the call on hold, and CMS would make a “best guess”. This “best guess” could be wrong which meant the call was ignored. This no longer happens.
- When you upgrade from R3.0 CMS to R3V2 CMS, it will appear that trunk CCS data has *disappeared* during the upgrade. In R3.0 the CCS calculations (which were based on trunk INTIME and OUTTIME, call-based data items) were wrong. These CCS values must be interval-based to make sense. R3V2 CMS software has new, interval-based items that are used to calculated CCS. The calculation used by standard reports to generate the CCS values was changed to use the new items. Therefore, your old data exists under the old data items. The new items were not populated with any data during the upgrade.
- The processing time for most queries involving division expressions will be much faster. Divisions involving divide by zero will be a little slower.

Reports

Historical Reports

When you run the Historical Split/Skill Status report or the Historical VDN Status report, these reports are automatically updated. They will now be updated 10 minutes after the interval for 30 or 60 minute intervals and 5 minutes after the beginning of the interval for 15-minute intervals. Prior to this fix, an extra 10 or 5 minutes was added to the period between updates.

Timetables and Shortcuts

- When scheduling VDN moves, you need to group all VDN moves together on a single timetable or schedule them far enough apart so that one move completes before the next one starts.
- You can now create shortcuts with any report that contains the `Set destination` field. The `Set destination` field must be set to `Terminal` for the shortcut to execute.
- Timetables with more than 33 tasks will now complete all tasks.
- When exiting Keep mode and no changes were made to any of the tasks, the question about saving changes is no longer asked.
- When editing shortcuts, any primary windows with input fields for noncurrent tasks are not visible. This means that input values can be changed only for the task currently being edited. However, shortcut windows without input fields for noncurrent tasks can be moved and sized.
- A task can now be specified only once in the `Task number(s)` field.
- Tasks are processed in the order they are typed in the Task number(s) field.
- To add new tasks to the beginning of a Timetable or Shortcut, leave the `Task number(s)` field blank and the task will be added before task number 1. Also, if you have a timetable with zero (0) tasks and you want to add tasks, leave the `Task number(s)` blank. Field help also describes this action.
- If the number of tasks for copy exceeds 100, an acknowledgment window appears instead of the copy window.

- The cursor no longer moves to the beginning of the `task(s)` field after the Get contents window retrieves all task data. This allows you to type while a request is processing without the typing becoming garbled.
- The Copy and Global edit windows now disappears after the corresponding action completes.
- Setting user defaults no longer causes timetables to fail.
- The `starting` message window is now removed immediately if a task cannot be started when trying to add it to a timetable or shortcut.
- You are now warned that a shortcut will not run for a task that produces a acknowledgment window when doing an `Add` or `Edit`.

Exceptions

- Two new exceptions have been added.
  - — "Agent logged out with calls active/held" and can be administered in the Agent Exceptions Administration window
  - — "Agent denied login to some skills" is always enabled and will **not** appear on the administration window.

  Neither exception has a threshold count associated with it. Both exception conditions may appear in the Agent Exceptions report, and you can generated the report to include or exclude either exception.

ACD Administration

Move Agent Extensions Between Splits

Previously, you could assign extensions to more than four splits, but the agent could not log into four splits because CMS checked the extension assignments and not the split. This problem no longer occurs. You can now assign extensions to more than four splits, and CMS will also check the splits the agent is logged into, and the agent will be able to log into multiple splits (up to three or four depending on your switch release).

Vector Contents

- The “#” is now allowed in a “route to” number and “goto” step with a digit equals clause. If “#” is entered, it must be the first and only character. The “#” is valid for Generic 3 Version 2 switch as a special custom development and will be generally available on all Generic 3 switches after Version 2.
- You can now specify a skill number with the “oldest call waiting” condition.

Vector Configuration Report

This report now correctly shows the primary skill preference of a VDN with an associated trunk group.

User Permissions

ACD Access

If a CMS user has read permission only to the User Permissions subsystem, the `Next` and `Previous` action list items will now appear as valid actions on the ACD Access window.

System Setup

Main Menu Addition

- If you try to modify a Main Menu Addition program that does not exist or cannot be executed, CMS now warns you.
- CMS no longer allows duplicate Main Menu Additions. Previously, if you had a duplicate entry, CMS did not know which item to select. If you have duplicate Main Menu items, you should delete one and reenter the item with a different name.

Maintenance

ACD Status

You can now repeatedly select the `Translations` action item without encountering an error on the even numbered attempts.

Error Log

The correct day is now logged in the Error Log report for archives and timetables that run around midnight.

Custom Reports

- The Screen Painter now displays bar fields with and without their scales. The horizontal bar field has a single row of scale marks above the actual bar, while the vertical bar field has two columns of scale marks to the left of the actual bar.
- The vertical bar field appears with the appropriate scale characteristics. Each type of vertical scale now includes a *hat*. When you change a bar field attribute via the *bar* action list item in Screen Painter, the change is visible immediately after you save the changes.
- Help text is now available from all areas of Custom Reports consistent with the rest of CMS and should be helpful in creating custom reports.

Forecast

The labels on the Forecast: Data Storage Allocation window are now Split/Skill.

User Interface

- The count (with the arrow) on a scrollable window is now calculated more accurately.
- If you resize a window when scrolling, the cursor will no longer move to the first input field in the window.
- Field help messages are now available for the **Window**, **Commands**, and **Keep** SLK menu items.
- You will no longer see more than one highlighted menu item when switching back and forth from one type of ACD to another (i.e., real ACD to pseudo-ACD and vice versa). In particular, if the current ACD is a “real” ACD, Exceptions and ACD Administration main menu items are available. If you change to a pseudo-ACD, these menu items are unavailable and grayed out. If you change from the pseudo-ACD back to the real ACD, these menu items are no longer grayed out and again available and only one menu item will be highlighted.

Set destination

- When input windows for reports with Set Destination fields are restored via the Commands: Restore System Default SLK, the size is correct. All fields, including the set destination fields, appear on the input window.
- If you set the report destination to a printer or file and there are no database records found for the criteria in the input window, the report header and an empty box are written as before, but now the status line `No records found` is written at the bottom of the report.
- If you select a printer that does not exist, the message in the Error Log is now correct.
- The `Printer name:` field is now 14 characters instead of 16 characters. Previously, if you entered a 16-character printer name, the CMS database only accepted 14 characters.

Miscellaneous

Migration

Before you migrate data, CMS user IDs must be lower case. This includes any existing R3.0 user IDs with upper case letters.

Installation

The prompt for authorizing the number of agents was changed as follows:

```
Enter maximum number of agent members that can be
administered (1-5200):
```

There is no default for the above statement unless the CMS has been previously administered. In which case, the default is the current value.

Removing an ACD

If the administrator is removing an ACD which is the default ACD for any existing logins, the following message will appear at the terminal:

```
There are login ids which have this ACD as the default
ACD. These logins will be changed to have the master
ACD as their default ACD. See
/cms/install/logdir/admin.log for details.
```

CMS R3V2 Documentation

Administration and Custom Reports

Make the following changes to the *CMS R3V2 Administration* (AT&T 585-215-521) or *CMS R3V2 Custom Reports* (AT&T 585-215-523) documents.

- Chapter 1, “Introduction,” Page 1-15 (Administration)

  The menu entry *Change VDN Skill Profile* under **ACD Administration** should read as follows:

  Change VDN Skill Preferences

- Chapter 5, “Historical Reports”

  The **Calls Ans** field description in Table 5-36 should be removed. This column does not exist in the Vector historical reports.

- Table A-14, Call Record Database Items (Administration and Custom Reports)

  The **CONSULTTIME** description should read as follows:

  The time an agent talked on any outbound call while in AUX or ACW. This includes the time the originating agent spent talking to the destination party. This is the time between pressing the transfer or conference key. It includes wait time if the agent is transferring/conferencing to a VDN or split/skill extension, but the wait time can be subtracted out by subtracting the **DISPTIME** item from the **CONSULTTIME**.

Installation and Maintenance

Make the following change to the *CMS R3V2 Installation and Maintenance* (AT&T 585-215-122) document.

- On Page D-24, Step “**a**” should read as follows:

  a. Insert the **3330 Generic Support Software for NCR and OEM Disk 1 of 2 Version 1.04** diskette into the flexible disk drive.

Upgrade Instructions

The following procedures allow you to upgrade your CMS software at your convenience. Follow these instructions carefully.

Pre-Upgrade Procedures

You **must** complete the following steps prior to beginning the upgrade of Version 1.4.

Caution **Failure to complete the pre-upgrade procedures may result in an unsuccessful upgrade, possible loss of data, and significant recovery time.**

1. Before you start any procedures, verify that the tape drive status light is off and the drive is not being used for any other purpose (e.g., scheduled backups).
2. Verify that the switch and UNIX® system time are less than 24 hours apart. The switch time is displayed in the title bar of the CMS screen.

   Note **If the time difference is greater than 24 hours, you must change the time for CMS to run.** To change the UNIX system time, turn **off CMS** and then use ***face: System Administration:Date and Time.***

3. Verify the tunable parameters are set to the recommended values before upgrading.
4. From the **System Console**, login as *root*.
5. Execute the `df /tmp` command to determine the available disk space for */tmp*. The */tmp* file system needs **1500** or more blocks to perform the upgrade.

   Note If you do not have at least 1500 blocks, call the ACD/CMS Helpline on 1-800-334-9670.

6. Enter the command, `cmsadm`, to display the CMS administration menu.

7. Select the `backup` option.

   If CMS is turned on, you will be prompted to turn CMS off during the backup. The data backup typically takes from 1 to 2 hours depending on the amount of data.

   Note For more information, see "Performing a CMSADM Backup" section of Chapter 8 in the *CMS R3V2 Installation and Maintenance* (AT&T 585-215-122) document.

8. Exit from the `cmsadm` menu.
9. As a precaution, ensure that copies of the current R3V2 CMS software load and the latest full backup tapes are available.
10. From the *root* prompt, run the *displaypkg* command to display software packages loaded on your processor.
11. Make sure the following software versions appear on this list.
    - UNIX System V Release 3.2.3 and associated utilities, including SCSI Support Package Version 2 and UNIX SVR3.2.3 Maintenance Disk #1.
    - Korn Shell Version 11/16/88d 386 Release 2.0
    - INFORMIX® SE 4.10.UD1 (Runtime Version)
    - X.25 Network Interface Software Version 1.2.1 SL1.51.1.25.

    Caution If any of these software versions do not appear, call the AT&T ACD/CMS Helpline on 1-800-344-9670.

Software Upgrade Procedures

The upgrade software package will automatically upgrade your system **with no loss of historical data**:

Note **The upgrade procedure will result in approximately 60 minutes of outage on the R3V2 CMS.**

Use the following steps to upgrade your CMS.

1. From the **System Console**, login in as *root*.
2. Enter the command, `cmsadm`, to display the CMS administration menu.
3. Select the `run_cms` option.
4. Select the option to turn CMS off.
5. Exit from the `cmsadm` menu.
6. Insert the CMS upgrade cartridge tape into the tape drive.
7. Enter the command, `installpkg`, to begin the upgrade procedure.
8. When prompted, select the cartridge tape option and press Return.
9. The program will now request that the tape be inserted into the tape drive. Since this was done in Step 6 to allow for the tape drive to park the tape, press Return.
10. Press Return to retention the tape before proceeding with the upgrade. Retensioning the tape takes approximately **3 minutes**.
11. After the tape retensions, the program displays information on selecting the packages to be installed. Press Return to continue.
12. Select `Option 4` (the Call Management System package) followed by Return.
13. Press Esc when all selections have been made and Return when you are ready to begin the upgrade.

    Prior to actually beginning the upgrade, the program will prompt you to ensure that the appropriate backups have been done.

    If you followed the pre-upgrade instructions, you have already backed up your file system. Enter `y`. The program will take about **5 to 10 minutes** to remove the files associated with the previous version of CMS.

If you did not follow the pre-upgrade instructions, enter n and refer to the pre-upgrade instructions for information on backing up your file system.

14. Wait until the upgrade program finishes the following:
    - When all the appropriate files are removed, the program then begins loading the new R3V2 CMS software. It takes about **10 to 20 minutes** to download the R3V2 CMS software from the cartridge tape to the hard disk. The software is downloaded and after a few minutes several rows of periods (.....) will be displayed to let you know the program is still running.
    - When the download completes, **several minutes** are then required to audit the package installation.
    - Depending on the amount of data and the previous load you are upgrading from, the program can take **several minutes or an hour** to upgrade the CMS data files.
15. After the tape finishes rewinding (tape drive light is not lit), remove the cartridge tape.
16. If the program indicates the tunable parameters *were* changed, you will be required to reboot the system. This can be done in either of the following two ways:
    - Press the Return key which will require a manual reboot (press the RESET button on the CMS processor after the screen prompt `Reboot the system now` appears).

    OR

    - Press the Esc key. A UNIX system prompt returns. Then, execute the `shutdown -i6 -g0 -y` command.
17. After the CMS software is installed, turn on CMS to start collecting data. Turning on CMS initializes the communications link between the CMS software and the telecommunications switch.
18. Enter the command, `cmsadm`, to display the CMS administration menu.
19. Select the `run_cms` option.
20. Enter the option to turn CMS on. The program will take a **few minutes** to initialize the system parameters.

Post Upgrade Instructions

After the upgrade, complete the following steps:

1. From the **System Console**, login as *root*.
2. Enter the command, `cmsadm`, to display the CMS administration menu.
3. Select the `backup` option.

   If CMS is turned on, you will be prompted to turn CMS off during the backup. The data backup typically takes from 1 to 2 hours depending on the amount of data.

   Note
   For more information, see "Backing up the File Systems from the UNIX System Environment" section of Chapter 6 in the *CMS R3V2 Installation and Maintenance* (AT&T 585-215-112) document.

4. Login as the CMS administrator.
5. A full CMS Maintenance Backup **must** be done prior to any incremental backups that are either scheduled or manually completed.

   Note
   If this is not completed, any incremental backups will fail, since they must follow a full backup on the current load

6. Contact the AT&T ACD/CMS Helpline (1-800-344-9670) and notify them that the upgrade to Version 1.4 has been completed.

This completes the upgrade of the R3V2 Call Management System!

Troubleshooting

If the new software upgrade tapes will not load:

1. Put the current R3V2 CMS software in the tape drive and begin with Step 6 of the Software Upgrade Procedures. Follow the instructions through the final step.
2. Contact the AT&T ACD/CMS Helpline (1-800-344-9670) the following work day.
3. In the event you are unable to load either software load, call the AT&T ACD/CMS Helpline (1-800-344-9670) and report an out-of-service condition.

Software Compatibility

The following software is required for R3V2 CMS to operate correctly:

- UNIX System V Release 3.2.3 and associated utilities, including SCSI Support Package Version 2 and UNIX SVR3.2.3 Maintenance Disk #1.
- Korn Shell Version 11/16/88d 386 Release 2.0
- INFORMIX SE 4.10.UD1 (Runtime Version)
- X.25 Network Interface Software Version 1.2.1 SL1.51.1.25.

INFORMIX SQL 4.10.UC2 (Development Version) is optional software with R3V2 CMS.

R3V2 CMS is not co-resident with other software packages. This includes both packages running concurrently and those merely installed. R3V2 CMS modifies the UNIX system tunable parameters automatically to accommodate system requirements.

The 1.4 release of R3V2 CMS software is only compatible with Version 1.6 of the CMS R2 Migration (PG-3E257). Earlier versions will not migrate onto this Version of R3V2 CMS.

Hardware Compatibility

R3V2 CMS is certified to run on the following processor platforms:

- AT&T 6386 WGS 25/S
- AT&T 6386 WGS 33/S
- AT&T STAR SERVER S
- NCR 3332.

For the 6386 processors, the alternate console configuration is required. In addition to the base processor, the following may be added based on customer configuration needs:

- GPSC-AT/E X.25 kit(s) and 2-port RS232 cable(s)
- 4/16 MB Memory Expansion Board
- N80387-6386/25 or 6386/33 math co-processor
- IPC 1600 Ports Card(s) and Ports Cabinet(s), or MEGAPLEX® -96 board
- Remote Maintenance Package and software, Version 2.0.

For the STAR SERVER S processor, the VGA 600 card and monitor is required for the console. In addition to the base processor, the following may be added based on customer configuration needs:

- Additional SIMM memory on the system board
- SCSI Streaming Tape Unit
- GPSC-AT/E X.25 kit(s) and 2-port RS232 cable(s)
- IPC 1600 Ports Card and Ports Cabinet, or MEGAPLEX-96 board
- Remote Maintenance Package and software, Version 2.0.

For the 3332 processor, the following may be added based on your configuration needs:

- Additional SIMM memory on the system board
- SCSI Streaming Tape Unit
- GPSC-AT/E X.25 kit(s) and 2-port RS232 cable(s)
- MEGAPLEX-96 board (also IPC 1600 or Kickstart 2.5 board)
- Remote Maintenance Board (RMB).

Switch Compatibility

R3V2 CMS has been certified with the ACD applications on the following switches:

- *DEFINITY*® Communications System Generic 2.1 Release 3.3 and later (QPPCN 629DR)
- *DEFINITY* Communications System Generic 2.2 Release 3.0 and later (with/without call center features) (QPPCN 696DR)
- *DEFINITY* Communications System Generic 3i Release 13.3 and later (QPPCN 576)
- *DEFINITY* Communications System Generic 3r Release 8.5 and later
- *DEFINITY* Communications System Generic 3s Release 14.2 and later
- *DEFINITY* Communications System Generic 3 Version 2 Load 82 and later (QPPCN 644 G3i/s/vs) (QPPCN 646 G3r)
- *DEFINITY* Communications System Generic 1.1 Release 7.1 (QPPCN 559DR) and later
- System 85 R2V4 Release 2.3 (QPPCN 560DR) and later.

Note

It may be necessary to upgrade the switch release before installing R3V2 CMS or before upgrading CMS to Version 1.4. The required switch release for *DEFINITY* Communications System Generic 3r has been changed since Issue 1.3. These switch releases will also work with previous versions of R3V2 CMS. The switch should be upgraded to the specified release before installing R3V2 CMS or upgrading to Version 1.4.

Major Differences

This chapter describes the major software differences between Version 1.4 and Version 1.6 of the CMS Software.

Data, Database Items, and Calculations

- The CALLS_PER_POS_SUM calculation is now:

  `(sum(INTRVL*60) * sum(ACDCALLS))/sum(I_STAFFTIME).`

  The previous calculation `sum(INTRVl*60*ACDCALLS)/ sum(i_STAFFTIME)` was wrong.

  The new calculation will be used in the Skill Summary by Interval report and the Split/Skill Forecast Summary by Interval report. You should change any Custom Reports you created if you copied the wrong calculation rather than using the CALLS_PER_POS_SUM item.

- Any trunk group data that was migrated from a Release 2 CMS or Release 3.0 CMS is not included in any of the forecast tables.

  When the trunk CCS calculation was corrected in Issue 1.4 of the CMS software, the data used by the Forecast Trunk Performance report had to be changed to correct the same trunk CCS data problem. Two new trunk group columns (`i_inocc and i_outocc)` were added to the trunk group tables in Issue 1.4. The migrated data does not contain data for the new columns. Migrated trunk group data will not be put in the new forecast tables.

  When the Forecast Manager ran, it would fail when trying to re-collect data, because there was no data in these columns. The Forecast Manager will no longer fail, and you will be able to run the Forecasting Trunk Performance report on new data generated after the Issue 1.3 CMS software.

- When an adjunct routes a call to a split queue or a direct agent queue, you will see an ADJROUTED call for the VDN and vector. Previously, you did not see this.

- With Generic 2.2 without Expert Agent Selection (EAS) or System 85 R2V4, if an agent puts a call on hold, transfers the call, or conferences the call, the agent is now put in AUX work. Previously, the agent was put in AUX IN. The Agent Trace report will no longer show this transition.

- Trunk data will no longer be marked as incomplete if some trunks are marked as maintenance busy. This means data is still valid for use with the Forecasting Trunk Performance report.
- With a Generic 3 Version 3 switch and the Multiple Call Handling feature, the agent state will change to OTHER if the agent does the following:
  1. has a call on hold
  2. then goes available
  3. receives a second call while the first call is on hold
  4. does not answer the second call
  5. the second call is then redirected via the Redirection on No Answer feature, because the agent did not answer the call.
- If you create a custom report using the agent real-time database item DESTINATION (values are NULL, PBX, and OFF), it is now possible to see the distinction between agent calls that remain on the switch (PBX) and calls that go outside the switch (OFF). Previously, these calls appeared to be PBX even if they were OFF.
- If you change a trunk group's termination point (via switch administration) while trunks in the group are actively carrying calls, the data is now correct. Previously, the data was not stored correctly.
- The DURATION column of the call history or crec table now stores data correctly. Previously, on segments of calls which were transferred, the DURATION was wrong. Now one segment, usually the first, contains the total call time. Each of the segments will contain the valid time length for that segment.

Reports

- **Historical Call Record**

  The data in the `Disp Time, Talk Time, Hold Time,` and `After Call` report columns now correctly line up.

- **Historical Trunk Group Summary**

  The "`% Time All Trunks Busy`" data is now consistent between the daily, weekly, and monthly reports.

Timetables and Shortcuts

- The correct ACD is now displayed when you run timetables or shortcuts with multiple tasks, and each task has a different ACD.
- Timetables with a large number of tasks will now run successfully.
- You should always create a multi-ACD timetable or shortcut by entering the Keep mode from your default login ACD and then changing ACDs from your default login ACD. If you create a timetable or shortcut from an ACD other than your default login ACD before entering the Keep mode, the menus will be for the wrong ACD.

  You may want to consider creating separate timetables or shortcuts for each ACD.
- Timetables and shortcuts no longer reset the ACD to the user's login ACD when entering the Keep mode.
- A timetable with an illegal split name will no longer loop forever.

Dictionary

Calculations can now have the "unique" keyword inside the calculation.

Exceptions

The `Trunk` column in the Historical Trunk Group Exception report will now have a blank value for trunk group exceptions that do not involve a particular trunk (for example, length of time all trunks busy).

ACD Administration

Vector Contents

- If you enter an invalid value for a vector step, an error message will appear. If you want to erase the entire vector with Ctrl Z, the error message will disappear, the steps in the vector will disappear, and the cursor will move to the first field of the next step.
- For a Generic 3 Version 2 or Version 3 switch, the field help for the `if digits equal` field in the *route to number* and *goto vector* steps indicates that "#" is valid for only for Generic 3 Version 3 and later.

User Permissions

If you change a CMS user from Normal to Administrator or vice versa in the User Data window, you need to manually change the feature access permissions for that user. The Feature Access window is not automatically updated, and it will display the original permissions assigned to the user.

Maintenance

- **Printer Administration**

  If you enter a print type other than compressed, pica, or elite in this window, an Acknowledgment window appears telling you that you entered something different, and will ask you if that is what you really want.

- **Connection Status**

  When the link is down for several minutes (at least five), the `Connection` status may be `waiting session accept`. If this happens, you need to reboot the CMS by logging in as root and performing the **`shutdown -i6 -g0 -y`** command.

Custom Reports

- **Report Select Window**

  When you select the Delete action from this window, you will now see the following message:

  `Do you really want to delete the report named “rpt_name”?`

  You will be required to answer yes to delete the report or no to cancel the Delete action.

- **Screen Painter**

  — **Row Search Window —** The `Order by` field help now correctly states that you cannot order by synonym.

  — Scales are now displayed for bars.

- You will now get the status message “`No records found`” if you run a custom report that has no data.

- You can now create vertical and horizontal bar fields in the report borders (in particular, vertical bar fields with scale in column 3, and horizontal bar fields with scale in row 2). This also applies to bar fields of one orientation type that are converted to the other type (that is, a vertical bar field in row 2 changed to horizontal, or a horizontal bar field in column 3 changed to vertical).

Forecast

- **Forecast Manager**

  An acknowledgment was added that warns you about data being deleted when data is re-collected.

- **Intraday Forecast Report**

  If you request an Intraday Forecast report and the Current Day report does not exist, you will now get a status message that says the "`Current Day report does not exist`".

User Interface

- You can now resize any input window without the cursor leaving the input window.
- When using the Exit SLK to move between secondary and primary windows, the cursor was not always on the first field and in a data entry state. This problem has been corrected.
- For some reports, the minimum window size is now larger to prevent background text from overwriting other background text.

Miscellaneous

Sun SPARCserver 10 Computer

The new High-Performance Platform is the *Sun SPARCserver* 10 computer. The *Sun SPARCserver* 10 computer enhances and supports the largest AT&T call center customers using the Call Management System R3V2 software application.

Performance Issues

The High-Performance Platform is designed to:

- Provide multiprocessor capabilities.
- Increase processor performance (approximately five times faster than the *INTEL* platforms).
- Increase storage capacity (3 GB disk capacity which can increase to 9 GB disk capacity)
- Increase serial I/O capacity (up to 252 devices) which means you can have up to 252 terminals or any combination of terminals, printers, or modems.
- Improve real-time report refresh rate.
- Enhance system reliability using error correcting memory.
- Allow for cost-effective upgrades (for example, disk storage, memory, processor, etc.).
- Provide on-line *Solaris* 2.2 help via *AnswerBook* software.

Other Changes

Root User ID

The root user ID on the *Sun* platform will have “ksh” as the default shell.

cmsadm menu

- The `diskmap, memory, and realtime` menu items have been updated for the *Sun* hardware platform.
- The cmsadm backup command was changed to *File system backup* for *Solaris 2.2* software.
- The `run_cms` command causes the X.25 software package to start and stop for the *Sun* platform only.

cmssvc menu

- The `run_cms` command causes the X.25 software package to start and stop for the *Sun* platform only.

Back Up, Restores, and Migrations

- The *Sun* platform supports the 150 MB cartridge tape and the 5 gigabyte tape.
- Package removals have changed for installation upgrade procedures.

Home Directories

The home directories for the *Sun* platform are in */export/home.*

Remote Console

The *Sun* platform provides remote console functionality.

Printers

If a printer stops printing for no apparent reason, do the following from the UNIX system.

1. Enter `/usr/bin/lpstat -t` to check printer status.
2. Enter `/usr/bin/disable <printer name>` to disable the printer.
3. Enter `/usr/bin/enable <printer name>` to reset the printer.

The printer should start printing.

CMSADM Backup

- If CMS is on when you start a cmsadm backup, the following question now appears **after** the calculation for the number of tapes needed for the backup, but **before** the backup actually begins:

```
The backup is about to begin. CMS is currently
on. CMS will be turned off automatically during
that portion of the backup which needs CMS off.
Press ENTER to proceed or BREAK to quit:
```

If you press Enter, the backup begins and dots are printed on the terminal (one per file) to let you know the backup is running. You will not see a message on your terminal when CMS is turned off or when CMS is turned back on. The Backup Log file will show you when CMS was turned off and on, and at what time each occurred.

- The time it takes to estimate the number of tapes required for the backup has been reduced significantly.

WGS, STAR SERVER, and 3332 Computer Upgrade Instructions

The following procedures allow you to upgrade your CMS software on a WGS, STAR SERVER, or 3332 computer.

Pre-Upgrade Procedures

You **must** complete the following steps prior to beginning the upgrade of Version 1.5.

Caution **Failure to complete the pre-upgrade procedures may result in an unsuccessful upgrade, possible loss of data, and significant recovery time.**

1. Before you start any procedures, verify that the tape drive status light is off and the drive is not being used for any other purpose (for example, scheduled backups).
2. Verify that the switch and UNIX system time are less than 24 hours apart. The switch time is displayed in the title bar of the CMS screen.

   Note **If the time difference is greater than 24 hours, you must change the time for CMS to run.** To change the UNIX system time, turn **off CMS,** and then use ***face: System Administration:Date and Time.***

3. Verify the tunable parameters are set to the recommended values before upgrading.
4. From the **system console**, log in as *root*.
5. Execute the `df /tmp` command to determine the available disk space for */tmp*. The */tmp* file system needs **1500** or more blocks to perform the upgrade. If you do not have at least 1500 blocks, call the Call Center Helpline on 1-800-334-9670.
6. Enter the command, `cmsadm`, to display the CMS administration menu.
7. Select the `backup` option.

   If CMS is turned on, it will be turned off automatically during that portion of the backup which needs CMS off. The data backup typically takes from 1 to 2 hours depending on the amount of data. You exit automatically from the `cmsadm` menu.

Note — For more information, see “Performing a CMSADM Backup” section of Chapter 8 in the *CMS R3V2 Installation and Maintenance* (AT&T 585-215-122) document.

8. Enable the write protect on the cartridge by turning the black arrow to the safe position.
9. As a precaution, ensure that copies of the current R3V2 CMS software load and the latest full backup tapes are available.
10. From the *root* prompt, run the *displaypkg* command to display software packages loaded on your processor.
11. Make sure the following software versions appear on this list.
    - UNIX System V Release 3.2.3 and associated utilities, including SCSI Support Package Version 2 and UNIX SVR3.2.3 Maintenance Disk #1.
    - Korn Shell Version 11/16/88d 386 Release 2.0
    - INFORMIX SE (4.10.UD1) (Runtime Version)
    - X.25 Network Interface Software Version 1.2.1 SL1.51.1.25.

    Caution — If any of these software versions do not appear, call the AT&T Call Center Helpline on 1-800-344-9670.

Software Upgrade Procedures

The upgrade software package will automatically upgrade your system **with no loss of historical data**:

Note — **The upgrade procedure will result in approximately 60 minutes of outage on the R3V2 CMS.**

Use the following steps to upgrade your CMS.

1. From the **system console**, log in as *root*.
2. Enter the command, `cmsadm`, to display the CMS administration menu.
3. Select the `run_cms` option.
4. Select the option to turn CMS off.
5. Exit from the `cmsadm` menu.

6. Insert the CMS upgrade cartridge tape into the tape drive.
7. Enter the command, `installpkg`, to begin the upgrade procedure.
8. When prompted, select the cartridge tape option, and press Return.
9. The program will now request that the tape be inserted into the tape drive. Since this was done in Step 6 to allow for the tape drive to park the tape, press Return.
10. Press Return to retension the tape before proceeding with the upgrade. Retensioning the tape takes approximately **3 minutes**.
11. After the tape retensions, the program displays information on selecting the packages to be installed. Press Return to continue.
12. Select `Option 4` (the Call Management System package) followed by Return.
13. Press Esc when all selections have been made and Return when you are ready to begin the upgrade.

    Prior to beginning the upgrade, the program will prompt you to ensure that the appropriate backups have been done.

    If you followed the pre-upgrade instructions, you have already backed up your file system. Enter y. The program will take about **5 to 10 minutes** to remove the files associated with the previous version of CMS.

    If you did not follow the pre-upgrade instructions, enter n and refer to the pre-upgrade instructions for information on backing up your file system.
14. Wait until the upgrade program finishes the following:
    - When all the appropriate files are removed, the program then begins loading the new R3V2 CMS software. It takes about **10 to 20 minutes** to download the R3V2 CMS software from the cartridge tape to the hard disk. The software is downloaded and after a few minutes several rows of periods (.....) will be displayed to let you know the program is still running.
    - When the download completes, **several minutes** are then required to audit the package installation.
    - Depending on the amount of data and the previous load you are upgrading from, the program can take **several minutes or an hour** to upgrade the CMS data files.
15. After the tape finishes rewinding (tape drive light is not lit), remove the cartridge tape.

16. If the program indicates the tunable parameters *were* changed, you will be required to reboot the system. This can be done in either of the following two ways:

    - Press the Return key which will require a manual reboot (press the RESET button on the CMS processor after the screen prompt `Reboot the system now` appears).

    OR

    - Press the Esc key. A UNIX system prompt returns. Then, execute the `shutdown -i6 -g0 -y` command.

17. After the CMS software is installed, turn on CMS to start collecting data. Turning on CMS initializes the communications link between the CMS software and the telecommunications switch.
18. Enter the command, `cmsadm`, to display the CMS administration menu.
19. Select the `run_cms` option.
20. Enter the option to turn CMS on. The program will take a **few minutes** to initialize the system parameters.

Post Upgrade Procedures

After the upgrade, complete the following steps:

1. From the **system console**, login as *root*.
2. Enter the command, `cmsadm,` to display the CMS administration menu.
3. Select the `backup` option.

   If CMS is turned on, it will be automatically turned off during that portion of the backup which needs CMS off. The data backup typically takes from 1 to 2 hours depending on the amount of data.

   Note — For more information, see “Backing up the File Systems from the UNIX System Environment” section of Chapter 6 in the *CMS R3.0 Installation and Maintenance* (AT&T 585-215-112) document.

4. Log in as the CMS administrator.
5. A full CMS Maintenance Backup **must** be done prior to any incremental backups that are either scheduled or manually completed.

Note If this is not completed, any incremental backups will fail, since they must follow a full backup on the current load.

6. Contact the AT&T Call Center Helpline (1-800-344-9670) and notify them that the upgrade to Version 1.5 has been completed.

This completes the upgrade of the R3V2 Call Management System!

Troubleshooting

If the new software upgrade tapes will not load:

1. Put the current R3V2 CMS software in the tape drive, and begin with Step 6 of the Software Upgrade Procedures. Follow the instructions through the final step.
2. Contact the AT&T Call Center Helpline (1-800-344-9670) or your AT&T distributor the following work day.
3. In the event you are unable to load either software load, call the AT&T Call Center Helpline (1-800-344-9670) and report an out-of-service condition.

Software Compatibility

The following software is required for R3V2 CMS to operate correctly:

- UNIX System V Release 3.2.3 and associated utilities, including SCSI Support Package Version 2 and UNIX SVR3.2.3 Maintenance Disk #1.
- Korn Shell Version 11/16/88d 386 Release 2.0
- INFORMIX SE (4.10.UD1) (Runtime Version)
- X.25 Network Interface Software Version 1.2.1 SL1.51.1.25.

INFORMIX SQL (4.10.UC2) (Development Version) is optional software with R3V2 CMS.

R3V2 CMS is not co-resident with other software packages. This includes both packages running concurrently and those merely installed. R3V2 CMS modifies the UNIX system tunable parameters automatically to accommodate system requirements.

The 1.5 release of R3V2 CMS software is only compatible with Version 1.6 of the CMS R2 Migration (PG-3E257). Earlier versions will not migrate onto this version of R3V2 CMS.

Hardware Compatibility

R3V2 CMS is certified to run on the following processor platforms:

- AT&T 6386 WGS 25/S
- AT&T 6386 WGS 33/S
- AT&T STAR SERVER S
- NCR 3332.

For the 6386 processors, the alternate console configuration is required. In addition to the base processor, the factory adds the following as part of the standard CMS configuration:

- GPSC-AT/E X.25 kit(s) and 2-port RS232 cable(s)
- 4/16 MB Memory Expansion Board
- N80387-6386/25 or 6386/33 math co-processor
- IPC 1600 Ports Card(s) and Ports Cabinet(s), or MEGAPLEX-96 board
- Remote Maintenance Package and software, Version 2.0.

For the STAR SERVER S processor, the VGA 600 card and monitor is required for the console. In addition to the base processor, the factory adds the following as part of the standard CMS configuration:

- Additional SIMM memory on the system board
- SCSI Streaming Tape Unit
- GPSC-AT/E X.25 kit(s) and 2-port RS232 cable(s)
- IPC 1600 Ports Card and Ports Cabinet, or MEGAPLEX-96 board
- Remote Maintenance Package and software, Version 2.0.

For the 3332 processor, the factory adds the following as part of the standard CMS configuration:

- Additional SIMM memory on the system board
- SCSI Streaming Tape Unit
- GPSC-AT/E X.25 kit(s) and 2-port RS232 cable(s)
- MEGAPLEX-96 board (also IPC 1600 or Kickstart 2.5 board)
- Remote Maintenance Board (RMB).

Switch Compatibility

R3V2 CMS has been certified with the ACD applications on the following switches:

- *DEFINITY* Communications System Generic 2.1 Release 3.3 and later (QPPCN 629DR)
- *DEFINITY* Communications System Generic 2.2 Release 3.0 and later (with/without call center features) (QPPCN 696DR)
- *DEFINITY* Communications System Generic 3i Release 13.3 and later (QPPCN 576)
- *DEFINITY* Communications System Generic 3r Release 8.5 and later
- *DEFINITY* Communications System Generic 3s Release 14.2 and later
- *DEFINITY* Communications System Generic 3 Version 2 Load 82 and later (QPPCN 644 G3i/s/vs) (QPPCN 646 G3r)
- *DEFINITY* Communications System Generic 1.1 Release 7.1 (QPPCN 559DR) and later
- System 85 R2V4 Release 2.3 (QPPCN 560DR) and later.

Note

It may be necessary to upgrade the switch release before installing R3V2 CMS or before upgrading CMS to Version 1.5. The required switch release for *DEFINITY* Communications System Generic 3r has been changed since Issue 1.3. These switch releases will also work with previous versions of R3V2 CMS. The switch should be upgraded to the specified release before installing R3V2 CMS or upgrading to Version 1.5.

Sun SPARCserver 10 Computer Upgrade Instructions

This section describes how to upgrade the R3V2 CMS software application using a *Sun SPARCserver* 10 computer.

Caution To do an upgrade, you must have sufficient free space on your disk to accommodate all the data you want to collect. See the "Pre-Upgrade Procedures" section for details.

If your current disk space allocation specifies more items to be measured for longer lengths of time than you actually have space for on your disks, you must do the following:

- Purchase additional disks
- Change the length of time for which the data is stored
- Change the number of entities measured before you do an upgrade.

Pre-Upgrade Procedures

Prerequisites: You must be logged in as *root*, the computer must be in run-level 2 or 3, all file systems must be mounted, and CMS must be turned OFF.

Note The upgrade process will take approximately 1 hour to complete.

Before you upgrade a system to a new base load or install a field update, do the following:

- Do a full file system backup. See the "Performing a CMSADM Backup" section in Chapter 8, "Maintenance," in the *CMS R3V2 High-Performance Platform Installation and Maintenance* (AT&T 585-521-123) document.
- Make sure you have the cartridge tape that contains the new base load or field update software.
- Verify you have sufficient space in */tmp* by entering the **df -l /tmp** command.

  Note CMS requires 150,000 blocks.

- Verify you have sufficient space in */cms* by doing the following:

  1. Determine the amount of available space by entering the **`df -l /cms`** command.
  2. Determine the amount of space required by the current CMS package by entering the following command.

     `pkgparam cms IBSblocks IBSinodes`

     The number of blocks and modes are displayed.

     Note CMS 3rafg requires 150500 blocks and 1400 inodes.

  3. Compute the difference between the old and new load for blocks and modes, and compare the amount of available space computed in Step 1.

To Upgrade CMS, use the following **required** procedures:

- Remove installed field updates (if present)
- Remove the current CMS base load
- Install the new *Solaris* patches (if needed)
- Install the new CMS base package.

Removing Installed Field Updates

Do these steps to determine if a field update is installed.

1. Start the remove installed field update procedure by entering:

```
# pkginfo cms.*
```

The program responds:

```
application cms            Call Management System
application cms.2          Call Management System
```

Note If more than one package is displayed (for example, `application cms.2`), you can determine that there is a field update installed.

2. Enter the following information:

```
# pkgrm cms.2
```

The program responds:

```
The following package is currently installed:
    cms.2              Call Management System
                        (sparc) 3rxxx

Do you want to remove this package [y,n,?,q]
```

3. Answer `y`.

   The program responds with a list of files that will be changed due to the removal of the update:

```
## Verifying package dependencies.
## Processing package information.
## Executing preremove script.
## Removing pathnames in class <ind>
/cms/install/bin/upd_save <shared pathname not removed>
/cms/install/bin/turn_on_cms <shared pathname not removed>
/cms/install/bin/turn_off_cms <shared pathname not removed>
/cms/install/autoconfig <shared pathname not removed>
/cms/install/auditmap <shared pathname not removed>
## Removing pathnames in class <edit>
>> Leaving sun patches installed.
## Removing pathnames in class <sun_fix>
>> Leaving sun patches installed.
## Removing pathnames in class <op_fix>
>> Leaving other package fix files installed.
## Removing pathnames in class <data>
>> Retaining customer files and directories.
## Executing postremove script.
```

If the removal is successful, this message displays:

```
Restoring old CMS software
/cms/install/auditmap
/cms/install/autoconfig
/cms/install/bin/turn_off_cms
/cms/install/bin/turn_on_cms

Updating installation software database.

Removal of Call Management System (3rxxx) is complete
## Updating system information.

Removal of <cms.2> was successful.
```

The system prompt returns to your screen.

The installed field updates (if present) are removed from the CMS software. You can now remove the current CMS base package.

Removing Current CMS Base Package

Do these steps to remove the current CMS base package:

1. Start to remove the current CMS base package by entering:

```
# pkgrm cms
```

The program responds:

```
The following package is currently installed:
   cms                Call Management System
                       (sparc) 3rxxx

Do you want to remove this package [y,n,q,?]
```

2. Answer y.

   The system responds:

```
## Removing installed package instance <cms>

This package contains scripts which will be executed with
super-user permission during the process of removing this
package.

Do you want to continue with the removal of this package
[y,n,q,?]
```

3. Answer y. The system responds:

```
## Verifying package dependencies.
## Processing package information.
## Executing preremove script.

Do you want to preserve CMS data? [y,n,?]
```

4. Answer y. The system responds:

```
CMS will be removed from this machine; the data will be
preserved.

Are you sure this is correct? [y,n,?]
```

5. Answer `y`. The system responds:

```
All file systems should be backed up before continuing.
See the maintenance chapter in the CMS Installation and
Maintenance Manual for instructions.

Have you backed up the file systems? [y,n,?]
```

Note If you have not backed up the file systems, answer “n”.

6. Answer `y if` you have done backups. The system responds:

```
## Removing pathnames in class <ind>
/usr/lib/cms/trmaps
/usr/informix/etc/termcap
/usr/bin/cmssvc
   .
   .
   .
```

If the removal is successful, this message displays:

```
Removal of <cms> was successful.
```

The system prompt returns to your screen.

After you remove the current CMS base package, you can now install the new CMS base package.

Installing New *Solaris* Patches

Depending on the needs of your system, you may or may not need to install *Solaris* patches. If *Solaris* patches are available, you must install them on your system.

Do these steps to install new *Solaris* patches:

Note The tape containing the new patches will be required in the QIC-150 tape drive.

1. Start the upgrade procedure by entering:

```
# pkgadd -d /dev/rmt/0
```

The system responds:

```
Insert a tape into Tape Drive.
Type [go] when ready,
  or [q] to quit:
```

2. Enter go. The system responds:

```
The following packages are available:
  1 cms          Call Management System
                 (sparc) S3racc
  2 spatches     CMS Supplied Solaris Patches
                 (sparc) 1.0

Select package(s) you wish to process (or 'all' to process all
packages). (default: all) [?,??,q]: 2
```

If the `spatches` package is displayed, you must install it.

3. Enter 2 to select *spatches*. The system responds:

```
Processing package instance <spatches> from </dev/rmt/0>

CMS Supplied Solaris Patches
(sparc) 1.0
AT&T
Installation of this package will cause CMS-required Solaris
patches to be spooled into /tmp/patches. After the patches are
spooled into /tmp/patches, one must install the patches by
running a script called /tmp/patches/install_patches. In
addition, the script will backout any patch that needs to be
removed prior to installing a required patch. Patches
currently installed are not affected by installing this
package.

Do you want to spool Solaris patches into /tmp/patches?
```

4. To spool *Solaris* patches into */tmp/patches* file, enter y. The system responds:

```
## Processing package information.
## Processing system information.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.

This package contains scripts which will be executed with
super-user permission during the process of installing this
package.

Do you want to continue with the installation of this package?
[y,n,?]
```

5. To continue with the installation of this package, enter y.
   The system responds:

```
Installing CMS Supplied Solaris Patches as <spatches>

XX Installing part 1 or 1.
Spooling 100982-02
Spooling 100992-03
Spooling 100999-51
Spooling 101014-05
Spooling 101018-07
   .
   .
   .

Patches successfully saved

Solaris patches were copied to /tmp/patches.
To install the solaris patches, run the following command:
   /tmp/patches/install-patches
```

6. To install the *Solaris* patches, enter the following command:

```
# /tmp/patches/install_patches
```

Note Once the *Solaris* patches are installed, a reboot is necessary. Be sure to run the `/tmp/patches/install_patches` command before rebooting.

The system responds:

```
# /tmp/patches/install_patches
@(#) installpatch 3.5 93/04/28

generating list of files to be patched
Save old verisons of files to be patched
/var/sadm/patch/100982-02/save/kernel
/var/sadm/patch/100982-2/save/kernel/fs
/var/sadm/patch/100982-2/save/kernel/fs/fifofs
XXX blocks
Installing patch packages
Doing pkgadd of SUNWcsr package:
```

Response continues:

```
Patch installation finished
@(#) installation finished
generating list of files to be patched
Save old versions of files to be patched
/var/sadm/patch/100992-03/save/kernel
/var/sadm/patch/100992-03/save/kernel/drv
   .
   .
   .
Installing patch packages
Doing pkgadd of SUNWcsr package:

Installation of <SUNWcsr.7> was successful.
Patch installation finished
To complete the solaris patch installation, one should reboot
with the following command: shutdown -y -i6 -g0
#
```

Note Remember to reboot if instructed to do so by the system.

7. To complete the *Solaris* patch installation, you must reboot your system using the following command:

```
# shutdown -y -i6 -g0
```

The installation of the new patches in now complete. The system prompt returns to your screen. You are now ready to install the new CMS base package software.

Installing New CMS Software

Do these steps to install the new CMS base package software:

Note The tape containing the new CMS software load requires the QIC-150 tape drive.

Allow approximately 20 minutes to install the tape.

1. Start the upgrade procedure by entering:

```
# pkgadd -d /dev/rmt/0
```

The program responds:

```
Insert a tape into Tape Drive.
Type [go] when ready,
  or [q] to quit:
```

2. Enter *go*. The system responds:

```
The following packages are available:
  1 cms          Call Management System
                 (sparc) S3racc
  2 spatches     CMS Supplied Solaris Patches
                 (sparc) 1.0

Select package(s) you wish to process (or 'all' to process all
packages). (default: all) [?,??,q]:
```

3. Enter 1. The system responds:

```
Processing package instance <cms> from </dev/rmt/0>

Call Management System
(sparc) 3rxxx

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All Rights Reserved

Using </cms> as the package base directory.

Installing the Call Management System (3rxxx).

## Processing package information.
## Processing system information.
   138 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.

The following files are already installed on the system and
are being used by another package:
          /cms/install/logdir/admin.log
          /etc/init.d/sysetup
          /etc/system
          .
          .
          .

Do you want to install these conflicting files? [y,n,q,?]
```

4. Answer y. The system responds:

```
## Checking for setuid/setgid programs.

The following files are being installed with setuid and/or
setgid permissions or are overwriting files which are
currently setuid/setgid:
         /cms/bin/mqpeek <setuid root>
         /cms/bin/spi <setuid root>
         /cms/toolsbin/cmsu <setuid root>
         /cms/toolsbin/initSimConf <setuid root>
         /cms/toolsbin/initSimConf <setuid root>
         /cms/toolsbin/psx <setuid root>
         /cms/toolsbin/psx <setuid root>
         /cms/toolsbin/shmdump <setgid sys>

Do you want to install these setuid/setgid files [y,n,q,?]
```

5. Answer y. The system responds:

```
This package contains scripts which will be executed with
super-user permission during the process of installing this
package.

Do you want to continue with the installation of this package
[y,n,q,?]
```

6. Answer y.

The system responds:

```
Installing Call Management System as <cms>

## Executing preinstall script.

## Installing part 1 or 1.
[ verifying class <data> ]
[ verifying class <op_fix> ]
   .
   .
   .
/etc/SUNWconn/x25/template/cms.spin1.wan
/etc/rc0.d/K92cms
/usr/bin/cms
/usr/bin/cmsadm
/usr/bin/cmssvc
/usr/informix/etc/termcap
/usr/lib/cms/trmaps
[ verifying class <ind> ]
## Executing postinstall script.

## Upgrading Customer CMS data . . .

Customer CMS data successfully upgraded.

Setting Solaris 2.2 system tunable parameters for CMS.
No changes to tunable parameters were required.

Installation of <cms> was successful.
#
```

Note If you are instructed to run `shutdown`, use the displayed command. See the "Installing New Solaris Patches" section in this chapter for more information.

The installation of the new CMS base package is now complete. The system prompt returns to your screen.

7. Allow the tape to rewind, and remove it from the tape drive.

Verifying CMS Software Installation

Do the following to verify the installation of the new CMS software:

1. Enter `pkgchk` command:

```
# pkgchk -n cms
```

If the software installation is successful, the system prompt returns to your screen.

If errors are detected, see Chapter 8, “Checking Installed Software Packages” for more information.

Installing Field Update for New CMS Load

Do these steps to install the field update for the new CMS load:

Note A field update is put on a separate tape. You may have new patches as part of an update. For details, see “Installing New *Solaris* Patches” in the ‘‘Updating CMS Software’’ section in Chapter 10, ‘‘Upgrading or Updating the CMS Software’’ in the *CMS R3V2 High-Performance Platform Installation and Maintenance* (AT&T 585-215-123) document.

1. Start the install field updates for new load procedure by entering:

```
# pkgadd -d /dev/rmt/0 cms
```

The program responds:

```
Insert a tape into Tape Drive.
Type [go] when ready,
  or [q] to quit:
```

Note If a “Broken Pipe” message is displayed when using the `pkginfo -d /dev/rmt/0` command for a QIC 150 tape, ignore the message. This message has no effect on system operations.

2. Enter go. The system responds:

```
Processing package instance <cms> from </dev/rmt>

Call management System
(sparc) 3rxxx
AT&T
Using </cms> as the package base directory.

Installing the Call Management System (3rxxx).

## Processing package information.
## Processing system information.
## Verifying package dependencies.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.

The following files are already installed on the system and
are being used by another package:
           /cms/install/auditmap
           /cms/install/autoconfig
           /cms/install/bin/turn_off_cms
           /cms/install/turn_on_cms
           /cms/install/bin/upd_save
Do you want to install these conflicting files [y,n,q,?]
```

3. Answer y.

   The system responds:

```
## Check for setuid/setgid programs.

This package contains scripts which will be executed with
super-user permission during the process of installing this
package.

Do you want to continue with the installation of this package
[y,n,q,?]
```

Answer y. The system responds:

```
Installing Call Management System as <cms.2>

## Executing preinstall script.
Making backup copies of old files ...
/cms/install/update/file_bkup/cms/install/auditmap
/cms/install/update/file_bkup/cms/install/autoconfig
/cms/install/update/file_bkup/cms/install/bin/turn_off_cms
/cms/install/update/file_bkup/cms/install/bin/turn_on_cms
/cms/install/update/file_bkup/cms/install/bin/upd_save
165 blocks
## Installing part 1 of 1.
/cms/install/auditmap
/cms/install/autoconfig
/cms/install/autoconfig
/cms/install/bin/turn_off_cms
/cms/install/bin/turn_on_cms
/cms/install/bin/upd_save
[ verifying class <ind> ]
## Executing postinstall script.
```

Note You may be instructed to run `shutdown`. If you are instructed to run `shutdown`, then use the command displayed.

If the installation of the field updates is successful, this message displays:

```
## Upgrading Customer CMS data . . .

Customer CMS data successfully upgraded.

Setting Solaris 2.2 system tunable parameters for CMS.
No changes to tunable parameters were required.

Installation of <cms.2> was successful.
```

Installation of the field update for the new base load is completed. The system prompt returns to your screen.

4. Remove the cartridge tape after it finishes rewinding (drive light is not blinking).

Post Upgrade Procedures

Prerequisites: You must be logged in as *root*, the computer must be in run-level 2 or 3, all file systems must be mounted, and CMS must be turned OFF.

Upgrading CMS uses the following required and optional procedures:

Required procedures

- Verify the installation via `pkgchk`
- Restart CMS
- Back up upgraded CMS software.

Verifying Field Update of New Software Installation

Do the following to verify the installation of the field updates for the new base load software is complete:

1. Enter `pkgchk` command*:*

```
# pkgchk -n cms.*
```

The CMS software is verified and upgraded.

If errors are detected, see Chapter 8, “Checking Installed Software Packages” for more information.

Restarting CMS

Do the following to restart the CMS software:

1. Access the CMS Services menu by entering:

```
# cmssvc
```

The system responds:

```
 Commands for CMS Services Personnel

Select a command from the list below.
  1) auth_display Display feature authorizations
  2) auth_set     Authorize CMS capabilities/capacities
  3) backup       Single-tape filesystem backup (in background)
  4) run_cms      Turn CMS on or off
  5) setup        Set up the initial CMS configuration
  6) swinfo       Display switch information
  7) swsetup      Change switch information
  8) upd_install  Install update from disk files
  9) upd_remove   Back out the currently installed update
 10) upd_save     Save update on disk for later installation
Enter choice (1-10) or q to quit:
```

2. Enter `4` to select the *run_cms* option. The system responds:

```
  Select one of the following
  1) Turn on CMS
  2) Turn off CMS
  Enter choice (1-2):
```

3. Enter `1` to turn on CMS.

   The system responds:

```
Turning on X25, please wait

Starting the X.25 software — please wait
X.25 has found a valid license
The network has been brought up.

Please wait for initialization.


***CMS is now up***
```

   The system prompt returns to your screen.

Backing Up Upgraded CMS Software

Do a full CMS maintenance backup as soon as possible.

In the Back Up Data window, select `y` (yes) for the `Verify volume can be read after backup` field. In addition, the following fields should contain an `x`:

- All ACDs
- ACD-specific data
- System administration data
- Historical data
  - Full

See the “Back Up Data” section in Chapter 12, “Maintenance” of the *CMS R3V2 Administration* (AT&T 585-215-521) document.

Note

CMS incremental maintenance backups will fail if a full backup is not done. See Chapter 8, “Maintenance” for file system and `cmsadm` backup procedures.

R3V2 CMS Administration and Custom Reports Documents

Make the following changes or additions to the *CMS R3V2 Administration* (AT&T 585-215-521) and/or the *CMS R3V2 Custom Reports* (AT&T 585-215-523) documents.

Appendix A, Database Items and Calculations

- Table A-4, Agent Database Items

  The **WORKSKILL** definition should read as follows:

  When an agent is on a skill call or direct agent call or in ACW, this is the skill associated with the call or ACW. When an agent is on an AUXIN/AUXOUT call this is **OLDEST_LOGON**.

  If an agent is working in multiple skills and the agent is available (AVAIL) in at least one skill, then the agent is tracked as available in all skills. If the agent is in AUX, the agent is tracked as in AUX for all skills. The same is true for all agent work states.

- Table A-14, Call Record Database Items

  The following database items should have the following information added to the descriptions:

  DISPOSITION - See Table A-23, Call Disposition and Row Search Values Cross-Reference, for help when creating custom reports.

  DISPPRIORITY - The following information may help when creating custom reports.

Database Item	Value	Represents
DISPPRIORITY	0	null
	1	no (no vectoring)
	2	yes (no vectoring)
	3	low (vectoring)
	4	medium (vectoring)
	5	high (vectoring)
	6	top (vectoring)

R3V2 CMS Administration Document

Please add the following pages to the *CMS R3V2 Administration* (AT&T 585-215-521) document.

Chapter 2, User Basics

- Page 2-50, “Logging Into CMS”

Note

When you turn the terminal on, it may display a string of characters (for example, a string of x’s) instead of the login prompt.

If this happens, press the **Break** key, then the **Return** key, then the **Break** key again. Continue to press these two keys alternately until the login prompt appears.

Chapter 12, Maintenance

- Page 12-37, “Things to Know Before You Start”

  When the link is down for several minutes (at least five), the `Connection` status may be `waiting session accept`. If this happens, you need to reboot the CMS by logging in as root and performing the **`shutdown -i6 -g0 -y`** command.

Chapter 14, Forecasting

- Page 14-7, “Seasonal Trending”

  Seasonal Trending never displays the data points on the screen—only the current data points and base date are displayed. To clarify this point, the word “current” was added in front of the data points for the following field descriptions:

  - `Historical data used:`
  - `Data points:`

    The word “current” was also added to the field descriptions of the following reports:

    - Longterm
    - Financial
    - Current Day
    - Hypothetical
    - Hypothetical Financial.

Chapter 11, System Setup: External Application Status

The new External Application Status window in the System Setup subsystem is used to turn on or turn off the External Application feature, to start or stop external applications, or to view the status of external applications. An external application sends CMS real-time data to an external device such as a wallboard or to an external program such as an employee scheduler.

Note External Application is a separately purchased CMS feature.

Things to Know Before You Start

- External applications are designed and administered by the Technical Service Center. For more information about external applications, call the AT&T Call Center Helpline at 1-800-344-9670.
- See Chapter 2, "User Basics," in *CMS R3V2 Administration* (AT&T 585-215-521) document for the action list procedures, common rules for field entry items, and field editing information.

Prerequisite System Administration

- To view the status of external applications, you need **read** permission for the System Setup subsystem.
- To turn on or turn off the External Application feature or to start or stop an external application, you must have **write** permission for the System Setup subsystem.

Relationships to Other Subsystems

Reports

A standard or custom real-time report collects the CMS data that is sent to the external application.

Timetable

The External Application Status window can be put on a timetable. See Chapter 6, "Timetable and Shortcuts," in the *CMS R3V2 Administration* (AT&T 585-215-521) document for more information.

External Application Status Window

Use this window to turn on or turn off the External Application feature, to start or stop external applications, or to view the status of external applications.

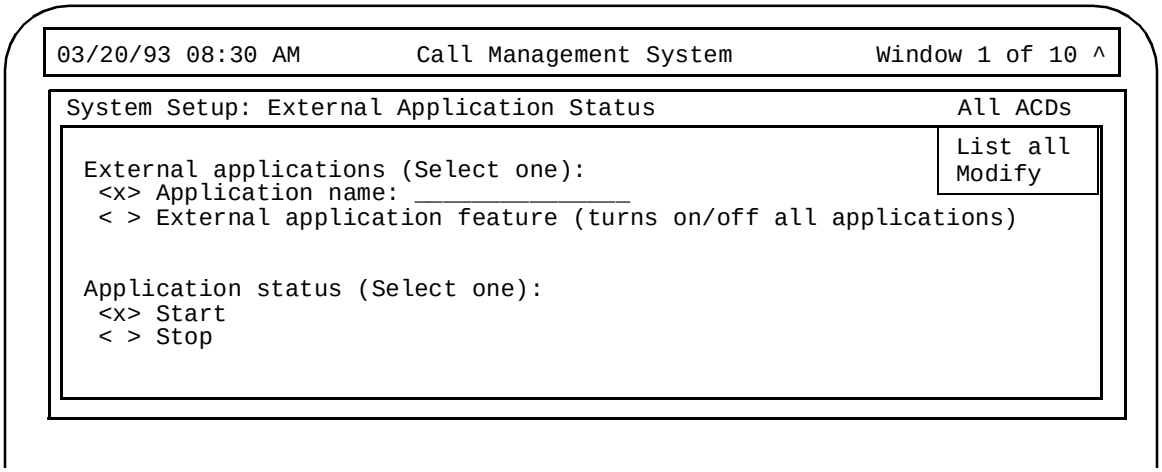


Figure 4-1: External Application Status Window Example

Field/Action List Usage

`List all`

To list the status of a particular external application, complete the `Application name:` field and select `List all`.

To list the status of all currently administered external applications, complete the `External application feature` field and select `List all`.

The status of an external application may be:

- `Starting` — A request to start the external application has been made.
- `Running` — The external application has started and is still running after 10 seconds.
- `Stopping` — A request to stop the external application has been made.
- `Stopped` — All processes associated with the external application have stopped.
- `Failed` — The external application has failed repeatedly and is no longer being restarted.

- Modify

  To start or stop a particular external application, complete the Application name: field and the Start or Stop field, and select Modify.

  To turn on all currently administered external applications or to turn off all currently running external applications, complete the External application feature field and the Start or Stop field, and select Modify.

  Note An external application can not be started unless the External Application feature has been turned on.

Field Descriptions

External applications (Select one):

< > Application name:

Enter an **x** to start, stop, or view the status of **a particular** external application. Then enter the name of the external application you want to start, stop, or view the status of.

Note An external application can not be started unless the External Application feature has been turned on.

< > External application feature (turns on/off all applications)

Enter an **x** to turn on or turn off the External Application feature or to view the status of **all** external applications.

Application status (Select one):

< > Start

Enter an **x** to start the specified external application or to turn on the External Application feature.

< > Stop

Enter an **x** to stop the specified external application or to turn off the External Application feature.

R3V2 CMS High-Performance Platform Document

Add the following pages to the *CMS R3V2 High-Performance Platform Installation and Maintenance* (AT&T 585-215-123) document.

Chapter 4, Installing Terminals and Printers

- See page 4-10, ‘‘Connecting ADUs.’’

  You can wire a terminal or printer up to a maximum distance of 300 feet from the NTS patch panel using 8- or 10-wire cabling and housewiring; otherwise, the configuration requires ADUs. ADUs allow you to extend cabling up to 2,000 feet.

  See Figure 4-2 and Figure 4-3 for connecting terminals and printers with ADUs examples. In some scenarios, connecting the two NTS Serial Port adapters with 8- or 10-wire cables is useful, but is not required. You can also substitute a single male ADU connected directly to the NTS instead of the scenario described in Figure 4-2.

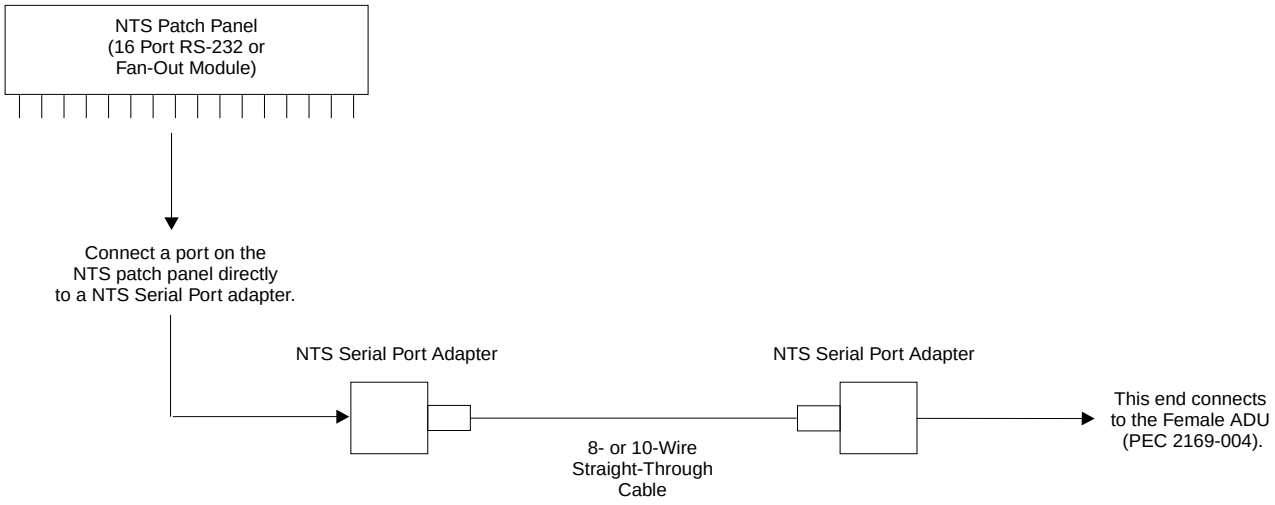


Figure 4-2: Sample Connection Between ADU and Terminal or Printer—Part 1

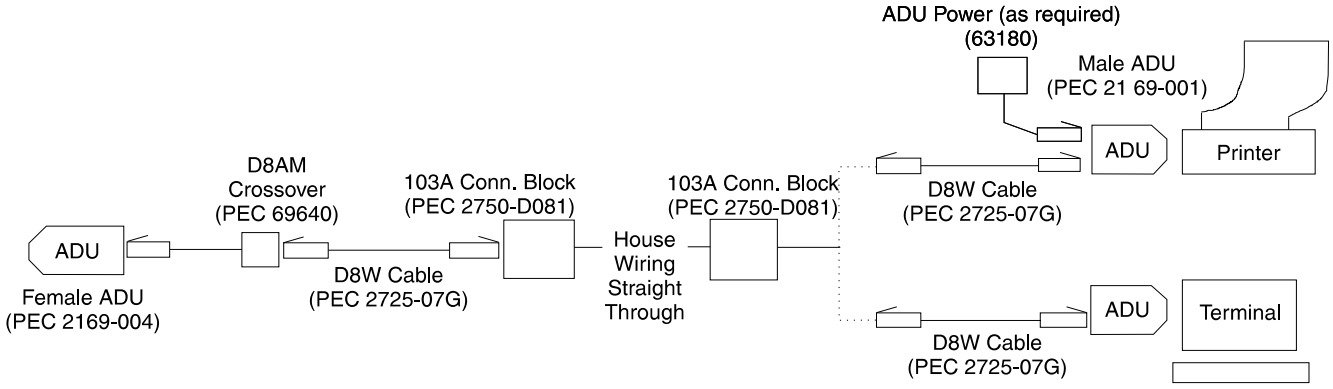


Figure 4-3: Sample Connection Between ADU and Terminal or Printer—Part 2

R3V2 CMS Installation and Maintenance Document

Add the following pages to the *CMS R3V2 Installation and Maintenance* (AT&T 585-215-122) document.

Chapter 4, Installing Terminals and Printers

- Figures 4-1, and 4-4 through 4-6

  Replace any reference to comcode (406876565) with comcode (407107317).
- Replace pages 4-11 through 4-17 with the following pages of this chapter.

Chapter 4, Administering a New Terminal, Printer, or Modem

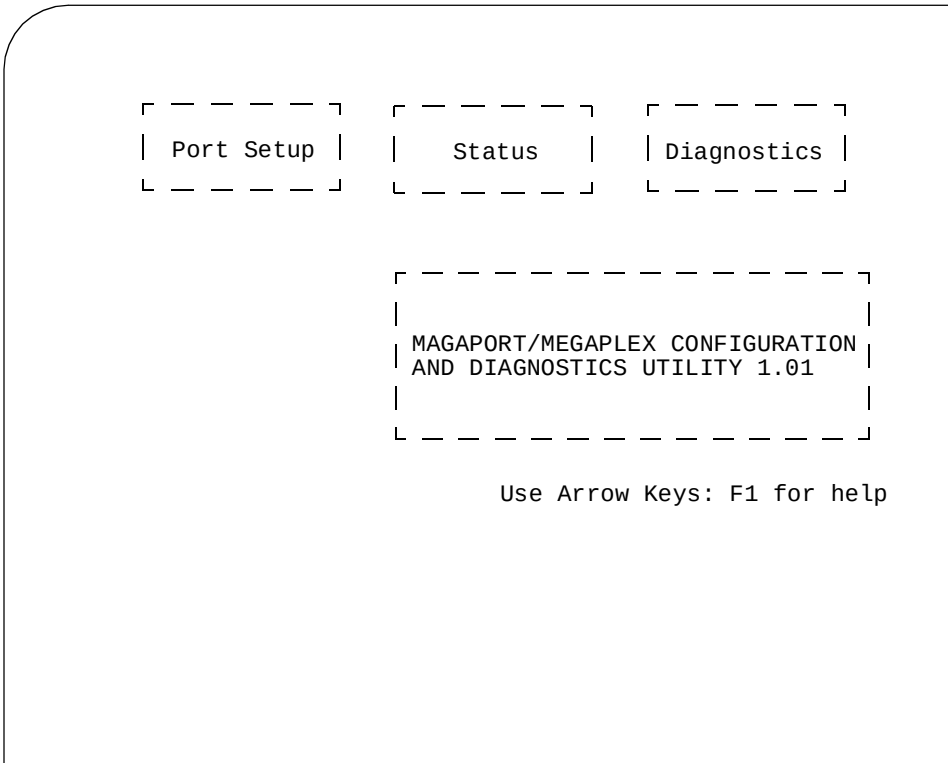
Prerequisites: You must be logged in as *root* at the console terminal.

Administer the terminals, printers, and modems connected to the CMS host computer by doing the following:

1. At the # prompt, enter the following command.

```
# /etc/megadiag
```

   The following screen displays:


Port Setup
Status
Diagnostics
MAGAPORT/MEGAPLEX CONFIGURATION
AND DIAGNOSTICS UTILITY 1.01
Use Arrow Keys: F1 for help

2. Select `Port Setup,` and press Return.

   The following screen displays:

```
Enter the number of Megaport boards and/or Megaplex
clusters attached to your system.
24 ports will be assigned for each board or cluster.

Number of Boards/Clusters:
```

3. Enter the number of cluster multiplexers (bricks), and press Return.

   A screen similar to the following displays:

```
DEVICE     T/P/M/U    TTYTYPE    GETTY/SPEED          OPTIONS    ENABLED

ttyaa      terminal   unknown    9600      9600                        N
ttyab      terminal   unknown    9600      9600                        N
ttyac      terminal   unknown    9600      9600                        N
ttyad      terminal   unknown    9600      9600                        N
ttyae      terminal   unknown    9600      9600                        N
ttyaf      terminal   unknown    9600      9600                        N
ttyag      terminal   unknown    9600      9600                        N
ttyah      terminal   unknown    9600      9600                        N
ttyai      terminal   unknown    9600      9600                        N
ttyaj      terminal   unknown    9600      9600                        N
ttyak      terminal   unknown    9600      9600                        N
ttyal      terminal   unknown    9600      9600                        N

-----------------------------------------------------------------------

Press [T]erminal, [P]rinter, [M]odem, [U]nused
Press [=} to Duplicate Settings for Previous Port


CTRL-A:Help  CTRL-B:Hardcopy  CTRL-C:Select From List  ESC:Save/Quit
```

4. Enter the type of device you are adding in the `T/P/M/U` column as follows:

   - For terminals and modems, enter `M` for hardware flow control.
   - For printers, enter `P`.
   - For any unused port, enter `U`.

   Press Return.

Note The T option stands for software flow control and is not recommended.

If you enter a printer, the remaining fields become dashed and no further data entry is required. Later, you will perform additional steps to administer the printer.

5. Enter unknown (the default) in the TTYTYPE column and press Return.
6. Enter the speed at which the device will run in the GETTY/SPEED column and press Return.

   Usually, this speed is 9600 for a terminal but varies for a modem or printer. You will have to know or be able to look up the speed that is appropriate for the particular modem or printer you are administering.
7. With the cursor in the OPTIONS column, press Return to leave this column blank.

   The following options appear at the bottom of the screen:

```
DEVICE     T/P/M/U    TTYTYPE    GETTY/SPEED          OPTIONS    ENABLED

ttyaa      modem      unknown    4800       4800                       N
ttyab      terminal   unknown    9600       9600                       N
ttyac      terminal   unknown    9600       9600                       N
ttyad      terminal   unknown    9600       9600                       N
ttyae      terminal   unknown    9600       9600                       N
ttyaf      terminal   unknown    9600       9600                       N
ttyag      terminal   unknown    9600       9600                       N
ttyah      terminal   unknown    9600       9600                       N
ttyai      terminal   unknown    9600       9600                       N
ttyaj      terminal   unknown    9600       9600                       N
ttyak      terminal   unknown    9600       9600                       N
ttyal      terminal   unknown    9600       9600                       N

------------------------------------------------------------------------

[I] = Enable the port for incoming logins.
[O] = Configure for out bound connections.
[B] = Configure for logins and out bound connections.
[N] = No connections required for this port.

CTRL-A:Help  CTRL-B:Hardcopy  CTRL-C:Select From List  ESC:Save/Quit
```

8. In the ENABLED column:
   - For terminals, enter I to enable the port for incoming logins.
   - For modems, enter B to configure the port for both logins and outbound connections.
   - For unused ports, enter N for no connections.
9. Press Esc when all devices have been administered.

The following screen represents a sample administration:

```
DEVICE     T/P/M/U    TTYTYPE    GETTY/SPEED          OPTIONS    ENABLED

ttyaa      modem      unknown    4800       4800                      B
ttyab      modem      unknown    9600       9600                      I
ttyac      modem      unknown    9600       9600                      I
ttyad      modem      unknown    9600       9600                      I
ttyae      modem      unknown    9600       9600                      I
ttyaf      printer    ------------------------                        _
ttyag      unused     unknown    9600       9600                      N
ttyah      unused     unknown    9600       9600                      N
ttyai      unused     unknown    9600       9600                      N
ttyaj      unused     unknown    9600       9600                      N
ttyak      unused     unknown    9600       9600                      N
ttyal      printer    ------------------------                        _

-------------------------------------------------------------------

Save Changes (Y/N/ESC):Y

CTRL-A:Help  CTRL-B:Hardcopy  CTRL-C:Select From List  ESC:Save/Quit
```

10. Enter `Y` (yes) to save your changes.
11. Press Esc to return to the # prompt.
12. This completes the procedure for administering a new terminal or modem. **If you are administering a new printer, continue to the next step**.
13. Change to the */etc/.devices* directory by entering:

```
# cd /etc/.devices
```

14. List all files (including hidden files) by entering:

```
# ls -la
```

15. Copy file *.tty02* to a new file by entering:

```
# cp .tty02 .ttyXX
```

Note The “XX” in the above command represents any two integers you choose. These integers should not represent a file that already exists.

16. Edit the *.ttyXX* file by entering:

```
# vi .ttyXX
```

The *.ttyXX* file should contain lines similar to the following:

```
TTY='tty01'
TYPE='None'
NAME='None'
SPEED=
INCOME=
DEV_ENTRY=
FLOW_CTL=
```

17. On line 1, change “01” to the port assignment as identified in Table 4-1 through Table 4-4. For example, if the printer you are administering is connected to Jack 5 on the cluster multiplexer, and the cluster multiplexer is connected to Port A on the MEGAPLEX-96 board, then you would change “01” to “aE” (see Table 4-1). In this example, the resultant file would look like this:

```
TTY='ttyaE'
TYPE='None'
NAME='None'
SPEED=
INCOME=
DEV_ENTRY=
FLOW_CTL=
```

18. After making the appropriate change to line 1, write and quit the file.
19. Enter the following command to access the FACE program:

```
# face
```

    The system displays the FACE menu.

20. From the FACE menu, select the `System Administration` menu.
21. From the System Administration menu, select the `Peripherals Setup` menu.
22. From the Peripherals Setup menu, select the `Printer Setup` menu.
23. From the Printer Setup menu, select the `Serial Printer Port Setup` menu.

    The system responds by displaying information about Port Number 01 (/dev/tty00).

24. Press the “Choices” function key.

    A list of existing Port Numbers appears, including the Port Number that corresponds to the port assignment you made on line 1 of the *.ttyXX* file.

25. From the Choices menu, select the desired Port Number.

    The `Port Number:` field displays your selection.

    The `Device Currently on Port:` field displays the device currently connected to the port.

26. In the `Device Speed:` field, enter the baud rate (speed) that is appropriate for the printer connected to the port.
27. In the `Printer Type:` field, enter the type of printer connected to the port. Use the “Choices” function key to display and select the valid printer types.

    Note **If your specific printer type is not listed in the “Choices” menu, refer to the documentation that came with your printer, and identify which printer it emulates.**

28. In the `Printer Name:` field, enter a name for the printer you are administering. For example, `printer1`.

29. In the `Should filter be used:` field, enter Yes or No.

    Note

    No is recommended.

30. Press **Save**.
31. Press **Cont**.
32. Press the F7 function key, select exit, and press **Return**.
    The system prompt (#) returns to your screen.

Chapter 6, Setting Up CMS and Installing Feature Packages

- Page 6-4, “Setting Authorizations”

  The response to Step 3 reads as follows, and add Step 4.

  Response:

```
Is this an upgrade from R3V1? (y/n):
```

The above question only displays the first time authorization is run.

4. Enter `n` if this is not an upgrade from R3V1; otherwise, enter `y`.

   Note

   If you answer yes, a second question appears:

   `Did the customer purchase the R3V2 upgrade (1208-32U)? (y/n):`

   If you answer yes to this question, the authorization proceeds as documented below. If you answer no, the questions about authorizing EAS, external call history, and more than one ACD do not display, and the maximum number of agents that can be administered is set to 1023. This question always displays for authorizations as long as the answer to it is no.

- Page 6-6 “Setting Authorizations”

  The response to Step 8 and Step 9 should read as follows.

  Response:

```
Enter maximum number of agent members that can be administered
  (1-5200):
```

Note

There is no default for the above statement unless the CMS has been previously administered, in which case the default is the current value.

9. Enter the maximum number of agents the customer purchased for this system.

Chapter 9, Troubleshooting

- Page 9-6, “When an Existing Terminal Fails to Operate”

  Symptom: You turn the terminal ON, but it displays “garbage” characters.

  Solution:
  1. Press the Break key, then the Return key, then the Break key again. Continue to press these two keys alternately until the login prompt appears.
  2. At the rear of the terminal, locate the power switch. Turn the terminal off. Wait a few seconds. Turn the terminal on.

- Page 9-8, “When a New Terminal Fails to Operate”

  Symptom: Terminal prints “garbage” on the screen.

  Solution:
  1. Press the Break key, then the Return key, then the Break key again. Continue to alternately press these two keys until the login prompt appears.
  2. The terminal baud rate and the computer baud rate may not match. Refer to Chapter 4, “Terminal Options” and “Administering a Terminal”, to verify that the terminal options have been properly set and that the terminal baud rate has been properly administered on the computer.

Appendix D, Model 3332 Factory Installation Procedures

Insert the following pages in Appendix D, “Model 3332 Factory Installation Procedures,” of the *CMS R3V2 Installation and Maintenance* (AT&T 585-215-122) document.

- Page D-12, “Install Internal Hard Disk(s)”

Terminating Jumper

If Model 3332 is equipped with two internal hard disks, remove the TRM ENABLE jumper from the second internal hard disk. Do **not** remove the TRM ENABLE jumper from the base hard disk. See Figure D-4.

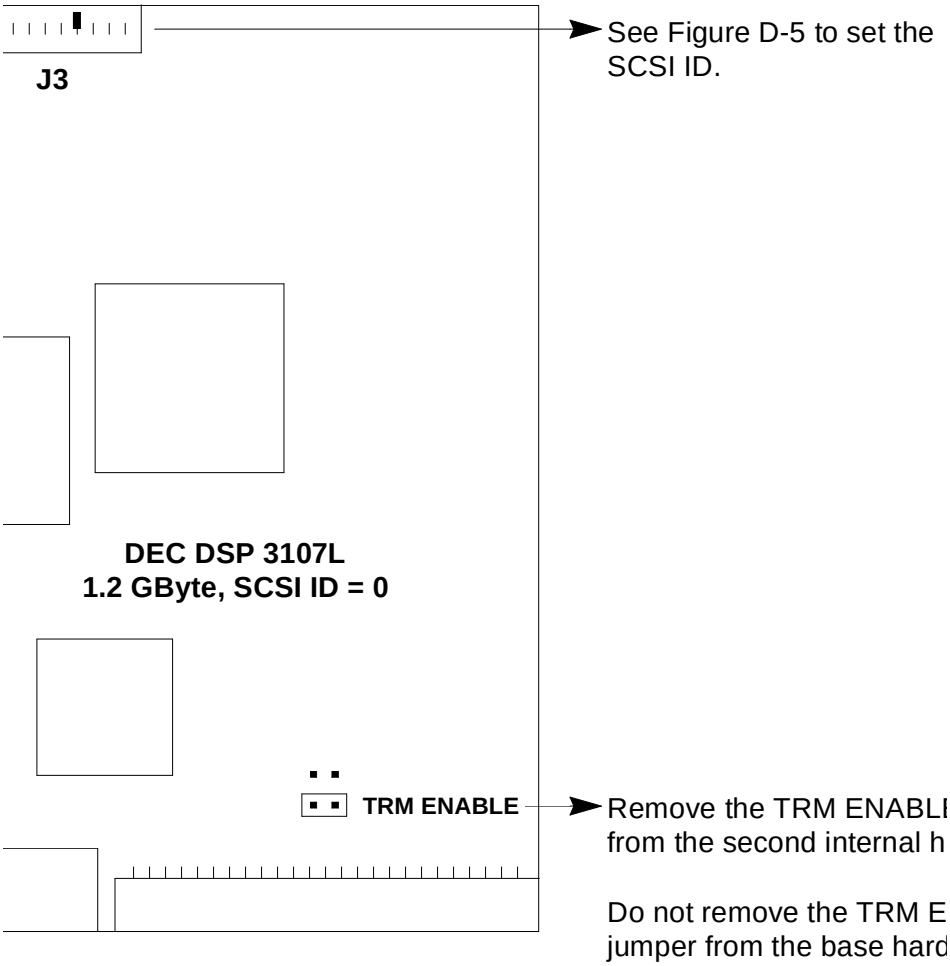


Figure D-4: Underside of Internal Hard Disk

- Page D-24, “Step 10: Power Up Computer and Verify Setup”

  Step **a** should read:

  a. Insert the **“3330 Generic Support Software for NCR and OEM Disk 1 of 2 Version 1.04”** diskette into the flexible disk drive.

R3V2 CMS Migration Document

Insert the following page(s) in the *CMS R3V2 Migration* (AT&T 585-215-113, Issue 2) document.

Chapter 5, R3-to-R3V2 Migration — Multiple ACDs

- Page 5-2 “Multiple ACD Migration”

  Add the following paragraph under CMS IDs:

  Before you migrate data, CMS user IDs must be in lower case. This includes any existing R3.0 user IDs with upper-case letters.

- Page 5-3 “2. Do a Full Maintenance Backup of the Source CMS”

  Note

  Since the migration program allows you to migrate only one ACD at a time, you need to select current ACD, **not** all ACDs.

  Make sure that the ACD you want to back up is the current ACD.

Chapter 8, R2-to-R3.0 (R3V1) Migration

- Page 8-4 “Perform Pre-Migration Tasks”

  Step 1.7 should read:

  Clean up CMS user IDs (removing any that are no longer needed). Change any R2 user IDs that contain upper-case letters to lower case.

Major Differences

This chapter describes the major software differences between Version 1.6 and Version 1.8 of the CMS Software.

Data, Database Items and Calculations

Link

- CMS will continue to collect data after switch translations table corruption is detected. When this rare corruption problem occurs, the CMS data also becomes corrupted. Messages informing you of the table corruption problem appear in an Acknowledgment window on all active screens. The corruption problems are also logged into the Error Log. These error messages must be addressed to ensure that the corruption problem does not escalate. If the corruption problem is not resolved, table corruption messages will be displayed for the next person that logs in.

Data

- Trunk group status information (**NUMINUSE** real-time) is now correct for trunks which are audited as busy when the link is coming up.
- A number of problems with exceptions pegging have been fixed. See "Exceptions" later in this chapter for details.

Database Items

- A new database item, **ONACDAUXOUT**, has been added and applies to the real-time split/skill table. This item was added to identify the number of agents in a split who currently have an ACD call on hold and are on an outbound extension call.

Calculations

- A new calculation, <**PERCENT_SLVL_SPL_SUM>**, has been added. The calculation was added to address the% `Within Service Level` report column in the Split Status historical report. The calculation definition is 100*(sum(ACCEPTABLE) / sum(CALLSOFFERED)), which calculates the percent of total split calls answered in the service level.

Reports

The report changes described below are for people with EAS enabled.

VDN Historical Reports

Three new columns have been added to the VDN Historical Reports to indicate skill preferences. The database items for the VDN Skill Preferences columns are:

- **SKILL1** for the first skill assigned to this VDN.
- **SKILL2** for the second skill assigned to this VDN.
- **SKILL3** for the third skill assigned to this VDN.

Figure 5-1 shows a revision of an existing report. The existing report appears for non-EAS systems; the new report for EAS systems.

Interval VDN Report

Date: 1/15/93 Printed: 1/21/93 4:11 PM
VDN: Billing_VDN ACD: NASPS ACD1

Time	Vector No.	Calls Offered	VDN Flow In	Calls Ans	Avg Speed Ans	Avg Talk Time	Avg After Call	Calls Ans in Main	Calls Ans in Backup	Other Calls Connect	Avg Connect Time	Calls Aban	Avg Aban Time	Calls Forced Busy	Calls Forced Disc	VDN Flow Out	Avg Time In VDN	-VDN Skill-Preferences 1st	2nd	3rd
Totals:		99	0	98	:09	1:00	2:02	79	19	0		1	1:07	0	0	0	1:09			
11:05-11:20AM	112	25	0	25	:00	1:00	1:57	18	7	0		0		0	0	0	1:03	1	2	3
11:20-11:35AM	1	24	0	24	:03	1:00	2:01	16	8	0		0		0	0	0	1:03	3	4	5
11:35-11:50AM	3	24	0	24	:18	1:00	2:06	23	1	0		0		0	0	0	1:18	2	3	4
11:50-12:05PM	24	26	0	25	:14	1:00	2:04	22	3	0		1	1:07	0	0	0	1:14	1	2	3

Daily VDN Report

VDN: Billing_VDN Printed: 1/21/93 4:12 PM
Vector: Billing_Vec ACD: NASPS ACD1

Date	Vector No.	Calls Offered	VDN Flow In	Calls Ans	Avg Speed Ans	Avg Talk Time	Avg After Call	Calls Ans in Main	Calls Ans in Backup	Other Calls Connect	Avg Connect Time	Calls Aban	Avg Aban Time	Calls Forced Busy	Calls Forced Disc	VDN Flow Out	Avg Time In VDN	-VDN Skill-Preferences 1st	2nd	3rd
Totals:		5840	0	4232	:04	1:00	2:01	3552	680	0		4	1:10	0	1604	0	:49			
1/13/93		1613	0	701	:02	1:00	2:01	581	120	0		1	1:01	0	911	0	:35	2	3	4
1/14/93		1035	0	827	:06	1:00	2:00	708	119	0		0		0	208	0	:52	1	2	3
1/15/93		1213	0	986	:04	1:00	2:02	804	182	0		1	1:07	0	226	0	:52	3	4	5
1/16/93		872	0	840	:04	1:00	2:04	721	119	0		1	1:28	0	31	0	1:02	2	3	4
1/17/93		1107	0	878	:04	1:00	2:01	738	140	0		1	1:03	0	228	0	:51	1	2	3

Figure 5-1: VDN Historical Report Examples

VDN Skill Preference Report

The `Avg Time in VDN` column in this report has been removed and three new `No.` columns have been added for first skill, second skill, and third skill. The database items used for the new columns are:

- **SKILL1** for the first VDN skill assigned to this VDN.
- **SKILL2** for the second VDN skill assigned to this VDN.
- **SKILL3** for the third VDN skill assigned to this VDN.

Figure 5-1 shows a report used only for EAS systems. This report was revised from an existing EAS-specific report.

```
                                Interval VDN Skill Preference Report

Date: mm/dd/yy                                                
```

Timetables and Shortcuts

- When you edit a shortcut and encounter an incorrect task, CMS now recovers correctly.
- You can now add a task to a large timetable, and the order of existing tasks is no longer incorrect.
- A `Current ACD` column has been added to the Timetable: Get Contents window.

  What is displayed in the `Current ACD` field will always be the current ACD active at the time the tasks are stored. For some tasks (for example, those that are for all ACDs or those that have an ACD input field), this field may or may not be used by the task.

Exceptions

In the past, certain timing exceptions were triggered incorrectly, either too often or not often enough. For example, a talk time exception could be triggered every time an agent reconnected to a held call, instead of just once for a given call. Such problems have now been fixed. You should see the following:

- Exceptions that were pegged too frequently in the past (like time on hold and ring time exceptions when calls are transferred using unmeasured trunks) will now be pegged appropriately.
- Exceptions that were pegged too infrequently in the past (like time on AUXOUT call, agent and split time in queue, and VDN time at agent) will now be pegged appropriately. You may see these exceptions pegging more often. Monitoring some exceptions, for example, agent and split time in queue, may affect the performance of your system.
- Exceptions will no longer apply to several different types of calls. For example, time on hold now applies to ACD calls only. Previously, this count included ACD calls and extension calls.
- Previously, with *Agent talk time exceptions*, if an agent was talking on an ACD call and put a call on hold, the call was pegged as an exception if the agent did not talk for the minimum amount of time. This no longer occurs.

System Setup

Migrate Data

The field `Does the data being migrated already exist on this machine? (y/n)` has been removed from this window, because it is no longer needed.

If a migration is restarted and data already exists, an error will be logged in the Migration Error Log along with a recommended procedure. No data will be lost if the migration is restarted.

Maintenance

Back Up Data

The estimated number of backup tapes required for a multi-ACD system is now more accurate.

Custom Reports

- Custom Report input fields are now validated against the ACD which is specified, not the current ACD.
- All historical custom reports from R2 CMS releases will now migrate to R3V2 CMS.
- Previously, Custom Reports did not provide an ACD association in the same way as standard reports. In the standard reports, a split/skill can be associated with some ACD field so that the attributes of the `split/skill` field vary according to the value of the `ACD` field. In particular, changing the value of the `ACD` field to a different switch type can affect the minimum and maximum range of values for the `Split/Skill` field.

  To provide an ACD association for custom reports, an `Associated ACD` field has been added to the Screen Painter Field Definition (Figure 5-4) and the Variable/Time/Date windows.

  Before the `Associated ACD` field can be used, the input field type must be defined as “ACD.” This is done by selecting type ACD on the Define Input window as shown in Figure 5-3. This field must be a single-valued field (Range/List is “n”).

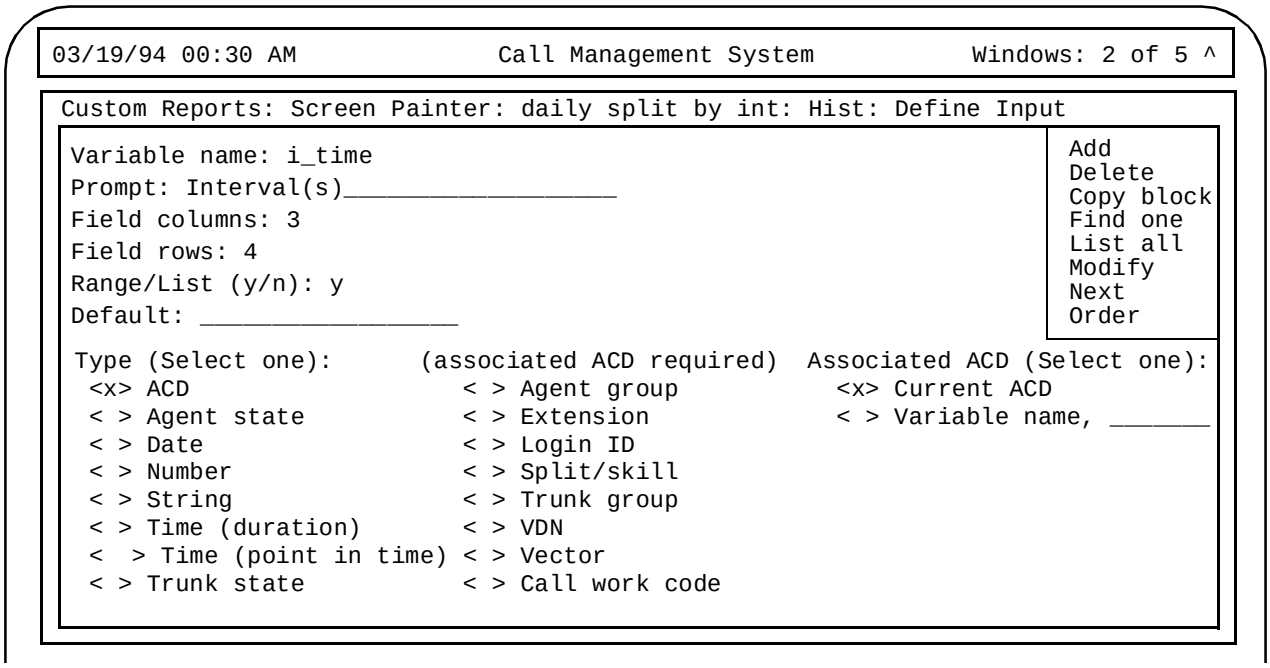


Figure 5-3: Define Input Window

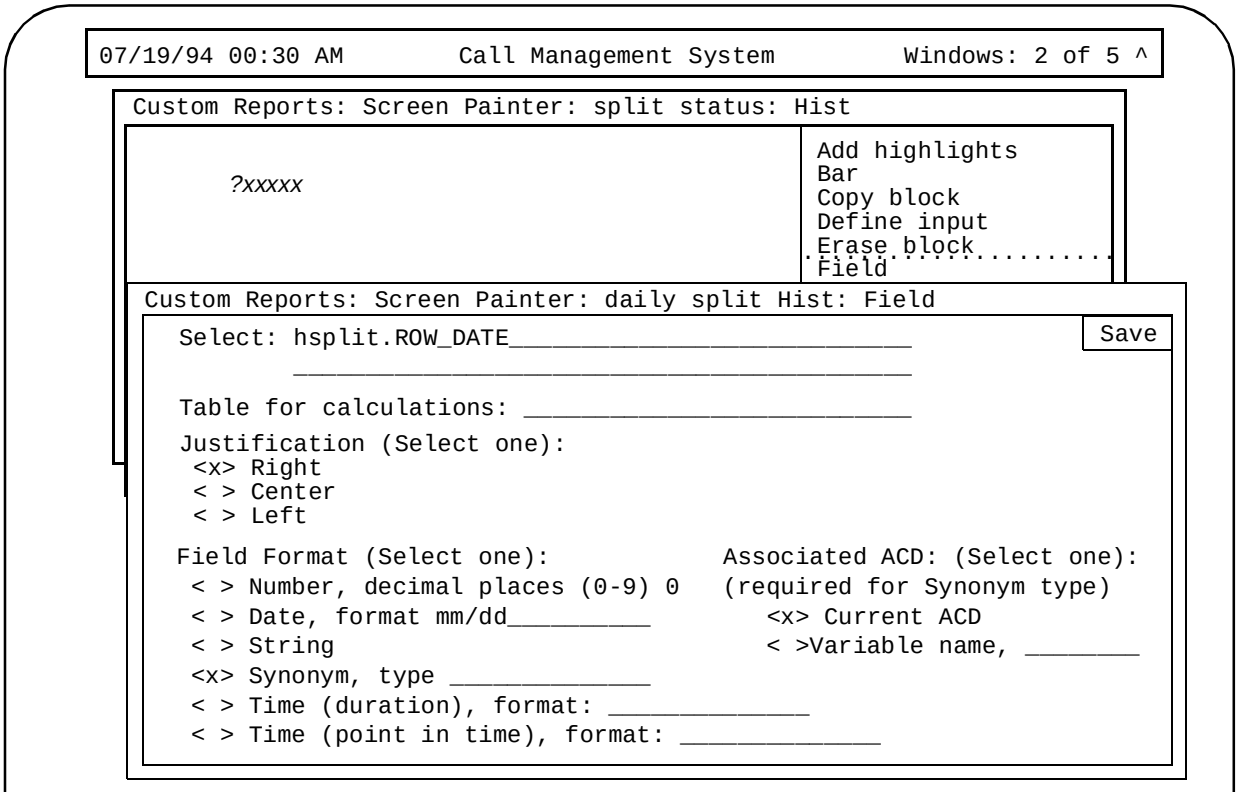


Figure 5-4: Screen Painter Field Definition Window

On the Screen Painter Field Definition window (Figure 5-4), if you select Synonym in the Field Format list, you must also complete the Associated ACD fields.

On the Variable/Time/Date window, the Associated ACD field is used only in association with the Display input variable field.

In order for the ACD association to work properly for an ACD other than the current ACD, the associated ACD must be displayed on the report as an output field, as well as the synonym field being displayed. Error messages are displayed if either of the following situations exist:

— If the ACD input variable is not yet displayed as an output field when attempting to associate a field or variable/time/date with it, the following message is displayed:

```
Error: You must display the ACD field in this report in order for
(Variable/Time/Date or Field) synonyms to be resolved correctly.
```

— If the ACD input variable is not displayed as an output field at the time Save design or Test design is selected, a message appears with the following information:

```
Variable/Time/Date   Associated ACD input not displayed: i_acd
Variable/Time/Date   WARNING: Variable/Time/Date synonyms cannot
Variable/Time/Date   be resolved correctly. To fix, display the
Variable/Time/Date   ACD input variable in this report.
Variable/Time/Date   POSITION: Row 3 Column 14
```

```
Field          Associated ACD input variable not displayed: i_acd
Field          WARNING: Field synonyms cannot
Field          be resolved correctly. To fix, display the
Field          ACD input variable in this report.
Field          POSITION: row 11 Column 1
```

Forecast

The Split/Skill field on the Forecast: Hypothetical: Data: Copy Historical Data window now accepts 20 characters.

User Interface

- Pressing the Home key or any other special keys no longer causes unprintable characters in the input fields.
- The Print key no longer causes CMS to core dump while you are in the Custom Report Screen Painter.
- An Acknowledgment window appears when an application error (for example, assigning a calculation to an empty string) occurs and displays the following message:

```
ERROR: Unable to continue processing
All windows associated with this task will be deleted.
Contact Services for help or your AT&T distributor.
Press return to continue.
```

- Field validation is now handled properly. When a specific field has an invalid entry (for instance, an invalid date was entered), the cursor is automatically placed that field so the error can be corrected.

Miscellaneous

High-Performance Platform

- A new command, `/cms/toolsbin/cmstermwho`, displays the NTS (network terminal server) name and NTS port number for all CMS users logged in through the NTSs connected to the *Sun* computer. This command will be useful when troubleshooting the NTS, terminals, or wiring problems.
- If a serial printer connected to the *Sun* NTS port is powered off or the cable is disconnected, only the job which is currently printing is lost. All subsequent jobs sent to the printer are spooled and not lost.

New External Disk

The High-Performance Platform now supports a 2-gigabyte external disk. When an external disk is added, the entire disk is allocated to a single file system. The size of partition 0 should be 2733c. The actual usable space for CMS on the 2-gigabyte disk is 1.8 billion bytes (1K bytes = 1024) or 1.67 gigabytes.

Note

All references to the size of external disks in the *CMS R3V2 High-Performance Platform Installation and Maintenance* (AT&T 585-215-123) document should also include the 2-gigabyte disk along with the 1-gigabyte disk.

External Call History Interface

The ECHI (External Call History Interface) no longer sends empty files to the receiving machine. ECHI also handles low load situations now.

UNIX/Solaris System

The backspace key on all terminals now works as expected.

WGS, STAR SERVER S, and 3332 Computer Upgrade Instructions

The following procedures allow you to upgrade your CMS software at your convenience. Follow these instructions carefully.

Pre-Upgrade Procedure

You **must** complete the following steps immediately prior to beginning the upgrade to Version 1.8.

Failure to complete the pre-upgrade steps may result in an inability to recover from an unsuccessful upgrade, possible loss of data, and/or significant recovery time.

1. As a precaution, ensure that copies of the current R3V2 CMS software load and the latest full backup tapes are available.

   Failure Recovery: If you do not have a current R3V2 CMS software load, call the AT&T Call Center Helpline on 1-800-344-9670. If you do not have a current full maintenance backup available, perform a full maintenance backup before proceeding with these steps.

2. From the System Console, log in as *root*.

3. Verify that the tape drive status light is off and the drive is not being used for any other purpose (for example, scheduled backups).

   Failure Recovery: If the tape light is stuck on, do the following steps depending on your host computer model:

   AT&T 6386 and STAR SERVER computers

   a. Put a writable tape into the drive. Wait for the tape to reposition.
   b. Eject the tape out.
   c. Put the tape back in and wait for it to reposition again.
   d. Enter this command at the # prompt: `> /dev/scsi/qtape1`
   e. The tape light should go out.

NCR Model 3332 computers

a. Put a writable tape into the drive. Wait for the tape to reposition.
b. The tape light should go out.

4. Enter the `cmsadm` command to display the CMS administration menu. Select the `backup` option.

If CMS is turned on, CMS will be automatically turned off during the backup. The program takes approximately 50 minutes to write each tape needed for the backup. For more information, see "Performing a CMSADM Backup" section in Chapter 8 of the *CMS R3V2 Installation and Maintenance* (AT&T 585-215-122) document.

Failure Recovery: The following error messages are the most common during a cmsadm backup and their recovery.

— `Request failed. See /cms/install/logdir/backup.log for more information.`

If the screen displays this message, you need to restart the backup after correcting the problem. Follow these steps to correct the problem:

a. Reseat the tape in the tape drive. The tape may not be seated correctly or the tape may have been removed during the backup.
b. Turn off write protect if the black arrow in the upper left-hand corner of the cartridge tape is pointed to "safe."
c. The tape is bad if this message also displays on the console terminal: `WARNING: ST01: HA 0 TC 3 LU 0: Err 60503005 CMD 0000000A Sense Key 00000004 Ext Sense 00000000.` Discard that tape and try another one.

— `That didn't work, cannot open "/dev/scsi/qtape1" Change to part X and press RETURN key. [q] Permission denied.`

This error displays if you are performing a multiple tape backup, the tape you inserted is not the first tape (it is the second, third, etc.), and the tape is write protected.

You do not have restart the backup. Simply remove the tape from the tape drive, turn off write protect by turning the black arrow to point opposite “safe”, reinsert the tape into the drive, and continue the backup.

As the backup progresses, the program displays a series of dots to indicate that it is writing files to tape, one dot per file.

You may have a problem if you notice one of the following:

- You see that dots are not printing.
- The tape is not spinning.
- Messages are not displayed informing you to change tapes or that the backup has completed.

Call the AT&T Call Center Helpline on 1-800-344-9670.

Software Upgrade Procedure

The `installpkg` command will automatically upgrade your system.

Caution You must have completed the Pre-Upgrade Procedure before you continue with the steps below. The upgrade procedure will result in approximately 30 to 60 minutes of outage on the R3V2 CMS.

Note It is no longer necessary to turn off CMS, you will prompted to do so in Step 10.

Use the following steps to upgrade your CMS software.

1. From the System Console, log in as *root*.
2. Enter the `installpkg` command.
3. When prompted, select the cartridge tape option and press **Return**.
4. The program requests that the tape be inserted into the tape drive. Insert the CMS software package cartridge tape into the tape drive, wait for the tape drive to reposition, then press **Return**

Failure Recovery: For Steps 4 through 6, proceed through the tasks below until you recover from the tape drive failure:

- Retry:
  a. Follow the prompts to exit the `installpkg` program
  b. Reposition the cartridge tape in the tape drive
  c. Restart the Software Upgrade Procedures.
- Reboot the CMS by entering the `shutdown -i6 -g0 -y` command.
- If all else fails, call the AT&T Call Center Helpline on 1-800-344-9670.

5. When prompted, press Return to re-tension the tape. Re-tensioning the tape takes approximately 3 minutes.

6. After the tape re-tensions, the program displays information on selecting the packages to be installed. Press Return to continue.

7. Select the Call Management System package followed by Return.

8. Press Esc to indicate that all selections have been made and Return. Press Return again in response to the `REMINDER!` message.

The program takes about 3 minutes to locate the CMS software on the tape and then verifies that the software packages required to run with CMS are present.

Failure Recovery: If a required software package is missing, an error message appears indicating that CMS cannot be installed. Press Esc to stop the upgrade. Since CMS is still running the old load, stopping the upgrade now is not service affecting. Write down the missing package and call the AT&T Call Center Helpline on 1-800-344-9670. If you turned CMS off, you can turn it back on.

9. The program now asks if you backed up your file systems. If you followed the pre-upgrade instructions, you have already backed up your file system. Enter `y`.

The program takes about 5 to 10 minutes to remove the software associated with the previous version of CMS.

If you did not follow the pre-upgrade instructions, enter `n` and refer to the Pre-Upgrade Procedure for information on backing up your file system. Then, restart the Software Upgrade Procedure.

10. Next, the program asks if you want to turn off CMS. Enter y to proceed with the upgrade.

    If you enter n, you will be returned to the system prompt.

    If you answer y, the program continues:

```
Stopping UNIX log ... done
>>Retaining customer data.
/etc/conf/init.d/ilog
/etc/conf/node.d/osm
/etc/logit
/usr/bin/cms
/usr/bin/cmsadm
. . . .
. . . .
. . . .
```

    The program takes about 5 to10 minutes to remove the software associated with the previous version of CMS. You may ignore any errors or warnings that occur during this step and the next. Critical errors will be detected during the package audit.

11. When the appropriate software has been removed, the program begins the download of the new version of CMS.

```
Removal of Call Management System (3xxxx) is complete
## Installing files from cartridge tape
. . . . . .
. . . . . .
. . . . . .
. . . . . .
```

    The program takes about 10 to 20 minutes to download the R3V2 CMS software from the cartridge tape to the hard disk. As the software is downloaded, several rows of periods display to indicate progress. Next, a list of downloaded files displays.

12. After the download, the program audits the new package installation.

```
## Auditing package installation
```

The audit takes about 5 to 10 minutes to complete.

Failure Recovery: If the audit fails, perform the following steps:

a. Write down the audit errors.
b. Call the AT&T Call Center Helpline on 1-800-344-9670.
c. Reboot the CMS by entering the `shutdown -i6 -g0 -y` command.
d. Restart the Software Upgrade Procedure.
e. If the audit passes, proceed to Step 13. If the audit fails again, execute the `shutdown -i6 -g0 -y` command. Install the previous version of CMS using the `installpkg` command.

13. If the audit is successful, the program upgrades your CMS data.

The upgrade of CMS data may take up to an hour — but in most cases takes significantly less. Dots display to indicate progress.

Failure recovery: If the upgrade fails, call the AT&T Call Center Helpline on 1-800-344-9670.

In some cases, the UNIX kernel is rebuilt. If the rebuild fails, note the failure exactly and call the AT&T Call Center Helpline on 1-800-344-9670.

14. If a message displays indicating an automatic shutdown is being initiated, you will need to reboot the system. You can do this in one of two ways:

    - Press the Return key which requires a manual reboot. **Wait** for the prompt `Reboot the system now` to appear, and then press the Reset button on the CMS processor.

      Do not press Reset until you see the `Reboot the system now` message; otherwise, file system damage may occur.

    - Press the Esc key. The UNIX system prompt returns. Then, execute the `shutdown -i6 -g0 -y` command.

15. After the tape finishes rewinding (tape drive light is not lit), remove the cartridge tape.

16. After the CMS software is installed, enter the `cmsadm` command to display the CMS administration menu. Select the `run_cms` option and turn on CMS to start collecting data.

    The program takes a few minutes to initialize the system parameters. Turning on CMS initializes the communications link between the CMS software and the switch.

Post-Upgrade Procedure

After the upgrade, complete the following steps:

1. From the System Console, log in as *root*.

2. Enter the `cmsadm` command to display the CMS administration menu. Select the `backup` option.

   See Step 4 of the Pre-Upgrade Procedure for information about the cmsadm backup and the failure recovery steps.

3. Enter `exit` at the # prompt.

4. Log in as the CMS administrator.

5. A full CMS Maintenance Backup **must** be done prior to any incremental backups that are either scheduled or manually completed.

   If this step is not completed, any incremental backups will fail, since they must follow a full backup of the current load.

6. Contact the AT&T Call Center Helpline (1-800-344-9670) and notify the agent that the upgrade to Version 1.8 has been completed.

   It is important to complete this step so the TSC can check the error logs and update their database.

This completes the upgrade of the R3V2 Call Management System!

Software Compatibility

The following software is required for R3V2 CMS to operate correctly:

- UNIX System V Release 3.2.3 and associated utilities, including SCSI Support Package Version 2 and UNIX SVR3.2.3 Maintenance Disk #1
- Korn Shell Version 11/16/88d 386 Release 2.0
- INFORMIX SE 4.10.UD1 (Runtime Version)
- X.25 Network Interface Software Version 1.2.1 SL1.51.1.25.

INFORMIX SQL 4.10.UC2 (Development Version) is optional software with R3V2 CMS.

R3V2 CMS is not co-resident with other software packages. This includes both packages running concurrently and those merely installed. R3V2 CMS modifies the UNIX system tunable parameters automatically to accommodate system requirements.

This release of R3V2 CMS software is only compatible with Version 1.6 and later of the CMS R2 Migration (PG-3E257). Earlier versions of CMS R2 will not migrate successfully.

Switch Compatibility

R3V2 CMS has been certified with the ACD applications on the following switches:

- *DEFINITY* Communications System Generic 2.1 Release 3.3 and later (QPPCN 629DR)
- *DEFINITY* Communications System Generic 2.2 Release 3.0 and later (with/without call center features) (QPPCN 696DR)
- *DEFINITY* Communications System Generic 3i Release 13.3 and later (QPPCN 576)
- *DEFINITY* Communications System Generic 3r Release 8.5 and later
- *DEFINITY* Communications System Generic 3s Release 14.2 and later
- *DEFINITY* Communications System Generic 3 Version 2 Load 82 and later (QPPCN 644 G3i/s/vs) (QPPCN 646 G3r)
- *DEFINITY* Communications System Generic 3 Version 3
- *DEFINITY* Communications System Generic 1.1 Release 7.1 (QPPCN 559DR) and later
- System 85 R2V4 Release 2.3 (QPPCN 560DR) and later.

Note

It may be necessary to upgrade the switch release before installing R3V2 CMS or before upgrading CMS to Version 1.8. The required switch release for *DEFINITY* Generic 3r has been changed since Issue 1.3. These switch releases will also work with previous versions of R3V2 CMS. The switch should be upgraded to the specified release before installing R3V2 CMS.

Sun SPARCserver 10 Computer Upgrade Instructions

This section describes how to upgrade the R3V2 CMS software application using a *Sun SPARCserver* 10 computer.

Caution To do an upgrade, you must have sufficient free space on your disk to accommodate all the data you want to collect. See the "Pre-Upgrade Procedures" section for details.

If your current disk space allocation specifies more items to be measured for longer lengths of time than you actually have space for on your disks, you must do one or more of the following:

- Purchase additional disks
- Change the length of time for which the data is stored
- Change the number of entities measured before you do an upgrade.

Pre-Upgrade Procedures

Prerequisites: You must be logged in as *root*, the computer must be in run-level 2 or 3, all file systems must be mounted, and CMS must be turned OFF.

Note The upgrade process will take approximately 1 hour to complete.

Before you upgrade a system to a new base load or install a field update, do the following procedures:

1. Check the */cms* file system for inconsistencies and repair any problems which are identified as the following:
   - as *root*
   - with cms turned off
   - required step.
2. Reboot the system with the following command:

```
# shutdown -i6 -g0 -y
```

3. Log in as *root*.
4. Unmount the */cms* file system with the following commands:

```
# cd/
# umount /cms
```

5. Check and repair */cms* file system with the following command:

```
# fsck -y /cms
```

6. Remount the */cms* file system with the following command:

```
# mountall
```

Note Ignore messages about file systems which are already mounted.

7. Verify */cms* is mounted with the following command:

```
# mount
```

Note Verify */cms* is in the list of mounted file systems.

8. Do a full file system backup. See the “Performing a CMSADM Backup” section in Chapter 8, “Maintenance,” in the *CMS R3V2 High-Performance Platform Installation and Maintenance* (AT&T 585-521-123) document.
9. Make sure you have the cartridge tape that contains the new base load or field update software.
10. Verify you have sufficient space in */tmp* by entering the **df -l /tmp** command.

Note CMS requires 150,000 blocks free space in */tmp* to install the new load.

11. Verify you have sufficient space in */cms* by doing the following:
    a. Determine the amount of available space by entering the **`df -l /cms`** command.
    b. Determine the amount of space used by the current CMS package by entering the following command.
    c. `pkgparam cms IBSblocks IBSinodes`
    d. The number of blocks and modes are displayed.

    Note CMS 3rafh requires 150500 blocks and 1400 inodes for the new load. Follow the directions in this section to figure out how many blocks or inodes the current package is using.

    e. Compute the difference between the old and new load for blocks and modes, and compare the amount of available space computed in Step 1.

To Upgrade CMS, use the following **required** procedures:

- Remove installed field updates (if present)
- Remove the current CMS base load
- Install the new *Solaris* patches (if needed)
- Install the new CMS base package.

Removing Installed Field Updates

Do these steps to determine if a field update is installed.

1. Start the remove installed field update procedure by entering:

```
# pkginfo cms.*
```

The program responds:

```
application cms            Call Management System
application cms.2          Call Management System
```

Note If more than one package is displayed (for example, `application cms.2`), you can determine that there is a field update installed.

2. Enter the following information:

```
# pkgrm cms.2
```

The program responds:

```
The following package is currently installed:
    cms.2              Call Management System
                        (sparc) 3rxxx

Do you want to remove this package [y,n,?,q]
```

3. Answer `y`.

   The program responds with a list of files that will be changed due to the removal of the update:

```
## Verifying package dependencies.
## Processing package information.
## Executing preremove script.
## Removing pathnames in class <ind>
/cms/install/bin/upd_save <shared pathname not removed>
/cms/install/bin/turn_on_cms <shared pathname not removed>
/cms/install/bin/turn_off_cms <shared pathname not removed>
/cms/install/autoconfig <shared pathname not removed>
/cms/install/auditmap <shared pathname not removed>
## Removing pathnames in class <edit>
>> Leaving sun patches installed.
## Removing pathnames in class <sun_fix>
>> Leaving sun patches installed.
## Removing pathnames in class <op_fix>
>> Leaving other package fix files installed.
## Removing pathnames in class <data>
>> Retaining customer files and directories.
## Executing postremove script.
```

If the removal is successful, this message displays:

```
Restoring old CMS software
/cms/install/auditmap
/cms/install/autoconfig
/cms/install/bin/turn_off_cms
/cms/install/bin/turn_on_cms

Updating installation software database.

Removal of Call Management System (3rxxx) is complete
## Updating system information.

Removal of <cms.2> was successful.
```

The system prompt returns to your screen.

The installed field updates (if present) are removed from the CMS software. You can now remove the current CMS base package.

Removing Current CMS Base Package

Do these steps to remove the current CMS base package:

1. Start to remove the current CMS base package by entering:

```
# pkgrm cms
```

The program responds:

```
The following package is currently installed:
   cms                Call Management System
                       (sparc) 3rxxx

Do you want to remove this package [y,n,q,?]
```

2. Answer y.

   The system responds:

```
## Removing installed package instance <cms>

This package contains scripts which will be executed with
super-user permission during the process of removing this
package.

Do you want to continue with the removal of this package
[y,n,q,?]
```

3. Answer y. The system responds:

```
## Verifying package dependencies.
## Processing package information.
## Executing preremove script.

Do you want to preserve CMS data? [y,n,?]
```

4. Answer y.

   The system responds:

```
CMS will be removed from this machine; the data will be
preserved.

Are you sure this is correct? [y,n,?]
```

5. Answer `y`. The system responds:

```
All file systems should be backed up before continuing.
See the maintenance chapter in the CMS Installation and
Maintenance Manual for instructions.

Have you backed up the file systems? [y,n,?]
```

Note If you have not backed up the file systems, answer "n" and refer to the Pre-Upgrade Procedure for information on backing up your file system. Then restart the Software Upgrade Procedure

6. Answer `y if` you have done backups. The system responds:

```
## Removing pathnames in class <ind>
/usr/lib/cms/trmaps
/usr/informix/etc/termcap
/usr/bin/cmssvc
   .
   .
   .
```

If the removal is successful, this message displays:

```
Removal of <cms> was successful.
```

The system prompt returns to your screen. After you remove the current CMS base package, you can now install Solaris patches (if necessary) and the new CMS base package.

Installing New *Solaris* Patches

Depending on the needs of your system, you may or may not need to install *Solaris* patches. If *Solaris* patches are available, you must install them on your system.

Do these steps to install new *Solaris* patches:

Note The tape containing the new patches will be required in the QIC-150 tape drive.

1. Start the upgrade procedure by entering:

```
# pkgadd -d /dev/rmt/0
```

The system responds:

```
Insert a tape into Tape Drive.
Type [go] when ready,
  or [q] to quit:
```

2. Enter go. The system responds:

```
The following packages are available:
  1 cms          Call Management System
                 (sparc) S3racc
  2 spatches     CMS Supplied Solaris Patches
                 (sparc) 1.0

Select package(s) you wish to process (or 'all' to process all
packages). (default: all) [?,??,q]: 2
```

If the `spatches` package is displayed, you must install it.

3. Enter 2 to select *spatches*. The system responds:

```
Processing package instance <spatches> from </dev/rmt/0>

CMS Supplied Solaris Patches
(sparc) 1.0

This appears to be an attempt to install the same architecture
and
version of a package which is already installed. This
installation
will attempt to overwrite this package.
```

4. Tape rewinds and retentions for approximately 7-8 minutes. The system responds:.

```
AT&T
## Processing package information.
## Processing system information.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.

This package contains scripts which will be executed with
super-user permission during the process of installing this
package.

Do you want to continue with the installation of this package?
[y,n,?]
```

5. To continue with the installation of this package, enter `y`.
   The system responds:

```
Installing CMS Supplied Solaris Patches as <spatches>

## Installing part 1 or 1.
Spooling 100982-02
Spooling 100992-03
Spooling 100999-51
Spooling 101014-05
Spooling 101018-07
   .
   .
   .

Patches successfully saved

Solaris patches were copied to /tmp/patches.
To install the solaris patches, run the following command:
   /tmp/patches/install-patches

Once the Solaris patches are installed, a reboot is necessary.

Insert a tape into Tape drive.
Type [go] when ready,
    or [q] to quit:
```

6. Enter q. The system displays the system prompt.

7. To install the *Solaris* patches, enter the following command:

```
# /tmp/patches/install_patches
```

Note Once the *Solaris* patches are installed, a reboot is necessary. Be sure to run the `/tmp/patches/install_patches` command before rebooting.

The system responds:

```
# /tmp/patches/install_patches
@(#) installpatch 3.5 93/04/28

generating list of files to be patched
Save old verisons of files to be patched
/var/sadm/patch/100982-02/save/kernel
/var/sadm/patch/100982-2/save/kernel/fs
/var/sadm/patch/100982-2/save/kernel/fs/fifofs
XXX blocks
Installing patch packages
Doing pkgadd of SUNWcsr package:
```

Response continues:

```
Patch installation finished
@(#) installation finished
generating list of files to be patched
Save old versions of files to be patched
/var/sadm/patch/100992-03/save/kernel
/var/sadm/patch/100992-03/save/kernel/drv
   .
   .
   .
Installing patch packages
Doing pkgadd of SUNWcsr package:

Installation of <SUNWcsr.7> was successful.
Patch installation finished
To complete the solaris patch installation, one should reboot
with the following command: shutdown -y -i6 -g0
#
```

Note Remember to reboot if instructed to do so by the system.

8. To complete the *Solaris* patch installation, you must reboot your system using the following command:

```
# shutdown -y -i6 -g0
```

The installation of the new patches in now complete. The system prompt returns to your screen. You are now ready to install the new CMS base package software.

Installing New CMS Software

Do these steps to install the new CMS base package software:

Note The tape containing the new CMS software load requires the QIC-150 tape drive.

Allow approximately 20 minutes to install the tape.

1. Start the upgrade procedure by entering:

```
# pkgadd -d /dev/rmt/0
```

The program responds:

```
Insert a tape into Tape Drive.
Type [go] when ready,
  or [q] to quit:
```

2. Enter *go*. The system responds:

```
The following packages are available:
  1 cms          Call Management System
                 (sparc) S3racc
  2 spatches     CMS Supplied Solaris Patches
                 (sparc) 1.0

Select package(s) you wish to process (or 'all' to process all
packages). (default: all) [?,??,q]:
```

3. Enter 1. The system responds:

```
Processing package instance <cms> from </dev/rmt/0>

Call Management System
(sparc) 3rxxx

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All Rights Reserved

Using </cms> as the package base directory.

Installing the Call Management System (3rxxx).

## Processing package information.
## Processing system information.
   138 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.

The following files are already installed on the system and
are being used by another package:
          /cms/install/logdir/admin.log
          /etc/init.d/sysetup
          /etc/system
          .
          .
          .

Do you want to install these conflicting files? [y,n,q,?]
```

4. Answer y. The system responds:

```
## Checking for setuid/setgid programs.

The following files are being installed with setuid and/or
setgid permissions or are overwriting files which are
currently setuid/setgid:
         /cms/bin/mqpeek <setuid root>
         /cms/bin/spi <setuid root>
         /cms/toolsbin/cmsu <setuid root>
         /cms/toolsbin/initSimConf <setuid root>
         /cms/toolsbin/initSimConf <setuid root>
         /cms/toolsbin/psx <setuid root>
         /cms/toolsbin/psx <setuid root>
         /cms/toolsbin/shmdump <setgid sys>

Do you want to install these setuid/setgid files [y,n,q,?]
```

5. Answer y. The system responds:

```
This package contains scripts which will be executed with
super-user permission during the process of installing this
package.

Do you want to continue with the installation of this package
[y,n,q,?]
```

6. Answer y.

The system responds:

```
Installing Call Management System as <cms>

## Executing preinstall script.

## Installing part 1 or 1.
[ verifying class <data> ]
[ verifying class <op_fix> ]
   .
   .
   .
/etc/SUNWconn/x25/template/cms.spin1.wan
/etc/rc0.d/K92cms
/usr/bin/cms
/usr/bin/cmsadm
/usr/bin/cmssvc
/usr/informix/etc/termcap
/usr/lib/cms/trmaps
[ verifying class <ind> ]
## Executing postinstall script.

## Upgrading Customer CMS data . . .

Customer CMS data successfully upgraded.

Setting Solaris 2.2 system tunable parameters for CMS.
No changes to tunable parameters were required.

Installation of <cms> was successful.

Insert a tape into Tape Drive.
Type [go] when ready,
  or [q] to quit:
```

Note If you are instructed to run `shutdown`, use the displayed command. See the "Installing New Solaris Patches" section in this chapter for more information.

7. Enter q to exit the installation/upgrade program.

   The installation of the new CMS base package is now complete. The system prompt returns to your screen.

8. Allow the tape to rewind and remove it from the tape drive.

Verifying CMS Software Installation

Do the following to verify the installation of the new CMS software:

1. Enter `pkgchk` command:

```
# pkgchk -n cms
```

If the software installation is successful, the system prompt returns to your screen.

If errors are detected, see Chapter 8, “Checking Installed Software Packages” for more information.

Installing Field Update for New CMS Load

Do these steps to install the field update for the new CMS load:

Note A field update is put on a separate tape. You may have new patches as part of an update. For details, see “Installing New *Solaris* Patches” in the “Updating CMS Software” section in Chapter 10, “Upgrading or Updating the CMS Software” in the *CMS R3V2 High-Performance Platform Installation and Maintenance* (AT&T 585-215-123) document.

1. Start the field update installation procedures for a for new load by entering:

```
# pkgadd -d /dev/rmt/0 cms
```

The program responds:

```
Insert a tape into Tape Drive.
Type [go] when ready,
  or [q] to quit:
```

Note If a “Broken Pipe” message is displayed when using the `pkginfo -d /dev/rmt/0` command for a QIC 150 tape, ignore the message. This message has no effect on system operations.

2. Enter go. The system responds:

```
Processing package instance <cms> from </dev/rmt>

Call management System
(sparc) 3rxxx
AT&T
Using </cms> as the package base directory.

Installing the Call Management System (3rxxx).

## Processing package information.
## Processing system information.
## Verifying package dependencies.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.

The following files are already installed on the system and
are being used by another package:
           /cms/install/auditmap
           /cms/install/autoconfig
           /cms/install/bin/turn_off_cms
           /cms/install/turn_on_cms
           /cms/install/bin/upd_save
Do you want to install these conflicting files [y,n,q,?]
```

3. Answer y. The system responds:

```
## Check for setuid/setgid programs.

This package contains scripts which will be executed with
super-user permission during the process of installing this
package.

Do you want to continue with the installation of this package
[y,n,q,?]
```

Answer y. The system responds:

```
Installing Call Management System as <cms.2>

## Executing preinstall script.
Making backup copies of old files ...
/cms/install/update/file_bkup/cms/install/auditmap
/cms/install/update/file_bkup/cms/install/autoconfig
/cms/install/update/file_bkup/cms/install/bin/turn_off_cms
/cms/install/update/file_bkup/cms/install/bin/turn_on_cms
/cms/install/update/file_bkup/cms/install/bin/upd_save
165 blocks
## Installing part 1 of 1.
/cms/install/auditmap
/cms/install/autoconfig
/cms/install/autoconfig
/cms/install/bin/turn_off_cms
/cms/install/bin/turn_on_cms
/cms/install/bin/upd_save
[ verifying class <ind> ]
## Executing postinstall script.
```

Note You may be instructed to run `shutdown`. If you are instructed to run `shutdown`, then use the command displayed.

If the installation of the field updates is successful, this message displays:

```
## Upgrading Customer CMS data . . .

Customer CMS data successfully upgraded.

Setting Solaris 2.2 system tunable parameters for CMS.
No changes to tunable parameters were required.

Installation of <cms.2> was successful.
```

Installation of the field update for the new base load is completed. The system prompt returns to your screen.

4. Remove the cartridge tape after it finishes rewinding (drive light is not blinking).

Post Upgrade Procedures

Prerequisites: You must be logged in as *root*, the computer must be in run-level 2 or 3, all file systems must be mounted, and CMS must be turned OFF.

Upgrading CMS uses the following required and optional procedures:

Required procedures

- Verify the installation via `pkgchk`
- Restart CMS
- Back up upgraded CMS software.

Verifying Field Update of New Software Installation

Do the following to verify the installation of the field updates for the new base load software is complete:

1. Enter `pkgchk` command*:*

```
# pkgchk -n cms.*
```

Note You can use the *pkgchk -n cms.** command anytime after you do an install or an upgrade.

The CMS software is verified and upgraded.

If errors are detected, see Chapter 8, “Checking Installed Software Packages” for more information.

Restarting CMS

Do the following to restart the CMS software:

1. Access the CMS Services menu by entering:

```
# cmssvc
```

The system responds:

```
 Commands for CMS Services Personnel

Select a command from the list below.
  1) auth_display Display feature authorizations
  2) auth_set     Authorize CMS capabilities/capacities
  3) backup       Single-tape filesystem backup (in background)
  4) run_cms      Turn CMS on or off
  5) setup        Set up the initial CMS configuration
  6) swinfo       Display switch information
  7) swsetup      Change switch information
  8) upd_install  Install update from disk files
  9) upd_remove   Back out the currently installed update
 10) upd_save     Save update on disk for later installation
Enter choice (1-10) or q to quit:
```

2. Enter `4` to select the *run_cms* option. The system responds:

```
  Select one of the following
  1) Turn on CMS
  2) Turn off CMS
  Enter choice (1-2):
```

3. Enter `1` to turn on CMS. The system responds:

```
Turning on X25, please wait

Starting the X.25 software — please wait
X.25 has found a valid license
The network has been brought up.

Please wait for initialization.


***CMS is now up***
```

The system prompt returns to your screen.

Backing Up Upgraded CMS Software

Do a full CMS maintenance backup as soon as possible.

In the Back Up Data window, select `y` (yes) for the `Verify volume can be read after backup` field. In addition, the following fields should contain an `x`:

- All ACDs
- ACD-specific data
- System administration data
- Historical data
  - Full

See the “Back Up Data” section in Chapter 12, “Maintenance” of the *CMS R3V2 Administration* (AT&T 585-215-521) document.

Note

CMS incremental maintenance backups will fail if a full backup is not done. A CMSADM backup is optional. See Chapter 8, “Maintenance” for file system and `cmsadm` backup procedures.

R3V2 CMS Administration Document

Please insert the following pages in the front of your *CMS R3V2 Administration* (AT&T 585-215-521) document.

Chapter 1, Introduction

- Page 1-19

  The phone number for AT&T Project Managers to call and schedule training classes should be **1-800-255-8988**.

Chapter 4, Real-Time Reports

- Page 4-55

  “Things to Know Before You Start” should state that you **cannot** customize the Multi-ACD report.

Chapter 5, Historical Reports

- Page 5-16

  The `Agent Time AUX` report column should be defined as, “The amount of time the agent spent in auxiliary work in the split with the oldest logon.” The database item for this field is TI_AUXTIME, which is described correctly in the “Agent Database Items” table in Appendix A

  The `Agent Time Avail` report field should be defined as, “The amount of time the agent spent waiting for an ACD call in the split with the oldest logon.” The database item for this field is TI_AVAILTIME, which is described correctly in the “Agent Database Items” table in Appendix A.

- Page 5-62

  The calculation for`% Within Service Level` should be changed to **<PERCENT_SLVL_SPL_SUM>**.

- Page 5-68:

  The `Agent Time AUX` report column should be defined as, “The amount of time the agent spent in auxiliary work in this split.” The database item for this field is TI_AUXTIME, which is described correctly in the “Split/Skill Database Items” table in Appendix A.

  The `Agent Time Avail` report column should be defined as, “The amount of time during this recording interval that all agents spent waiting for an ACD call in this split.” The database item for this field is I_AVAILTIME, which is described correctly in the “Split/Skill Database Items” table in Appendix A.

Chapter 8, Exceptions

- Page 8-27

  Replace Table 8-4 with the following table to clarify which exceptions are per trunk and which are per trunk group.

Table 5-1: Historical Trunk/Trunk Group Exceptions Type

Trunk/Trunk Group Exception	What It Means
Time trunk in use (min) (Exceptions per trunk)	The minimum acceptable time a trunk in the trunk group can be in use. CMS checks the allowed time the trunk is in use before an occurrence is counted against the threshold for that trunk. When the threshold is exceeded, you receive an exception notification for that trunk. This exception **cannot** trigger for the same trunk more than once within an interval.
Time trunk in use (max) (Exceptions per trunk)	The maximum acceptable time a trunk in the trunk group is in use. CMS checks the allowed time the trunk is in use before an occurrence is counted against the threshold for that trunk. When the threshold is exceeded, you receive an exception notification for that trunk. This exception **cannot** trigger for the same trunk more than once within an interval.
Time any trunk maintenance busy (Exceptions per trunk)	The maximum time a trunk in the trunk group can be maintenance busy. CMS checks the allowed time the trunk is maintenance busy before an occurrence is counted against the threshold for that trunk. When the threshold is exceeded, you receive an exception notification for that trunk. This exception **cannot** trigger for the same trunk more than once within an interval.
Length of time all trunks busy (exceptions per trunk group)	The total time all trunks can be busy in the trunk group without counting as an occurrence. When the threshold is exceeded, you receive an exception notification. This exception **cannot** trigger more than once within an interval.
Number of trunk failures in group (exceptions per trunk group)	The maximum acceptable number of trunks failing to carry a call in a trunk group. CMS checks the allowed number of trunk failures before you receive an exception notification. This exception **cannot** trigger more than once within an interval.
Number of trunks in use (exceptions per trunk group)	The maximum acceptable number of trunks that can be in use at any one time in the trunk group. Since this condition can come and go, you receive an exception notification **each time** the allowed number of trunks in use exceeds your threshold within the interval.

Table 5-1: Historical Trunk/Trunk Group Exceptions Type (Contd)

Trunk/Trunk Group Exception	What It Means
Number of trunks maintenance busy (exceptions per trunk group)	The maximum acceptable number of trunks that can be maintenance busy in the trunk group without receiving an exception. Since this condition can come and go, you receive an exception notification **each time** the allowed number of trunks maintenance busy exceeds the threshold within the interval.
Number of failures on a single trunk (exceptions per trunk)	The maximum acceptable number of failures a single trunk can have in the trunk group without counting as an occurrence. CMS checks the allowed number of trunk failures before you receive an exception notification for that trunk. This exception **cannot** trigger for the same trunk more than once within an interval.

- Page 8-53

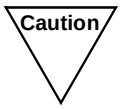
  The `Trunk` description should be changed to read:

  The trunk number that had the exception. If the exception is from a trunk group, this field will be blank

Chapter 12, Maintenance

- Page 12-20

  The second caution should be changed to read:

  CMS must remain in single-user mode until system data is restored. System data restoration is complete when the message `Restoring Historical data` appears on the status line.

Chapter 13, UNIX System

The *Sun SPARCserver* 10 computer (High-Performance Platform) uses the *Solaris* 2.2 operating system instead of the UNIX operating system. Changes made to Chapter 13, “UNIX System” reflect the differences.

- Change the chapter title to Chapter 13, “UNIX System/*Solaris* 2.2 System”
- Change section titles to include the Solaris 2.2 operating system:

Table 5-2: New Section Titles

Old Section Title Name	New Section Title Name
Accessing the UNIX System	Accessing the UNIX and *Solaris* 2.2 System
Viewing a UNIX System File	Viewing a UNIX or *Solaris* 2.2 System File
UNIX Scheduler Utility	UNIX or *Solaris* 2.2 Printer Scheduler Utility
Backing Up the File Systems from the UNIX System Environment	Backing Up the File Systems—Using the UNIX System Environment
	Backing Up the File Systems—Using the *Solaris* 2.2 System Environment
Restoring the File Systems from the UNIX System Environment	Restoring the File Systems—Using the UNIX System Environment
	Restoring the File Systems—Using the *Solaris* 2.2 System Environment

- Page 13-1, “General Information”

  “General Information” should be updated to read:

  CMS is supported on two operating systems:

  — Solaris 2.2 on the *Sun SPARCserver* 10 computer (also known as the High-Performance Platform)

  — UNIX SVR3 (System 5, Release 3) on all the remaining systems.

  The term UNIX is used to refer to either the UNIX or the *Solaris* 2.2 operating systems. The specific differences are noted throughout this chapter.

  You can access the UNIX or the *Solaris* 2.2 operating system by logging in as *root* at the console terminal (or you can “su” to root once you are logged in from any terminal) or by selecting the UNIX system option from the **Commands** SLK menu. If you login as *root*, your cursor is at the # prompt. If you access the UNIX or the Solaris 2.2 system from the UNIX system option on the **Commands** SLK menu, your cursor is at the $ prompt.

  Caution Be careful when accessing the UNIX or *Solaris* 2.2 system to execute UNIX or *Solaris* 2.2 system commands. Damage can result to CMS because of incorrect use of the UNIX system commands. Before you execute any UNIX system command, be sure you know what effect it will have.

  Also, do not allow users to share the same login ID because this quickly consumes UNIX or Solaris 2.2 system processes.

  Note To perform some of the procedures in the UNIX or *Solaris* 2.2 system section of this chapter, you will need to know the *root* password for your system.

- Page 13-10, “Backing Up the File Systems”

  The file systems on the computer should be backed up in the following situations:

  — After the R3 CMS software has been initially installed and tested

  Note The CMS historical data should also be backed up by using the Back Up Data window in the Maintenance subsystem.

  — Before and after the CMS software has been upgraded to a new base load

  — Before and after the CMS software has been field updated.

- Page 13-10, “Backing Up the File Systems—Using the UNIX System Environment”

  The number of cartridge tapes required to back up the CMS software varies depending how many file systems the CMS software resides on:

  — */cms* is on disk drive 1.

  — */cms* is on disk drive 2, if equipped.

  — */cms* is on disk drive 3, if equipped.

  — */cms* is on disk drive 4, if equipped.

  — */cms* is on disk drive 5, if equipped.

  Before starting the back-up procedures in this section, log in as *root* and execute the following command:

```
# lp /etc/fstab
```

  The output from the printer is necessary when doing a system restore later on.

  Note The file system information found in the **/etc/fstab** file should be bundled with the system backup tape(s) for future reference.

To back up the file systems from the UNIX system environment, do the following:

1. At the system console, log in as *root* and verify that the computer is in the multi-user state.

2. In the multi-user state, execute the following command to access the CMS Management menu:

```
# cmsadm
```

The CMS Administration menu displays:

```
   # CALL MANAGEMENT SYSTEM ADMINISTRATION
1) acd_create   Define a new ACD
2) acd_remove   Remove all administration and data for an ACD
3) backup       Filesystem backup
4) diskmay      Estimate disk requirements
5) memory       Estimate memory requirements
6) realtime     Estimate real-time report refresh rate
7) pkg_install  Install forecasting package
8) pkg_remove   Remove forecasting package
9) run_cms      Turn CMS On or Off Enter choice
Enter choice (1-9) or q to quit:
```

3. Enter **3** to select the `backup` option.
4. To complete a file system backup, follow the procedures in the "Performing a CMSADM Backup" section in Chapter 8. "Maintenance" of the *CMS R3V2 Installation and Maintenance* (AT&T 585-215-122) document.

- Page 13-12, “Backing Up the File Systems—Using the Solaris 2.2 System Environment”

  Before starting the back-up procedures in this section, log in as *root* and execute the following command:

```
# lp /etc/vfstab
```

  The output from the printer is necessary when doing a system restore later on.

  Note The file system information found in the **/etc/vfstab** file should be bundled with the system backup tape(s) for future reference.

  To back up the file systems from the Solaris 2.2 system environment, do the following:

  1. At the system console, log in as *root* and verify that the computer is in the multi-user state.
  2. In the multi-user state, execute the following command to access the CMS Management menu:

```
# cmsadm
```

     The CMS Administration menu displays:

```
   # CALL MANAGEMENT SYSTEM ADMINISTRATION
1) acd_create   Define a new ACD
2) acd_remove   Remove all administration and data for an ACD
3) backup       Filesystem backup
4) diskmay      Estimate disk requirements
5) memory       Estimate memory requirements
6) realtime     Estimate real-time report refresh rate
7) pkg_install  Install forecasting package
8) pkg_remove   Remove forecasting package
9) run_cms      Turn CMS On or Off Enter choice
Enter choice (1-9) or q to quit:
```

3. Enter **3** to select the `backup` option.

   Note The number of cartridge tapes required to back up the CMS software varies depending how many disks are present on the system.

4. To complete a file system backup, follow the procedures described in the “Performing Backups and Restores” section in Chapter 8, “Maintenance” of the *CMS R3V2 High-Performance Platform Installation and Maintenance* (AT&T 585-215-123) document.

- Page 13-14, “Restoring the File Systems”

  The file systems on the computer can be restored when an accidental loss of data occurs.

- Page 13-14, “Restoring the File Systems—Using the UNIX System Environment”

  To restore the file systems from the UNIX system environment, do the following:

  1. Obtain the cartridge tape(s) that contain the system backups.
  2. Obtain the printout of the **/etc/fstab** file that was stored with the backup tapes.
  3. Contact the TSC for further instructions.

- Page 13-14, “Restoring the File Systems—Using the Solaris 2.2 System Environment”

  To restore the file systems from the Solaris 2.2 system environment, do the following:

  1. Obtain the cartridge tape(s) that contain the system backups.
  2. Obtain the printout of the **/etc/vfstab** file that was stored with the backup tapes.
  3. Contact the TSC for further instructions.

Appendix A, Database Items and Calculations

- Page A-26

  Update the **INFLOWCALLS** database item to read as follows.

Database Item	Description	Type
INFLOWCALLS	Number of calls that were redirected to the split's/skill's queue. With multiple split/skill queueing (Generic 3 with vectoring and Generic 2.2 with EAS), calls answered by an agent in a non-primary split/skill are counted as inflows to the split/skill. Calls that abandon from ringing an agent in a non-primary split/skill are also counted as inflows to the split/skill. On the Generic 2.2 with EAS, calls that queue to the "zero" skill after having been queued to a "nonzero" skill are counted as inflows to the "zero" skill. The opposite also applies; calls that queue to a "nonzero" skill after having been queued to the "zero" skill are counted as inflows to the "nonzero" skill. Calls that are queued to one skill group and are subsequently queued to a different skill group are not counted as inflows to the subsequent skill group. Calls that ring at an agent position and then are requeued to the same split/skill by the Redirection on No Answer feature (Generic 3 Version 2 and later) are counted as inflows to the split/skill to which they are requeued. When a call leaves a vector, for example by routing to a split/skill or routing to another VDN, the next split/skill to which a call queues will not be credited with an inflow.	C

- Page A-65

  Update the **OTHERCALLS** database item to read as follows.

Database Item	Description	Type
OTHERCALLS	**OTHERCALLS** included forced busy, forced disconnect, and outflow calls, as well as non-ACD calls that were answered. **OTHERCALLS=INCALLS-ACDCALLS-ABNCALLS**	C

- Page A-75

  Remove **LASTDIGITS** from the Call Record Database Items table because no switches send these digits.

- Page A-92

  Add the **<PERCENT_SLVL_SPL_SUM>** calculation, as follows:

Calculation Name	Calculation	Description
PERCENT_SLVL_SPL_SUM	100*(sum(ACCEPTABLE) / sum(CALLSOFFERED))	Percent of total split calls answered in service level

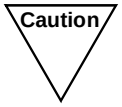
High-Performance Platform Installation and Maintenance Document

Please place the following page(s) in your *CMS R3V2 High-Performance Platform Installation and Maintenance* (AT&T 585-215-123) document.

Chapter 4, Installing Terminals and Printers

- Page 4-53, “Administering Printers”

  Change the caution to the following:



If your job is printing during a power outage, you must resubmit your job.

- Page 4-59, “Serial Printers—LPADMIN Administration”

  Change Step 9 to the following:

  9. For serial printers **not** connected to the NTS, enter the following command at the system prompt:

```
# lpadmin -p <printername> -D "comment about printer location"
-m standard -o <no> banner -v/dev/s_pdev116 -A mail -T <type>
-o "stty=<baud rate>"
```

  Note Where the printer name is your choice, use the `banner` or `nobanner` command according to your preference. If the High-Performance Platform is replacing an existing *INTEL*-based product, check the CMS: Maintenance: Printer Administration window to match settings. Use the device name from the `rtelnet` command (see step 8). If the speed is **not** 9600, use `-o "stty=<baud rate>"`.

  See Table 4-9 (on the following page) to identify the correct lpadmin `type`.

  For serial printers connected to the NTS, enter the following command at the system prompt:

```
# lpadmin -p <printername> -D "comment about printer location"
-i /usr/spool/lp/cmsterminf -o <no> banner -v/dev/s_pdev116 -
A mail -T <type> -o "stty=<baud rate>"
```

Chapter 9, Troubleshooting

- Page 9-3, “Hardware Diagnostic Tools and Resources”

  Delete all references to the `dmesg` command.

- Page 9-11, “Dmesg Diagnostics”

  Remove this section.

- Page 9-51, “Machine Panics”

  Delete all references to `dmesg` buffer, and remove Step 4.

- Page 9-77, “When Printers Lose Power”

  When the printer is disconnected or loses power, the job currently printing is lost.

Chapter 10, Upgrading or Updating the CMS Software

- Page 10-2, “Upgrading the CMS Software”

  Note To upgrade a CMS load, the existing cms package must be removed. You must log in directly as *root* before removing cms software.

- Page 10-24, “Updating the CMS Software”

  Delete the reference to “Installing New *Solaris* Patches” section.

  Added the sentence “Solaris patches (`spatches`) may also be installed on an update tape.”

- Page 10-25 and 26, “Saving the CMS Update to Disk Files”

  Added changes to the screen captures when *Solaris* patches are installed as part of an update.

- Page 10-29, “Removing the Currently Installed Update”

  Added changes to the screen captures when *Solaris* patches are installed as part of an update.

- Page 10-30, “Installing New *Solaris* Patches”

  Deleted this section because *Solaris* patches are now automatically added when doing an update.

- Page 10-35, “Installing the CMS Update from Disk Files”
  - — Made changes to the screen captures to delete the amount of time required to wait when X25 is turning off (previously “40 seconds”).
  - — Added changes to screen captures when an update contains *Solaris* patches.
  - — Added text “If *Solaris* patches are installed as part of the update, you **must** reboot” to the note on Page 10-39.

Major Differences

This chapter describes the major software differences between Version 1.8 and Version 1.9 of the Call Management System (CMS) Software.

Data, Database Items, and Calculations

Data

- CMS now supports the Return-to-VDN vector command in the *DEFINITY* Generic 3 Version 3 (G3V3) switch release.

  If the Return-to-VDN vector command fix is installed on the switch, the CMS release **must be** upgraded to at least Version 1.8.

  If you have a CMS release that supports this vector command but have not installed the fix on the switch, the calls are not measured.

- CMS now measures ABANDON calls that occur when a call is conferenced.

- Agents using multiple skills are no longer reported in the OTHER state when they log out.

Database Items

- There are no new or changed database items implemented with this load of CMS.

Calculations

- There are no new or changed calculations implemented with this load of CMS.

Reports

The following changes have been made to the Reports subsystem:

- **Historical VDN Status**

  The report now uses the following dictionary calculations:

  — AVG_ANSWER_SPEEN_SUM

  — AVG_ABANDON_TIME_SUM

  — AVG_CONNECT_TIME_SUM

  — PERCENT_SERV_LVL_VDN.

- **Historical System and VDN Multi-ACD**

  The daily, weekly, and monthly Multi-ACD reports now report `No records found` instead of `Successful` when no data is found.

- **Historical Trunk/Trunk Group Trunk Group**

  `No records found` is now reported instead of `Successful` when no data is found.

- **Historical VDN Status and VDN Report**

  Submenus no longer display duplicate entries when your current ACD is set to a pseudo-ACD.

Timetables and Shortcuts

- The `List all` and the `Find one` actions correctly restrict searches while in Timetable Keep mode.

  Previously, when you created a timetable and added or deleted tasks, the CMS database was not limiting searches to the data in the input window. For example, if you created a timetable, added the task to retrieve User Permissions: Split/Skill Access, then performed a List all (asking the system to list all of the Split/Skill Access matches to the values on the input window), CMS would list all of the Split/Skill Access information, not just the ones that matched the information on the input field.

Dictionary

The following changes have been made to the Dictionary subsystem:

- When adding a range of agent login IDs in the Agent Groups window, an Acknowledgment window is displayed if one or more of the logins in the range already exists. The Acknowledgment window displays how many IDs already existed and how many were added.
- You can now use ***** (asterisk) or a blank in the Global Search window to match all entries.

Exceptions

- The screen behavior (beep or flash) when an exception arrives now matches the behavior specified in the **Commands** SLK Options: Exception Notification window.

ACD Administration

- You now get a warning if the number of VDNs entered in the VDNs field in the VDN Call Profile window exceeds the number of measured VDNs administered in System Setup: Data Storage Allocation.

User Permissions

- The User Data window now accepts capital letters in the `Login ID` field.

System Setup

The following changes have been made to the System Setup subsystem:

- The External Application Status `List All` operation now correctly reports the status of applications that fail to start.
- On the High-Performance Platform, the Load Pseudo-ACD Data operation no longer exits when an error is encountered.

Maintenance

- When restoring data, the disk space is now checked for all file systems used for historical data when historical data restore is being done. If any file system is more than 90% full, restore will give a warning in an Acknowledgment window. You can choose to ignore the warning or rearrange the file systems. The Acknowledgment is:

  ```
  WARNING: One or more file systems storing
  historical data are more than 90% full. If you
  continue with this restore you may lose data
  and CMS may lock up. You can stop the restore,
  use Free Space Allocation to redistribute
  tables to file systems with more space and then
  restart the restore.
  See restore log for more information.
  Do you want to stop the restore?
  ```

  When this warning is given, */cms/maint/restore/rest.log* will contain specific information about file systems that are more than 90% full:

  ```
  WARNING: file system /cms is 92 percent full.
  The above file systems are used to store CMS
  historical data and they are getting full.
  Restoring more data into those file systems may
  cause systeml lockup and data loss.
  ```

Custom Reports

The following changes have been made to the Custom Reports subsystem:

- If you attempt to add a custom report that already exists, the status line message for Edit Report now displays `Already Exists`.
- The custom reports editor no longer overlaps fields when combining graph reports and standard reports.

Forecast

- The following status line messages for forecasting windows have been modified. These messages now appear when the action listed is completed successfully:

Window	Action	Message
Administration: Cost Profile	Next	Successful
Administration: Cost Profile	Previous	Successful
Administration: Cost Profile	List all	n matches found
Administration: Cost Profile: Get Contents	Next	Successful
Administration: Cost Profile: Get Contents	Previous	Successful
Administration: Cost Profile: Get Contents	List all	n matches found
Administration: Trunk Group Profile	Next	Successful
Administration: Trunk Group Profile	Previous	Successful
Administration: Trunk Group Profile	List all	n matches found
Administration: Special Days	Next	Successful
Administration: Special Days	Previous	Successful
Reports: Long Term	Run	Successful
Reports: Financial	Run	Successful
Reports: Special Day	Run	Successful
Hypothetical: Data: Edit Values	Next	Successful
Hypothetical: Data: Edit Values	Previous	Successful
Hypothetical: Data: Edit Values	List all	n matches found
Hypothetical: Report	Run	Successful
Hypothetical: Financial Report	Run	Successful

User Interface

- The cursor remains in its original position after an input window is resized.

Miscellaneous

High-Performance Platform

CMS now supports the *Sun SPARCserver* 20 computer. Support for the *Sun SPARCserver* 10 computers will continue. Both the S*un SPARCserver* 10 and *Sun SPARCserver* 20 computers are referred to as the High-Performance Platform.

The following changes affect the High-Performance Platform application of CMS:

- **The Version 1.9 (3rakg) release of CMS should not be run on *Sun SPARCserver* 10 computers.** The 3rakf release should be used instead. When used in the High-Performance Platform, the 3rakg release of CMS should only be run on *Sun SPARCserver* 20 computers running *Solaris* 2.3.
- A `cmsadm` backup run inside OpenWindows on the *Sun* console now terminates when **BREAK** is entered.
- The `cmsadm` diskmap, memory, and real-time programs now support options for the *Sun SPARCServer* 20 Model 61 and *Sun SPARCserver* 20 Model 612 computers.
- On the *Sun SPARCserver* 20 computer, support for the 14GB 8mm tape drive has been added. Please refer to the *CMS R3V2 High-Performance Platform* Sun SPARCserver *20 Computer Installation and Maintenance* (AT&T 585-215-128*)* document for the updated windows.

External Call History Interface

- The External Call History Interface (ECHI) is now supported on the *INTEL* and *Sun* hardware platforms. Please refer to the *CMS R3V2 External Call History Interface* (AT&T 585-215-127) document for information on using the ECHI feature.

WGS, STAR SERVER S, and 3332 Computer Upgrade Instructions

The following procedures allow you to upgrade your CMS software at your convenience. Follow these instructions carefully.

Pre-Upgrade Procedure

You **must** complete the following steps immediately prior to beginning the upgrade to Version 1.9.

Failure to complete the pre-upgrade steps may result in an inability to recover from an unsuccessful upgrade, possible loss of data, and/or significant recovery time.

1. As a precaution, ensure that copies of the current R3V2 CMS software load and the latest full backup tapes are available.

   Failure Recovery: If you do not have a current R3V2 CMS software load, call the AT&T Call Center Helpline on 1-800-344-9670. If you do not have a current full maintenance backup available, perform a full maintenance backup before proceeding with these steps.

2. From the System Console, log in as *root*.

3. Verify that the tape drive status light is off and the drive is not being used for any other purpose (for example, scheduled backups).

   Failure Recovery: If the tape light is stuck on, do the following steps depending on your host computer model:

   AT&T 6386 and STAR SERVER computers

   a. Put a writable tape into the drive. Wait for the tape to reposition.
   b. Eject the tape out.
   c. Put the tape back in and wait for it to reposition again.
   d. Enter this command at the # prompt: `> /dev/scsi/qtape1`
   e. The tape light should go out.

NCR Model 3332 computers

a. Put a writable tape into the drive. Wait for the tape to reposition.
b. The tape light should go out.

4. Enter the `cmsadm` command to display the CMS administration menu. Select the `backup` option.

If CMS is turned on, CMS will be automatically turned off during the backup. The program takes approximately 50 minutes to write each tape needed for the backup. For more information, see “Performing a CMSADM Backup” section in Chapter 8 of the *CMS R3V2 Installation and Maintenance* (AT&T 585-215-122) document.

Failure Recovery: The following error messages are the most common during a cmsadm backup and recovery.

— `Request failed. See /cms/install/logdir/backup.log for more information.`

If the window displays this message, you need to restart the backup after correcting the problem. Follow these steps to correct the problem:

a. Reseat the tape in the tape drive. The tape may not be seated correctly or the tape may have been removed during the backup.
b. Turn off write protect if the black arrow in the upper left-hand corner of the cartridge tape is pointed to “safe.”
c. The tape is bad if this message also displays on the console terminal: `WARNING: ST01: HA 0 TC 3 LU 0: Err 60503005 CMD 0000000A Sense Key 00000004 Ext Sense 00000000.` Discard that tape and try another one.

— `That didn’t work, cannot open “/dev/scsi/qtape1” Change to part X and press RETURN key. [q] Permission denied.`

This error displays if you are performing a multiple tape backup, the tape you inserted is not the first tape (it is the second, third, etc.), and the tape is write protected.

You do not have to restart the backup. Simply remove the tape from the tape drive, turn off write protect by moving the black arrow to point opposite “safe”, reinsert the tape into the drive, and continue the backup.

As the backup progresses, the program displays a series of dots to indicate that it is writing files to tape, one dot per file.

You may have a problem if you notice one of the following:

- You see that dots are not printing (wait at least 10 minutes).
- The tape is not spinning.
- Messages are not displayed informing you to change tapes or that the backup has completed.

If you encounter problems, call the AT&T Call Center Helpline on 1-800-344-9670.

Software Upgrade Procedure

The `installpkg` command will automatically upgrade your system.

Caution You must have completed the Pre-Upgrade Procedure before you continue with the steps below. The upgrade procedure will result in approximately 30 to 60 minutes of outage on the R3V2 CMS.

Note It is no longer necessary to turn off CMS, you will be prompted to do so in Step 10.

Use the following steps to upgrade your CMS software.

1. From the System Console, log in as *root*.
2. Enter the `installpkg` command.
3. When prompted, select the cartridge tape option, and press **Return**.
4. The program requests that the tape be inserted into the tape drive. Insert the CMS software package cartridge tape into the tape drive, wait for the tape drive to reposition, then press **Return** .

   Failure Recovery: For Steps 4 through 6, proceed through the tasks below until you recover from the tape drive failure:

   - Retry:
     a. Follow the prompts to exit the `installpkg` program.
     b. Reposition the cartridge tape in the tape drive.
     c. Restart the Software Upgrade Procedures.
   - Reboot the CMS by entering the `shutdown -i6 -g0 -y` command.
   - If all else fails, call the AT&T Call Center Helpline on 1-800-344-9670.

5. When prompted, press Return to retension the tape. Retensioning the tape takes approximately 3 minutes.

6. After the tape retensions, the program displays information on selecting the packages to be installed. Press Return to continue.

7. Select the Call Management System package followed by Return.

8. Press Esc to indicate that all selections have been made. Press Return. Press Return again in response to the `REMINDER!` message.

The program takes about three minutes to locate the CMS software on the tape and then verifies that the software packages required to run with CMS are present.

Failure Recovery: If a required software package is missing, an error message appears indicating that CMS cannot be installed. Press Esc to stop the upgrade. Since CMS is still running the old load, stopping the upgrade now is not service affecting. Write down the missing package and call the AT&T Call Center Helpline on 1-800-344-9670. If you turned CMS off, you can turn it back on.

9. The program now asks if you backed up your file systems. If you followed the pre-upgrade instructions, you have already backed up your file system. Enter `y`.

The program takes 5 to 10 minutes to remove the software associated with the previous version of CMS.

If you did not follow the pre-upgrade instructions, enter `n` and refer to the Pre-Upgrade Procedure for information on backing up your file system. Then, restart the Software Upgrade Procedure.

10. Next, the program asks if you want to turn off CMS. Enter **y** to proceed with the upgrade.

    If you enter **n**, you will be returned to the system prompt.

    If you answer **y**, the program continues:

```
Stopping UNIX log ... done
>>Retaining customer data.
/etc/conf/init.d/ilog
/etc/conf/node.d/osm
/etc/logit
/usr/bin/cms
/usr/bin/cmsadm
. . . .
. . . .
. . . .
```

    The program takes 5 to10 minutes to remove the software associated with the previous version of CMS. You may ignore any errors or warnings that occur during this step and the next. Critical errors will be detected during the package audit.

11. When the appropriate software has been removed, the program begins the download of the new version of CMS.

```
Removal of Call Management System (3xxxx) is complete
## Installing files from cartridge tape
. . . . . .
. . . . . .
. . . . . .
. . . . . .
```

    The program takes about 10 to 20 minutes to download the R3V2 CMS software from the cartridge tape to the hard disk. As the software is downloaded, several rows of periods display to indicate progress. Next, a list of downloaded files displays.

12. After the download, the program audits the new package installation.

```
## Auditing package installation
```

The audit takes about 5 to 10 minutes to complete.

Failure Recovery: If the audit fails, perform the following steps:

a. Write down the audit errors.
b. Call the AT&T Call Center Helpline on 1-800-344-9670.
c. Reboot CMS by entering the `shutdown -i6 -g0 -y` command.
d. Restart the Software Upgrade Procedure.
e. If the audit passes, proceed to Step 13. If the audit fails again, execute the `shutdown -i6 -g0 -y` command. Install the previous version of CMS using the `installpkg` command.

13. If the audit is successful, the program upgrades your CMS data.

The upgrade of CMS data may take up to an hour — but in most cases takes significantly less. Dots display to indicate progress.

Failure recovery: If the upgrade fails, call the AT&T Call Center Helpline on 1-800-344-9670.

In some cases, the UNIX kernel is rebuilt. If the rebuild fails, note the failure exactly, and call the AT&T Call Center Helpline on 1-800-344-9670.

14. If a message displays indicating an automatic shutdown is being initiated, you will need to reboot the system. You can do this in one of two ways:

    - Press the Return key which requires a manual reboot. **Wait** for the prompt `Reboot the system now` to appear, and then press the Reset button on the CMS processor.

      Warning: Do not press Reset until you see the `Reboot the system now` message; otherwise, file system damage may occur.

    - Press the Esc key. The UNIX system prompt returns. Then, execute the `shutdown -i6 -g0 -y` command.

15. After the tape finishes rewinding (tape drive light is not lit), remove the cartridge tape.

16. After the CMS software is installed, enter the `cmsadm` command to display the CMS administration menu. Select the `run_cms` option, and turn on CMS to start collecting data.

    The program takes a few minutes to initialize the system parameters. Turning on CMS initializes the communications link between the CMS software and the switch.

Post-Upgrade Procedure

After the upgrade, complete the following steps:

1. From the System Console, log in as *root*.

2. Enter the `cmsadm` command to display the CMS administration menu. Select the `backup` option.

   See Step 4 of the Pre-Upgrade Procedure for information about the cmsadm backup and the failure recovery steps.

3. Enter `exit` at the # prompt.

4. Log in as the CMS administrator.

5. A full CMS Maintenance Backup **must** be done prior to any incremental backups that are either scheduled or manually completed.

   If this step is not completed, any incremental backups will fail, since they must follow a full backup of the current load.

6. Contact the AT&T Call Center Helpline (1-800-344-9670), and notify the agent that the upgrade to Version 1.9 has been completed.

   It is important to complete this step so the TSC can check the error logs and update their database.

This completes the upgrade of the R3V2 Call Management System!

Software Compatibility

The following software is required for R3V2 CMS to operate correctly:

- UNIX System V Release 3.2.3 and associated utilities, including SCSI Support Package Version 2 and UNIX SVR3.2.3 Maintenance Disk #1.
- Korn Shell Version 11/16/88d 386 Release 2.0
- INFORMIX SE 4.10.UD1 (Runtime Version)

  [INFORMIX SQL 4.10.UC2 (Development Version) is optional software with R3V2 CMS.]
- X.25 Network Interface Software Version 1.2.1 SL1.51.1.25.

R3V2 CMS is not co-resident with other software packages. This includes both packages running concurrently and those merely installed. R3V2 CMS modifies the UNIX system tunable parameters automatically to accommodate system requirements.

This release of R3V2 CMS software is only compatible with Version 1.6 and later of the CMS R2 Migration (PG-3E257). Earlier versions of CMS will not migrate successfully.

Hardware Compatibility

R3V2 CMS is certified to run on the following processor platforms:

- AT&T 6386 WGS 25/S
- AT&T 6386 WGS 33/S
- AT&T STAR SERVER S
- NCR 3332.

For the 6386 processors, the alternate console configuration is required. In addition to the base processor, the following may be added based on customer configuration needs:

- GPSC-AT/E X.25 kit(s) and 2-port RS232 cable(s)
- 4/16 MB Memory Expansion Board
- N80387-6386/25 or 6386/33 math co-processor
- IPC 1600 Ports Card(s) and Ports Cabinet(s), or MEGAPLEX-96 board
- Remote Maintenance Package and software, Version 2.0.

For the STAR SERVER S processor, the VGA 600 card and monitor is required for the console. In addition to the base processor, the following may be added based on customer configuration needs:

- Additional SIMM memory on the system board
- SCSI Streaming Tape Unit
- GPSC-AT/E X.25 kit(s) and 2-port RS232 cable(s)
- IPC 1600 Ports Card(s) and Ports Cabinet(s), or MEGAPLEX-96 board
- Remote Maintenance Package and software, Version 2.0.

For the 3332 processor, the following may be added based on your configuration needs:

- Additional SIMM memory on the system board
- SCSI Streaming Tape Unit
- GPSC-AT/E X.25 kit(s) and 2-port RS232 cable(s)
- MEGAPLEX-96 board (also IPC 1600 or Kickstart 2.5 board)
- Remote Maintenance Board (RMB).

Switch Compatibility

R3V2 CMS has been certified with the ACD applications on the following switches:

- *DEFINITY* Communications System Generic 2.1 Release 3.3 and later (QPPCN 629DR)
- *DEFINITY* Communications System Generic 2.2 Release 3.0 and later (with/without call center features) (QPPCN 696DR)
- *DEFINITY* Communications System Generic 3i Release 13.3 and later (QPPCN 576)
- *DEFINITY* Communications System Generic 3r Release 8.5 and later
- *DEFINITY* Communications System Generic 3s Release 14.2 and later
- *DEFINITY* Communications System Generic 3 Version 2 Load 82 and later (QPPCN 644 G3i/s/vs) (QPPCN 646 G3r)
- *DEFINITY* Communications System Generic 1.1 Release 7.1 (QPPCN 559DR) and later
- System 85 R2V4 Release 2.3 (QPPCN 560DR) and later.

Note

It may be necessary to upgrade the switch release before installing R3V2 CMS or before upgrading CMS. The required switch release for *DEFINITY* Generic 3r has been changed since Version 1.3. These switch releases will also work with previous versions of R3V2 CMS. The switch should be upgraded to the specified release before installing R3V2 CMS.

Sun SPARCserver 10 and 20 Computer Upgrade Instructions

This section describes how to upgrade the R3V2 CMS software application on *Sun SPARCserver* 10 and 20 computers.

Warning The Version 1.9 (3rakg) load of CMS should not be run on a *Sun SPARCserver 10* computer.

If you have a *Sun SPARCserver 10*, use the 3rakf load instead.

Caution To do an upgrade, you must have sufficient free space on your disk to accommodate all the data you want to collect. See the "Pre-Upgrade Procedures" section below for details.

If your current disk space allocation specifies more items to be measured for longer lengths of time than you actually have space for on your disks, you must do the following:

- Purchase additional disks
- Change the length of time for which the data is stored
- Change the number of entities measured before you do an upgrade.

Pre-Upgrade Procedures

Prerequisites: You must be logged in as *root*, the computer must be in run-level 3, all file systems must be mounted, and CMS must be turned OFF.

Note The upgrade process will take approximately 1 hour to complete.

Before you upgrade a system to a new base load or install a field update, do the following:

- Do a full file system backup. See the "Performing a CMSADM Backup" section in Chapter 8, "Maintenance," in the *CMS R3V2*

High-Performance Platform Installation and Maintenance (AT&T 585-521-123) document.

- Make sure you have the cartridge tape that contains the new base load or field update software.
- Verify you have sufficient space in */tmp* by entering the **`df -l /tmp`** command.

  Note CMS requires approximately 150,000 blocks.

- Verify you have sufficient space in */cms* by doing the following:
  1. Determine the amount of available space by entering the **`df -l /cms`** command.
  2. Determine the amount of space required by the current CMS package by entering the following command.

     `pkgparam cms IBSblocks IBSinodes`

     The number of blocks and modes are displayed.
  3. Compute the difference between the old and new load for blocks and modes, and compare the amount of available space computed in Step 1.

To Upgrade CMS, use the following **required** procedures:

- Remove installed field updates (if present)
- Remove the current CMS base load
- Install the new *Solaris* patches (if needed)
- Install the new CMS base package.

Removing Installed Field Updates

Do these steps to determine if a field update is installed.

1. Enter:

```
# pkginfo cms.*
```

The program responds:

```
application cms            Call Management System
application cms.x          Call Management System


(where x = the field update number)
```

Note If more than one package is displayed (for example, `application cms.2`), then a field update has been installed.

Remove any field updates by entering the following commands.

2. Enter the following information:

```
# pkgrm cms.x


(where x = the field update number)
```

The program responds:

```
The following package is currently installed:
    cms.x              Call Management System
                        (sparc) 3rxxx

Do you want to remove this package [y,n,?,q]


(where x = the field update number)
```

3. Answer **y**.

The program responds with a list of files that will be changed due to the removal of the update:

```
## Verifying package dependencies.
## Processing package information.
## Executing preremove script.
## Removing pathnames in class <ind>
/cms/install/bin/upd_save <shared pathname not removed>
/cms/install/bin/turn_on_cms <shared pathname not removed>
/cms/install/bin/turn_off_cms <shared pathname not removed>
/cms/install/autoconfig <shared pathname not removed>
/cms/install/auditmap <shared pathname not removed>
## Removing pathnames in class <edit>
>> Leaving sun patches installed.
## Removing pathnames in class <sun_fix>
>> Leaving sun patches installed.
## Removing pathnames in class <op_fix>
>> Leaving other package fix files installed.
## Removing pathnames in class <data>
>> Retaining customer files and directories.
## Executing postremove script.
```

If the removal is successful, this message displays:

```
Restoring old CMS software
/cms/install/auditmap
/cms/install/autoconfig
/cms/install/bin/turn_off_cms
/cms/install/bin/turn_on_cms

Updating installation software database.

Removal of Call Management System (3rxxx) is complete
## Updating system information.

Removal of <cms.x> was successful.
```

The system prompt returns to your screen.

The installed field updates (if present) are removed from the CMS software. You can now remove the current CMS base package.

Removing Current CMS Base Package

Do these steps to remove the current CMS base package:

1. Enter:

```
# pkgrm cms
```

   to start to remove the current CMS base package.

   The program responds:

```
The following package is currently installed:
   cms               Call Management System
                      (sparc) 3rxxx

Do you want to remove this package [y,n,q,?]
```

2. Answer **y**.

   The system responds:

```
## Removing installed package instance <cms>

This package contains scripts which will be executed with
super-user permission during the process of removing this
package.

Do you want to continue with the removal of this package
[y,n,q,?]
```

3. Answer **y**. The system responds:

```
## Verifying package dependencies.
## Processing package information.
## Executing preremove script.

Do you want to preserve CMS data? [y,n,?]
```

4. Answer **y.** The system responds:

```
CMS will be removed from this machine; the data will be
preserved.

Are you sure this is correct? [y,n,?]
```

5. Answer **y.** The system responds:

```
All file systems should be backed up before continuing.
See the maintenance chapter in the CMS Installation and
Maintenance Manual for instructions.

Have you backed up the file systems? [y,n,?]
```

Note If you have not backed up the file systems, answer n.

Back up your file systems and start the upgrade process again.

6. Answer **y if** you have done backups. The system responds:

```
## Removing pathnames in class <ind>
/usr/lib/cms/trmaps
/usr/informix/etc/termcap
/usr/bin/cmssvc
   .
   .
   .
```

If the removal is successful, this message displays:

```
Removal of <cms> was successful.
```

The system prompt returns to your screen.

After you remove the current CMS base package, you can now install the new CMS base package.

Installing New *Solaris* Patches

Depending on the needs of your system, you may or may not need to install *Solaris* patches. If *Solaris* patches are available, you must install them on your system.

Do these steps to install new *Solaris* patches:

Note The tape containing the new patches will be required in the QIC-150 tape drive.

1. Enter:

```
# pkgadd -d /dev/rmt/0
```

The system responds:

```
Insert a tape into Tape Drive.
Type [go] when ready,
  or [q] to quit:
```

2. Enter **go**. The system responds:

```
The following packages are available:
  1 cms          Call Management System
                 (sparc) S3rxxx
  2 spatches     CMS Supplied Solaris Patches
                 (sparc) 1.0

Select package(s) you wish to process (or 'all' to process all
packages). (default: all) [?,??,q]: 2
```

If the *spatches* package is displayed, you must install it.

3. Enter **2** to select *spatches*. The system responds:

```
Processing package instance <spatches> from </dev/rmt/0>

CMS Supplied Solaris Patches
(sparc) 1.0
AT&T
Installation of this package will cause CMS-required Solaris
patches to be spooled into /tmp/patches. After the patches are
spooled into /tmp/patches, one must install the patches by
running a script called /tmp/patches/install_patches. In
addition, the script will backout any patch that needs to be
removed prior to installing a required patch. Patches
currently installed are not affected by installing this
package.

Do you want to spool Solaris patches into /tmp/patches?
```

4. To spool *Solaris* patches into */tmp/patches* file, enter **y**. The system responds:

```
## Processing package information.
## Processing system information.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.

This package contains scripts which will be executed with
super-user permission during the process of installing this
package.

Do you want to continue with the installation of this package?
[y,n,?]
```

5. Enter **y** to continue with the installation of this package. The system responds:

```
Installing CMS Supplied Solaris Patches as <spatches>

XX Installing part 1 or 1.
Spooling 100982-02
Spooling 100992-03
Spooling 100999-51
Spooling 101014-05
Spooling 101018-07
   .
   .
   .

Patches successfully saved

Solaris patches were copied to /tmp/patches.
To install the solaris patches, run the following command:
   /tmp/patches/install-patches
```

6. To install the *Solaris* patches, enter the following command:

```
# /tmp/patches/install_patches
```

Note Once the *Solaris* patches are installed, a reboot is necessary. Be sure to run the `/tmp/patches/install_patches` command before rebooting.

The system responds:

```
# /tmp/patches/install_patches
@(#) installpatch 3.5 93/04/28

generating list of files to be patched
Save old verisons of files to be patched
/var/sadm/patch/100982-02/save/kernel
/var/sadm/patch/100982-2/save/kernel/fs
/var/sadm/patch/100982-2/save/kernel/fs/fifofs
XXX blocks
Installing patch packages
Doing pkgadd of SUNWcsr package:
```

Response continues:

```
Patch installation finished
@(#) installation finished
generating list of files to be patched
Save old versions of files to be patched
/var/sadm/patch/100992-03/save/kernel
/var/sadm/patch/100992-03/save/kernel/drv
   .
   .
   .
Installing patch packages
Doing pkgadd of SUNWcsr package:

Installation of <SUNWcsr.7> was successful.
Patch installation finished
To complete the solaris patch installation, one should reboot
with the following command: shutdown -y -i6 -g0
#
```

Note Remember to reboot if instructed to do so by the system.

7. To complete the *Solaris* patch installation, you must reboot your system using the following command:

```
# shutdown -y -i6 -g0
```

The installation of the new patches is now complete. The system prompt returns to your screen. You are now ready to install the new CMS base package software.

Installing New CMS Software

Do these steps to install the new CMS base package software:

Note The tape containing the new CMS software load requires the QIC-150 tape drive.

Allow approximately 20 minutes to install the tape.

1. Enter:

```
# pkgadd -d /dev/rmt/0
```

The program responds:

```
Insert a tape into Tape Drive.
Type [go] when ready,
  or [q] to quit:
```

2. Enter **go**. The system responds:

```
The following packages are available:
  1 cms          Call Management System
                 (sparc) S3rxxx
  2 spatches     CMS Supplied Solaris Patches
                 (sparc) 1.0

Select package(s) you wish to process (or 'all' to process all
packages). (default: all) [?,??,q]:
```

3. Enter **1**. The system responds:

```
Processing package instance <cms> from </dev/rmt/0>

Call Management System
(sparc) 3rxxx

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All Rights Reserved

Using </cms> as the package base directory.

Installing the Call Management System (3rxxx).

## Processing package information.
## Processing system information.
   138 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.

The following files are already installed on the system and
are being used by another package:
          /cms/install/logdir/admin.log
          /etc/init.d/sysetup
          /etc/system
          .
          .
          .

Do you want to install these conflicting files? [y,n,q,?]
```

4. Answer **y**. The system responds:

```
## Checking for setuid/setgid programs.

The following files are being installed with setuid and/or
setgid permissions or are overwriting files which are
currently setuid/setgid:
         /cms/bin/mqpeek <setuid root>
         /cms/bin/spi <setuid root>
         /cms/toolsbin/cmsu <setuid root>
         /cms/toolsbin/initSimConf <setuid root>
         /cms/toolsbin/initSimConf <setuid root>
         /cms/toolsbin/psx <setuid root>
         /cms/toolsbin/psx <setuid root>
         /cms/toolsbin/shmdump <setgid sys>

Do you want to install these setuid/setgid files [y,n,q,?]
```

5. Answer **y**. The system responds:

```
This package contains scripts which will be executed with
super-user permission during the process of installing this
package.

Do you want to continue with the installation of this package
[y,n,q,?]
```

6. Answer **y**.

The system responds:

```
Installing Call Management System as <cms>

## Executing preinstall script.

## Installing part 1 or 1.
[ verifying class <data> ]
[ verifying class <op_fix> ]
   .
   .
   .
/etc/SUNWconn/x25/template/cms.spin1.wan
/etc/rc0.d/K92cms
/usr/bin/cms
/usr/bin/cmsadm
/usr/bin/cmssvc
/usr/informix/etc/termcap
/usr/lib/cms/trmaps
[ verifying class <ind> ]
## Executing postinstall script.

## Upgrading Customer CMS data . . .

Customer CMS data successfully upgraded.

Setting Solaris 2.3 system tunable parameters for CMS.
No changes to tunable parameters were required.

Installation of <cms> was successful.
#
```

Note If you are instructed to run `shutdown`, use the displayed command. See the "Installing New Solaris Patches" section in this chapter for more information.

After running `shutdown` and the *Sun* computer is rebooted, you need to reboot each NTS. Follow these steps to reboot the NTSs:

1. Locate the OFF power switch.
2. Turn the power off and leave it off for approximately 15 seconds.
3. Turn the power on and wait 3 - 5 minutes.
4. Press the **Return** key on any terminal connected to the NTS.
5. Verify that the login prompt is displayed.

The installation of the new CMS base package is now complete. The system prompt returns to your screen.

7. Allow the tape to rewind, and remove it from the tape drive.

Verifying CMS Software Installation

Do the following to verify the installation of the new CMS software:

1. Enter:

```
# pkgchk -n cms
```

If the software installation is successful, the system prompt returns to your screen.

If errors are detected, see Chapter 8, “Checking Installed Software Packages” in the *CMS R3V2 High-Performance Platform Installation and Maintenance* (AT&T 585-215-123) document for more information.

Installing Field Update for New CMS Load

Do these steps to install the field update for the new CMS load:

Note A field update is put on a separate tape. You may have new patches as part of an update. For details, see “Installing New *Solaris* Patches” in the “Updating CMS Software” section in Chapter 10, “Upgrading or Updating the CMS Software” in the *CMS R3V2 High-Performance Platform Installation and Maintenance* (AT&T 585-215-123) document.

1. Enter:

```
# pkgadd -d /dev/rmt/0 cms
```

The program responds:

```
Insert a tape into Tape Drive.
Type [go] when ready,
  or [q] to quit:
```

Note If a “Broken Pipe” message is displayed when using the `pkginfo -d /dev/rmt/0` command for a QIC 150 tape, ignore the message. This message has no effect on system operations.

2. Enter **go**. The system responds:

```
Processing package instance <cms> from </dev/rmt>

Call management System
(sparc) 3rxxx
AT&T
Using </cms> as the package base directory.

Installing the Call Management System (3rxxx).

## Processing package information.
## Processing system information.
## Verifying package dependencies.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.

The following files are already installed on the system and
are being used by another package:
           /cms/install/auditmap
           /cms/install/autoconfig
           /cms/install/bin/turn_off_cms
           /cms/install/turn_on_cms
           /cms/install/bin/upd_save
Do you want to install these conflicting files [y,n,q,?]
```

3. Answer **y**.

   The system responds:

```
## Check for setuid/setgid programs.

This package contains scripts which will be executed with
super-user permission during the process of installing this
package.

Do you want to continue with the installation of this package
[y,n,q,?]
```

Answer **y**. The system responds:

```
Installing Call Management System as <cms.2>

## Executing preinstall script.
Making backup copies of old files ...
/cms/install/update/file_bkup/cms/install/auditmap
/cms/install/update/file_bkup/cms/install/autoconfig
/cms/install/update/file_bkup/cms/install/bin/turn_off_cms
/cms/install/update/file_bkup/cms/install/bin/turn_on_cms
/cms/install/update/file_bkup/cms/install/bin/upd_save
165 blocks
## Installing part 1 of 1.
/cms/install/auditmap
/cms/install/autoconfig
/cms/install/autoconfig
/cms/install/bin/turn_off_cms
/cms/install/bin/turn_on_cms
/cms/install/bin/upd_save
[ verifying class <ind> ]
## Executing postinstall script.
```

Note You may be instructed to run `shutdown`. If you are instructed to run `shutdown`, then use the command displayed.

If the installation of the field updates is successful, this message displays:

```
## Upgrading Customer CMS data . . .

Customer CMS data successfully upgraded.

Setting Solaris 2.3 system tunable parameters for CMS.
No changes to tunable parameters were required.

Installation of <cms.2> was successful.
```

Installation of the field update for the new base load is completed. The system prompt returns to your screen.

4. Remove the cartridge tape after it finishes rewinding (drive light is not blinking).

Post Upgrade Procedures

Prerequisites: You must be logged in as *root*, the computer must be in run-level 2 or 3, all file systems must be mounted, and CMS must be turned OFF.

Upgrading CMS uses the following procedures:

- Verify the installation via `pkgchk`
- Restart CMS
- Back up upgraded CMS software.

Verifying Field Update of New Software Installation

Do the following to verify the installation of the field updates for the new base load software is complete:

1. Enter*:*

```
# pkgchk -n cms.*
```

The CMS software is verified and upgraded.

If errors are detected, see Chapter 8, “Checking Installed Software Packages” in the *CMS R3V2 High-Performance Platform Installation and Maintenance* (AT&T 585-215-123) document for more information.

Restarting CMS

Do the following to restart the CMS software:

1. Access the CMS Services menu by entering:

```
# cmssvc
```

The system responds:

```
 Commands for CMS Services Personnel

Select a command from the list below.
  1) auth_display Display feature authorizations
  2) auth_set     Authorize CMS capabilities/capacities
  3) backup       Single-tape filesystem backup (in background)
  4) run_cms      Turn CMS on or off
  5) setup        Set up the initial CMS configuration
  6) swinfo       Display switch information
  7) swsetup      Change switch information
  8) upd_install  Install update from disk files
  9) upd_remove   Back out the currently installed update
 10) upd_save     Save update on disk for later installation
Enter choice (1-10) or q to quit:
```

2. Enter **4** to select the *run_cms* option. The system responds:

```
  Select one of the following
  1) Turn on CMS
  2) Turn off CMS
  Enter choice (1-2):
```

3. Enter **1** to turn on CMS.

   The system responds:

```
Turning on X25, please wait

Starting the X.25 software – please wait
X.25 has found a valid license
The network has been brought up.

Please wait for initialization.


***CMS is now up***
```

   The system prompt returns to your screen.

Backing Up Upgraded CMS Software

Do a full CMS maintenance backup as soon as possible.

In the Back Up Data window, select **y** (yes) for the `Verify volume can be read after backup` field. In addition, the following fields should contain an `x`:

- All ACDs
- ACD-specific data
- System administration data
- Historical data
  - — Full

See the "Back Up Data" section in Chapter 12, "Maintenance" of the *CMS R3V2 Administration* (AT&T 585-215-521) document.

Note

CMS incremental maintenance backups will fail if a full backup is not done. See Chapter 8, "Maintenance," in the *CMS R3V2 High-Performance Platform Installation and Maintenance* (AT&T 585-215-123) document for file system and `cmsadm` backup procedures.

Administration Document

Please add the following pages to your *CMS R3V2 Administration* (AT&T 585-215-521) document.

Chapter 6, Timetables and Shortcuts

- Page 6-8

  The description of the `Timetable name:` field should be updated to read:

`Timetable name:` (Required for `Add`)

Enter a unique name for the timetable. The timetable name may have up to 20 characters. The timetable name should be meaningful to your call center because it appears on the List All window identifying the timetable.

After you have created a timetable, you cannot change the timetable's name. If you retrieve an existing timetable, change the name, and select Modify from the action list, the status line reads `Does not exist`.

If you want to change the name of a timetable after it is already created, you need to copy the existing timetable to a new timetable.

Chapter 7, Dictionary

- Page 7-2

  The following note should be added under the second bullet in the Dictionary-Specific Rules section.

  Note Blanks are not allowed in Calculation and Constant names, but are allowed in all other Dictionary names.

Appendix A, Database Items and Calculations

- Pages A-21, A-44, A-56, and A-62

  All occurrences of the database item BACKUPCALLS definition should read:

BACKUPCALLS	Number of **ACDCALLS** that were delivered to this split/skill by a vector command other than a "queue to main split" command. This includes calls delivered by "messaging split/skill", "check backup", "route to" split/skill, and "redirect on no answer" vector commands. **MAINCALLS** is then calculated as **ACDCALLS - BACKUPCALLS**. BACKUPCALLS includes messaging split/skill calls, check backup calls, and route to split/skill calls. It also includes direct agent calls, if the feature is in use. MAINCALLS does not include direct agent calls. This database item is only available with System 85, Generic 2, and Generic 3 switches that have the Call Vectoring feature.	C

Custom Reports Document

Please add the following page to your *CMS R3V2 Custom Reports* (AT&T 585-215-523) document.

Appendix A, Database Items and Calculations

- Pages A-21, A-44, A-56, and A-62

  All occurrences of the database item BACKUPCALLS definition should read:

BACKUPCALLS	Number of **ACDCALLS** that were delivered to this split/skill by a vector command other than a "queue to main split" command. This includes calls delivered by "messaging split/skill", "check backup", "route to" split/skill, and "redirect on no answer" vector commands. **MAINCALLS** is then calculated as **ACDCALLS - BACKUPCALLS**. BACKUPCALLS includes messaging split/skill calls, check backup calls, and route to split/skill calls. It also includes direct agent calls, if the feature is in use. MAINCALLS does not include direct agent calls. This database item is only available with System 85, Generic 2, and Generic 3 switches that have the Call Vectoring feature.	C

Installation and Maintenance Document

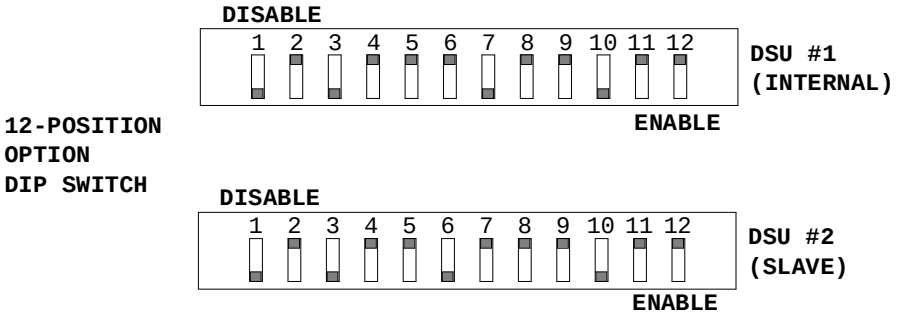
Please add the following pages to your *CMS R3V2 Installation and Maintenance* (AT&T 585-215-122) document.

Chapter 5, Connecting the Host Computer to the Switch

- Pages 5-19 and 5-23

  Change the paragraph referring to the DATAPHONE II User's Manual to read as follows and add the illustration.

Refer to the *DATAPHONE II 2500-Series Data Service Units User's Manual* (999-100-188) to set the timing options and speed of operation (9.6 kbps) for the DSUs. One DSU must be set for "internal" timing, and the other DSU must be set for "slave" timing. You do this by setting the 12-position option dip switch located on the circuit pack inside the DSU (see example below). You can also use this document as a reference when doing the installation steps in this section.



Appendix D, Model 3332 Factory Installation Procedures

- Tables D-1 through D-4

  The following comcodes have changed:

Description	Comcode
ADAPTEC SCSI CABLE	407241983
320/525MB SCSI TAPE DR	407290691

- Pages D-16, D-25, and D-30 through D-33

  Replace any reference to AHA-1540C/1542C with AHA-1540CF/1542CF.

- Pages D-1, D-36, D-37, D-67, and D-69

  Replace any reference to Release 2.4.2 of the MEGAPLEX/MEGAPORT UNIX device driver with Release 2.4.7.

Appendix E, Star Server S Factory Installation Procedures

- Table E-1

  The following PEC has changed:

EQUIPMENT	PEC/ATTRIBUTE	COMMENTS
16 MB Memory Kit	69730	4 Kits Required

High-Performance Platform Installation and Maintenance Document

Please add the following pages to your *CMS R3V2 High-Performance Platform Installation and Maintenance* (AT&T 585-215-123) document.

Chapter 2, CMSADM and CMSSVC Menus

- Add the “Failure Recovery” section to Chapter 2, “CMSADM and CMSSVC Menus.” This new section should be added after the “acd_remove” procedure.

Failure Recovery: If the “acd_remove” process takes longer than 10 minutes, the process probably failed. Follow these steps to recover:

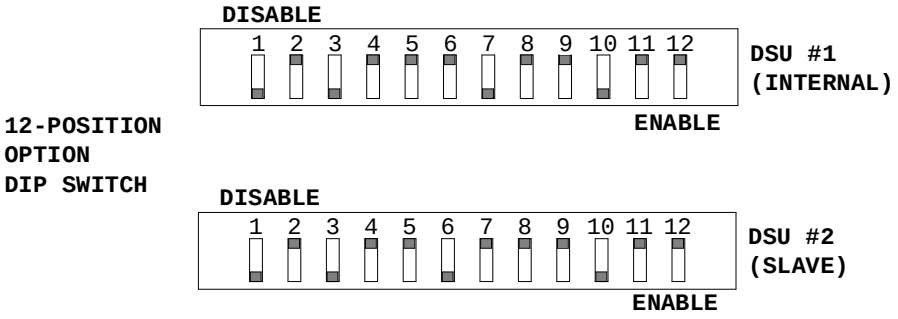
1. Press Del to stop the `acd_remove` process.
2. Enter **`cd /`** to change to the root directory.
3. Enter **`umount /cms`** to unmount the CMS file system.
4. Enter **`df -k`** to check that the CMS file system is unmounted.
5. Enter **`fsck /cms`** to repair the linkage on the hard disk.
6. Enter **`mount /cms`** to remount the CMS file system.
7. Repeat Step 4 to check that the CMS file system is mounted.
8. Perform the `acd_remove` procedure again.

Chapter 5, Connecting the Sun SPARCserver 10 Computer to the Switch

- Pages 5-22 and 5-27

  Change the paragraph referring to the DATAPHONE II User's Manual to read as follows and add the illustration.

Refer to the *DATAPHONE II 2500-Series Data Service Units User's Manual* (999-100-188) to set the timing options and speed of operation (9.6 kbps) for the DSUs. One DSU must be set for "internal" timing, and the other must be set for "slave" timing. You do this by setting the 12-position option dip switch located on the circuit pack inside the DSU (see example below). You can also use this document as a reference when doing the installation steps in this section.



Chapter 9, Troubleshooting

- Add the “Single-User Mode and the Remote Console” section to Chapter 9, “Troubleshooting.” This new section should be added after the material on the remote console, but before the material on machine panics.

Single-User Mode and the Remote Console

Prerequisite: You must be logged into the customer’s machine through the remote console interface.

To place the system in single-user mode, do the following:

1. At the remote console, enter the following command:

```
# shutdown -y -is -g0
```

Note The system will **not** successfully enter single-user mode if you execute the `shutdown` command from the local console while the console is redirected. When this occurs, the local console will not respond if you try to enter data. The remote console will also be unresponsive.

To recover from the situation described in the previous note, put the system into single-user mode by doing the following:

1. Select a new window on the local console.
2. In the new window, enter the following command:

```
# shutdown -y -i0 -g0
```

3. On the remote console, enter the following command at the ok> prompt:

```
ok> boot -s
```

Migration Document

Please add the following pages to your *CMS R3V2 Migration* (AT&T 585-215-113) document.

Chapter 7, R2-to-R3V2 Migration

- Pages 7-11 and 7-23

  Step 2 should read:

2. Log in as *cms* and access the CMS Main Menu.

   Delete the note on Page 7-11.

Chapter 8, R2-to-R3.0 (R3V1) Migration

- Pages 8-9 and 8-21

  Step 2 should read:

2. Log in as *cms* and access the CMS Main Menu.

   Delete the note on Page 8-9.

High-Performance Platform Migration Document

Please add the following pages to your *CMS R3V2 High-Performance Platform Migration* (AT&T 585-215-124) document.

Chapter 6, 3B2-to-High-Performance Platform Migration

- Pages 6-12 and 6-23

  Step 2 should read:

2. Log in as *cms* and access the CMS Main Menu.

   Delete the note on Page 6-12.

Major Differences

This chapter describes the major software differences between Issue 1.9 (3rakg) and Issue 1.10 (3raof) of the Call Management System (CMS) Software.

Data, Database Items, and Calculations

Data

- There are no changes to CMS data implemented with this issue of CMS.

Database Items

- There are no new or changed database items implemented with this issue of CMS.

Calculations

- A new Dictionary calculation, **<INT_AUXTIME>**, has been added.

  The calculation was added to display the agent staff time in the Historical Split/Skill Daily Report.

  The calculation is:

  INT_AUXTIME = I_STAFFTIME - I_AVAILTIME - I_ACDTIME - I_ACWTIME - I_OTHERTIME - I_RINGTIME - I_DA_ACDTIME - I_DA_ACWTIME

Reports

There are no changes to the Real-Time or Historical Reports subsystems with this issue of R3V2 CMS.

Timetables and Shortcuts

There are no changes to the Timetables and Shortcuts with this issue of R3V2 CMS.

Dictionary

The following changes have been made to the Dictionary subsystem:

- Calculation names and constant names can no longer contain embedded blanks. All other Dictionary names can still contain embedded blanks.

Exceptions

There are no changes to the Exceptions subsystem with this issue of R3V2 CMS.

ACD Administration

There are no changes to the ACD Administration subsystem with this issue of R3V2 CMS.

User Permissions

There are no changes to the User Permissions subsystem with this issue of R3V2 CMS.

System Setup

The System Setup: Free Space Allocation window no longer shows negative numbers in the `Login/Logout Required Blocks` field when a large number of agent login/logout records are specified.

Maintenance

The following changes have been made to the Maintenance subsystem:

- The CMS file system backup has been modified to include support for the 14-GB tape device.
- The `Verify tape` field on the Maintenance: Backup Data window now defaults to `yes`.
- Cartridge tapes are now retensioned prior to CMS backup initiation. This will minimize the potential for tape problems.

Custom Reports

The Screen Painter can now be used to move, copy, and erase bar fields in custom reports.

Forecast

There are no changes to the Forecast subsystem with this issue of R3V2 CMS.

User Interface

There are no changes to the User Interface with this issue of CMS.

Miscellaneous

cmssvc / cmsadm Menus

- File system backup tapes created using the `cmsadm` or `cmssvc` backup command are now verified for readability after backup completion.

  The following prompts now display after all file systems have been backed up:

  ```
  Tape Verification
  Insert the first tape
  Press Return to proceed:
  ```

- CMS systems are no longer required to have two tape drives. The default backup device for `cmssvc` setup is now the first tape drive (/dev/rmt/0).

Sun SPARCserver Computers

- CMS now supports the *Sun SPARCserver* 5 computer. Support for the *Sun SPARCserver* 10 and *Sun SPARCserver* 20 computers continues.
- When any of the *Sun SPARCserver* computers are referenced, the specific platform number is only used if a statement does not apply to all of the *Sun* platforms. The term “High-Performance Platform” may still be used in some instances to refer to the *Sun SPARCserver* computers collectively.
- For information on implementing the *Sun SPARCserver* 5 platform, please refer to the *CMS R3V2 Sun SPARCserver Computers Installation and Maintenance* (AT&T 585-215-129) document.

  All customers with existing *SPARCserver* computers will receive the new Installation and Maintenance manual, which documents CMS and *Solaris* 2.4 on all *SPARCserver* systems.
- When running on the *Sun* platform, Issue 1.10 of CMS uses *Solaris* 2.4 as the operating system.

  ***Solaris* must be upgraded to version 2.4 before CMS Issue 1.10 is installed.**
- After upgrading *Solaris*, command tool windows are not displayed on the system console. When Open Windows is started on the console, the following windows display:
  - A read-only *xconsole* window, which displays console messages, and
  - Two *xterm* windows, which can be used for any purpose.

    The correct TERM variable for these windows is *xterm*. This change was made to avoid problems with the <BREAK> key and locked consoles.
- CMS software for the *Sun SPARCserver* is distributed on CD-ROM.
- Support has been added for 8- and 10-port network terminal servers (NTS).
- The parallel printer port on the *SPARCserver* computers can now be used for printing.
- The queueing problems with screen prints have been corrected. Screen prints sent to serial printers connected through NTS used to fail if a user other than *root* tried to print. After one print job failed, all subsequent print jobs queued behind the failed job.

- The *Sun* machine no longer hangs on reboot if the modem is disconnected when the console is remoted.
- Compressed print now works on parallel printers connected through an NTS. Previously, the print job could be lost if the type was set to a size other than normal and the banner was set to “y”. There are still two problems with this fix:
  - — A banner page is only printed when using normal type.
  - — The job only prints in compressed pica/elite if the banner is set to “y”.

Software Compatibility

The following paragraphs outline software requirements for R3V2 CMS to operate correctly.

R3V2 CMS does not co-reside with other software packages. This includes both packages running concurrently and those merely installed. R3V2 CMS modifies the UNIX system tunable parameters automatically to accommodate system requirements.

This release of R3V2 CMS software is only compatible with Version 1.6 and later of the CMS R2 Migration (PG-3E257). Earlier issues of CMS R2 will not migrate successfully.

INTEL Platform

The following software is required for R3V2 CMS to operate correctly on the *INTEL* platform:

- *UNIX* System V Release 3.2.3 and associated utilities, including SCSI Support Package Version 2 and *UNIX* SVR3.2.3 Maintenance Disk #1
- Korn Shell Version 11/16/88d 386 Release 2.0
- *INFORMIX* SE 4.10.UD1 (Runtime Version)

  INFORMIX SQL 4.10.UC2 (Development Version) is optional software with R3V2 CMS.
- X.25 Network Interface Software Version 1.2.1 SL1.51.1.25.

Sun Platform

The following software is required for R3V2 CMS to operate correctly on the *Sun* platform:

- *Solaris* 2.4 Hardware 3/95
- *SunLink* HSI/S 2.0 revision A, dated 6/93 (if you have the HSI/S card installed)
- 1.0 *Sun* Network Terminal Server revision A
- *SunLink* X.25 8.02 revision A, dated 10/94
- INFORMIX SE 5.04.UC1

  INFORMIX SQL 4.13.UD1 is optional.

Hardware Compatibility

The following paragraphs outline hardware that R3V2 CMS is certified to run on.

INTEL Platforms

R3V2 CMS is certified to run on the following processor platforms:

- **6386 WGS 25/S and AT&T 6386 WGS 33/S**

  For the WGS processors, the alternate console configuration is required. In addition to the base processor, the following may be added based on customer configuration needs:

  — GPSC-AT/E X.25 kit(s) and 2-port RS232 cable(s)

  — 4/16 MB Memory Expansion Board

  — N80387-6386/25 or 6386/33 math coprocessor

  — IPC 1600 Ports Card(s) and Ports Cabinet(s), or MEGAPLEX-96 board

  — Remote Maintenance Package and software, Version 2.0.

- **STAR SERVER S**

  For the STARSERVER S processor, the VGA 600 card and monitor is required for the console. In addition to the base processor, the following may be added based on customer configuration needs:

  — Additional SIMM memory on the system board

  — SCSI Streaming Tape Unit

  — GPSC-AT/E X.25 kit(s) and 2-port RS232 cable(s)

  — IPC 1600 Ports Card(s) and Ports Cabinet(s), or MEGAPLEX-96 board

  — Remote Maintenance Package and software, Version 2.0.

- **3332**

  For the 3332 processor, the following may be added based on your configuration needs:

  — Additional SIMM memory on the system board

  — SCSI Streaming Tape Unit

  — GPSC-AT/E X.25 kit(s) and 2-port RS232 cable(s)

  — MEGAPLEX-96 board (also IPC 1600 or Kickstart 2.5 board)

  — Remote Maintenance Board (RMB).

Sun Platforms

R3V2 CMS is certified to run on the following *Sun* processor platforms:

- *Sun SPARCserver* 5
- *Sun SPARCserver* 10
- *Sun SPARCserver* 20.

Switch Compatibility

R3V2 CMS has been certified with the ACD applications on the following switches:

- *DEFINITY* Communications System Generic 3 Version 3 (QPPCN 701).
- *DEFINITY* Communications System Generic 3 Version 2 Load 82 and later (QPPCN 644 G3i/s/vs) (QPPCN 646 G3r)
- *DEFINITY* Communications System Generic 3i Release 13.3 and later (QPPCN 576)
- *DEFINITY* Communications System Generic 3r Release 8.5 and later
- *DEFINITY* Communications System Generic 3s Release 14.2 and later
- *DEFINITY* Communications System Generic 2.2 Release 3.0 and later (with/without call center features) (QPPCN 696DR)
- *DEFINITY* Communications System Generic 2.1 Release 3.3 and later (QPPCN 629DR)
- *DEFINITY* Communications System Generic 1.1 Release 7.1 (QPPCN 559DR) and later
- System 85 R2V4 Release 2.3 (QPPCN 560DR) and later.

Note

It may be necessary to upgrade the switch release before installing R3V2 CMS or before upgrading CMS. The required switch release for *DEFINITY* Generic 3r has been changed since CMS Issue 1.3. These switch releases will also work with previous issues of R3V2 CMS. The switch should be upgraded to the specified release before installing R3V2 CMS.

WGS, STAR SERVER S, and 3332 Computer Upgrade Instructions

The following procedures allow you to upgrade your CMS software at your convenience. Follow these instructions carefully.

Pre-Upgrade Procedure

You **must** complete the following steps before beginning the upgrade to Issue 1.10.

Failure to complete the pre-upgrade steps may result in an inability to recover from an unsuccessful upgrade, possible loss of data, and/or significant recovery time.

1. As a precaution, ensure that copies of the current R3V2 CMS software load and the latest full backup tapes are available.

   Failure Recovery: If you do not have a current R3V2 CMS software load, call the AT&T Call Center Helpline on 1-800-344-9670. If you do not have a current full maintenance backup available, perform a full maintenance backup before proceeding with these steps.

2. From the System Console, log in as *root*.

3. Verify that the tape drive status light is off and the drive is not being used for any other purpose (for example, scheduled backups).

   Failure Recovery: If the tape light is stuck on, do the following steps depending on your host computer model:

   WGS and STAR SERVER S computers

   a. Put a writable tape into the drive. Wait for the tape to reposition.
   b. Eject the tape out.
   c. Put the tape back in and wait for it to reposition again.
   d. Enter this command at the # prompt: > **`/dev/scsi/qtape1`**
   e. The tape light should go out.

3332 computers

a. Put a writable tape into the drive. Wait for the tape to reposition.
b. The tape light should go out.

4. Verify that the tunable parameters are set to the recommended CMS values by entering:

   `/cms/toolsbin/chktunes`

   The `chktunes` command is available only on the CMS 3rakg and later loads. If you are running an earlier load of CMS, skip this step.

   You will see the message `Checking the System Tunables for correct CMS values`. If a message displays indicating that the check was successful, continue with Step 5.

   Failure Recovery:

   If any messages display about the tunables not being correct, call the AT&T Call Center Helpline on 1-800-344-9670.

5. Enter the **`cmsadm`** command to display the CMS administration menu. Select the `backup` option.

   If CMS is turned on, CMS will be automatically turned off during the backup. The program takes approximately 50 minutes to write each tape that is needed for the backup. For more information, see "Performing a CMSADM Backup" section in Chapter 8 of the *CMS R3V2 Installation and Maintenance* (AT&T 585-215-122) document.

   Failure Recovery: The following error messages are the most common during a **`cmsadm`** backup and recovery.

   — `Request failed. See /cms/install/logdir/backup.log for more information.`

   If the window displays this message, you need to restart the backup after correcting the problem. Follow these steps to correct the problem:

   a. Reseat the tape in the tape drive. The tape may not be seated correctly or the tape may have been removed during the backup.
   b. Turn off write protect if the black arrow in the upper left-hand corner of the cartridge tape is pointed to "safe."

c. The tape is bad if this message also displays on the console terminal: `WARNING: ST01: HA 0 TC 3 LU 0: Err 60503005 CMD 0000000A Sense Key 00000004 Ext Sense 00000000.` Discard that tape and try another one.

– `That didn't work, cannot open "/dev/scsi/qtape1" Change to part X and press RETURN key. [q] Permission denied.`

This error displays if you are performing a multiple tape backup, the tape you inserted is not the first tape (it is the second, third, etc.), and the tape is write protected.

You do not have to restart the backup. Simply remove the tape from the tape drive, turn off write protect by moving the black arrow to point opposite "safe", reinsert the tape into the drive, and continue the backup.

As the backup progresses, the program displays a series of dots to indicate that it is writing files to tape, one dot per file.

You may have a problem if you notice one of the following:

- You see that dots are not printing (wait at least 10 minutes).
- The tape is not spinning.
- Messages are not displayed informing you to change tapes or that the backup has completed.

If you encounter problems, call the AT&T Call Center Helpline on 1-800-344-9670.

Software Upgrade Procedure

The `installpkg` command will automatically upgrade your system.

Warning ***Check your upgrade tapes to ensure that you have been shipped the right ones. The tapes for this upgrade should have 1.10 as the version number and specify that they are for the INTEL platform.***

Caution You must have completed the Pre-Upgrade Procedure before you continue with the steps below. The upgrade procedure will result in approximately 30 to 60 minutes of outage on the R3V2 CMS.

Note It is no longer necessary to turn off CMS; you will be prompted to do so in Step 10.

Use the following steps to upgrade your CMS software.

1. From the System Console, log in as *root*.
2. Enter the **`installpkg`** command.
3. When prompted, select the cartridge tape option, and press Return.
4. The program requests that the tape be inserted into the tape drive. Insert the CMS cartridge tape into the tape drive, wait for the tape drive to reposition, then press Return .
5. When prompted, press Return to retension the tape. Retensioning the tape takes approximately 3 minutes.
6. After the tape retensions, the program displays information on selecting the packages to be installed. Press Return to continue.

Failure Recovery: For Steps 4 through 6, proceed through the tasks below until you recover from the tape drive failure:

- Retry:
  a. Follow the prompts to exit the `installpkg` program.
  b. Reposition the cartridge tape in the tape drive.

c. Restart the Software Upgrade Procedures.

- Reboot the CMS by entering the **`shutdown -i6 -g0 -y`** command.
- If all else fails, call the AT&T Call Center Helpline on 1-800-344-9670.

7. Select the Call Management System package followed by Return.

8. Press Esc to indicate that all selections have been made. Press Return. Press Return again in response to the `REMINDER!` message.

The program takes about 3 minutes to locate the CMS software on the tape and then verifies that the software packages required to run with CMS are present.

Failure Recovery: If a required software package is missing, an error message appears indicating that CMS cannot be installed. Press Esc to stop the upgrade. Since CMS is still running the old load, stopping the upgrade now is not service affecting. Write down the missing package and call the AT&T Call Center Helpline on 1-800-344-9670. If you turned CMS off, you can turn it back on.

9. The program now asks if you backed up your file systems. If you followed the pre-upgrade instructions, you have already backed up your file system. Enter **y**.

The program takes about 5 to 10 minutes to remove the software associated with the previous issue of CMS.

If you did not follow the pre-upgrade instructions, enter **n** and refer to the Pre-Upgrade Procedure for information on backing up your file system. Then, restart the Software Upgrade Procedure.

10. Next, the program asks if you want to turn off CMS. Enter **y** to proceed with the upgrade.

    If you enter **n**, you will be returned to the system prompt.

    If you answer **y**, the program continues:

```
Stopping UNIX log ... done
>>Retaining customer data.
/etc/conf/init.d/ilog
/etc/conf/node.d/osm
/etc/logit
/usr/bin/cms
/usr/bin/cmsadm
. . . .
. . . .
. . . .
```

    The program takes about 5 to 10 minutes to remove the software associated with the previous issue of CMS. You may ignore any errors or warnings that occur during this step and the next. Critical errors will be detected during the package audit.

11. When the appropriate software has been removed, the program begins the download of the new issue of CMS.

```
Removal of Call Management System (3xxxx) is complete
## Installing files from cartridge tape
. . . . . .
. . . . . .
. . . . . .
. . . . . .
```

    The program takes about 10 to 20 minutes to download the R3V2 CMS software from the cartridge tape to the hard disk. As the software is downloaded, several rows of periods display to indicate progress. Next, a list of downloaded files displays.

12. After the download, the program audits the new package installation.

```
## Auditing package installation
```

The audit takes about 5 to 10 minutes to complete.

Failure Recovery: If the audit fails, perform the following steps:

a. Write down the audit errors.
b. Call the AT&T Call Center Helpline on 1-800-344-9670.
c. Reboot CMS by entering the **`shutdown -i6 -g0 -y`** command.
d. Restart the Software Upgrade Procedure.
e. If the audit passes, proceed to Step 13. If the audit fails again, execute the **`shutdown -i6 -g0 -y`** command. Install the previous issue of CMS using the **`installpkg`** command.

13. If the audit is successful, the program upgrades your CMS data.

The upgrade of CMS data may take up to an hour — but in most cases takes significantly less. Dots display to indicate progress.

Failure recovery: If the upgrade fails, call the AT&T Call Center Helpline on 1-800-344-9670.

In some cases, the UNIX kernel is rebuilt. If the rebuild fails, note the failure exactly, and call the AT&T Call Center Helpline on 1-800-344-9670.

14. If a message displays indicating an automatic shutdown is being initiated, you will need to reboot the system. You can do this in one of two ways:

    - Press the Return key which requires a manual reboot. **Wait** for the prompt `Reboot the system now` to appear, and then press the Reset button on the CMS processor.

      Do not press Reset until you see the `Reboot the system now` message; otherwise, file system damage may occur.

    - Press the Esc key. The UNIX system prompt returns. Then, execute the **`shutdown -i6 -g0 -y`** command.

15. After the tape finishes rewinding (tape drive light is not lit), remove the cartridge tape.

16. After the CMS software is installed, enter the **`cmsadm`** command to display the CMS administration menu. Select the `run_cms` option, and turn on CMS to start collecting data.

    The program takes a few minutes to initialize the system parameters. Turning on CMS initializes the communications link between the CMS software and the switch.

Post-Upgrade Procedure

After the upgrade, complete the following steps:

1. From the System Console, log in as *root*.

2. Enter the **`cmsadm`** command to display the CMS administration menu. Select the `backup` option.

   See Step 4 of the Pre-Upgrade Procedure for information about the cmsadm backup and the failure recovery steps.

3. Enter **`exit`** at the # prompt.

4. Log in as the CMS administrator.

5. A full CMS Maintenance Backup **must** be done prior to any incremental backups that are either scheduled or manually completed.

   If this step is not completed, any incremental backups will fail, since they must follow a full backup of the current load.

6. Contact the AT&T Call Center Helpline on 1-800-344-9670, and notify the agent that the upgrade to the new issue of CMS has been completed.

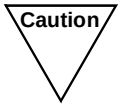
   It is important to complete this step so the TSC can check the error logs and update their database.

This completes the upgrade of the R3V2 Call Management System!

Sun SPARCserver Computer Upgrade Instructions

***Solaris* must be upgraded to version 2.4 prior to installing CMS Issue 1.10.** Call the AT&T Call Center Helpline on 1-800-344-9670 for assistance.

This section describes how to upgrade the R3V2 CMS software application on *Sun SPARCserver* computers.



To do an upgrade, you must have sufficient free space on your disk to accommodate all the data you want to collect. See the "Pre-Upgrade Procedures" section below for details.

If your current disk space allocation specifies more items to be measured for longer lengths of time than you actually have space for on your disks, you must do the following:

- Purchase additional disks.
- Change the length of time for which the data is stored.
- Change the number of entities measured before you do an upgrade.

Pre-Upgrade Procedures

Prerequisites:

Before you upgrade a system to a new base load or install a field update, do the following:

- **Upgrade *Solaris* to version 2.4 prior to installing CMS Issue 1.10.** Call the AT&T Call Center Helpline on 1-800-344-9670 for assistance.
- You must be logged in as *root*, the computer must be in run-level 2 or 3, all file systems must be mounted, and CMS must be turned OFF.

Note

The upgrade process for *Solaris* and CMS will take approximately 5 hours to complete.

This does not include the time required to back up the system.

- Do a full file system backup. See the "Performing a CMSADM Backup" section in Chapter 8, "Maintenance," in the *CMS R3V2 Sun SPARCserver Computers Installation and Maintenance* (AT&T 585-521-129) document.
- Make sure you have the CD-ROM that contains the new base load or field update software.
- Verify you have sufficient space in */tmp* by entering the **`df -l /tmp`** command.

  Note

  This load of CMS requires approximately 90,000 blocks and 1375 inodes in */cms* on the *Sun* target.

- Verify you have sufficient space in */cms* by doing the following:

  1. Determine the amount of available space by entering the **`df -l /cms`** command.
  2. Determine the amount of space required by the current CMS package by entering the following command:

     `pkgparam cms IBSblocks IBSinodes`

     The number of blocks and inodes are displayed.
  3. Compute the difference between the old and new load for blocks and modes, and compare the amount of available space computed in Step 1.

To Upgrade CMS, use the following **required** procedures:

- Remove installed field updates (if present).
- Remove the current CMS base load.
- Install the new *Solaris* patches (if needed).
- Install the new CMS base package.

Remove Installed Field Updates

Do these steps to determine if a field update is installed.

1. Start the remove installed field update procedure by entering:

```
# pkginfo cms.*
```

   The program responds:

```
application cms            Call Management System
application cms.x          Call Management System

    (where x + the field update number)
```

   Note If more than one package is displayed (for example, `application cms.2`), you can determine that there is a field update installed.

2. Enter the following information:

```
# pkgrm cms.2

    (where x = the field update number)
```

   The program responds:

```
The following package is currently installed:
    cms.x              Call Management System
                        (sparc) 3rxxx

Do you want to remove this package [y,n,?,q]
```

3. Answer **y**.

   The program responds with a list of files that will be changed due to the removal of the update:

```
## Verifying package dependencies.
## Processing package information.
## Excecuting preremove script.
## Removing pathnames in class <ind>
/cms/install/bin/upd_save <shared pathname not removed>
/cms/install/bin/turn_on_cms <shared pathname not removed>
/cms/install/bin/turn_off_cms <shared pathname not removed>
/cms/install/autoconfig <shared pathname not removed>
/cms/install/auditmap <shared pathname not removed>
## Removing pathnames in class <edit>
>> Leaving sun patches installed.
## Removing pathnames in class <sun_fix>
>> Leaving sun patches installed.
## Removing pathnames in class <op_fix>
>> Leaving other package fix files installed.
## Removing pathnames in class <data>
>> Retaining customer files and directories.
## Executing postremove script.
```

If the removal is successful, this message displays:

```
Restoring old CMS software
/cms/install/auditmap
/cms/install/autoconfig
/cms/install/bin/turn_off_cms
/cms/install/bin/turn_on_cms

Updating installation software database.

Removal of Call Management System (3rxxx) is complete
## Updating system information.

Removal of <cms.x> was successful.
```

The system prompt returns to your screen.

The installed field updates (if present) are removed from the CMS software. You can now remove the current CMS base package.

Remove Current CMS Base Package

Do these steps to remove the current CMS base package:

1. Enter:

```
# pkgrm cms
```

   to start to remove the current CMS base package.

   The program responds:

```
The following package is currently installed:
   cms               Call Management System
                      (sparc) 3rxxx

Do you want to remove this package [y,n,q,?]
```

2. Answer **y**.

   The system responds:

```
## Removing installed package instance <cms>

This package contains scripts which will be executed with
super-user permission during the process of removing this
package.

Do you want to continue with the removal of this package
[y,n,q,?]
```

3. Answer **y**. The system responds:

```
## Verifying package dependencies.
## Processing package information.
## Executing preremove script.

Do you want to preserve CMS data? [y,n,?]
```

4. Answer **y.** The system responds:

```
CMS will be removed from this machine; the data will be
preserved.

Are you sure this is correct? [y,n,?]
```

5. Answer **y.** The system responds:

```
All file systems should be backed up before continuing.
See the maintenance chapter in the CMS Installation and
Maintenance Manual for instructions.

Have you backed up the file systems? [y,n,?]
```

Note If you have not backed up the file systems, answer n.

Back up your file systems and start the upgrade process again.

6. Answer **y if** you have done backups. The system responds:

```
## Removing pathnames in class <ind>
/usr/lib/cms/trmaps
/usr/informix/etc/termcap
/usr/bin/cmssvc
   .
   .
   .
```

If the removal is successful, this message displays:

```
Removal of <cms> was successful.
```

The system prompt returns to your screen.

After you remove the current CMS base package, you can install *Solaris* patches and then the new CMS issue.

Install New *Solaris* Patches

Depending on the needs of your system, you may or may not need to install *Solaris* patches. If *Solaris* patches are available, you must install them on your system.

Do these steps to install new *Solaris* patches:

Note The CD-ROM containing the new patches will be required in the CD-ROM drive.

1. Remove the “CMS” CD-ROM from its case. If you have an external CD-ROM drive, follow the steps below. Otherwise, go to step 2.
   a. Place the “CMS” CD-ROM in the CD-ROM caddy. When the CD-ROM is properly inserted in the caddy, the CD-ROM label is visible.
   b. Insert the CD-ROM caddy into the CD-ROM drive slot.
   c. Go to step 5.
2. Open the CD-ROM drive tray by pressing the eject button on the CD-ROM drive unit.
3. Gently press the CD-ROM in place in the CD-ROM disk tray. When the CD-ROM is properly inserted in the disk tray, the CD-ROM label is visible.
4. Push the CD-ROM drive tray in (towards the system unit) until it closes.
5. Enter:

```
# pkgadd -d /cdrom/cms
```

The system responds:

```
The following packages are available:
  1 cms          Call Management System
                 (sparc) S3racc
  2 spatches     CMS Supplied Solaris Patches
                 (sparc) 1.0

Select package(s) you wish to process (or 'all' to process all
packages). (default: all) [?,??,q]:
```

If the *spatches* package is displayed, you must install it.

6. Enter **2** to select *spatches*. The system responds:

```
Processing package instance <spatches> from </dev/rmt/0>

CMS Supplied Solaris Patches
(sparc) 1.0
AT&T
Installation of this package will cause CMS-required Solaris
patches to be spooled into /tmp/patches. After the patches are
spooled into /tmp/patches, one must install the patches by
running a script called /tmp/patches/install_patches. In
addition, the script will backout any patch that needs to be
removed prior to installing a required patch. Patches
currently installed are not affected by installing this
package.

Do you want to spool Solaris patches into /tmp/patches?
```

7. To spool Solaris patches into /tmp/patches file, enter **y**. The system responds:.

```
## Processing package information.
## Processing system information.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.

This package contains scripts which will be executed with
super-user permission during the process of installing this
package.

Do you want to continue with the installation of this package?
[y,n,?]
```

8. To continue with the installation of this package, enter **y**.
   The system responds:

```
Installing CMS Supplied Solaris Patches as <spatches>

XX Installing part 1 or 1.
Spooling 100982-02
Spooling 100992-03
Spooling 100999-51
Spooling 101014-05
Spooling 101018-07
   .
   .
   .

Patches successfully saved

Solaris patches were copied to /tmp/patches.
To install the solaris patches, run the following command:
   /tmp/patches/install-patches
```

9. To install the *Solaris* patches, enter the following command:

```
# /tmp/patches/install_patches
```

Note Once the *Solaris* patches are installed, a reboot is necessary. Be sure to run the `/tmp/patches/install_patches` command before rebooting.

The system responds:

```
# /tmp/patches/install_patches
@(#) installpatch 3.5 93/04/28

generating list of files to be patched
Save old verisons of files to be patched
/var/sadm/patch/100982-02/save/kernel
/var/sadm/patch/100982-2/save/kernel/fs
/var/sadm/patch/100982-2/save/kernel/fs/fifofs
XXX blocks
Installing patch packages
Doing pkgadd of SUNWcsr package:
```

Response continues:

```
Patch installation finished
@(#) installation finished
generating list of files to be patched
Save old versions of files to be patched
/var/sadm/patch/100992-03/save/kernel
/var/sadm/patch/100992-03/save/kernel/drv
   .
   .
   .
Installing patch packages
Doing pkgadd of SUNWcsr package:

Installation of <SUNWcsr.7> was successful.
Patch installation finished
To complete the solaris patch installation, one should reboot
with the following command: shutdown -y -i6 -g0
#
```

Note Remember to reboot if instructed by the system.

10. To complete the *Solaris* patch installation, you must reboot your system using the following command:

```
# shutdown -y -i6 -g0
```

The installation of the new patches in now complete. The system prompt returns to your screen. You are now ready to install the new CMS base package software.

Upgrade Procedures

The following paragraphs step you through the process of installing the CMS upgrade.

Install New CMS Base Package Software

Do these steps to install the new CMS base package software:

Warning ***Check your upgrade CD-ROM to ensure that you have been shipped the right ones. The CD-ROM for this upgrade should have 1.10 as the version number and specify that they are for the Sun platform.***

Note The CD-ROM containing the new CMS software load will be required in the CD-ROM drive.

1. Remove the “CMS” CD-ROM from its case. If you have an external CD-ROM drive, follow the steps below. Otherwise, go to step 2.
   a. Place the “CMS” CD-ROM in the CD-ROM caddy. When the CD-ROM is properly inserted in the caddy, the CD-ROM label is visible.
   b. Insert the CD-ROM caddy into the CD-ROM drive slot.
   c. Go to step 5.
2. Open the CD-ROM drive tray by pressing the eject button on the CD-ROM drive unit.
3. Gently press the CD-ROM in place in the CD-ROM disk tray. When the CD-ROM is properly inserted in the disk tray, the CD-ROM label is visible.
4. Push the CD-ROM drive tray in (towards the system unit) until it closes.
5. Start the upgrade procedure by entering:

```
# pkgadd -d /cdrom/cms
```

The program responds:

```
The following packages are available:
  1 cms          Call Management System
                 (sparc) 3rxxx
  2 spatches     CMS Supplied Solaris Patches
                 (sparc) 1.0

Select package(s) you wish to process (or 'all' to process all
packages). (default: all) [?,??,q]:
```

6. Enter **1**. The system responds:

```
Processing package instance <cms> from </dev/rmt/0>

Call Management System
(sparc) 3rxxx

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All Rights Reserved

Using </cms> as the package base directory.

Installing the Call Management System (3rxxx).

## Processing package information.
## Processing system information.
   138 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.

The following files are already installed on the system and
are being used by another package:
          /cms/install/logdir/admin.log
          /etc/init.d/sysetup
          /etc/system
          .
          .
          .

Do you want to install these conflicting files? [y,n,q,?]
```

7. Answer **y .** The system responds:

```
## Checking for setuid/setgid programs.

The following files are being installed with setuid and/or
setgid permissions or are overwriting files which are
currently setuid/setgid:
         /cms/bin/mqpeek <setuid root>
         /cms/bin/spi <setuid root>
         /cms/toolsbin/cmsu <setuid root>
         /cms/toolsbin/initSimConf <setuid root>
         /cms/toolsbin/initSimConf <setuid root>
         /cms/toolsbin/psx <setuid root>
         /cms/toolsbin/psx <setuid root>
         /cms/toolsbin/shmdump <setgid sys>

Do you want to install these setuid/setgid files [y,n,q,?]
```

8. Answer **y .** The system responds:

```
This package contains scripts which will be executed with
super-user permission during the process of installing this
package.

Do you want to continue with the installation of this package
[y,n,q,?]
```

9. Answer **y .**

   The system responds:

```
Installing Call Management System as <cms>

## Executing preinstall script.

## Installing part 1 or 1.
[ verifying class <data> ]
[ verifying class <op_fix> ]
   .
   .
   .
/etc/SUNWconn/x25/template/cms.spin1.wan
/etc/rc0.d/K92cms
/usr/bin/cms
/usr/bin/cmsadm
/usr/bin/cmssvc
/usr/informix/etc/termcap
/usr/lib/cms/trmaps
[ verifying class <ind> ]
## Executing postinstall script.

## Upgrading Customer CMS data . . .

Customer CMS data successfully upgraded.

Setting Solaris 2.4 system tunable parameters for CMS.
No changes to tunable parameters were required.

Installation of <cms> was successful.
#
```

Note If you are instructed to run `shutdown`, use the displayed command. See the "Install New Solaris Patches" section in this chapter for more information.

The installation of the new CMS base package is not complete. The system prompt returns to your screen.

10. Enter:

```
# eject cdrom
```

11. Remove the CMS CD-ROM from the CD-ROM drive.

Verify CMS Base Package Software Installation

Do the following to verify the installation of the new CMS base package software:

1. Enter:

```
# pkgchk -n cms
```

If the software installation is successful, the system prompt returns to your screen.

If errors are detected, see Chapter 8, “Checking Installed Software Packages” in the *CMS R3V2 Sun SPARCserver Computers Installation and Maintenance* (AT&T 585-215-129) document for more information.

Install Field Update for New CMS Base Package

Do these steps to install the field update for the new CMS base package:

Note A field update is put on a separate tape. You may have new patches as part of an update. For details, see “Installing New *Solaris* Patches” in the “Updating CMS Software” section in Chapter 10, “Upgrading or Updating the CMS Software,” in the *CMS R3V2 Sun SPARCserver Computers Installation and Maintenance* (AT&T 585-215-129) document.

1. Enter:

```
# pkgadd -d /dev/rmt/0 cms
```

The program responds:

```
Insert a tape into Tape Drive.
Type [go] when ready,
  or [q] to quit:
```

Note If a “Broken Pipe” message is displayed when using the `pkginfo -d /dev/rmt/0` command for a QIC 150 tape, ignore the message. This message has no effect on system operations.

2. Enter **go**. The system responds:

```
Processing package instance <cms> from </dev/rmt>

Call management System
(sparc) 3rxxx
AT&T
Using </cms> as the package base directory.

Installing the Call Management System (3rxxx).

## Processing package information.
## Processing system information.
## Verifying package dependencies.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.

The following files are already installed on the system and
are being used by another package:
           /cms/install/auditmap
           /cms/install/autoconfig
           /cms/install/bin/turn_off_cms
           /cms/install/turn_on_cms
           /cms/install/bin/upd_save
Do you want to install these conflicting files [y,n,q,?]
```

3. Answer **y**.

   The system responds:

```
## Check for setuid/setgid programs.

This package contains scripts which will be executed with
super-user permission during the process of installing this
package.

Do you want to continue with the installation of this package
[y,n,q,?]
```

4. Answer **y**. The system responds:

```
Installing Call Management System as <cms.2>

## Executing preinstall script.
Making backup copies of old files ...
/cms/install/update/file_bkup/cms/install/auditmap
/cms/install/update/file_bkup/cms/install/autoconfig
/cms/install/update/file_bkup/cms/install/bin/turn_off_cms
/cms/install/update/file_bkup/cms/install/bin/turn_on_cms
/cms/install/update/file_bkup/cms/install/bin/upd_save
165 blocks
## Installing part 1 of 1.
/cms/install/auditmap
/cms/install/autoconfig
/cms/install/autoconfig
/cms/install/bin/turn_off_cms
/cms/install/bin/turn_on_cms
/cms/install/bin/upd_save
[ verifying class <ind> ]
## Executing postinstall script.
```

Note If you are instructed to run `shutdown`, then use the command displayed.

If the installation of the field updates is successful, this message displays:

```
## Upgrading Customer CMS data . . .

Customer CMS data successfully upgraded.

Setting Solaris 2.4 system tunable parameters for CMS.
No changes to tunable parameters were required.

Installation of <cms.2> was successful.
```

Installation of the field update for the new base load is completed. The system prompt returns to your screen.

5. Remove the cartridge tape after it finishes rewinding (drive light is not blinking).

Post Upgrade Procedures

Prerequisites: You must be logged in as *root*, the computer must be in run-level 2 or 3, all file systems must be mounted, and CMS must be turned OFF.

Upgrading CMS uses the following procedures:

- Verify the installation via `pkgchk`
- Restart CMS
- Back up upgraded CMS software.

Verify Field Update of New Software Installation

Do the following to verify the installation of the field updates for the new base load software is complete:

1. Enter **`pkgchk`** command*:*

```
# pkgchk -n cms.*
```

The CMS software is verified and upgraded.

If errors are detected, see Chapter 8, “Checking Installed Software Packages,” in the *CMS R3V2 Sun SPARCserver Computers Installation and Maintenance* (AT&T 585-215-129) document for more information.

Restart CMS

Do the following to restart the CMS software:

1. Access the CMS Services menu by entering:

```
# cmssvc
```

   The system responds:

```
 Commands for CMS Services Personnel

Select a command from the list below.
  1) auth_display Display feature authorizations
  2) auth_set     Authorize CMS capabilities/capacities
  3) backup       Single-tape filesystem backup (in background)
  4) run_cms      Turn CMS on or off
  5) setup        Set up the initial CMS configuration
  6) swinfo       Display switch information
  7) swsetup      Change switch information
  8) upd_install  Install update from disk files
  9) upd_remove   Back out the currently installed update
 10) upd_save     Save update on disk for later installation
Enter choice (1-10) or q to quit:
```

2. Enter **4** to select the *run_cms* option. The system responds:

```
  Select one of the following
  1) Turn on CMS
  2) Turn off CMS
  Enter choice (1-2):
```

3. Enter **1** to turn on CMS.

   The system responds:

```
Turning on X25, please wait

Starting the X.25 software — please wait
X.25 has found a valid license
The network has been brought up.

Please wait for initialization.


***CMS is now up***
```

The system prompt returns to your screen.

Backup Upgraded CMS Software

Do a full CMS maintenance backup as soon as possible.

In the Back Up Data window, select **y** (yes) for the `Verify volume can be read after backup` field. In addition, the following fields should contain an `x`:

- All ACDs
- ACD-specific data
- System administration data
- Historical data
  - — Full

See the “Back Up Data” section in Chapter 12, “Maintenance,” of the *CMS R3V2 Administration* (AT&T 585-215-521) document.

Note

CMS incremental maintenance backups will fail if a full backup is not done. See Chapter 8, “Maintenance,” in the *CMS R3V2 Sun SPARCserver Computers Installation and Maintenance* (AT&T 585-215-129) document for file system and `cmsadm` backup procedures.

Administration Document

Please add the following pages to your *CMS R3V2 Administration* (AT&T 585-215-521) document.

Chapter 12, Maintenance

- Page 12-31

  The Backup/Restore Devices window example should be updated to reflect the availability of the 14-GB tape drive on *Sun SPARCserver* computers.

  The new window looks like this:

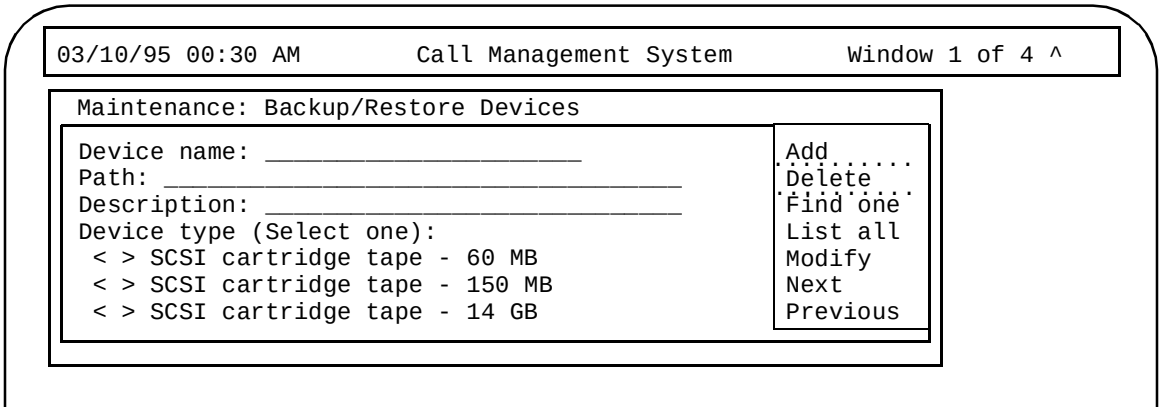


Figure 12-6: Backup/Restore Devices Window Example

Appendix A, Database Items and Calculations

- Pages A-26, A-39, A-47, A-52, A-58, A-64, A-67, A-72

  All occurrences of the database item INTRVL definition should read:

INTRVL	Number of minutes in the intrahour interval (15, 30, 60). **INTRVL** applies to intrahour reports only.	A

Appendix A, Database Items and Calculations

- Page A-90

  The following calculation has been added:

INT_AUXTIME	I_STAFFTIME - I_AVAILTIME - I_ACDTIME - I_ACWTIME - I_OTHERTIME - I_RINGTIME - I_DA_ACDTIME - I_DA_ACWTIME	Agent staff time.

Custom Reports Document

Please add the following pages to your *CMS R3V2 Custom Reports* (AT&T 585-215-523) document.

Appendix A, Database Items and Calculations

- Pages A-26, A-39, A-47, A-52, A-58, A-64, A-67, A-72

  All occurrences of the database item INTRVL definition should read:

INTRVL	Number of minutes in the intrahour interval (15, 30, 60). **INTRVL** applies to intrahour reports only.	A

Appendix A, Database Items and Calculations

- Page A-90

  The following calculation has been added:

INT_AUXTIME	I_STAFFTIME - I_AVAILTIME - I_ACDTIME - I_ACWTIME - I_OTHERTIME - I_RINGTIME - I_DA_ACDTIME - I_DA_ACWTIME	Agent staff time.

Installation and Maintenance Document

Please add the following pages to your *CMS R3V2 Installation and Maintenance* (AT&T 585-215-122) document.

Appendix D, Model 3332 Factory Installation Procedures

- Page D-1

  The KickStart 2.5 Board is being replaced by the Landmark KickStart 3 Remote Maintenance Board for domestic sales. The KickStart 2.5 will continue to be shipped with international orders.

  Step 12 in the “Overview” section should read:

  12. Install the KickStart 2.5 Board (international) or the Landmark KickStart 3 Remote Maintenance Board (domestic) and Connect the Modem.

Appendix D, Model 3332 Factory Installation Procedures

- Pages D-3, D-4, D-5, and D-6

  The KickStart 2.5 Board is being replaced by the Landmark KickStart 3 Remote Maintenance Board for domestic sales. The KickStart 2.5 will continue to be shipped with international orders.

  A new patch is shipped with the software. The patch is the *SCSI Support Package Version 2.3, Adaptec HA Patch - 9/7/94* software patch. The comcode number is 107540403.

  Tables D-1 through D-4 should be updated to include the new board and the new patch.

Appendix D, Model 3332 Factory Installation Procedures

- Pages D-34 and D-35

  The KickStart 2.5 Board is being replaced by the Landmark KickStart 3 Remote Maintenance Board for domestic sales. The KickStart 2.5 will continue to be shipped with international orders.

  The “Step 12: Install the KickStart 2.5 Board” section should be updated as shown on the next page.

Step 12: Install the KickStart Board

References: KickStart 2.5 or KickStart 3
Multifunction Diagnostic Card
User's Manual
Chapter 1, "Installation"

KickStart is an interim Remote Maintenance Board (RMB) for the 3332. Since the KickStart 2.5 slows the response time for the Setup and SCSI utilities, it is installed after you have accessed these utilities.

KickStart 2.5 Boards are shipped with international orders for CMS on the 3332 platform. KickStart 3 Boards are shipped with domestic orders for CMS on the 3332 platform.

KickStart Board Option Settings

Verify that switches SIP1 through SIP3 and jumpers W1 through W4 are set according to Figure D-12.

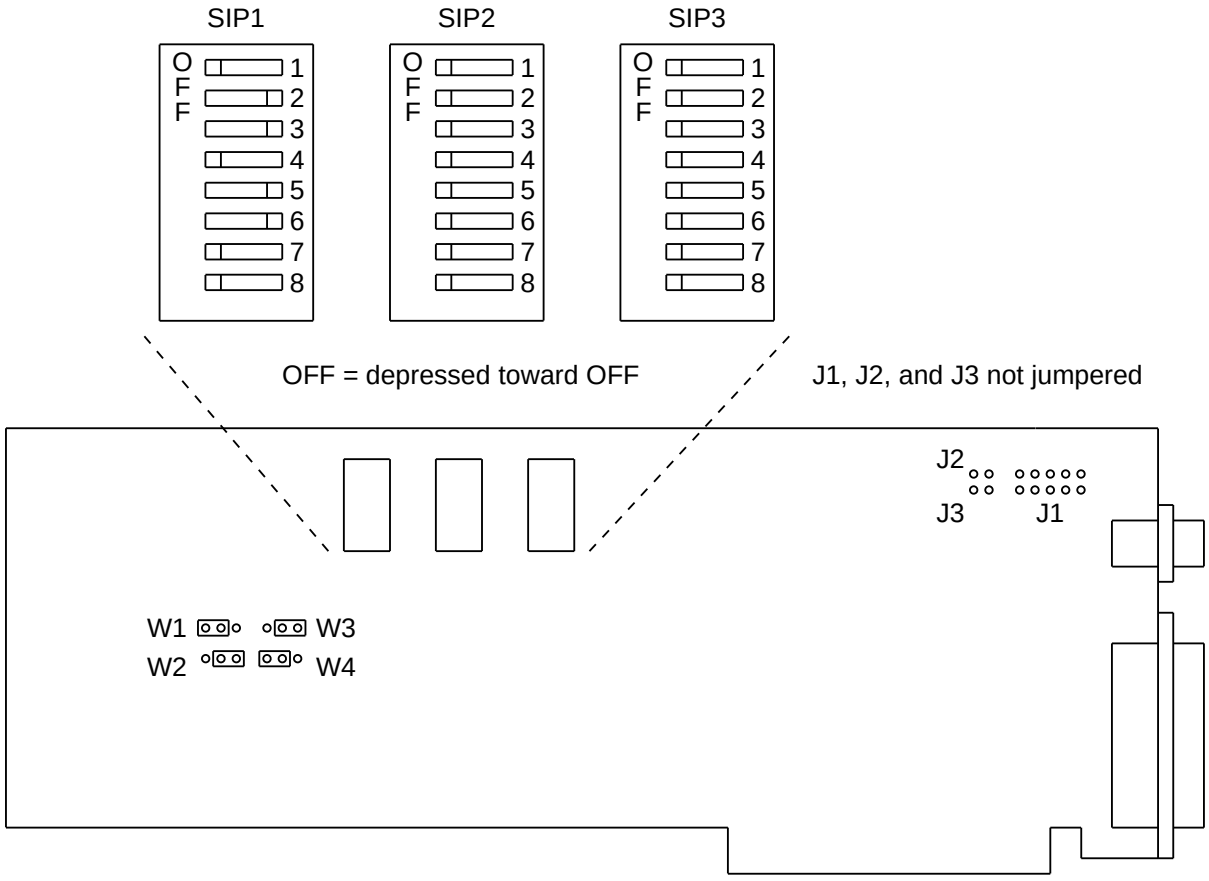


Figure G-1: KickStart Switch Settings

Installation Procedure

a. Shut down the computer by entering:

```
Shutdown -g0 -i0 -y
```

The program starts the shutdown process:

```
Shutdown started. <date and time>
<Broadcast Message>
```

b. When you see `Reboot the system now`, **turn off** the computer.

c. Install the KickStart board into expansion Slot 6 (Slot 1 is the top slot).

Note Hardware installation into the cabinet interior is now complete. Install filler plates for any empty slots and close the Model 3332 cabinet.

High-Performance Platform Installation and Maintenance Document

Please add the following pages to your *CMS R3V2 High-Performance Platform Installation and Maintenance* (AT&T 585-215-123) document.

Chapter 2, CMSADM and CMSSVC Menus

- Page 2-16

  The 5-GB tape drive has been replaced by a 14-GB tape drive (7-GB in uncompressed mode).

  Step 4 in the “backup” section should read:

4. Select the tape drive to use:
   a. Enter `1` for a QIC-150 tape drive (`/dev/rmt/0`), **or**
   b. Enter `2` for a 14-GB tape drive (`/dev/rmt/1`).

   The system displays the number of tapes required. The 14-GB tape backup is the most common backup scenario and usually requires one tape. The QIC-150 tape usually requires more tapes.

Chapter 6, Setting Up CMS and Installing Feature Packages

- Page 6-13

  The 5-GB tape drive has been replaced by a 14-GB tape drive (7-GB in uncompressed mode).

  Step 4 in the “Setting Up CMS Interactively from a Terminal” section should read:

4. Enter the host name of the computer. This name was assigned during the factory installation procedures and is used by the TSC to maintain and identify this specific CMS. The program responds:

```
Select the type of backup device you are using
   1) SCSI QIC-150 cartridge tape - 150MB tape
   2) 14.0 Gbyte 8mm tape
Enter choice (1-2):
```

Chapter 8, Maintenance

- Page 8-2

  The 5-GB tape drive has been replaced by a 14-GB tape drive (7-GB in uncompressed mode).

  The first paragraph in the “Performing Backups and Restores” section should read:

A backup copies the data stored on the R3V2 CMS hard disk to a removable tape (for example 14-GB). Regular backups provide a way to recover data that would otherwise be lost. CMS provides the following two different types of backups:

Chapter 8, Maintenance

- Page 8-4

  The 5-GB tape drive has been replaced by a 14-GB tape drive (7-GB in uncompressed mode).

  Steps 4 and 5 in the “Performing Backups and Restores” section should read:

4. Enter 3 to select the `backup` option.

   The system responds:

```
Select tape drive to use:
   1) /dev/rmt/0
   2) /dev/rmt/1
   3) /dev/rmt/1c
Enter choice (1-2):
```

   Note All systems are shipped with the QIC-150 and 14-GB tape drives. For quicker backups (1 hour versus 16 hours), we recommend using the 7-GB or 14-GB tape drive.

5. Select the tape drive to use. For a 7-GB cartridge tape (`/dev/rmt/1`) enter 2, for a 14-GB catridge tape (`/dev/rmt/1c`) enter 3, or for a QIC-150 cartridge tape enter `1`.

   Note The system calculates the approximate number of tapes required. Please wait for the system to respond.

Chapter 8, Maintenance

- Page 8-12

  The 5-GB tape drive has been replaced by a 14-GB tape drive (7-GB in uncompressed mode).

  Step 3 in the “First Disk” section should read:

3. At the system prompt, enter the following command:

```
# cpio -icmudf -C 10240 -I <device name> -M “Please remove the
current tape, insert tape number %d, and press ENTER”
“/usr/dbtemp/*” “/export/home/*” “/dump/*” “/cms/*”
<“/cms?/*”...>
```

Note

The *<device name>* can be */dev/rmt/0* (QIC-150), */dev/rmt/1* (7-GB), or */dev/rmt/1c* (14-GB).

You will likely get four error messages concerning the */home* directory. The errors are printed when the directory is already present. If these errors are displayed, ignore them.

You must substitute the <“/cms?/*”...> portion of the cpio command with *“/cms1/*”*, *“/cms2/*”*, *“/cms3/*”* and so on for the third through ninth disk. For example, use *“/cms1/*”* for disk 3, use *“/cms2/*”* for disk 4, etc. Refer to Table 8-3, ‘‘Additional External Disks — Partitioning Information,’’ in the ‘‘Recovering from Disk Corruption — Third Through Ninth Disks.’’

Chapter 8, Maintenance

- Page 8-15

  The 5-GB tape drive has been replaced by a 14-GB tape drive (7-GB in uncompressed mode).

  Step 3 in the “Third through Ninth Disks” section should read:

3. To restore the data, enter the following command at the system prompt:

```
# cpio -icmud -C 10240 -I <device name> -M “Please remove the
current tape, insert tape number %d, and press ENTER”
“/cms?/*”
```

Note

The `<device name>` can be `/dev/rmt/0` (QIC-150), `/dev/rmt/1` (7-GB), or `/dev/rmt/1c` (14-GB).

You must substitute the `“?”` on the `cpio` command line for the number corresponding to the disk you are restoring. For example, disk 3 =*“/cms1/*”,* disk 4=*“/cms2/*”,* disk 5=*“/cms3/*”* and so on for each disk. Refer to Table 8-3, “Additional External Disks - Partitioning Information,” in the “Recovering from Disk Corruption — Third Through Ninth Disks” section.

Chapter 8, Maintenance

- Page 8-21

  The 5-GB tape drive has been replaced by a 14-GB tape drive (7-GB in uncompressed mode).

  Step 11 in the “First Disk” section should read:

11. To restore file systems on the first disk, enter the following command:

```
# cpio -icmudf -C <device name> -M “Please remove the current
tape, insert tape number %d, and press ENTER” “/usr/dbtemp/*”
“/export/home/*” “/dump/*” “/cms/*” <“/cms?/*”...>
```

Note The <device name> can be /dev/rmt/0 (QIC-150), /dev/rmt/1 (7-GB), or /dev/rmt/1c (14-GB).

You will likely get four error messages concerning the */home* directory. The errors are printed when the directory is already present. If these errors are displayed, ignore them.

You must substitute the <“/cms?/*”...> portion of the cpio command with *“/cms1/*”*, *“/cms2/*”*, *“/cms3/*”* and so on for the third through ninth disk. For example, use *“/cms1/*”* for disk 3, use *“/cms2/*”* for disk 4, etc. Refer to Table 8-3, “Additional External Disks — Partitioning Information,” in the “Recovering from Disk Corruption — Third Through Ninth Disks.”

Chapter 8, Maintenance

- Page 8-29

  The 5-GB tape drive has been replaced by a 14-GB tape drive (7-GB in uncompressed mode).

  Step 17 in the “Third through Ninth Disks” section should read:

17. To restore the file systems on the new disk, enter the following command:

```
# cpio -icmud -C <device name> -M “Please remove the current
tape, insert tape number %d, and press ENTER” “/cms?/*”
```

Note The `<device name>` can be `/dev/rmt/0` (QIC-150), `/dev/rmt/1` (7-GB), or `/dev/rmt/1c` (14-GB).

You must substitute the `“?”` on the `cpio` command line for the number corresponding to the disk you are restoring. For example, disk 3 =`“/cms1/*”`, disk 4=`“/cms2/*”`, disk 5=`“/cms3/*”` and so on for each disk. Refer to Table 8-3, “Additional External Disks - Partitioning Information,” in the “Recovering from Disk Corruption — Third Through Ninth Disks” section.

High-Performance Platform Migration Document

Please add the following pages to your *CMS R3V2 High-Performance Platform Migration* (AT&T 585-215-124) document.

Chapter 3, *INTEL*-to-High-Performance Platform Migration—First ACD

- Page 3-2

  The 5-GB tape drive has been replaced by a 14-GB tape drive (7-GB in uncompressed mode).

  The “1. Install External X-TAPE Drive” section should read:

Task Performed By: AT&T field technician

When migrating from the *INTEL* platform to the High-Performance Platform, AT&T field technicians must install an external 5-GB or 14-GB X-TAPE drive on the existing *INTEL* machine. The X-TAPE drive installation should take place about one week prior to the migration. The X-TAPE installation allows the *INTEL* computer to:

- back up data faster than with the internal ¼ -inch cartridge tape drive
- use less tapes during the backup.

AT&T field technicians will then use the new tape drive on the High-Performance Platform to do the migration.

Chapter 3, *INTEL*-to-High-Performance Platform Migration—First ACD

- Page 3-16

  The 5-GB tape drive has been replaced by a 14-GB tape drive (7-GB in uncompressed mode).

  Step 1 in the “7. Migrate System Administration Data—Procedure” section should read:

From the High-Performance Platform:

1. Insert the CMS full backup tape (from Step 3) into the external X-TAPE tape drive.

Chapter 3, *INTEL*-to-High-Performance Platform Migration—First ACD

- Page 3-21

  The 5-GB tape drive has been replaced by a 14-GB tape drive (7-GB in uncompressed mode).

  Step 1 in the “10. Restore Customer UNIX System Files” section should read:

Task Performed By: Customer

The CMS administrator restores any UNIX system files created by the CMS users to the High-Performance Platform.

From the High-Performance Platform:

1. Insert the 8mm cartridge tape that contains the backup of customer UNIX system files into the external X-TAPE tape drive.

Chapter 3, *INTEL*-to-High-Performance Platform Migration—First ACD

- Page 3-29

  The 5-GB tape drive has been replaced by a 14-GB tape drive (7-GB in uncompressed mode).

  Step 1 in the “19. Remove External X-TAPE Drive” section should read:

Task Performed By: AT&T field technician

Once the migration is complete, AT&T field technicians remove the external X-TAPE drive and its associated software from the *INTEL* computer.

Chapter 4, *INTEL*-to-High-Performance Platform Migration—Multiple ACDs

- Page 4-4

  The 5-GB tape drive has been replaced by a 14-GB tape drive (7-GB in uncompressed mode).

  The “1. Install External X-TAPE Drive” section should read:

Task Performed By: AT&T field technician

When migrating from the *INTEL* platform to the High-Performance Platform, AT&T field technicians must install an external 5-GB or 14-GB X-TAPE drive on the existing *INTEL* machine. The X-TAPE drive installation should take place about one week prior to the migration. The X-TAPE installation allows the *INTEL* computer to:

- back up data faster than with the internal ¼ -inch cartridge tape drive
- use less tapes during the backup.

AT&T field technicians will then use the 5-GB tape drive on the High-Performance Platform to do the migration.

Chapter 4, *INTEL*-to-High-Performance Platform Migration—Multiple ACDs

- Page 4-23

  The 5-GB tape drive has been replaced by a 14-GB tape drive (7-GB in uncompressed mode).

  Step 1 of the “10. Restore Customer UNIX System Files” section should read:

Task Performed By: Customer

The CMS administrator restores any UNIX system files created by the CMS users to the High-Performance Platform.

From the High-Performance Platform:

1. Insert the 8mm cartridge tape that contains the backup of customer UNIX system files into the external X-TAPE tape drive.

Chapter 4, *INTEL*-to-High-Performance Platform Migration—Multiple ACDs

- Page 4-31

  The 5-GB tape drive has been replaced by a 14-GB tape drive (7-GB in uncompressed mode).

  The first paragraph of the “19. Remove External X-TAPE Drive” section should read:

Task Performed By: AT&T field technician

Once the migration is complete, AT&T field technicians remove the external X-TAPE drive and its associated software from the *INTEL* computer.

Chapter 7, High-Performance Platform-to-*INTEL* Migration

- Page 7-2

  The 5-GB tape drive has been replaced by a 14-GB tape drive (7-GB in uncompressed mode).

  The first bullet of the “1. Do a Full Maintenance Backup from the High-Performance Platform—Tape Density” section should read:

- You can back up using the High-Performance Platform 14-GB 8mm tape drive (running at low, medium, or default (uncompressed) density) if your *INTEL* machine has an external 8mm tape drive.

Major Differences

This chapter describes the major software differences between Issue 1.10 (3raof) and Issue 1.11 (3raqf) of the Release 3 Version 2 (R3V2) Call Management System (CMS) Software.

Data, Database Items, and Calculations

Data

- There are no changes to CMS data implemented with this issue of CMS.

Database Items

- There are no new or changed database items implemented with this issue of CMS.

Calculations

- There are no new or changed calculations implemented with this issue of CMS.

Reports

Historical

- The Agent Group Summary report now queries CMS based on the current ACD. This alleviates the possibility of the report picking up agents from another ACD that has an agent group with the same name.

Real-Time

- There are no changes to the Real-Time Reports subsystem with this issue of R3V2 CMS.

Timetables and Shortcuts

- Exiting a window with *Keep* mode running no longer causes corruption in timetables and shortcuts.
- Timetables that were scheduled close to midnight could end up running multiple times.

Dictionary

- There are no changes to the Dictionary subsystem with this issue of R3V2 CMS.

Exceptions

- There are no changes to the Exceptions subsystem with this issue of R3V2 CMS.

ACD Administration

- There are no changes to the ACD Administration subsystem with this issue of R3V2 CMS.

User Permissions

- There are no changes to the User Permissions subsystem with this issue of R3V2 CMS.

System Setup

- There are no changes to the System Setup subsystem with this issue of R3V2 CMS.

Maintenance

- There are no changes to the Maintenance subsystem with this issue of R3V2 CMS.

Custom Reports

- Using the custom report editor to copy certain standard reports no longer generates an error message.

Forecast

- When Forecast is run for trunk performance, the user should see a number for estimated trunks required that is higher than the actual number of trunks when the estimated blocking is high.

User Interface

- There are no changes to the User Interface with this issue of CMS.

Miscellaneous

Printing

- CMS now supports network printers, and the printer administration screen recognizes networked and direct printers.
- Banner pages now print, independent of the type size (normal, pica, or elite).
- Print jobs that are set to compressed pica or elite now print, regardless of banner being set to “y” or “n”.

High-Performance Platform

- CMS backup used to attempt to retension 8mm tape drives. Since 8mm tape drives cannot be retensioned, this caused a series of error messages to log in the */var/adm/messages* file.

  The retension function has been modified and no longer attempts to retension the 8mm tape drives on the *Sun*[*] machines. No more errors due to backup retensioning should be logged to the file.

- *Solaris*[†] patches are installed using the */tmp/patches/install_patches* routine. Formerly, if there were no new patches to install, the routine would not execute because execute permission was not set. Now, the file is executable, whether there are new patches or not.

  When the *install_patches* routine is run or an install is being done with the CD-ROM and there are no new patches to be installed, the following message displays:

  ```
  All required Solaris patches are already installed
  Solaris patch installation is complete
  ```

- CMS now supports up to seven Network Terminal Servers (NTSs).

*Sun is a registered trademark of Sun Microsystems, Inc.
†Solaris is a registered trademark of Sun Microsystems, Inc.

Software Compatibility

The following paragraphs outline software requirements for R3V2 CMS to operate correctly.

R3V2 CMS does not co-reside with other software packages. This includes both packages running concurrently and those merely installed. R3V2 CMS modifies the *UNIX*[*] system tunable parameters automatically to accommodate system requirements.

This release of R3V2 CMS software is compatible only with Version 1.6 and later of the CMS R2 Migration (PG-3E257). Earlier issues of CMS R2 will not migrate successfully.

INTEL Platform

The following software is required for R3V2 CMS to operate correctly on the *INTEL* [†] platform:

- *UNIX* System V Release 3.2.3 and associated utilities, including SCSI Support Package Version 2 and *UNIX* SVR 3.2.3 Maintenance Disk #1
- Korn Shell Version 11/16/88d 386 Release 2.0
- *INFORMIX*[‡] SE 4.10.UD1 (Runtime Version)

  INFORMIX SQL 4.10.UC2 (Development Version) is optional software with R3V2 CMS
- X.25 Network Interface Software Version 1.2.1 SL1.51.1.25.

Sun Platform

The following software is required for R3V2 CMS to operate correctly on the *Sun* platform:

- *Solaris* 2.4 Hardware 3/95
- *SunLink*[**] HSI/S 2.0 revision A, dated 6/93 (if you have the HSI/S card installed)
- 1.0 *Sun* Network Terminal Server revision A
- *SunLink* X.25 8.02 revision A, dated 10/94
- INFORMIX SE 5.04.UC1

  INFORMIX SQL 4.13.UD1 is optional.

*UNIX is a registered trademark of Novell, Inc.
†INTEL is a registered trademark of Intel Corporation.
‡INFORMIX is a registered trademark of Informix Software, Inc.
**SunLink is a registered trademark of Sun Microsystems, Inc.

Hardware Compatibility

R3V2 CMS is certified to run on the hardware outlined in the following paragraphs.

INTEL Platforms

R3V2 CMS is certified to run on the following processor platforms:

- **6386 WGS 25/S and AT&T 6386 WGS 33/S**

  For the WGS processors, the alternate console configuration is required. In addition to the base processor, the following may be added based on customer configuration needs:

  — GPSC-AT/E X.25 kit(s) and 2-port RS232 cable(s)

  — 4/16 MB Memory Expansion Board

  — N80387-6386/25 or 6386/33 math coprocessor

  — IPC 1600 Ports Card(s) and Ports Cabinet(s), or MEGAPLEX-96 board

  — Remote Maintenance Package and software, Version 2.0.

- ***StarServer*® S**

  For the *StarServer* S processor, the VGA 600 card and monitor is required for the console. In addition to the base processor, the following may be added based on customer configuration needs:

  — Additional SIMM memory on the system board

  — SCSI Streaming Tape Unit

  — GPSC-AT/E X.25 kit(s) and 2-port RS232 cable(s)

  — IPC 1600 Ports Card(s) and Ports Cabinet(s), or MEGAPLEX-96 board

  — Remote Maintenance Package and software, Version 2.0.

- **3332**

  For the 3332 processor, the following may be added based on your configuration needs:

  — Additional SIMM memory on the system board

  — SCSI Streaming Tape Unit

  — GPSC-AT/E X.25 kit(s) and 2-port RS232 cable(s)

  — MEGAPLEX-96 board (also IPC 1600 or Kickstart 2.5 board)

  — Remote Maintenance Board (RMB).

Sun Platforms

R3V2 CMS is certified to run on the following *Sun* processor platforms:

- *Sun SPARCserver** 5
- *Sun SPARCserver* 10
- *Sun SPARCserver* 20.

Switch Compatibility

R3V2 CMS has been certified with the ACD applications on the following switches:

- *DEFINITY* ® Communications System Generic 3 Version 3 (QPPCN 701)
- *DEFINITY* Communications System Generic 3 Version 2 Load 82 and later (QPPCN 644 G3i/s/vs) (QPPCN 646 G3r)
- *DEFINITY* Communications System Generic 3i Release 13.3 and later (QPPCN 576)
- *DEFINITY* Communications System Generic 3r Release 8.5 and later
- *DEFINITY* Communications System Generic 3s Release 14.2 and later
- *DEFINITY* Communications System Generic 2.2 Release 3.0 and later (with/without call center features) (QPPCN 696DR)
- *DEFINITY* Communications System Generic 2.1 Release 3.3 and later (QPPCN 629DR)
- *DEFINITY* Communications System Generic 1.1 Release 7.1 (QPPCN 559DR) and later
- System 85 Release 2.3 (QPPCN 560DR) and later.

Note

It may be necessary to upgrade the switch release before installing R3V2 CMS or before upgrading CMS. The required switch release for *DEFINITY* Generic 3r has been changed since CMS Issue 1.3. These switch releases will also work with previous issues of R3V2 CMS. The switch should be upgraded to the specified release before installing R3V2 CMS.

*SPARCserver is a trademark of SPARC International.

WGS, *StarServer* S, and 3332 Computer Upgrade Instructions

The following procedures allow you to upgrade your CMS software at your convenience. Follow these instructions carefully.

Pre-Upgrade Procedure

You **must** complete the following steps immediately prior to beginning the upgrade to Issue 1.11.

Failure to complete the pre-upgrade steps may result in an inability to recover from an unsuccessful upgrade, possible loss of data, and/or significant recovery time.

1. Ensure that copies of the current R3V2 CMS software load and the latest full backup tapes are available.

   Failure Recovery: If you do not have a current R3V2 CMS software load, call the AT&T Call Center Helpline on 1-800-344-9670. If you do not have a current full maintenance backup available, perform a full maintenance backup before proceeding with these steps.

2. From the System Console, log in as *root*.
3. Verify that the tape drive status light is off and the drive is not being used for any other purpose (for example, scheduled backups).

   Failure Recovery: If the tape light is stuck on, do the following steps depending on your host computer model:

   WGS and StarServer® S computers

   a. Put a writable tape into the drive. Wait for the tape to reposition.
   b. Eject the tape.
   c. Put the tape back in and wait for it to reposition.
   d. Enter this command at the # prompt: > **`/dev/scsi/qtape1`**
   e. The tape light should go out.

   3332 computers

   a. Put a writable tape into the drive. Wait for the tape to reposition.
   b. The tape light should go out.

4. Verify that the tunable parameters are set to the recommended CMS values by entering:

   `/cms/toolsbin/chktunes`

   Warning The `chktunes` command is available only on the CMS 3rakg and later loads. If you are running an earlier load of CMS, skip this step.

   You will see the message `Checking the System Tunables for correct CMS values`. If a message displays indicating that the check was successful, continue with Step 5.

   Failure Recovery:

   If any messages display about the tunables not being correct, call the AT&T Call Center Helpline on 1-800-344-9670.

5. Verify that you have sufficient space in */tmp* by entering the **`df -l /tmp`** command.

   Note This load of CMS is made of seven files, totalling 58,695 blocks in */cms* on the *INTEL* target.

6. Verify you have sufficient space in */cms* by doing the following:

   a. Determine the amount of available space by entering the **`df -l /cms`** command.

   b. Determine the amount of space required by the current CMS package by entering the following command:

      `pkgparam cms IBSblocks IBSinodes`

   c. The number of blocks and inodes are displayed.

   d. Compute the difference between the old and new load for blocks and inodes, and compare the amount of available space computed in Step 1.

7. Enter the **`cmsadm`** command to display the CMS administration menu. Select the `backup` option.

If CMS is turned on, CMS will be automatically turned off during the backup. The program takes approximately 50 minutes to write each tape that is needed for the backup. For more information, see the "Performing a CMSADM Backup" section in Chapter 8 of the *CMS R3V2 Installation and Maintenance* (AT&T 585-215-122) document.

Failure Recovery: The following error messages are the most common during a **`cmsadm`** backup and recovery.

— `Request failed. See /cms/install/logdir/backup.log for more information.`

If the window displays this message, you need to restart the backup after correcting the problem. Follow these steps to correct the problem:

a. Reseat the tape in the tape drive. The tape may not be seated correctly or the tape may have been removed during the backup.

b. Turn off write protect if the black arrow in the upper left-hand corner of the cartridge tape is pointed to “safe”.

c. The tape is bad if this message also displays on the console terminal: `WARNING: ST01: HA 0 TC 3 LU 0: Err 60503005 CMD 0000000A Sense Key 00000004 Ext Sense 00000000.` Discard that tape and try another one.

— `That didn’t work, cannot open “/dev/scsi/qtape1” Change to part X and press RETURN key. [q] Permission denied.`

This error displays if you are performing a multiple tape backup, the tape you inserted is not the first tape (it is the second, third, etc.), and the tape is write protected.

You do not have to restart the backup. Simply remove the tape from the tape drive, turn off write protect by moving the black arrow to point opposite “safe”, reinsert the tape into the drive, and continue the backup.

As the backup progresses, the program displays a series of dots to indicate that it is writing files to tape, one dot per file.

You may have a problem if you notice one of the following:

- You see that dots are not printing (wait at least 10 minutes).
- The tape is not spinning.
- Messages are not displayed informing you to change tapes or that the backup has completed.

If you encounter problems, call the AT&T Call Center Helpline on 1-800-344-9670.

Software Upgrade Procedure

The `installpkg` command will automatically upgrade your system.

Warning **Check your upgrade tapes to ensure that you have been shipped the right ones. The tapes for this upgrade should have 1.11 as the version number and specify that they are for the *INTEL* platform.**

Caution You must have completed the Pre-Upgrade Procedure before you continue with the steps below. The upgrade procedure will result in approximately 30 to 60 minutes of outage on the R3V2 CMS.

Note It is no longer necessary to turn off CMS, you will be prompted to do so in Step 10.

Use the following steps to upgrade your CMS software:

1. From the System Console, log in as *root*.
2. Enter the **`installpkg`** command.
3. When prompted, select the cartridge tape option, and press Return.
4. The program requests that the tape be inserted into the tape drive. Insert the CMS cartridge tape into the tape drive, wait for the tape drive to reposition, then press Return .
5. When prompted, press Return to retension the tape. Retensioning the tape takes approximately 3 minutes.
6. After the tape retensions, the program displays information on selecting the packages to be installed. Press Return to continue.

Failure Recovery: For Steps 4 through 6, proceed through the tasks below until you recover from the tape drive failure:

- Retry:
  a. Follow the prompts to exit the `installpkg` program.
  b. Reposition the cartridge tape in the tape drive.
  c. Restart the Software Upgrade Procedures.
- Reboot the CMS by entering the **`shutdown -i6 -g0 -y`** command.

- Call the AT&T Call Center Helpline on 1-800-344-9670.

7. Select the Call Management System package and press Return.
8. Press Esc to indicate that all selections have been made. Press Return. Press Return again in response to the `REMINDER!` message.

The program takes about 3 minutes to locate the CMS software on the tape and then verifies that the software packages required to run with CMS are present.

Failure Recovery: If a required software package is missing, an error message appears indicating that CMS cannot be installed. Press Esc to stop the upgrade. Since CMS is still running the old load, stopping the upgrade now is not service affecting. Write down the missing package and call the AT&T Call Center Helpline on 1-800-344-9670. If you turned CMS off, you can turn it back on.

9. The program now asks if you backed up your file systems. If you followed the pre-upgrade instructions, you have already backed up your file system. Enter **y**.

The program takes 5 to 10 minutes to remove the software associated with the previous issue of CMS.

If you did not follow the pre-upgrade instructions, enter **n** and refer to the Pre-Upgrade Procedure for information on backing up your file system. Then, restart the Software Upgrade Procedure.

10. Next, the program asks if you want to turn off CMS. Enter **y** to proceed with the upgrade.

If you enter **n**, you will be returned to the system prompt.

If you answer **y**, the program continues:

```
Stopping UNIX log ... done
>>Retaining customer data.
/etc/conf/init.d/ilog
/etc/conf/node.d/osm
/etc/logit
/usr/bin/cms
/usr/bin/cmsadm
. . . .
. . . .
. . . .
```

The program takes about 5 to 10 minutes to remove the software associated with the previous issue of CMS. You may ignore any errors or warnings that occur during this step and the next. Critical errors will be detected during the package audit.

11. When the appropriate software has been removed, the program begins the download of the new issue of CMS.

```
Removal of Call Management System (3xxxx) is complete
## Installing files from cartridge tape
. . . . . .
. . . . . .
. . . . . .
. . . . . .
```

The program takes about 10 to 20 minutes to download the R3V2 CMS software from the cartridge tape to the hard disk. As the software is downloaded, several rows of periods display to indicate progress. Next, a list of downloaded files displays.

12. After the download, the program audits the new package installation.

```
## Auditing package installation
```

The audit takes about 5 to 10 minutes to complete.

Failure Recovery: If the audit fails, perform the following steps:

a. Write down the audit errors.
b. Call the AT&T Call Center Helpline on 1-800-344-9670.
c. Reboot CMS by entering the **`shutdown -i6 -g0 -y`** command.
d. Restart the Software Upgrade Procedure.
e. If the audit passes, proceed to Step 13. If the audit fails again, execute the **`shutdown -i6 -g0 -y`** command. Install the previous issue of CMS using the **`installpkg`** command.

13. If the audit is successful, the program upgrades your CMS data.

The upgrade of CMS data may take up to an hour — but in most cases takes significantly less. Dots display to indicate progress.

Failure recovery: If the upgrade fails, call the AT&T Call Center Helpline on 1-800-344-9670.

In some cases, the *UNIX* kernel is rebuilt. If the rebuild fails, note the failure exactly, and call the AT&T Call Center Helpline on 1-800-344-9670.

14. If a message displays indicating an automatic shutdown is being initiated, you will need to reboot the system. You can do this in one of two ways:

- Press the Return key which requires a manual reboot. **Wait** for the prompt `Reboot the system now` to appear, and then press the Reset button on the CMS processor.

  Do not press Reset until you see the `Reboot the system now` message; otherwise, file system damage may occur.

- Press the Esc key. The *UNIX* system prompt returns. Then, execute the **`shutdown -i6 -g0 -y`** command.

15. After the tape finishes rewinding (tape drive light is not lit), remove the cartridge tape.

16. After the CMS software is installed, enter the **`cmsadm`** command to display the CMS administration menu. Select the `run_cms` option, and turn on CMS to start collecting data.

The program takes a few minutes to initialize the system parameters. Turning on CMS initializes the communications link between the CMS software and the switch.

Post-Upgrade Procedure

After the upgrade, complete the following steps:

1. From the System Console, log in as *root*.
2. Enter the **`cmsadm`** command to display the CMS administration menu. Select the `backup` option.

   See Step 4 of the Pre-Upgrade Procedure for information about the cmsadm backup and the failure recovery steps.
3. Enter **`exit`** at the # prompt.
4. Log in as the CMS administrator.
5. A full CMS Maintenance Backup **must** be done prior to any incremental backups that are either scheduled or manually completed.

   If this step is not completed, any incremental backups will fail, since they must follow a full backup of the current load.
6. Contact the AT&T Call Center Helpline on 1-800-344-9670, and notify the agent that the upgrade to the new issue of CMS has been completed.

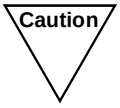
   It is important to complete this step so the TSC can check the error logs and update their database.

This completes the upgrade of the R3V2 Call Management System!

Sun SPARCserver Computer Upgrade Instructions

***Solaris* must be upgraded to version 2.4 prior to installing CMS Issue 1.11.** Call the AT&T Call Center Helpline on 1-800-344-9670 for assistance.

This section describes how to upgrade the R3V2 CMS software application on *Sun SPARCserver* computers.



To do an upgrade, you must have sufficient free space on your disk to accommodate all the data you want to collect. See the "Pre-Upgrade Procedures" section below for details.

If your current disk space allocation specifies more items to be measured for longer lengths of time than you actually have space for on your disks, you must do the following:

- Purchase additional disks
- Change the length of time for which the data is stored
- Change the number of entities measured before you do an upgrade.

Pre-Upgrade Procedures

Prerequisites:

Before you upgrade a system to a new base load or install a field update, do the following:

- **Upgrade *Solaris* to version 2.4 prior to installing CMS Issue 1.11.** Call the AT&T Call Center Helpline on 1-800-344-9670 for assistance.
- You must be logged in as *root*, the computer must be in run-level 2 or 3, all file systems must be mounted, and CMS must be turned OFF.

Note

The upgrade process for *Solaris* and CMS will take approximately 5 hours to complete.

This does not include the time required to backup the system.

- Do a full file system backup. See the "Performing a CMSADM Backup" section in Chapter 8, "Maintenance," in the *CMS R3V2 Sun SPARCserver Computers Installation and Maintenance* (AT&T 585-521-129) document.
- Make sure you have the CD-ROM that contains the new base load or field update software.
- Verify that you have sufficient space in */tmp* by entering the **`df -l /tmp`** command.

  Note

  This load of CMS requires approximately 90,500 blocks and 1500 inodes in */cms* on the *Sun* target.

- Verify you have sufficient space in */cms* by doing the following:

  1. Determine the amount of available space by entering the **`df -l /cms`** command.
  2. Determine the amount of space required by the current CMS package by entering the following command:

     `pkgparam cms IBSblocks IBSinodes`

     The number of blocks and inodes are displayed.
  3. Compute the difference between the old and new load for blocks and inodes, and compare the amount of available space computed in Step 1.

To Upgrade CMS, use the following **required** procedures:

- Remove installed field updates (if present)
- Remove the current CMS base load
- Install the new *Solaris* patches (if needed)
- Install the new CMS base package.

Remove Installed Field Updates

Do these steps to determine if a field update is installed:

1. Start the remove installed field update procedure by entering:

```
# pkginfo cms.*
```

   The program responds:

```
application cms            Call Management System
application cms.x          Call Management System

    (where x + the field update number)
```

   Note If more than one package is displayed (for example, `application cms.2`), you can determine that there is a field update installed.

2. Enter the following commands:

```
# pkgrm cms.2

    (where x = the field update number)
```

   The program responds:

```
The following package is currently installed:
    cms.x              Call Management System
                        (sparc) 3rxxx

Do you want to remove this package [y,n,?,q]
```

3. Answer **y**.

   The program responds with a list of files that will be changed due to the removal of the update:

```
## Verifying package dependencies.
## Processing package information.
## Excecuting preremove script.
## Removing pathnames in class <ind>
/cms/install/bin/upd_save <shared pathname not removed>
/cms/install/bin/turn_on_cms <shared pathname not removed>
/cms/install/bin/turn_off_cms <shared pathname not removed>
/cms/install/autoconfig <shared pathname not removed>
/cms/install/auditmap <shared pathname not removed>
## Removing pathnames in class <edit>
>> Leaving sun patches installed.
## Removing pathnames in class <sun_fix>
>> Leaving sun patches installed.
## Removing pathnames in class <op_fix>
>> Leaving other package fix files installed.
## Removing pathnames in class <data>
>> Retaining customer files and directories.
## Executing postremove script.
```

If the removal is successful, this message displays:

```
Restoring old CMS software
/cms/install/auditmap
/cms/install/autoconfig
/cms/install/bin/turn_off_cms
/cms/install/bin/turn_on_cms

Updating installation software database.

Removal of Call Management System (3rxxx) is complete
## Updating system information.

Removal of <cms.x> was successful.
```

The system prompt returns to your screen.

The installed field updates (if present) are removed from the CMS software. You can now remove the current CMS base package.

Remove Current CMS Base Package

Do these steps to remove the current CMS base package:

1. To start to remove the current CMS base package, enter the following command:

   The program responds:

```
The following package is currently installed:
   cms               Call Management System
                      (sparc) 3rxxx

Do you want to remove this package [y,n,q,?]
```

2. Answer **y**.

   The system responds:

```
## Removing installed package instance <cms>

This package contains scripts which will be executed with
super-user permission during the process of removing this
package.

Do you want to continue with the removal of this package
[y,n,q,?]
```

3. Answer **y**. The system responds:

```
## Verifying package dependencies.
## Processing package information.
## Executing preremove script.

Do you want to preserve CMS data? [y,n,?]
```

4. Answer **y.** The system responds:

```
CMS will be removed from this machine; the data will be
preserved.

Are you sure this is correct? [y,n,?]
```

5. Answer **y.** The system responds:

```
All file systems should be backed up before continuing.
See the maintenance chapter in the CMS Installation and
Maintenance Manual for instructions.

Have you backed up the file systems? [y,n,?]
```

Note If you have not backed up the file systems, answer n.

Back up your file systems and start the upgrade process again.

6. Answer **y** if you have done backups. The system responds:

```
## Removing pathnames in class <ind>
/usr/lib/cms/trmaps
/usr/informix/etc/termcap
/usr/bin/cmssvc
   .
   .
   .
```

If the removal is successful, this message displays:

```
Removal of <cms> was successful.
```

The system prompt returns to your screen.

After you remove the current CMS base package, you can install *Solaris* patches, then the new CMS issue.

Install New *Solaris* Patches

Depending on the needs of your system, you may or may not need to install *Solaris* patches. If *Solaris* patches are available, you must install them on your system.

Do these steps to install new *Solaris* patches:

Note The CD-ROM containing the new patches will be required in the CD-ROM drive.

1. Remove the CMS CD-ROM from its case. If you have an external CD-ROM drive, follow the steps below. Otherwise, go to step 2.
   a. Place the CMS CD-ROM in the CD-ROM caddy. When the CD-ROM is properly inserted in the caddy, the CD-ROM label is visible.
   b. Insert the CD-ROM caddy into the CD-ROM drive slot.
   c. Go to step 5.
2. Open the CD-ROM drive tray by pressing the eject button on the CD-ROM drive unit.
3. Gently press the CD-ROM in place in the CD-ROM disk tray. When the CD-ROM is properly inserted in the disk tray, the CD-ROM label is visible.
4. Push the CD-ROM drive tray in (towards the system unit) until it closes.
5. Enter:

```
# pkgadd -d /cdrom/cms
```

The system responds:

```
The following packages are available:
  1 cms          Call Management System
                 (sparc) S3racc
  2 spatches     CMS Supplied Solaris Patches
                 (sparc) 1.0

Select package(s) you wish to process (or 'all' to process all
packages). (default: all) [?,??,q]:
```

If the *spatches* package is displayed, you must install it.

6. Enter **2** to select *spatches*. The system responds:

```
Processing package instance <spatches> from </dev/rmt/0>

CMS Supplied Solaris Patches
(sparc) 1.0
AT&T
Installation of this package will cause CMS-required Solaris
patches to be spooled into /tmp/patches. After the patches are
spooled into /tmp/patches, one must install the patches by
running a script called /tmp/patches/install_patches. In
addition, the script will backout any patch that needs to be
removed prior to installing a required patch. Patches
currently installed are not affected by installing this
package.

Do you want to spool Solaris patches into /tmp/patches?
```

7. To spool *Solaris* patches into /tmp/patches file, enter **y**. The system responds:

```
## Processing package information.
## Processing system information.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.
## Checking for setuid/setgid programs.

This package contains scripts which will be executed with
super-user permission during the process of installing this
package.

Do you want to continue with the installation of this package?
[y,n,?]
```

8. To continue with the installation of this package, enter **y**.
   The system responds:

```
Installing CMS Supplied Solaris Patches as <spatches>

XX Installing part 1 or 1.
Spooling 100982-02
Spooling 100992-03
Spooling 100999-51
Spooling 101014-05
Spooling 101018-07
   .
   .
   .

Patches successfully saved

Solaris patches were copied to /tmp/patches.
To install the solaris patches, run the following command:
   /tmp/patches/install-patches
```

9. To install the *Solaris* patches, enter the following command:

```
# /tmp/patches/install_patches
```

Note Once the *Solaris* patches are installed, a reboot is necessary. Be sure to run the `/tmp/patches/install_patches` command before rebooting.

The system responds:

```
# /tmp/patches/install_patches
@(#) installpatch 3.5 93/04/28

generating list of files to be patched
Save old verisons of files to be patched
/var/sadm/patch/100982-02/save/kernel
/var/sadm/patch/100982-2/save/kernel/fs
/var/sadm/patch/100982-2/save/kernel/fs/fifofs
XXX blocks
Installing patch packages
Doing pkgadd of SUNWcsr package:
```

Response continues:

```
Patch installation finished
@(#) installation finished
generating list of files to be patched
Save old versions of files to be patched
/var/sadm/patch/100992-03/save/kernel
/var/sadm/patch/100992-03/save/kernel/drv
   .
   .
   .
Installing patch packages
Doing pkgadd of SUNWcsr package:

Installation of <SUNWcsr.7> was successful.
Patch installation finished
To complete the solaris patch installation, one should reboot
with the following command: shutdown -y -i6 -g0
#
```

Note Remember to reboot if instructed by the system.

10. To complete the *Solaris* patch installation, you must reboot your system using the following command:

```
# shutdown -y -i6 -g0
```

The installation of the new patches is complete. The system prompt returns to your screen. You are now ready to install the new CMS base package software.

Upgrade Procedures

The following paragraphs step you through the process of installing the CMS upgrade.

Install New CMS Base Package Software

Do these steps to install the new CMS base package software:

Warning **Check your upgrade CD-ROM to ensure that you have been shipped the right one. The CD-ROM for this upgrade should have 1.11 as the version number and specify that it is for the Sun platform.**

Note The CD-ROM containing the new CMS software load will be required in the CD-ROM drive.

1. Remove the CMS CD-ROM from its case. If you have an external CD-ROM drive, follow the steps below. Otherwise, go to step 2.
   a. Place the CMS CD-ROM in the CD-ROM caddy. When the CD-ROM is properly inserted in the caddy, the CD-ROM label is visible.
   b. Insert the CD-ROM caddy into the CD-ROM drive slot.
   c. Go to step 5.
2. Open the CD-ROM drive tray by pressing the eject button on the CD-ROM drive unit.
3. Gently press the CD-ROM in place in the CD-ROM disk tray. When the CD-ROM is properly inserted in the disk tray, the CD-ROM label is visible.
4. Push the CD-ROM drive tray in (towards the system unit) until it closes.
5. Start the upgrade procedure by entering:

```
# pkgadd -d /cdrom/cms
```

The program responds:

```
The following packages are available:
  1 cms          Call Management System
                 (sparc) 3rxxx
  2 spatches     CMS Supplied Solaris Patches
                 (sparc) 1.0

Select package(s) you wish to process (or 'all' to process all
packages). (default: all) [?,??,q]:
```

6. Enter **1**. The system responds:

```
Processing package instance <cms> from </dev/rmt/0>

Call Management System
(sparc) 3rxxx

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All Rights Reserved

Using </cms> as the package base directory.

Installing the Call Management System (3rxxx).

## Processing package information.
## Processing system information.
   138 package pathnames are already properly installed.
## Verifying package dependencies.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.

The following files are already installed on the system and
are being used by another package:
          /cms/install/logdir/admin.log
          /etc/init.d/sysetup
          /etc/system
          .
          .
          .

Do you want to install these conflicting files? [y,n,q,?]
```

7. Answer **y .** The system responds:

```
## Checking for setuid/setgid programs.

The following files are being installed with setuid and/or
setgid permissions or are overwriting files which are
currently setuid/setgid:
         /cms/bin/mqpeek <setuid root>
         /cms/bin/spi <setuid root>
         /cms/toolsbin/cmsu <setuid root>
         /cms/toolsbin/initSimConf <setuid root>
         /cms/toolsbin/initSimConf <setuid root>
         /cms/toolsbin/psx <setuid root>
         /cms/toolsbin/psx <setuid root>
         /cms/toolsbin/shmdump <setgid sys>

Do you want to install these setuid/setgid files [y,n,q,?]
```

8. Answer **y .** The system responds:

```
This package contains scripts which will be executed with
super-user permission during the process of installing this
package.

Do you want to continue with the installation of this package
[y,n,q,?]
```

9. Answer **y .**

   The system responds:

```
Installing Call Management System as <cms>

## Executing preinstall script.

## Installing part 1 or 1.
[ verifying class <data> ]
[ verifying class <op_fix> ]
   .
   .
   .
/etc/SUNWconn/x25/template/cms.spin1.wan
/etc/rc0.d/K92cms
/usr/bin/cms
/usr/bin/cmsadm
/usr/bin/cmssvc
/usr/informix/etc/termcap
/usr/lib/cms/trmaps
[ verifying class <ind> ]
## Executing postinstall script.

## Upgrading Customer CMS data . . .

Customer CMS data successfully upgraded.

Setting Solaris 2.4 system tunable parameters for CMS.
No changes to tunable parameters were required.

Installation of <cms> was successful.
#
```

Note If you are instructed to run `shutdown`, use the displayed command. See the "Install New Solaris Patches" section in this chapter for more information.

The installation of the new CMS base package is complete. The system prompt returns to your screen.

10. Enter:

```
# eject cdrom
```

11. Remove the CMS CD-ROM from the CD-ROM drive.

Verify CMS Base Package Software Installation

Do the following to verify the installation of the new CMS base package software:

1. Enter:

```
# pkgchk -n cms
```

If the software installation is successful, the system prompt returns to your screen.

If errors are detected, see Chapter 8, “Checking Installed Software Packages” in the *CMS R3V2 Sun SPARCserver Computers Installation and Maintenance* (AT&T 585-215-129) document for more information.

Install Field Update for New CMS Base Package

Do these steps to install the field update for the new CMS base package:

Note A field update is put on a separate tape. You may have new patches as part of an update. For details, see “Installing New *Solaris* Patches” in the “Updating CMS Software” section in Chapter 10, “Upgrading or Updating the CMS Software” in the *CMS R3V2 Sun SPARCserver Computers Installation and Maintenance* (AT&T 585-215-129) document.

1. Enter:

```
# pkgadd -d /dev/rmt/0 cms
```

The program responds:

```
Insert a tape into Tape Drive.
Type [go] when ready,
  or [q] to quit:
```

Note If a “Broken Pipe” message is displayed when using the `pkginfo -d /dev/rmt/0` command for a QIC 150 tape, ignore the message. This message has no effect on system operations.

2. Enter **go**. The system responds:

```
Processing package instance <cms> from </dev/rmt>

Call management System
(sparc) 3rxxx
AT&T
Using </cms> as the package base directory.

Installing the Call Management System (3rxxx).

## Processing package information.
## Processing system information.
## Verifying package dependencies.
## Verifying disk space requirements.
## Checking for conflicts with packages already installed.

The following files are already installed on the system and
are being used by another package:
           /cms/install/auditmap
           /cms/install/autoconfig
           /cms/install/bin/turn_off_cms
           /cms/install/turn_on_cms
           /cms/install/bin/upd_save
Do you want to install these conflicting files [y,n,q,?]
```

3. Answer **y**.

   The system responds:

```
## Check for setuid/setgid programs.

This package contains scripts which will be executed with
super-user permission during the process of installing this
package.

Do you want to continue with the installation of this package
[y,n,q,?]
```

4. Answer **y**. The system responds:

```
Installing Call Management System as <cms.2>

## Executing preinstall script.
Making backup copies of old files ...
/cms/install/update/file_bkup/cms/install/auditmap
/cms/install/update/file_bkup/cms/install/autoconfig
/cms/install/update/file_bkup/cms/install/bin/turn_off_cms
/cms/install/update/file_bkup/cms/install/bin/turn_on_cms
/cms/install/update/file_bkup/cms/install/bin/upd_save
165 blocks
## Installing part 1 of 1.
/cms/install/auditmap
/cms/install/autoconfig
/cms/install/autoconfig
/cms/install/bin/turn_off_cms
/cms/install/bin/turn_on_cms
/cms/install/bin/upd_save
[ verifying class <ind> ]
## Executing postinstall script.
```

Note You may be instructed to run `shutdown`. If you are instructed to run `shutdown`, then use the command displayed.

If the installation of the field updates is successful, this message displays:

```
## Upgrading Customer CMS data . . .

Customer CMS data successfully upgraded.

Setting Solaris 2.4 system tunable parameters for CMS.
No changes to tunable parameters were required.

Installation of <cms.2> was successful.
```

Installation of the field update for the new base load is completed. The system prompt returns to your screen.

5. Remove the cartridge tape after it finishes rewinding (drive light is not blinking).

Post Upgrade Procedures

Prerequisites: You must be logged in as *root*, the computer must be in run-level 2 or 3, all file systems must be mounted, and CMS must be turned OFF.

Upgrading CMS uses the following procedures:

- Verify the installation via `pkgchk`
- Restart CMS
- Back up upgraded CMS software.

Verify Field Update of New Software Installation

Do the following to verify the installation of the field updates for the new base load software is complete:

1. Enter **`pkgchk`** command*:*

```
# pkgchk -n cms.*
```

The CMS software is verified and upgraded.

If errors are detected, see Chapter 8, “Checking Installed Software Packages” in the *CMS R3V2 Sun SPARCserver Computers Installation and Maintenance* (AT&T 585-215-129) document for more information.

Restart CMS

Do the following to restart the CMS software:

1. Access the CMS Services menu by entering:

```
# cmssvc
```

   The system responds:

```
 Commands for CMS Services Personnel

Select a command from the list below.
  1) auth_display Display feature authorizations
  2) auth_set     Authorize CMS capabilities/capacities
  3) backup       Single-tape filesystem backup (in background)
  4) run_cms      Turn CMS on or off
  5) setup        Set up the initial CMS configuration
  6) swinfo       Display switch information
  7) swsetup      Change switch information
  8) upd_install  Install update from disk files
  9) upd_remove   Back out the currently installed update
 10) upd_save     Save update on disk for later installation
Enter choice (1-10) or q to quit:
```

2. Enter **4** to select the *run_cms* option. The system responds:

```
  Select one of the following
  1) Turn on CMS
  2) Turn off CMS
  Enter choice (1-2):
```

3. Enter **1** to turn on CMS.

   The system responds:

```
Turning on X25, please wait

Starting the X.25 software – please wait
X.25 has found a valid license
The network has been brought up.

Please wait for initialization.


***CMS is now up***
```

The system prompt returns to your screen.

Backup Upgraded CMS Software

Do a full CMS maintenance backup as soon as possible.

In the Back Up Data window, select **y** for the `Verify volume can be read after backup` field. In addition, the following fields should contain an `x`:

- All ACDs
- ACD-specific data
- System administration data
- Historical data
  - — Full

See the "Back Up Data" section in Chapter 12, "Maintenance" of the *CMS R3V2 Administration* (AT&T 585-215-521) document.

Note

CMS incremental maintenance backups will fail if a full backup is not done. See Chapter 8, "Maintenance," in the *CMS R3V2 Sun SPARCserver Computers Installation and Maintenance* (AT&T 585-215-129) document for file system and `cmsadm` backup procedures.

Custom Reports Document

Please add the following pages to your *CMS R3V2 Custom Reports* (AT&T 585-215-523) document.

Chapter 4, Defining the Data for a Custom Report

- Page 4-20

  The document has been modified to include a note after the last bullet that clarifies the use of whole numbers in queries.

  The note reads:

  Note

  The CMS real-time database only allows whole numbers in queries. If you need a value to be a decimal (for example, 9.5), use whole numbers and division to arrive at the correct number (so, in order to have 9.5 in a query, you would use 19/2 as the query entry).

Installation and Maintenance Document

Please add the following pages to your *CMS R3V2 Installation and Maintenance* (AT&T 585-215-122) document.

- You would not be able to remember the numerical value, but could remember a name assigned to the value (for example, for the $9.00 hourly wage rate for an agent called Smith, you could have a constant called Smithwage.)

  Note

  The CMS real-time database only allows whole numbers in queries. If you need a value to be a decimal (for example, 9.5), use whole numbers and division to arrive at the correct number (so, in order to have 9.5 in a query, you would use 19/2 as the query entry).

Chapter 4, Installing Terminals, Printers, and Modems

- Page 4-57 - 4-70

  The document has been modified to include information on the ADDS 2601f Color Terminal, which replaces the 615c color terminal.

  The new information is:

2900/260lf Small Footprint Terminal

The recommended 2900/260lf Terminal values are as follows. Twelve of the menus are accessed by the function keys F1 through F12. The thirteenth menu is accessed by the Print Screen key and provides terminal operations which may be executed.

In order to enter the terminal Setup mode, press Ctrl Scroll Lock. To exit Setup, press Pause and **y** or **n**.

F1 Quick Window

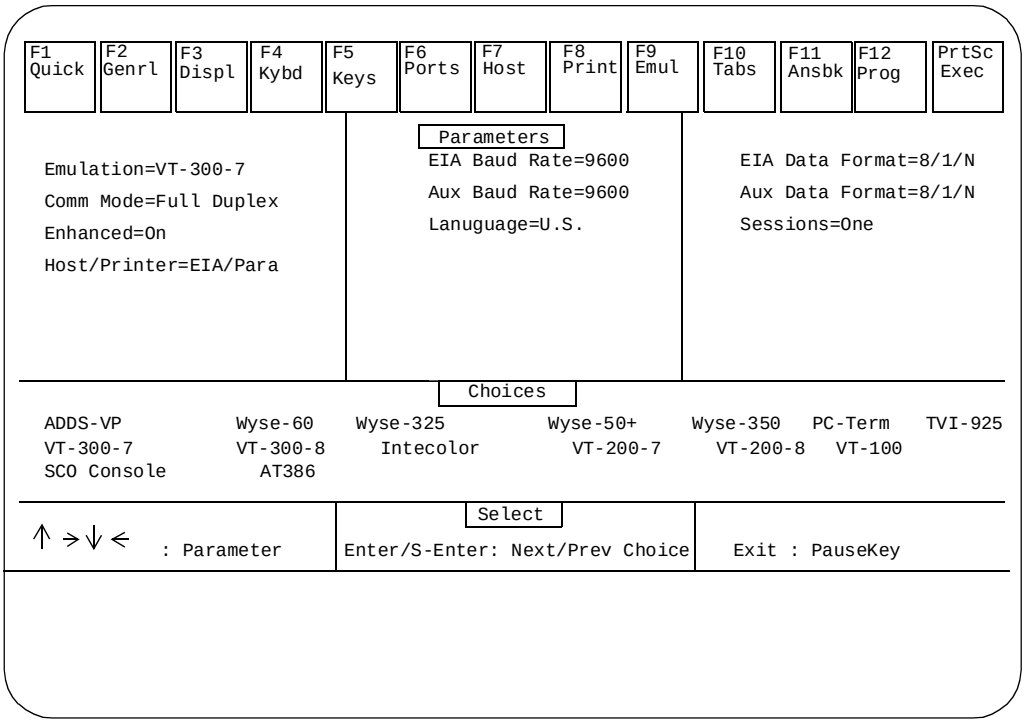

Figure 8-1: F1 Quick Values for a 2900/260lf

You must change the EIA Data Format parameter manually in Window F1 because the default is 7/1/N.

F2 Genrl (General) Window

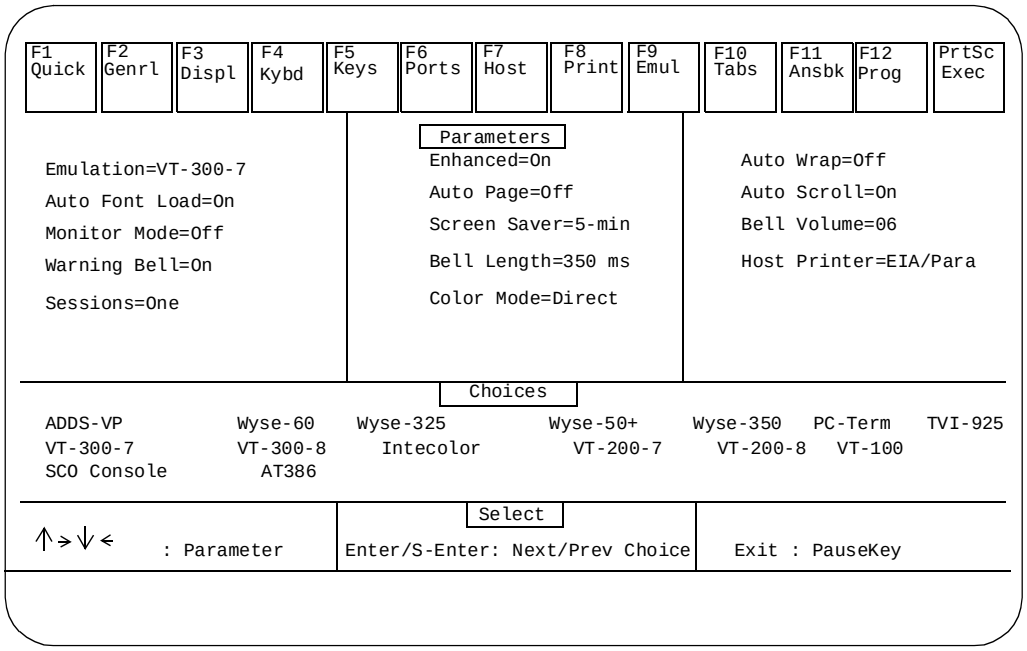

Figure 8-2: F2 Genrl Values for a 2900/260lf

F3 Displ (Display) Window

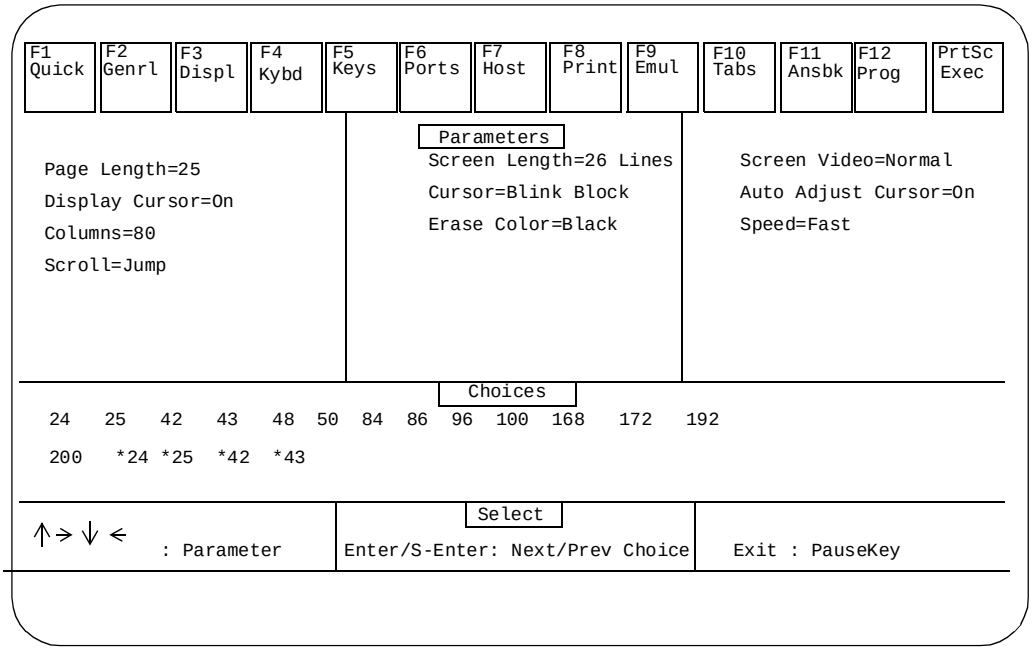

Figure 8-3: F3 Displ Values for a 2900/260lf

F4 Kybd (Keyboard) Window

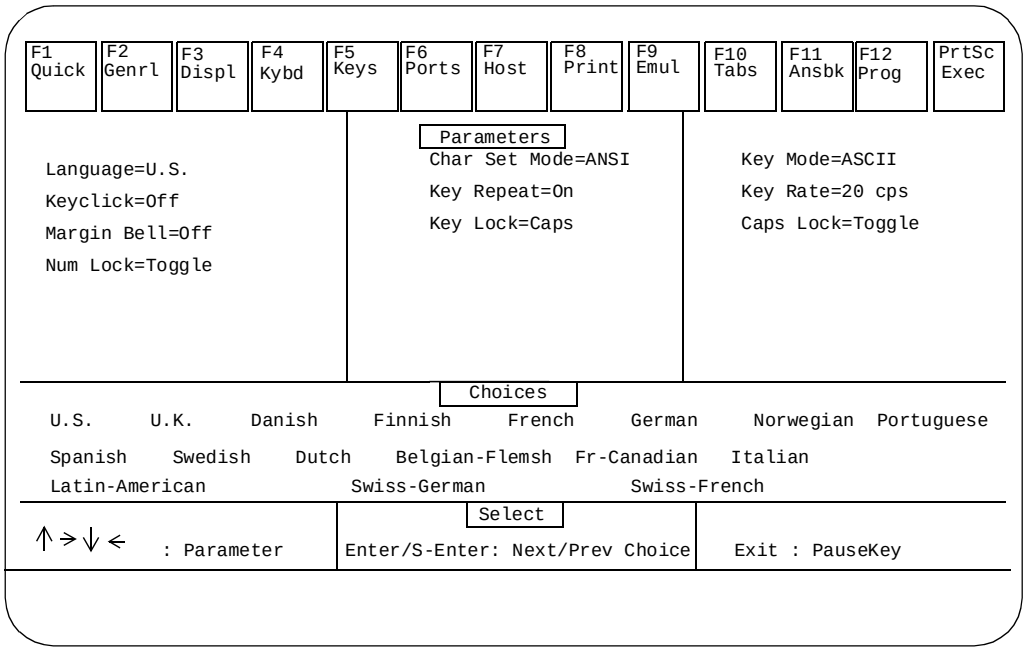

Figure 8-4: F4 Kybd Values for a 2900/260lf

F5 Keys Window

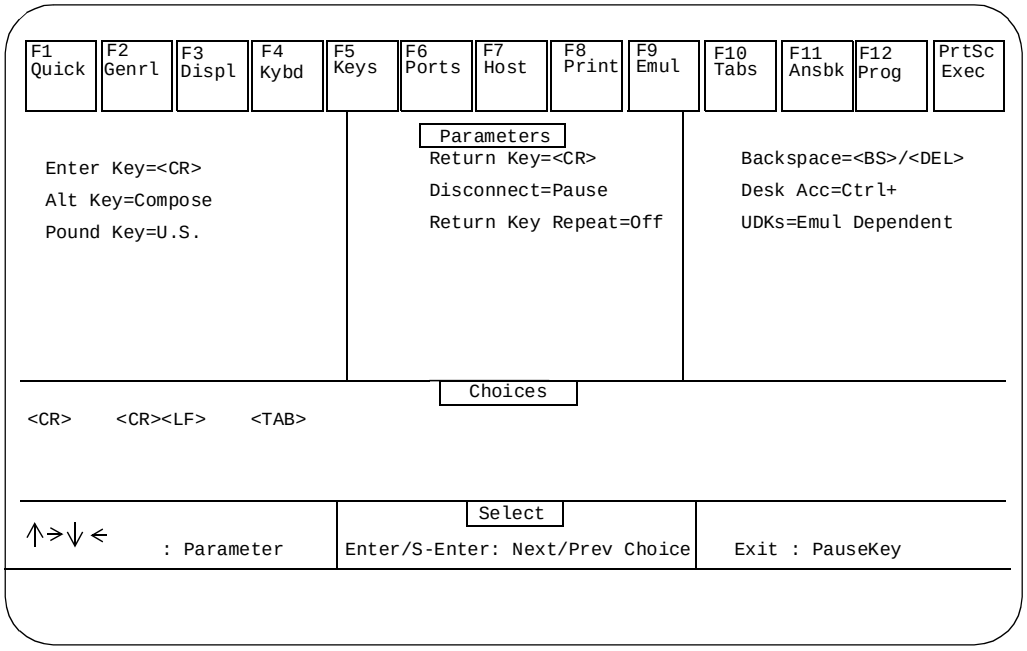

Figure 8-5: F5 Keys Values for a 2900/260lf

F6 Ports Window

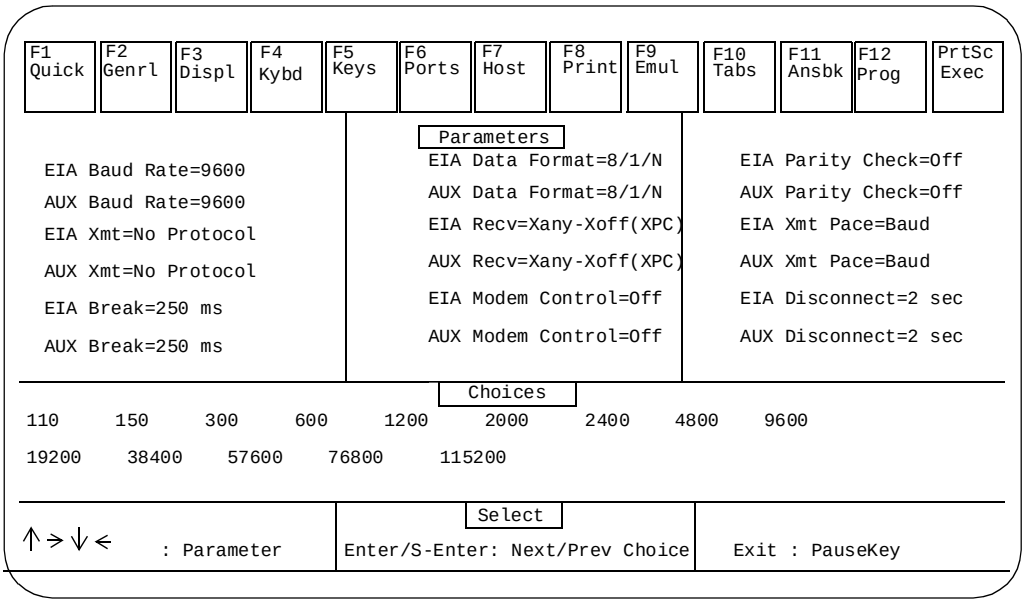

Figure 8-6: F6 Ports Values for a 2900/260lf

You must change the EIA Data Format parameter manually in Window F6 because the default is 7/1/N.

F7 Host Window

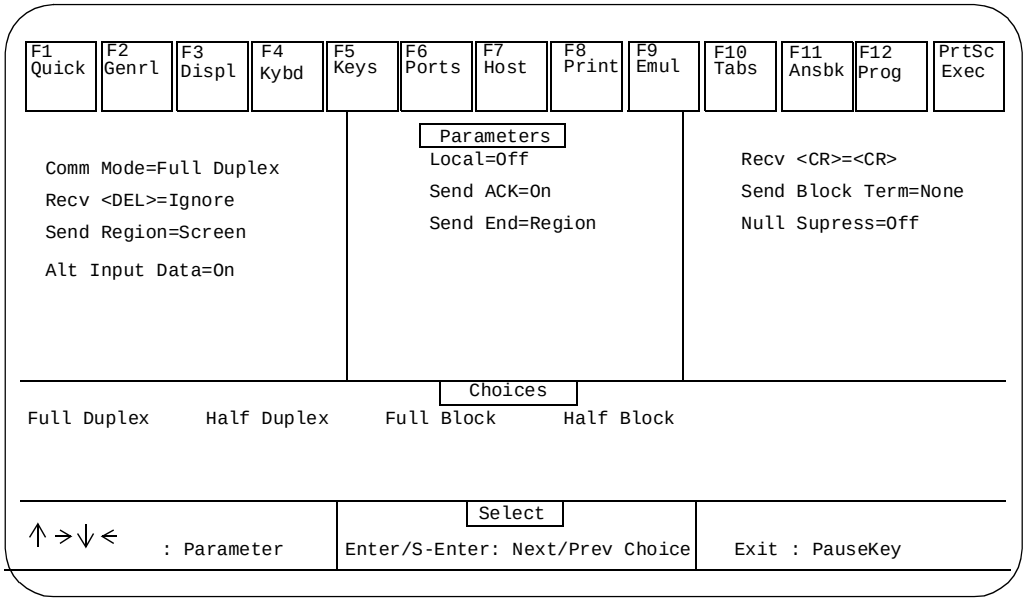

Figure 8-7: F7 Host Values for a 2900/260lf

F8 Print Window

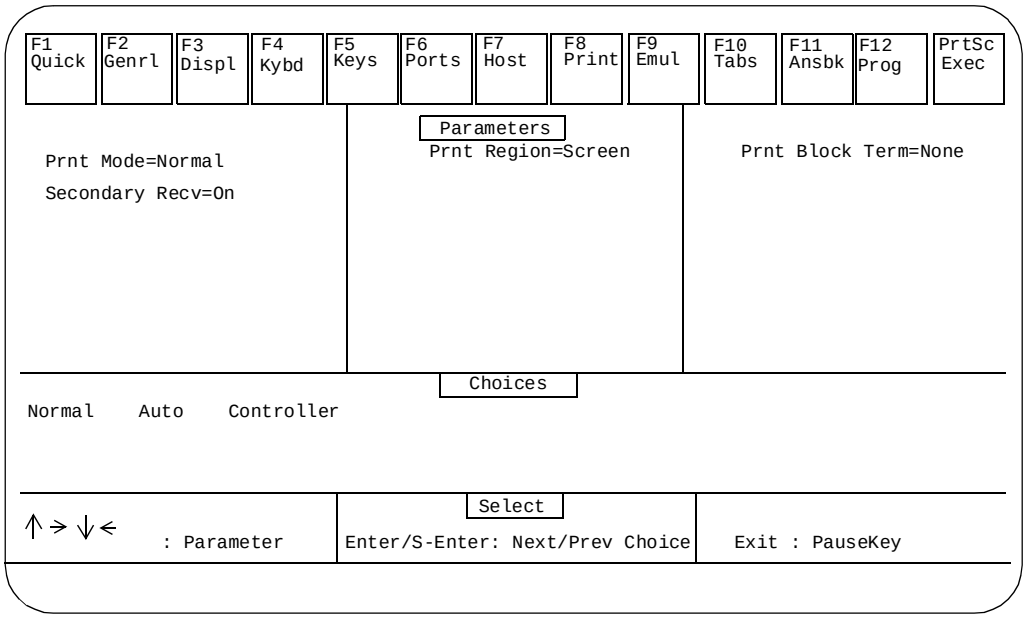

Figure 8-8: F8 Print Values for a 2900/260lf

F9 Emul (Emulation) Window

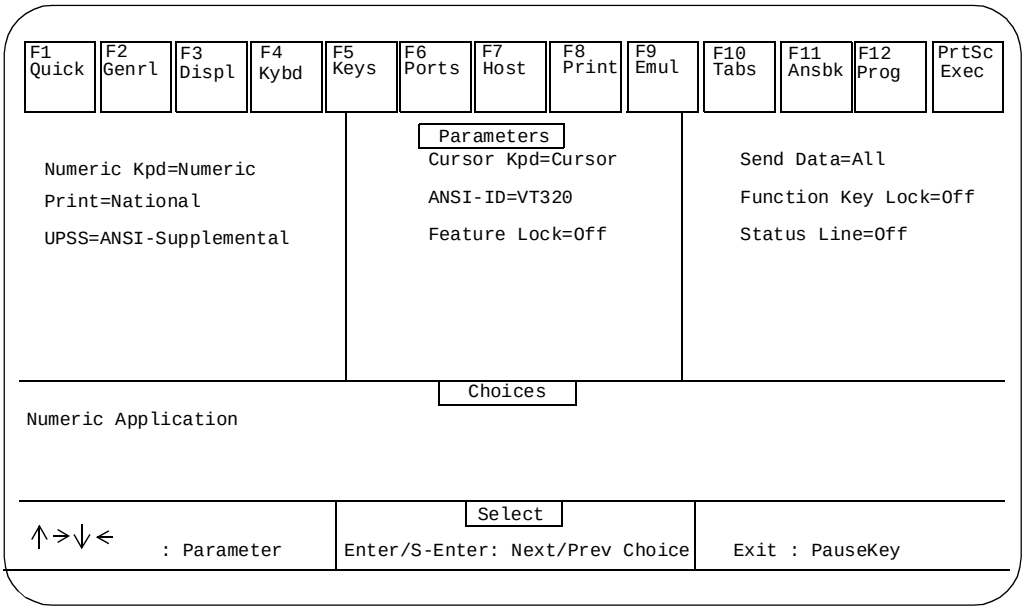

Figure 8-9: F9 Emul Values for a 2900/260lf

F10 Tabs Windows

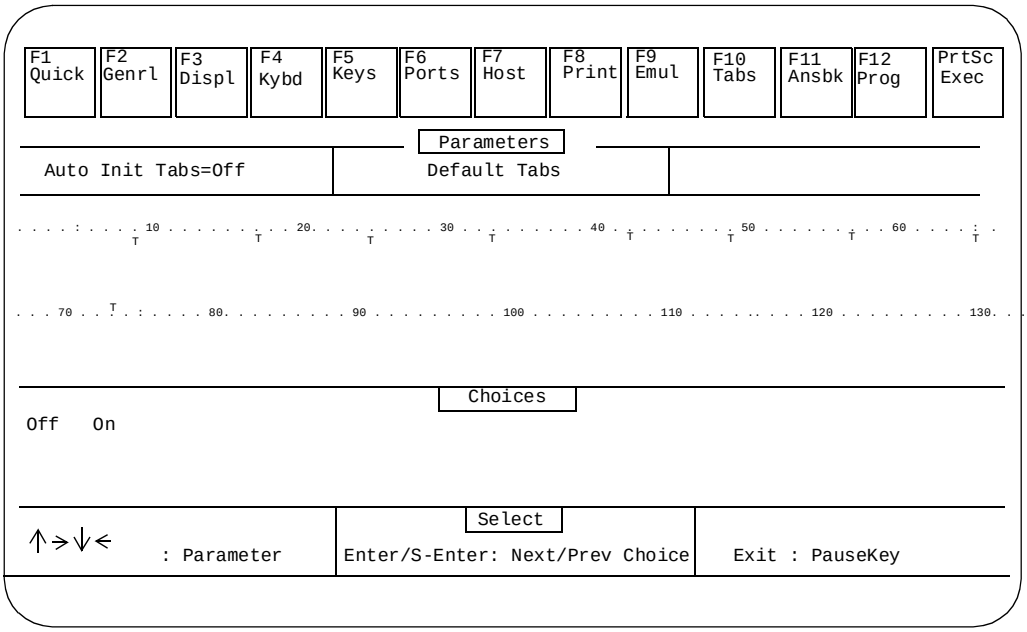

Figure 8-10: F10 Tabs Values for a 2900/260lf

F11 AnsBk (Answerback) Window

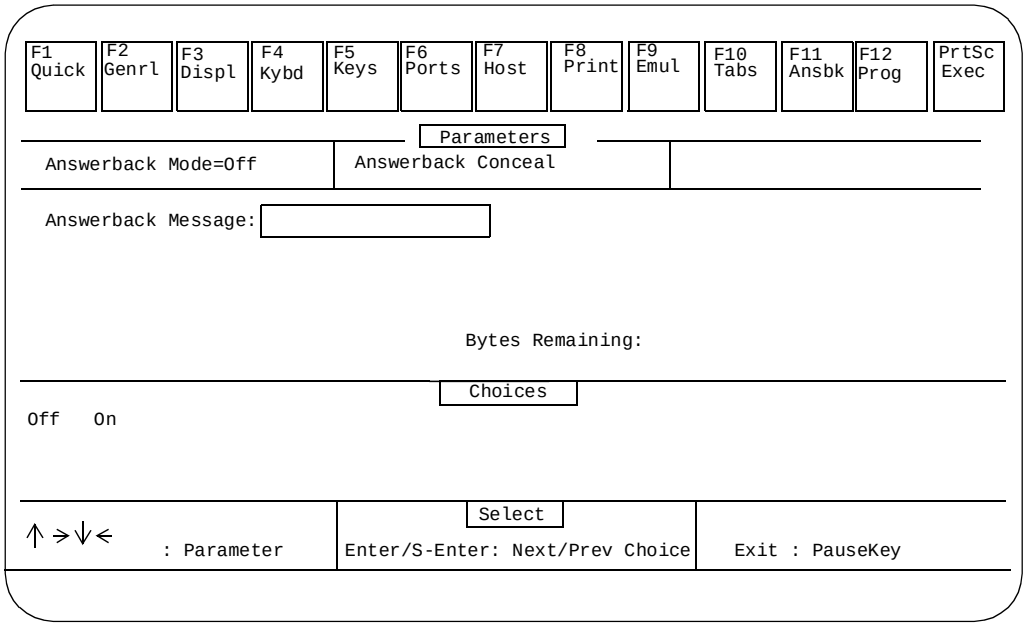

Figure 8-11: F11 AnsBk Values for a 2900/260lf

F12 Prog (Program) Window

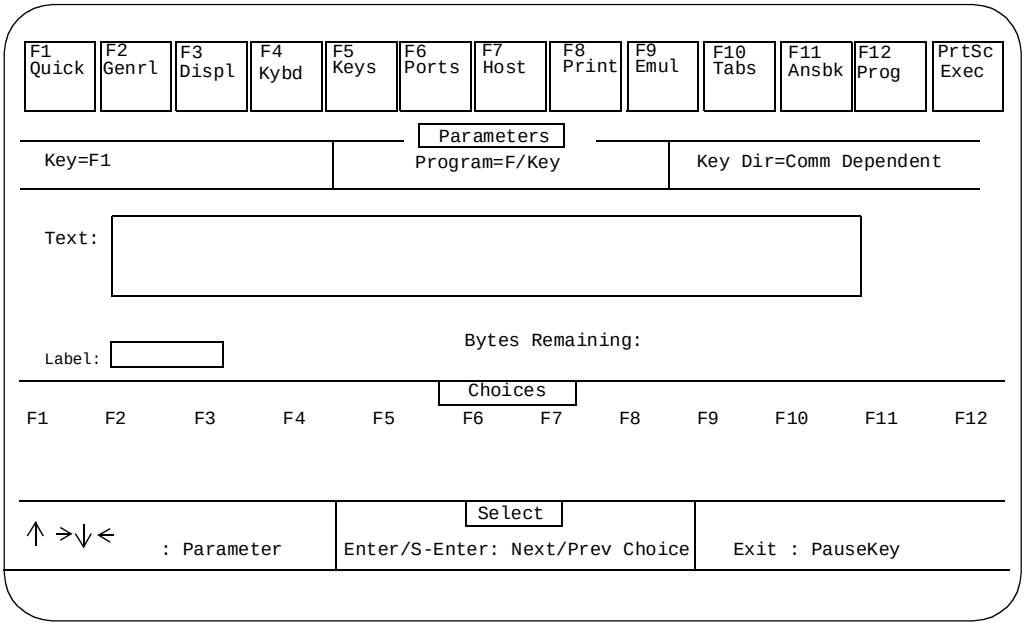

Figure 8-12: F12 Prog Values for a 2900/260lf

PrtSc Exec (Print Screen Execute) Window

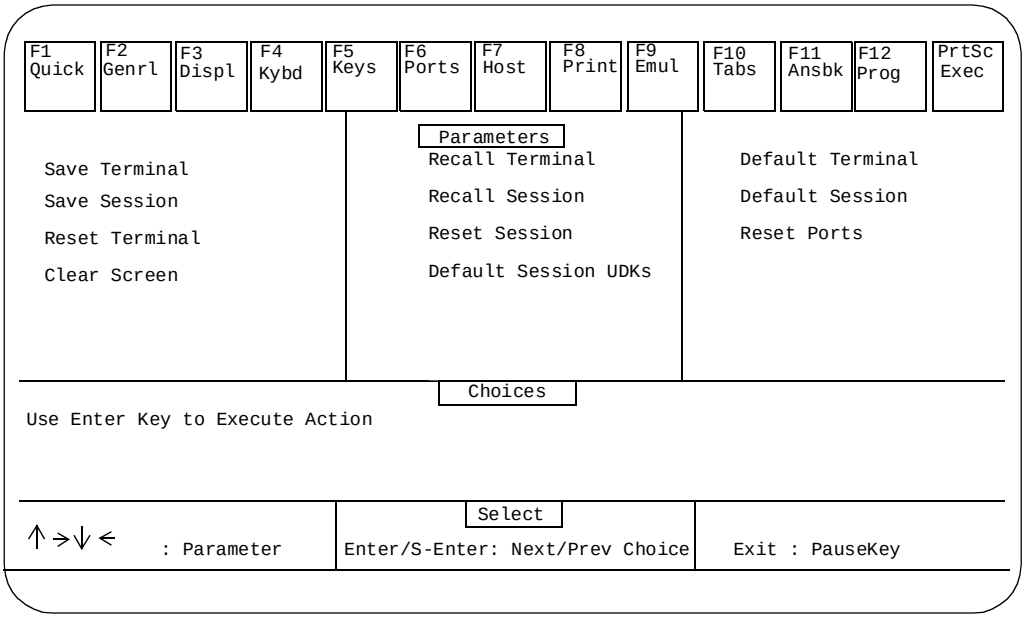

Figure 8-13: PrtSc Exec Values for a 2900/260lf

Appendix D, Model 3332 Factory Installation Procedures

- Page D-60 through D-61

  Instructions for installing a new SCSI support package patch have been added to the end of the “Install the SCSI Support Package” section.

  The instructions are:

SCSI Support Package Patch

The *SCSI Support Package Version 2.3, Adaptec HA Patch - 9/7/94* addresses two problems:

- It eliminates timing for the one SCSI command that was identified.
- It makes the timeout value a tunable, variable parameter with a much larger default value.

This patch can only be installed on CMS systems that have AT&T *UNIX* V/386, Release 3.2, Version 2.3, operating system with SCSI Support Package Version 2.3 and an Adaptec SCSI Host Adapter installed.

To install the patch:

1. At the # prompt enter **installpkg**. The system responds:

```
Confirm

Please indicate the installation medium you intend to use.

Strike “C” to install from CARTRIDGE TAPE
or “F” to install from FLOPPY DISKETTE.

Strike ESC to stop.
```

2. Select **F** to install from diskette. The system responds:

```
Confirm

Please insert the floppy disk.

If the program requires more than one floppy
disk, be sure to insert the disks in the proper order,
starting with disk number 1.
After the first floppy disk, instructions will be provided
for inserting the remaining floppy disks.

Strike ENTER when ready
or ESC to stop.
```

3. Insert the **SCSI Support Package Version 2.3, Adaptec HA Patch - 9/7/94** diskette into the disk drive and press Enter. The following

messages will be displayed:

```
Installation in progress -- do not remove the floppy disk.

Searching for the Size file

Install in progress

Installing:

SCSI Support Package Version 2.3, Adaptec HA Patch - 9/7/94.

The UNIX operating System will now be rebuilt.
This will take approximately 2 minutes. Please wait.

The UNIX Kernel has been rebuilt.

Confirm

To complete the install/remove process a shutdown is now
being initiated automatically.

Make sure your floppy drive is empty. If you are
installing or removing controller boards, you may power
down the system after the shutdown has completed.

Strike ENTER when ready
or ESC to stop.
```

4. Remove the *SCSI Support Package Version 2.3, Adaptec HA Patch - 9/7/94* diskette from the disk drive before rebooting. When ready press Enter. The system responds:

```
Shutdown started.

.

.

.

The system is down.

Reboot the system now.
```

5. Press Reset.
6. After the system has rebooted, you can log in as *root* and enter the **displaypkg** command to view the installed software packages.

High-Performance Platform Installation and Maintenance Document

Please add the following pages to your *CMS R3V2 High-Performance Platform Installation and Maintenance* (AT&T 585-215-129) document.

Chapter 4, Installing Terminals, Printers, and Modems

- Page 4-3

  Figure 4-3 should be replaced. The comcode and figure label were incorrect.

  The corrected figure is:

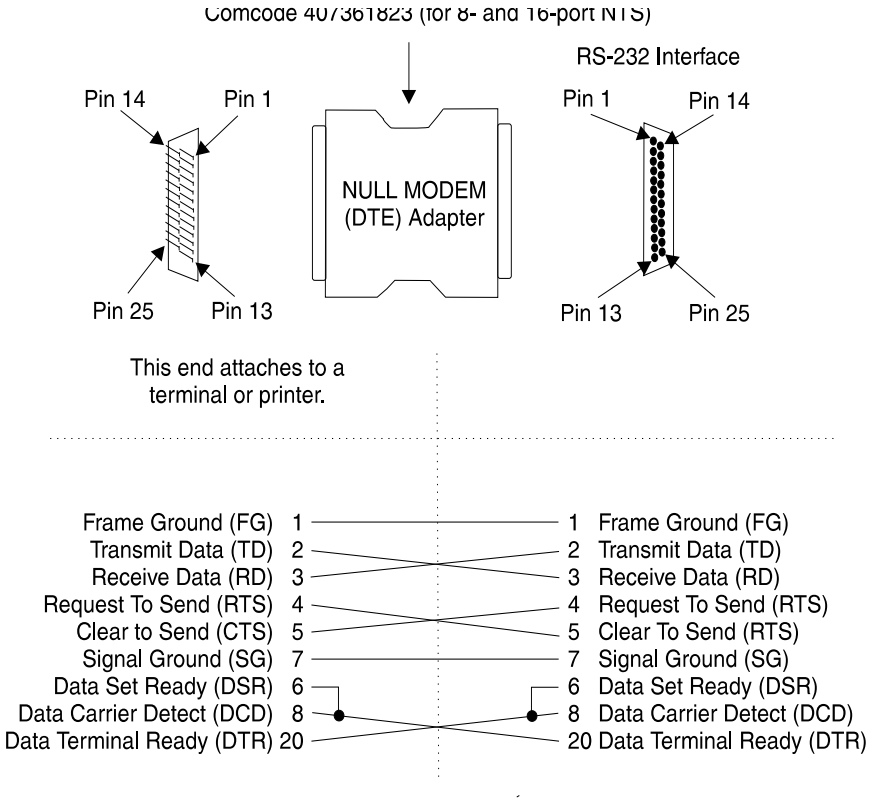

Figure 4-3: Null Modem

Chapter 4, Installing Terminals, Printers, and Modems

- Page 4-57 - 4-70

  The document has been modified to include information on the ADDS 2601f Color Terminal, which replaces the 615c color terminal.

  The new information is:

2900/260lf Small Footprint Terminal

The recommended 2900/260lf Terminal values are as follows. Twelve of the menus are accessed by the function keys F1 through F12. The thirteenth menu is accessed by the Print Screen key and provides terminal operations which may be executed.

In order to enter the terminal Setup mode, press Ctrl Scroll Lock. To exit Setup, press Pause and **y** or **n**.

F1 Quick Window

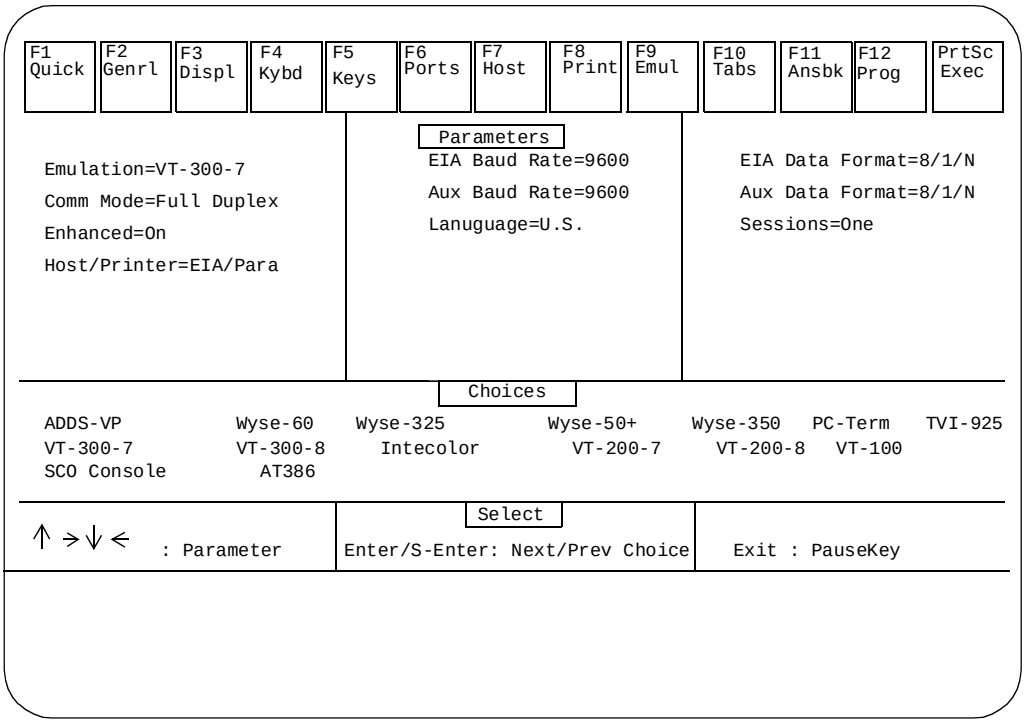

Figure 8-14: F1 Quick Values for a 2900/260lf

You must change the EIA Data Format parameter manually in Window F1 because the default is 7/1/N.

F2 Genrl (General) Window

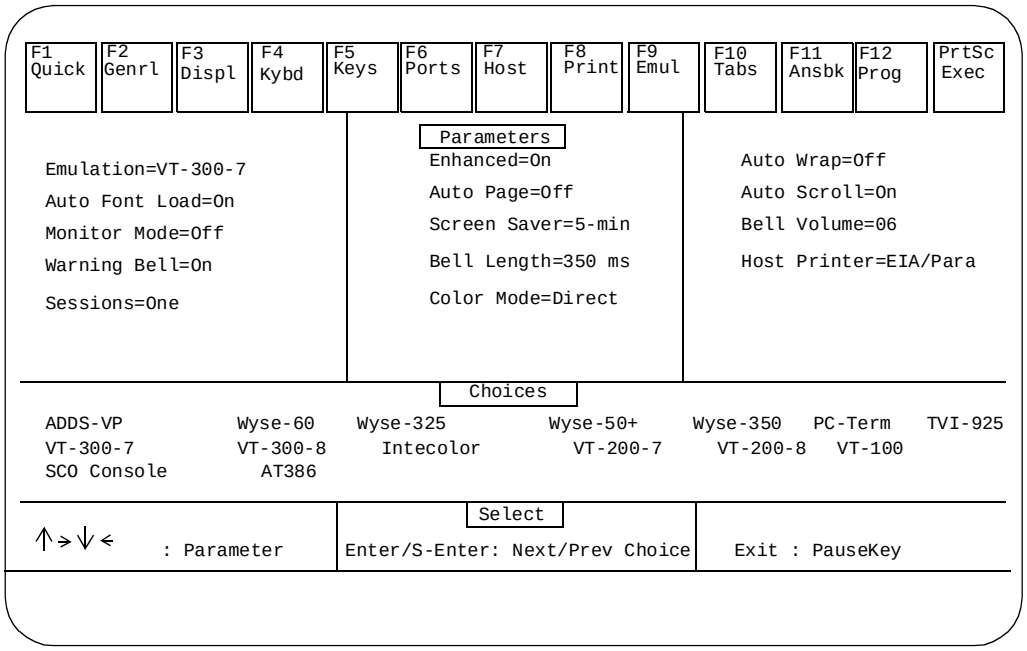

Figure 8-15: F2 Genrl Values for a 2900/260lf

F3 Displ (Display) Window

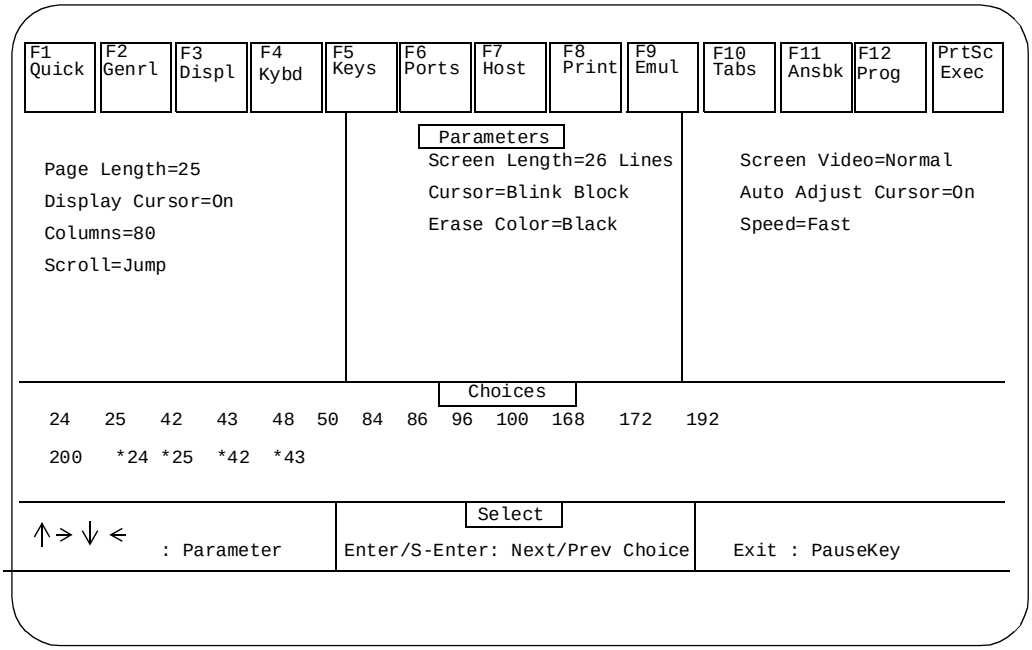

Figure 8-16: F3 Displ Values for a 2900/260lf

F4 Kybd (Keyboard) Window

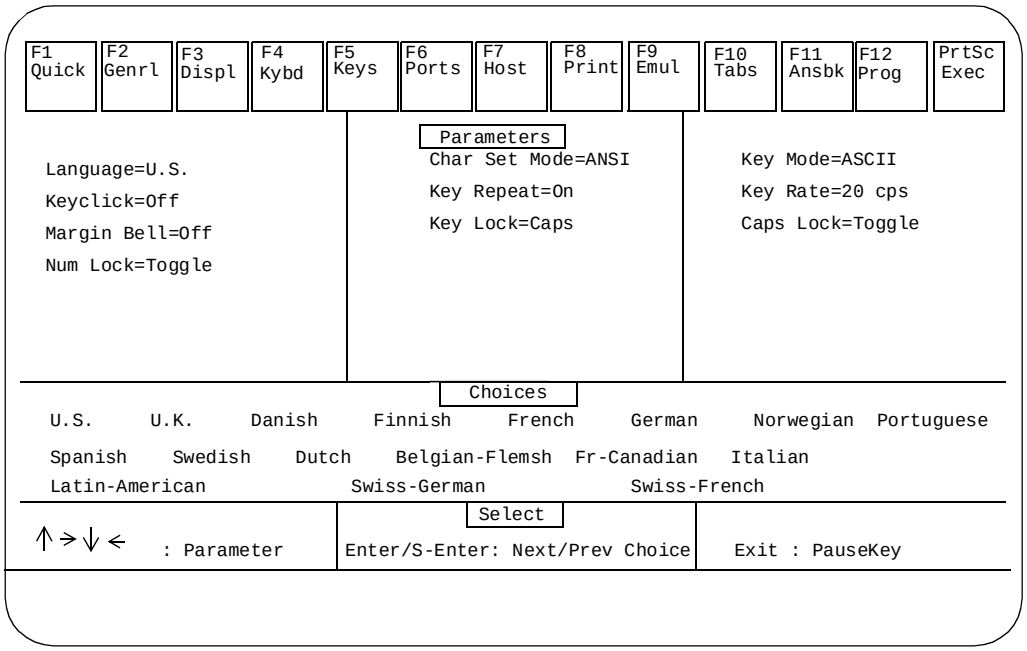

Figure 8-17: F4 Kybd Values for a 2900/260lf

F5 Keys Window

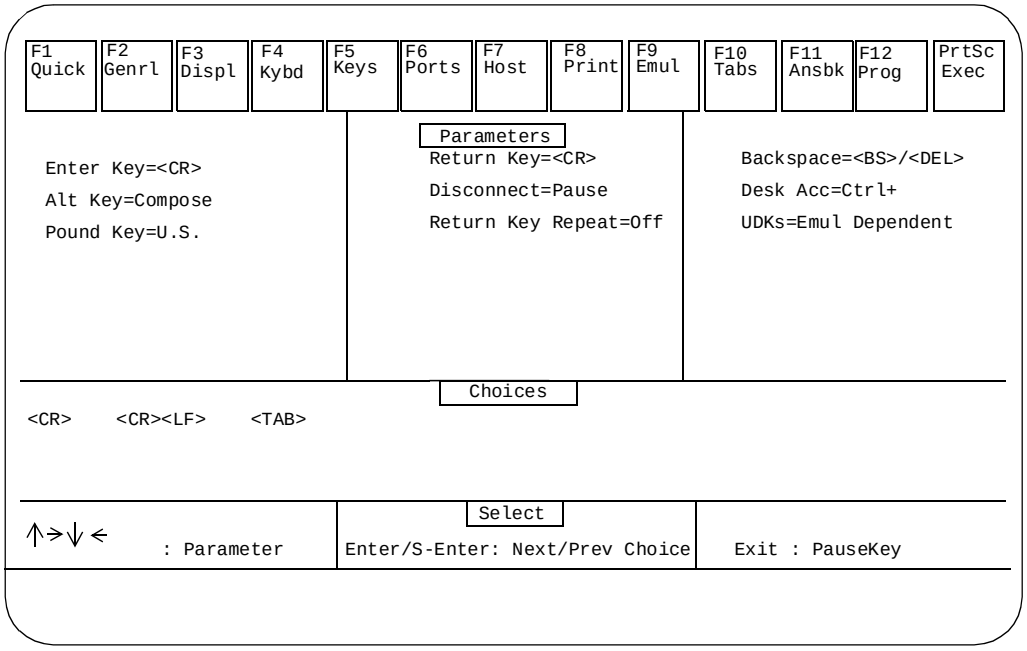

Figure 8-18: F5 Keys Values for a 2900/260lf

F6 Ports Window

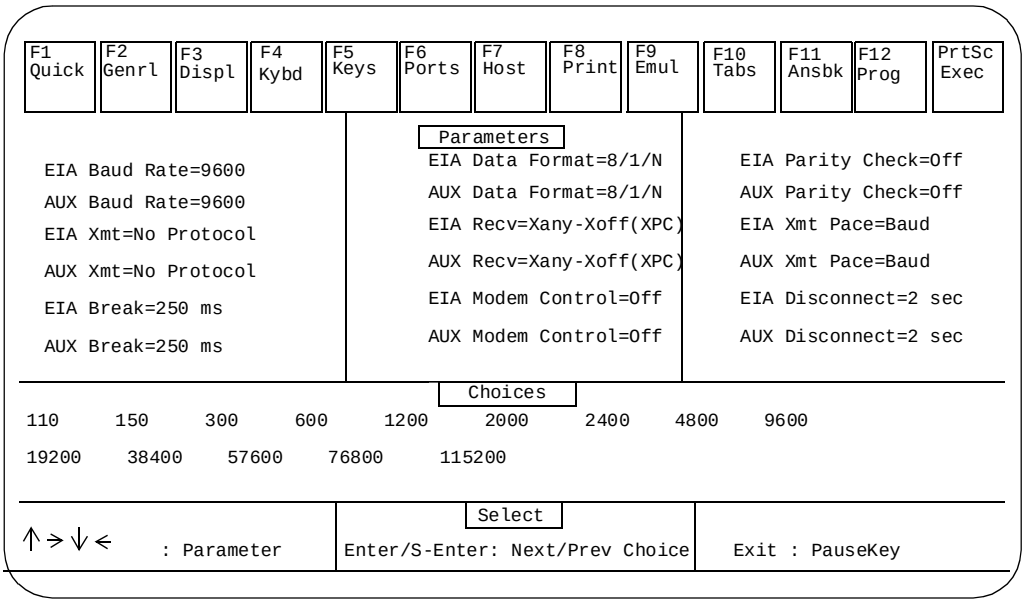

Figure 8-19: F6 Ports Values for a 2900/260lf

You must change the EIA Data Format parameter manually in Window F6 because the default is 7/1/N.

F7 Host Window

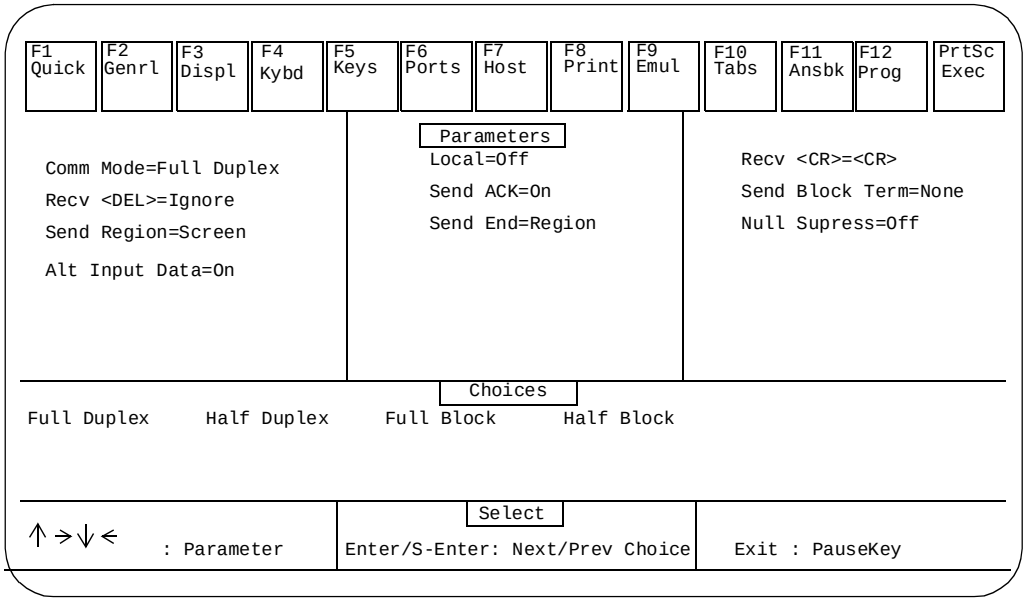

Figure 8-20: F7 Host Values for a 2900/260lf

F8 Print Window

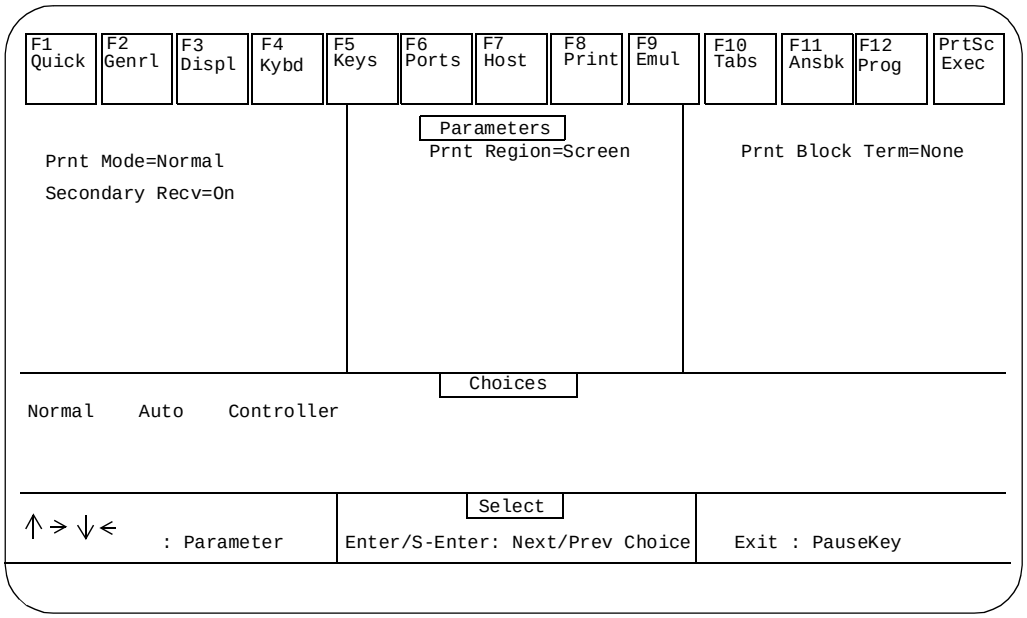

Figure 8-21: F8 Print Values for a 2900/260lf

F9 Emul (Emulation) Window

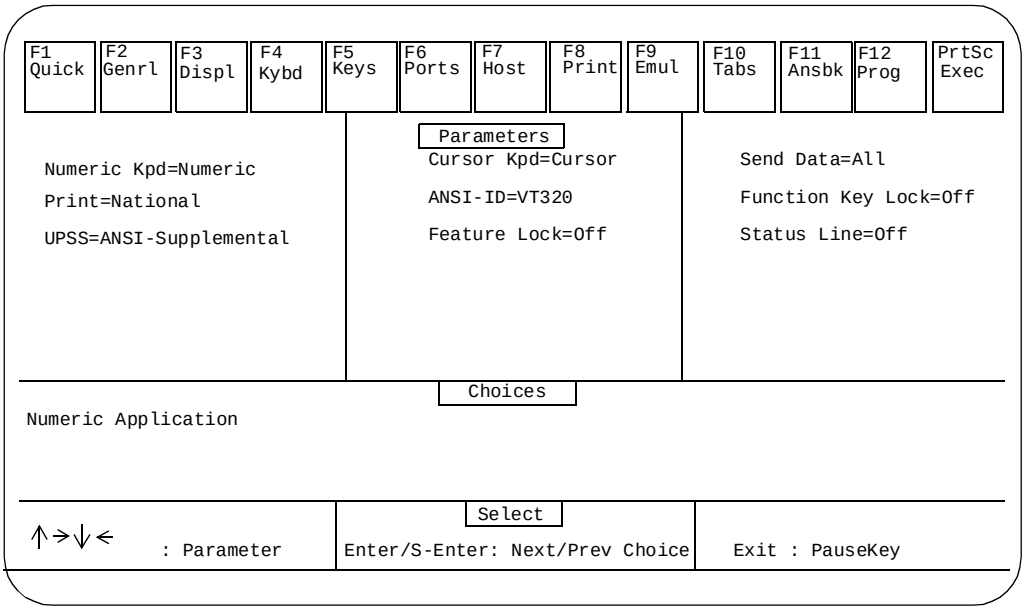

Figure 8-22: F9 Emul Values for a 2900/260lf

F10 Tabs Windows

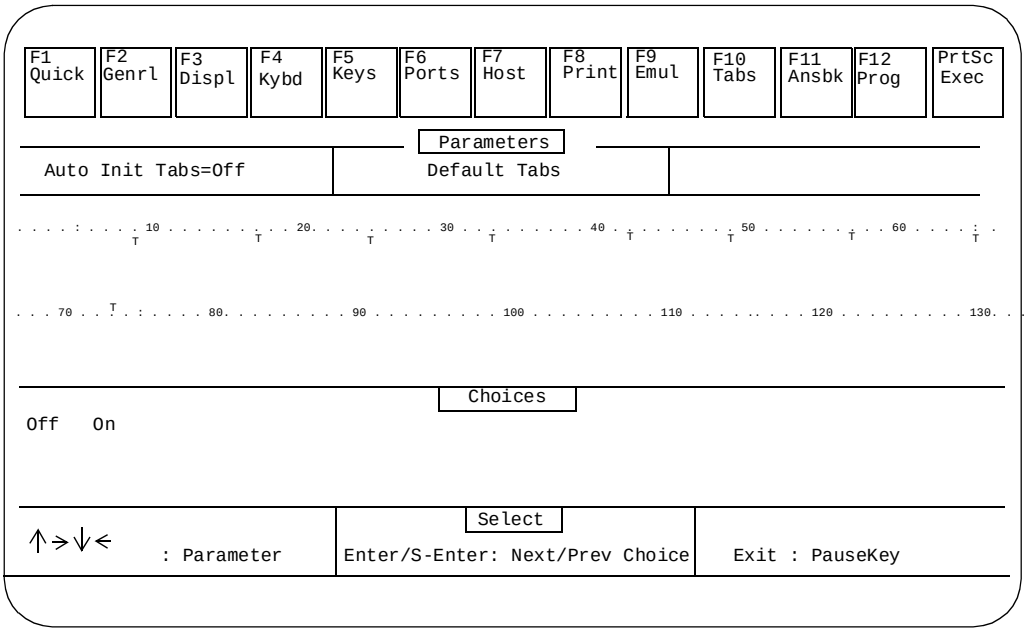

Figure 8-23: F10 Tabs Values for a 2900/260lf

F11 AnsBk (Answerback) Window

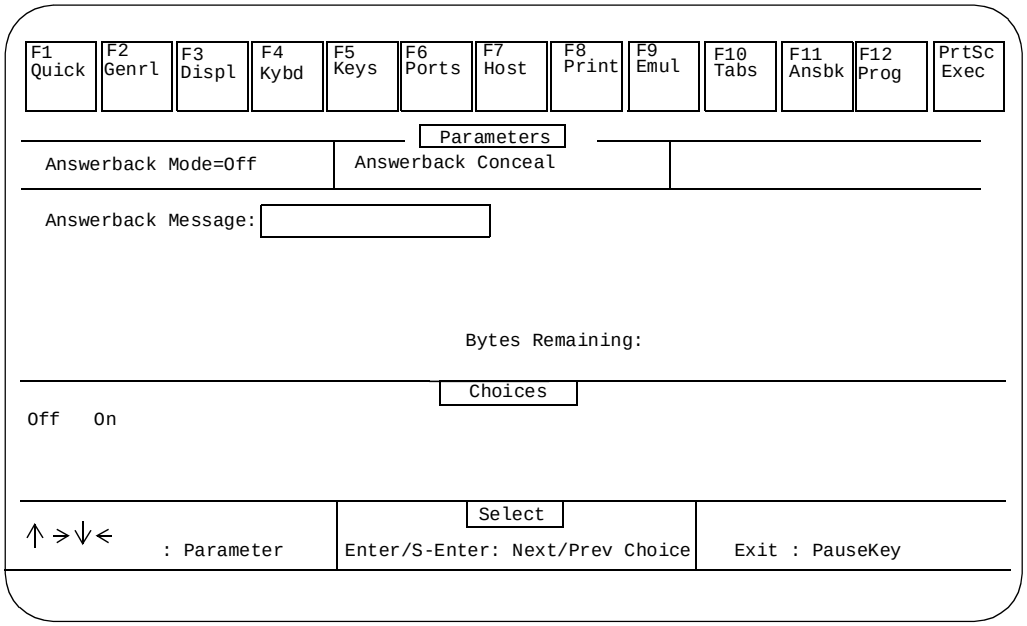

Figure 8-24: F11 AnsBk Values for a 2900/260lf

F12 Prog (Program) Window

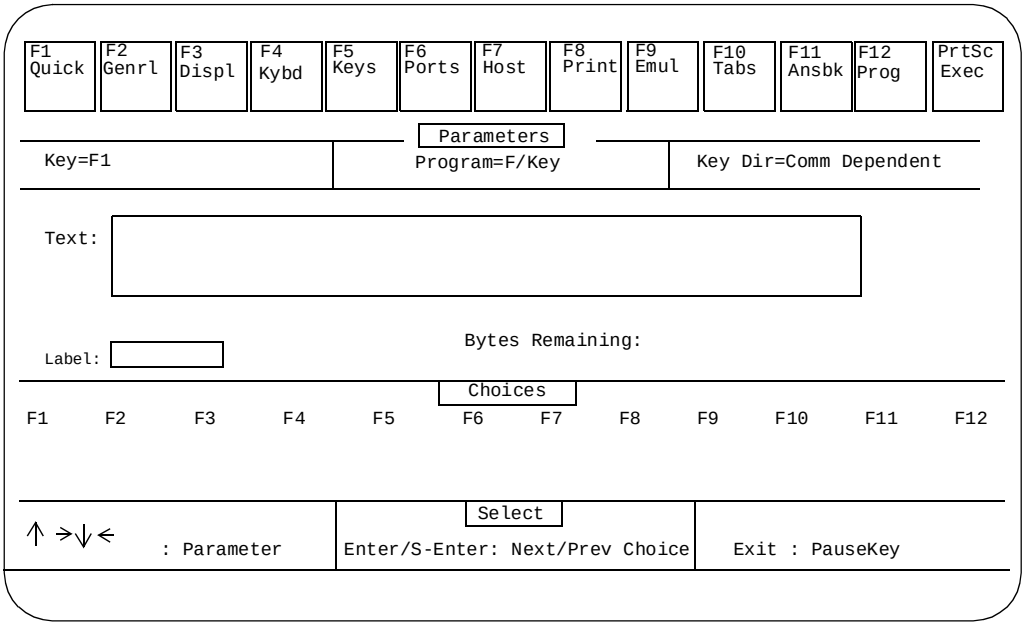

Figure 8-25: F12 Prog Values for a 2900/260lf

PrtSc Exec (Print Screen Execute) Window

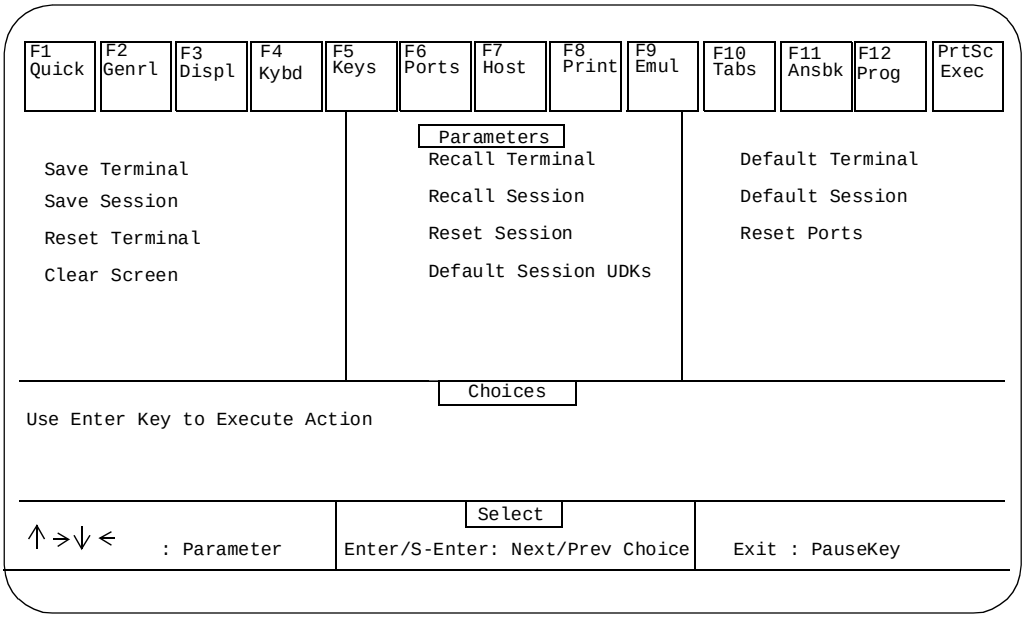

Figure 8-26: PrtSc Exec Values for a 2900/260lf

Chapter 4, Installing Terminals, Printers, and Modems

- Page 4-74

  You need to execute a command to store new port configurations. The existing step 6 should be replaced by the information below.

7. To store the new port configurations to a file (for example, `nts1info`), enter the following:

```
command:write cmsterm1/etc/local.admin/nts1info
```

Note At the end of provisioning, the `write` command downloads the port(s) and settings you selected to a flat file for use at a later date (for example, when you want to do a search or use the editor).

The system responds:

```
cmsterm1: Annex-3-UX R7.0, 64 ports
        writing...
command:
```

8. To check the new port configurations, enter the following command:

```
command: show port=<number(s)>
```

9. To quit, enter the following command:

```
command: quit
```

The system responds:

Chapter 4, Installing Terminals, Printers, and Modems

- Page 4-117

  Step 4 has been updated to include the recommended soft options for using the DataPort Express modem as either the Remote Console modem or for connectivity to a serial port on the NTS with CMS on a *Sun* platform.

  Step 4 should read:

4. At the terminal, enter the following soft options (use only zeros and numerical ones in the commands). These options should only be used with the Aurora SBus *Multiport* card or NTS.

```
AT&F     (load factory default configuration options in to
Active memory)
AT%B9600     (Modulation/Data Rate is set to V.32bis/V.32-
max.rate 9600bps)
ATQ1&R0&S1\D1&W0 [Disable result codes, RTS (Request to Send)
action follows standard RS-232 operation, DSR (Data Set Ready)
control follows standard RS-232 operation, CTS (Clear to Send)
control follows standard RS-232 operations, save to profile 0].
```

   If you are using your modem as the remote console modem, enter the following soft options:

```
AT&F     (load factory default configuration options into Active
memory)
AT%B9600     (Modulation/Data Rate is set to V.32bis/V.32-
max.rate 9600bps)
AT&T5 (denies request for remote digital loopback test)
AT&C2 (LSD control forced on, but turns off momentarily when
disconnected)
AT&D2 (follows standard RS-232 operation)
ATE0Q1&W0 (disable echo, disable result codes, save to
profile 0)
```

   Note Two additional options that are set for the AT&T *Paradyne Comsphere* 3830 (&C and &D) default to the “standard RS-232 operation” for the *Paradyne DataPort* Express.

   If you are using a modem with 9600 baud speed, use `AT%B9600` (<9600>baud) instead of `AT%B2400` (<2400>baud).

If needed, reset the modem using the power switch on the back.

Chapter 9, Troubleshooting

- Page 9-70

  The document has been edited to clarify which commands can be used, based on how the user is logged in (root, cms, or lp).

  Replace page 9-70 with the information below.

If problems persist, and if disabling and enabling the printer does not clear the problem, reenter the `lpadmin` command using the correct printer type. Check the `lpadm` using the `lpstat -p printer -l` command for the baud rate, parity, etc. The defaults are: `9600, no parity, and 1 stop bit`. Any exceptions will be noted. See Chapter 4, “Installing Terminals, Printers, and Modems,” for more details.

Additional printer problems, along with the suggested actions for resolving the problems, are documented in the following sections:

- When the Printer Is Out of Paper
- When the Current Printer Output Is Bad
- How to Stop and Discard Current Print Job
- How to Stop and Reprint Current Print Job
- When Print Jobs Are Not Being Printed
- When Printer Is Out-of-Service — One Printer Configuration
- When Printer Is Out-of-Service — Two Printer Configuration.

Note If you are experiencing a printer problem that is not documented in this section or is not documented in your printer manual, see the *UNIX* manual pages in *AnswerBook* on-line software. If you cannot solve the printer problem, escalate the problem through normal procedures.

Some of the commands used in the following sections can be executed *only* while logged in as *lp* or *root*; the commands are as follows:

- */usr/lib/accept*
- */usr/lib/lpshut*
- */usr/lib/lpsched*
- */usr/lib/lpmove*
- */usr/lib/lpadmin.*

Other commands used in the following sections that can be executed *only* while logged in as *lp* or *root* are as follows:

- `disable`
- `enable.`

Commands used in the following sections that can be executed while logged in as *cms*, *lp*, or *root* are as follows:

- `lpstat`
- `cancel`.

Note Only users logged in as *lp* or *root* can cancel any print job, but any user can cancel their own print jobs.

For more information on these commands and how to use them, see the *UNIX* manual pages in *AnswerBook* on-line software.

If you do not know the name(s) of the printer(s) connected to the computer, execute the following command:

```
$ lpstat -v
```

If you are currently in the CMS environment and you want to test the printer, press the **Commands** SLK, and select the “Print Window'' option. In a few seconds, the printer should start printing your test print job (if it is the first print job in the queue).

Whenever you execute the `disable, enable`, or `cancel` commands in the following sections, the printer will continue to print until the buffer is empty.

When the printer(s) do not function properly, additional information about the errors associated with the printer(s) can be seen in the services error log:

```
$ tail /usr/elog/elog
```

High-Performance Platform Migration Document

Please add the following pages to your *CMS R3V2 High-Performance Platform Migration* (AT&T 585-215-124) document.

Chapter 3, *INTEL*-to-High-Performance Platform Migration — First ACD

- Page 3-21

  A note should be added before step 1 to specify that different tape drives can be shipped with *Sun* systems.

  The note should read:

  Note All systems are shipped with one or more tape drives (QIC-150, 5-GB, and/or a 14-GB). For systems with multiple tape drives, the QIC-150 is the first drive on the SCSI chain. For quicker backups (1 hour versus several hours), we recommend using the 5- or 14-GB tape drive.

  `/dev/rmt/0` indicates the first tape drive in the SCSI chain.

  `/dev/rmt/1` indicates the second tape drive in the SCSI chain.

  `/dev/rmt/0c` indicates the first tape drive in the SCSI chain in compressed mode (only the 14-GB tape drive can support compressed mode).

  `/dev/rmt/1c` indicates the second tape drive in the SCSI chain in compressed mode.

Chapter 4, *INTEL*-to-High-Performance Platform Migration — Multiple ACDs

- Page 4-23

  A note should be added before step 1 to specify that different tape drives can be shipped with *Sun* systems.

  The note should read:

  Note All systems are shipped with one or more tape drives (QIC-150, 5-GB, and/or a 14-GB). For systems with multiple tape drives, the QIC-150 is the first drive on the SCSI chain. For quicker backups (1 hour versus several hours), we recommend using the 5- or 14-GB tape drive.

  `/dev/rmt/0` indicates the first tape drive in the SCSI chain.

  `/dev/rmt/1` indicates the second tape drive in the SCSI chain.

  `/dev/rmt/0c` indicates the first tape drive in the SCSI chain in compressed mode (only the 14-GB tape drive can support compressed mode).

  `/dev/rmt/1c` indicates the second tape drive in the SCSI chain in compressed mode.

Chapter 7, High-Performance Platform-to-*INTEL* Migration

- Page 7-4

  A note should be added before step 1 to specify that different tape drives can be shipped with *Sun* systems.

  The note should read:

  Note All systems are shipped with one or more tape drives (QIC-150, 5-GB, and/or a 14-GB). For systems with multiple tape drives, the QIC-150 is the first drive on the SCSI chain. For quicker backups (1 hour versus several hours), we recommend using the 5- or 14-GB tape drive.

  `/dev/rmt/0` indicates the first tape drive in the SCSI chain.

  `/dev/rmt/1` indicates the second tape drive in the SCSI chain.

  `/dev/rmt/0c` indicates the first tape drive in the SCSI chain in compressed mode (only the 14-GB tape drive can support compressed mode).

  `/dev/rmt/1c` indicates the second tape drive in the SCSI chain in compressed mode.