

This document includes a description of the Service Support that Cray makes available on: (A) Cray XC Series Supercomputers and Analytics Systems; and (B) Cray Cluster Supercomputer Systems.

A. Cray XC Series and Analytics Maintenance & Support

Five Maintenance & Support service levels are available to Customers that purchase either a Cray XC series Supercomputer ('Cray XC System') or a Cray Urika GD or Urika GX analytics system ('Cray Analytics System'): Silver, Gold, Select, Platinum and Diamond. Complete information regarding Cray support obligations for Silver, Gold, Select, Platinum and Diamond support is as set forth at http://www.cray.com/sites/default/files/resources/Customer_Support_Operations_Handbook.pdf, the terms of which are hereby incorporated by this reference. The following includes a brief description of Cray support, and includes the terms and conditions that apply to Cray support, regardless of the Maintenance & Support service level ('Service Level') purchased by the Customer, as well as terms and conditions specific to each Service Level. ('System' means either or both the Cray Analytics System and Cray XC System.)

1. Software Support.

a. Cray XC System and Cray Urika GD Analytics Systems.

Cray shall provide software support for issues related to Cray Software, Third Party Software and Open Source Software. (Cray Software, Third Party Software, and Open Source Software shall have the meaning set forth in the Cray Inc. End User License Agreement, which is available at: <http://www.cray.com/company/policies-and-practices/software-license-agreements>.) Cray Software, Third Party Software and Open Source Software support is provided remotely. The response time for issues or cases submitted by Customer to Cray for resolution ('Support Request') shall depend upon the Service Level purchased by Customer (see chart below). Customer shall only submit Support Requests to Cray in cases where the Cray Software, Third Party Software or Open Source Software fails to function as specified in the applicable Documentation or when Customer believes that the Documentation is unclear as to the proper use or configuration of the software.

Customer agrees that it is responsible for fully documenting any and all Cray Software, Third Party Software and Open Source Software issues for which it submits a Support Request. If Cray cannot recreate an issue that is the subject of a Support Request, Cray may close the Support Request. Cray will provide Customer with access to updates for Cray Software, Third Party Software, and Open Source Software as of Cray's general release of such updates. Customer agrees that if a Cray Software, Third Party Software or Open Source Software update is not installed by the Customer within six (6) months after the update is received from Cray, Cray may limit the support that Cray provides to Customer in respect of such software. Cray only supports the current and the immediately preceding major release of Cray Software, Third Party Software, and Open Source Software and only supports such software when used with equipment configurations approved in writing by Cray.

Cray will process bug reports and enhancement requests for Software or Documentation, at Cray's discretion. Cray will provide status updates on bug reports and enhancement requests for Software or Documentation at Cray's discretion.

b. Cray Urika GX Analytics System.

Cray shall provide software support for issues related to Cray Software, Third Party Software and Open Source Software based on the Service Support package purchased by Customer. (Such Service Support package will provide for software support for in respect of Cray Software, Third Party Software and/or Open Source Software.) Such service support will be provided based on the terms set forth in Section 1a above, again, only based on the Service Support package purchased by Customer.

2. Spare Parts.

Cray shall provide, at Cray's expense, a Cray-owned spare parts cache (as determined solely by Cray) at the Customer's site. Cray will replenish the spare parts cache as replaced parts are returned to Cray. In the case of a spare part not being available on-site, Cray will ship a replacement part, if necessary, as determined solely by Cray.

All spare parts are new or warranted to perform as new. Parts that are installed in Customer's System are the property of Customer. Parts included in the spare parts cache and any parts that have been removed from Customer's System are the property of Cray. Parts that have been removed from a System and that are not returned by Customer to Cray within thirty (30) days of removal, shall be purchased by Customer at Cray's then-current list price.

Customer shall promptly return all spare parts and tools to Cray upon termination of this Agreement.

At Customer's request and expense, Cray will provide an enhanced spare parts inventory at Cray's then current list prices.

Spare Parts Return. Customer is responsible for returning failed spare parts to Cray. Customer shall package and ship to Cray all failed parts as directed by Cray, at Cray's expense. For the avoidance of doubt, Customer is responsible for complying with applicable export compliance regulations in returning failed spare parts to Cray. If Cray upgrades a Customer System, Customer shall return to Cray the removed parts designated by Cray to Customer.

Customer Replaceable Units. Customer will only replace the parts on a System that are designated by Cray as 'Customer Replaceable Units' (CRU) and only under the direction of Cray support personnel.

3. Additional Charges.

If Customer opts not to perform a particular maintenance task that the Customer is responsible for based on the Service Level purchased by Customer, or if Customer otherwise requests and receives Cray on-site support, Cray's then current time and materials rates will apply to the performance of maintenance tasks or on-site support by Cray.

4. Facility.

Customer shall make available office facilities (with internet access) for Cray personnel when such personnel are at Customer site. Customer shall also provide secure and appropriate storage for spare parts in close proximity to the System.

5. System Administration.

Customer shall perform all system administration and maintenance functions on Customer's System unless otherwise agreed to in writing by Cray and Customer.

6. Customer Data.

CRAY IS NOT RESPONSIBLE FOR ANY FILE CORRUPTION, LOSS OF DATA, INFORMATION, WORK OR OTHER OUTPUT THAT OCCURS DURING OR IN CONNECTION WITH THE PERFORMANCE OF ANY OF THE MAINTENANCE AND SUPPORT CONTEMPLATED HEREIN. CUSTOMER IS RESPONSIBLE FOR MAINTAINING APPROPRIATE BACKUPS TO RESTORE ANY CUSTOMER OR OTHER DATA THAT MAY BE LOST OR CORRUPTED.

7. Damage to System.

Any damage to the System, spare parts, peripheral equipment, stored data, or lost work that Customer believes may have been caused by Customer service personnel must be immediately reported to Cray. In such an event, efforts or actions by Customer maintenance personnel in respect of the System will immediately stop. At Cray's discretion, Cray shall dispatch a response team and the original and subsequent problems will be diagnosed and resolved by Cray. Customer may be responsible for repair costs based on the level of Service Support purchased by Customer.

8. Use of the Cray System Snapshot Analyzer (SSA).

SSA is a software application that collects, analyzes, and reports support information from a Customer System using a transparent and secure process. SSA uploads support data to the Cray Support organization where it is analyzed using analytical tools over several points in time (snapshots).

SSA is designed to reduce the manual effort and time required in reporting and resolving support issues. Customers with Silver or Gold Support contracts are required to install SSA on supported platforms, stay current, and allow uploading of data to Cray.

It is strongly recommended that Platinum and Diamond customers enable SSA to help aid Cray support in maintenance efforts.

SSA is accessible from the CrayPort customer portal at <https://crayport.cray.com> and may be enabled by accessing the Help menu and selecting MyProfile/Setting.

Five service levels are available to Customers that purchase a Cray XC System or Cray Analytics System: Silver, Gold, Platinum and Diamond.

Feature	Comprehensive Remote Support Services		Comprehensive On-site Support Services		
	Silver	Gold	Select	Platinum	Diamond
Response to Reported Incidents	9x5, NBD, Remote	9x5, NBD, Remote	9x5, NBD on-site	24x7 on-site	24x7 on-site
Spare Parts	Included	Included	Included	Included	Included
Advance Part Replacement	yes	Yes	Yes	Yes	Yes
On-site Part Replacement	NBD as needed		NBD	4 HR	1 or 2 HR
Additional options	System Administrators System Analysts Applications Analysts		System Administrators System Analysts Applications Analysts		

SILVER **SUPPORT**

Silver Support is remote System support wherein Customer systems administrators perform all System maintenance activities, administration, and upgrades with limited remote contact and intervention from Cray, after such Customer personnel have undergone the required Cray training. (Such training is NOT available for or with respect to Cray Analytics Systems.) As part of Silver Support, when a remote Cray support representative determines that a failed part cannot be replaced by the Customer, Cray will dispatch an engineer to the Customer site, along with the part, to perform the part replacement.

Silver Support Designates

Customer agrees to designate a minimum of two (2) technically capable Customer employees (“Designates”) for the purpose of providing System administration, maintenance, and upgrades. Designates must complete Cray’s hardware replacement training before they perform maintenance on a System. Training covers the following topics:

- Familiarization with the Cray support concept, problem reporting, escalation processes, and the use of the CrayPort™ customer portal
- System power-on and power-off
- Component replacement
- Practical experience replacing all of the customer-replaceable items in the system
- Use of Cray diagnostics tools and tests, and Safety and Electro-Static Discharge (ESD) procedures¹
- Process to order spare parts and to return removed parts
- Basic System Administration tasks designed to allow for the operation of the System.

Two (2) additional Customer designated personnel may (for no additional cost) take the online System Administration Basics class by registering for the course via their CrayPort account. Upon completion of the training, Designates and the instructor sign a comprehensive checklist of the topics covered. This checklist must be returned to the Cray Training Department before the Designate performs service on the System. Any training beyond that which is described herein, will be provided, subject to an additional charge.

a. Customer Role Upon System Interrupt.

Designates will follow Cray procedures as defined by Cray. Working in cooperation with and under the direction of Cray, Designate will assist in the diagnosis and repair of the System, as directed by Cray. Should any repair require replacement of a CRU,

Cray will ask the Designate to perform the replacement. Neither the Designate nor any other Customer personnel shall attempt to repair the System without first contacting Cray.

If Cray support personnel determines that an issue must be managed or addressed by onsite Cray personnel, the Designate shall stop work, stand by, and await the arrival of Cray field service personnel. The terms that will apply to dispatch of the Cray field service personnel shall be agreed upon in writing by Customer and Cray,

b. Additional Customer/Designate Silver Support Obligations. (For XC System Customers ONLY).

- Ensure that Cray has remote access to the System, by enabling SSA
- Ensure that Customer has designated reasonably skilled, technically capable individuals as Designates to be trained for, and to perform, service functions and that Designates are available to assist Cray on any remote or on-site maintenance activity.
- Ensure that all problems that require Cray action are logged in accordance with Cray's instructions.
- Ensure Designates follow telephone support and direction provided by Cray technical support personnel to perform limited on site diagnosis and physical replacement of pre-defined system components.
- After successful completion of each maintenance event, log the details of the event via the CrayPort self-service portal.
- Package and ship to Cray failed parts within within thirty (30) days of removal.
- Ensure Designates strictly follow safe working practices, the proper use of tools, and ESD precautions. Designates shall be physically capable of undertaking any CRU replacement procedures without any risk of injury to themselves, others or damage to the System. Description of Cray Assistance to Designates.

Telephone Support. Cray will work with Designate to identify and diagnose any System that is not performing to Cray's written specifications and will provide the Designate with remote technical assistance.

Degraded Operation: Based on the circumstance of a given system event or interrupt, Cray may, at its discretion and with the cooperation of Designate remotely disable or "down" a failing node or reconfigure the System to allow for continued operation on the remainder of the System until such time as the Designate can complete a service operation, or, in other circumstances, until a Cray site visit can be arranged.

Tool Kit: Cray shall provide support tools for System maintenance to include an Electro-Static Discharge (ESD) kit. Appropriate ESD precautions will be observed at all

times and the Customer agrees to regularly inspect the ESD kit for wear and proper functionality. Any support tools provided by Cray shall remain the property of Cray and be kept in good condition by Customer and reserved solely for the use of maintaining the System. Customer shall notify Cray immediately if any tool is worn or not functioning correctly, and Cray will provide a replacement tool, if necessary.

GOLD SUPPORT

Cray will work with Customer to remotely identify and diagnose Systems that are not performing to Cray's written specifications and will provide Customer remote technical assistance, or when deemed necessary by Cray, on-site technical assistance.

On-site response will also be provided for System upgrades and should be scheduled in advance by the Customer.

Customer Gold Support Obligations

- Ensure that Cray has remote access to the System, by enabling SSA.
- Ensure that Customer has designated reasonably skilled, technically capable individuals to maintain Customer Systems.
- Ensure that all problems that require Cray action are logged in accordance with Cray's instructions.
- Ensure Customer maintenance personnel follow telephone support and direction provided by Cray technical support personnel.
- Ensure Customer maintenance personnel strictly follow safe working practices, the proper use of tools, and ESD precautions. Customer maintenance personnel shall be physically capable of undertaking any CRU replacement procedures without any risk of injury to themselves, others or damage to System.
- After successful completion of each maintenance event, log the details of the event via the CrayPort self-service portal.

PLATINUM AND DIAMOND

Cray provides a single Cray point of contact (SPOC) to resolve system maintenance issues and answer procedural questions. Also, the SPOC reviews service management practices and delivers reports.

Cray will return the replaced parts to Cray and arrange for the customer's spare parts pool to be replenished.

Customer Obligations

- If requested by Cray, Customer shall provide full access to Customer's System for remote diagnostics (provided that Customer security policies allow for full remote access). Cray strongly recommends the enabling of SSA.
- Ensure that all problems that require Cray action are reported in accordance with Cray's instructions to the applicable Cray field support engineers.

B. Cray Cluster Supercomputers Maintenance & Support

Introduction

Four service levels are available to Customers that purchase a Cluster Supercomputer from Cray ('Cray Cluster System'): Depot, Depot Rapid Exchange, Premium and Premium Plus. Complete information regarding Cray support obligations for Depot, Depot Rapid Exchange, Premium and Premium Plus is as set forth at:

http://www.cray.com/sites/default/files/resources/Customer_Support_Operations_Handbook.pdf, the terms of which are hereby incorporated by this reference. The following includes a brief description of Cray support, and includes the terms and conditions that apply to Cray support, regardless of the Maintenance & Support service level ('Service Level') purchased by the Customer, as well as terms and conditions specific to each Service Level.

1. Software Support.

Cray shall provide software support for issues related to Cray developed software. Cray software support is provided remotely. The response time for issues or cases submitted by Customer to Cray for resolution ('Support Request') shall depend upon the Cray Maintenance & Support level purchased by Customer (see chart below). Customer agrees that it is responsible for fully documenting any and all software issues for which it submits a Support Request. Customer agrees that it shall only submit a Support Request to Cray for or with respect to issues or problems that can be recreated by Customer. If Cray cannot recreate an issue that is the subject of a Support Request, Cray will close the Support Request. Customer is responsible for managing and resolving issues for or related to non-Cray software with the software vendor.

2. Parts.

If Customer suspects that a part on a Cray Cluster System has failed, Customer may report such failure to Cray by submitting a Support Request through CrayPort. Upon submitting the Support Request, a Return Material Authorization ('RMA') is created and the Support Request is handled based on the Maintenance & Support service level purchased by Customer. Customer is responsible for returning failed parts to Cray.

Premium and Premium Plus service Customers shall be provided with an onsite cache of Cray recommended spare parts. Depot and Depot Rapid Exchange customer may choose to separately purchase Cray recommended spare parts. Spare parts purchased by Customer shall be the property of Customer.

Cray Cluster System Maintenance & Support Service Levels

Service Level	Coverage	Response	On-site Spares	Software Coverage
<i>Depot</i>	*9x5	NBD, Remote Only	Optional	Cray Software only
<i>Depot Rapid Exchange</i>	*9x5	Remote Only, advance parts replacement	Optional	
<i>Premium</i>	24x7	NBD on-site as needed	Customer Purchased	
<i>Premium Plus</i>	24x7	4h on-site as needed	Customer Purchased	

*Coverage is 9 x 5 based on Customer location time zone

Depot

Depot is an exchange-based part replacement program wherein Cray ships replacement parts to Customer upon Cray's receipt of failed parts from Customer. Cray provides Customer with online access to CrayPort where, at any time, Customer may generate an RMA for or with respect to a failed part.

Once an RMA has been created, Cray verifies that the RMA contains correct and complete information before accepting the RMA. Customer is responsible for shipping failed parts to Cray at Customer's expense, and Cray is responsible for shipping replacement parts to the Customer at Cray's expense. Cray ships replacements parts to Customer upon Cray receipt of failed parts. Cray closes the RMA once it ships the replacement part to Customer.

Depot Rapid Exchange

Depot Rapid Exchange is an exchange based part replacement program. Cray ships replacement parts to Customer on the same day that Customer's RMA is accepted by Cray; in advance of the return of the failed part to Cray. Cray shall include a pre-paid return shipping label for the failed part in the package containing the replacement part along with instructions for returning the failed part to Cray. If the Customer has not returned the failed part to Cray within fourteen (14) days of when the RMA is accepted and an RMA number has been provided, then the Customer must pay for the failed part upon receipt of an invoice from Cray.

Premium and Premium Plus

Cray provides a four (4) hour remote response and next business day on-site response for hardware replacement issues for Premium Customers and four (4) hour remote and on-site response for Premium Plus Customers. In addition, Premium and Premium Plus include advance parts replacement service and an on-site spare parts pool. Cray will work with

Customer to determine if a replacement part is needed. If a hardware part replacement is needed, customers must follow the process provided by Cray personnel.

If Cray confirms that the replacement part is included in Customer's on-site spare parts pool, a field engineer will be dispatched to Customer's site (i) the next business day for Premium Customers, or (ii) within four (4) hours for Premium Plus Customers, to perform the part replacement. If the replacement part is not included in Customer's on-site spare parts pool, a part will be shipped to Customer within one (1) business day. Customer is required to update the applicable Service Request to indicate that the part has arrived and schedule a maintenance event to replace the part.

Instructions are provided for the Customer to return the failed part to Cray. If the Customer has not returned the failed part to Cray within fourteen (14) days of Cray issuance of the RMA number, Customer must pay for the part upon receipt of an invoice from Cray.

If Customer uses a part from the spare parts cache, Cray shall replenish the spares cache and the part will be shipped to Customer within one (1) business day.

