

SAP Crystal Solutions  
SAP Crystal Reports and SAP Crystal Server

# Step by Step guide: From Evaluation to Production Installation With SAP Crystal Server







SAP Crystal Server 2020 is the most flexible, scalable, and efficient product for sharing and distributing pixel-perfect reports designed with SAP Crystal Reports 2020 (and prior versions) to a larger audience. Whether your organization will benefit from real-time interactive analysis provided in a standard web browser, you're looking for automatically personalized documents sent via e-mail on a regular schedule, or you have internal batch processes that need to run flexibly, SAP Crystal Server 2020 can fulfill any need.

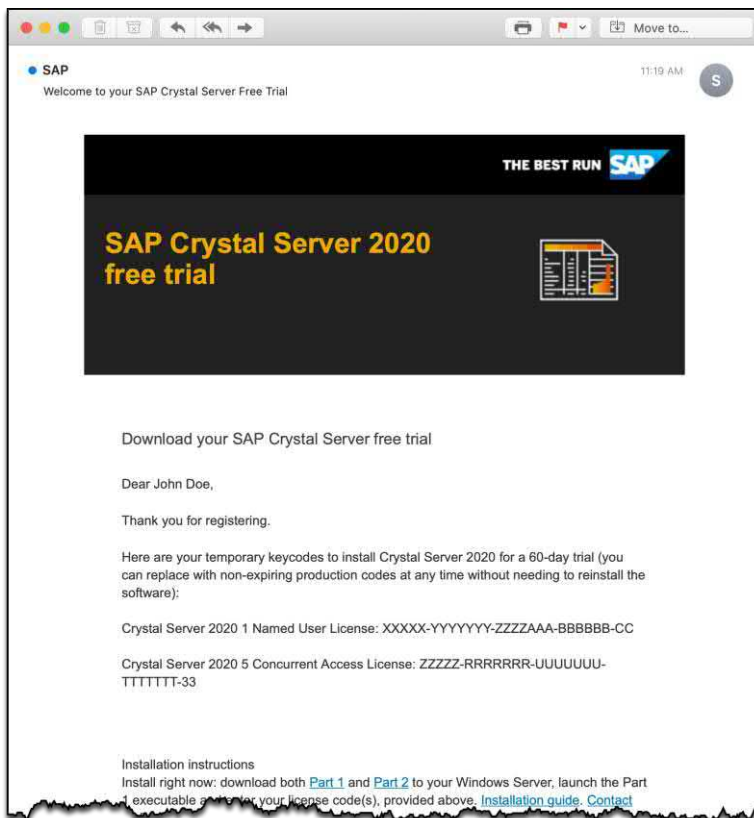
And, SAP's free trial permits you to install and configure a fully-featured version of Crystal Server for a full 60 days. And, once you're satisfied that Crystal Server meets your needs, purchasing and licensing is a simple online process that requires no additional software installation.



## Downloading SAP Crystal Server 2020

Prior to downloading and installing SAP Crystal Server 2020, confirm that you have identified a computer system capable of supporting the software package. You may use an appropriate on-premises computer system, or install SAP Crystal Server 2020 on any appropriate system hosted in a virtualized cloud environment, such as Amazon Web Services or Microsoft Azure. Crystal Server is available in both Microsoft Windows and Linux versions (this paper will illustrate installation using Microsoft Windows). Ensure that the selected hardware can access your desired databases and data sources, either on the same network or via a virtualized network environment. Visit [CrystalReports.com](https://www.crystalreports.com) for detailed system requirements.

Once you are ready to try out SAP Crystal Server 2020, visit <https://www.crystalreports.com/> and follow the link to the Crystal Server trial. You'll be asked to register for an SAP account (or, you may use an existing account). You'll receive an e-mail with 60-day trial license keys, as well as download links.



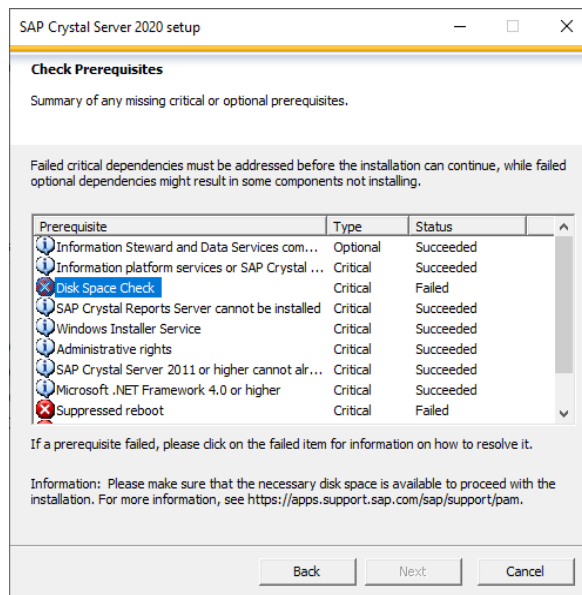
Click the links within the e-mail to begin software download. There are several files that comprise a complete SAP Crystal Server 2020 system. Make sure to download all necessary files. Give yourself time – the files can be large.



## Installing SAP Crystal Server 2020

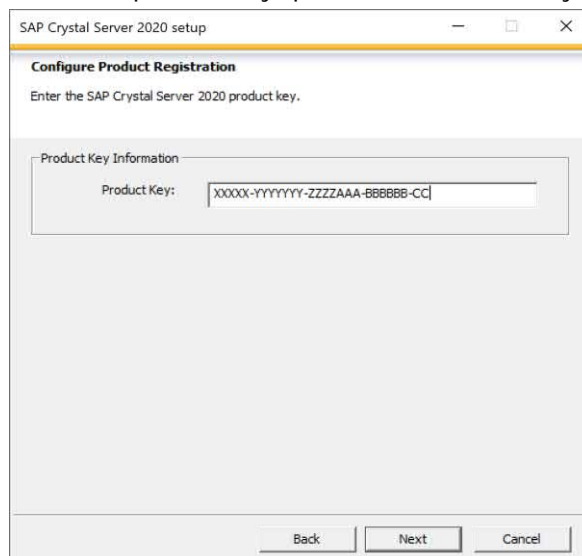
Once files are downloaded to the desired computer that will run SAP Crystal Server 2020, launch the first installation executable (make sure to use the Run as Administrator option). An initial unpacking of the setup files will take place. Then, installation will begin.

After you select an installation language, SETUP will run a system check to ensure the computer meets system requirements. Any deficiencies will be noted. Click on any failed items for detailed notes on how to address the deficiency. Once you have corrected deficiencies, you must start the unpack/setup over again.



Follow various prompts as they are presented to you:

- When prompted, enter one of the trial product keys provided in the e-mail you received after registering.

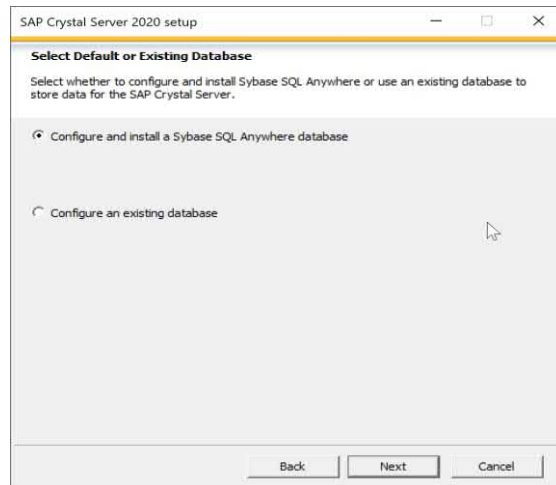


- For a single-server installation, you'll typically select the Full install type.



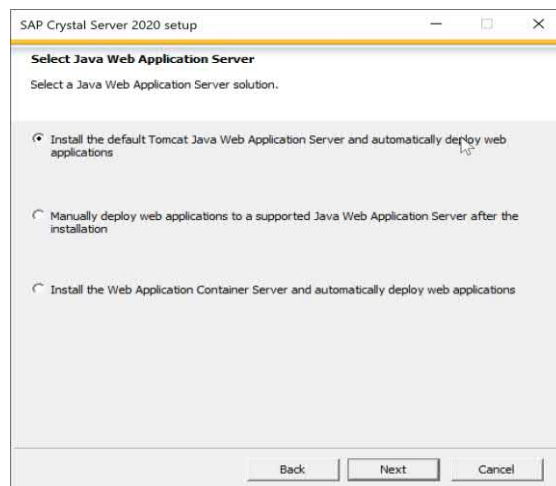
## Selecting a System Database

SAP Crystal Server requires a dedicated database for use by the Central Management Server (CMS) component. This database is used to store various Crystal Server properties, including security settings, the folder structure, and schedules. You may use the bundled SQL Anywhere database, or use an existing supported database on your network. If you wish to use an existing database, you'll need to create an empty database. Depending on the database you use, you may also need to create a 64-bit ODBC data source before proceeding. If you use the bundled SQL Anywhere database, no advance preparation is required. Select the desired database choice when prompted.



If you use the bundled SQL Anywhere database, you'll be prompted later in the setup process to create a database password. Specify a "complex" password and make note of it. You may need it when modifying a Crystal Server configuration in the future.

Next, choose the desired method of deploying web applications. As SAP Crystal Server requires a Java-based application server, you may choose the bundled Tomcat server, the smaller Web Application Container Server (WACS) or an existing Java application server that may already be available on your network. For many standalone initial Crystal Server installations, Tomcat is the appropriate choice.

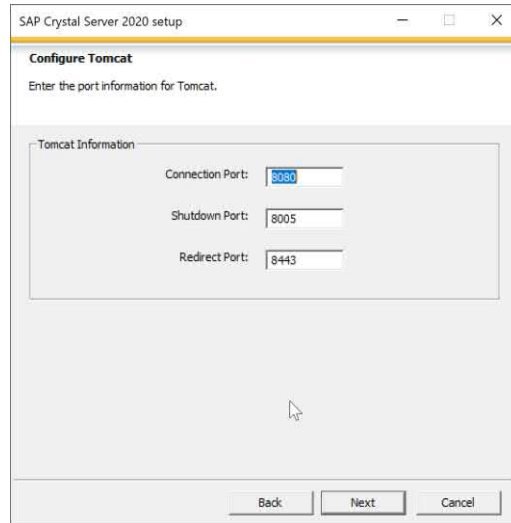


You'll be given the option of installing a bundled version control application, Subversion. This tool permits retention of previous versions of reports as newer versions are added. While you may benefit from report version control, this paper assumes that you won't be installing Subversion.

### Considering Default Port Assignments

As setup progresses, you'll be given the option to confirm default port assignment, or make custom port assignments, for various SAP Crystal Server components. Port selection is based on any existing applications on the computer where you're installing Crystal Server, other systems in your network, and any firewall rules you may have in place in your organization (especially if you eventually will be sharing Crystal Server outside the network where it's installed). Generally speaking, default port assignments presented should work fine.

The port you assign to the web application server, however, might be customized. For example, while port 8080 is the default port presented for use with the Tomcat application server, you may choose to change this port to 80 if there are no other web servers installed on the computer. Since port 80 is the default port assignment used for HTTP web pages, viewers won't need to add a port number in their web browser when connecting to Crystal Server. If the default port 8080 assignment is retained, the port number will need to be appended to the server name when connecting to Crystal Server in a browser.

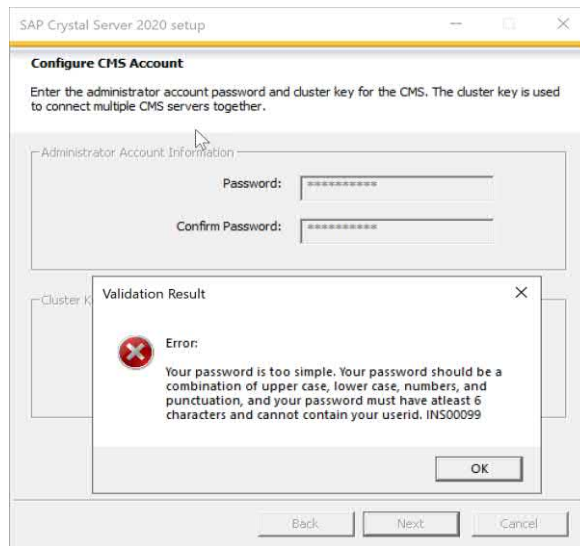


### Specifying an Administrator Password and Cluster Key

SAP Crystal Server creates an initial Administrator account as the initial security account for administering the product. You are prompted to create a password for this account. You'll need to create a "complex" password meeting a minimum set of number/letter requirements. Make note of this password as it is required to log in to SAP Crystal Server for additional administration and maintenance. If the password you select does not meet minimum password complexity requirements, you'll be notified. Choose a more complex password.

As a security measure, you will supply a cluster key when installing SAP Crystal Server. This is not a software key provided by SAP – you will add your own cluster key (which is, in essence, a complex password). You may be prompted for this key should you modify Crystal Server configuration in the future. Make sure to make a note and retain the key.





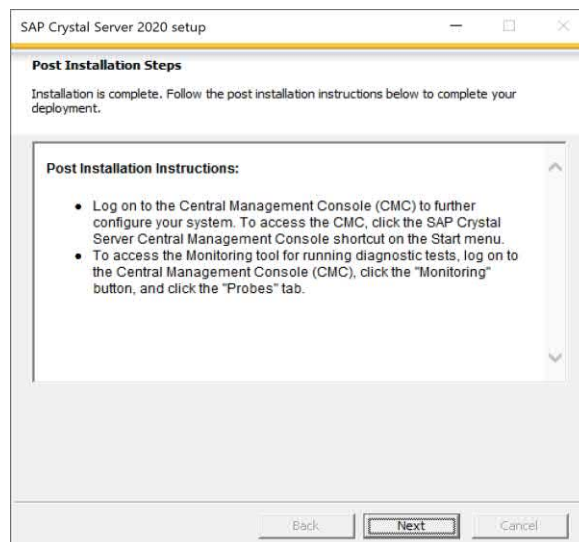
NOTE: You may choose to provide the same string for both the Cluster Key and Administrative Password. Make note of both.

### Additional Installation Prompts and Copying Files

Additional prompts will be presented before installation begins:

- If you already have a version of SAP Solution Manager running in your environment, you may choose to configure connectivity to it. Otherwise, proceed to the next step.
- If you already have a version of Introscope Enterprise Manager running in your environment, you may choose to configure connectivity to it. Otherwise, you may continue installation.

Installation will proceed to copy files and configure the initial SAP Crystal Server installation. This may take some time. When finished, you'll be given a confirmation dialog box with suggested next steps for setting up your SAP Crystal Server 2020 system.

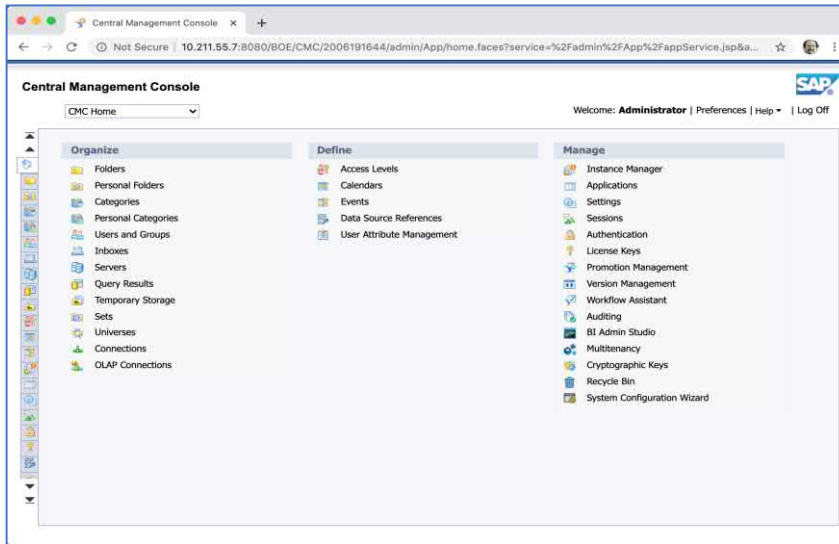


## Testing and Evaluation

There are two main web-based interfaces to SAP Crystal Server 2020. Both will require you to supply a valid user ID and password when you initially log on.

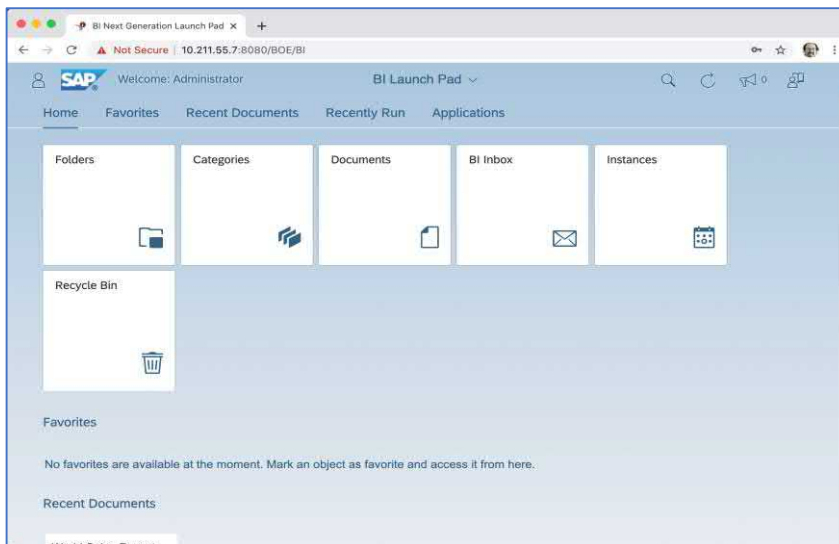
**Central Management Console (CMC).** This interface is aimed at system administrators for managing system users, groups, configuration and content. Start the CMC by typing the following into your browser (assuming default port settings were accepted when you installed Crystal Server). Note that Crystal Server URLs are case-sensitive.

<http://<ServerNameOrIPAddress>:8080/BOE/CMC>



**BI Launchpad.** This interface is aimed at everyday BI consumers. BI Launchpad is used to build folders and categories, add reports, view existing reports, schedule instances, and so forth. Start the BI Launchpad by typing the following into your browser (assuming default port settings were accepted when you installed Crystal Server). Note that Crystal Server URLs are case-sensitive.

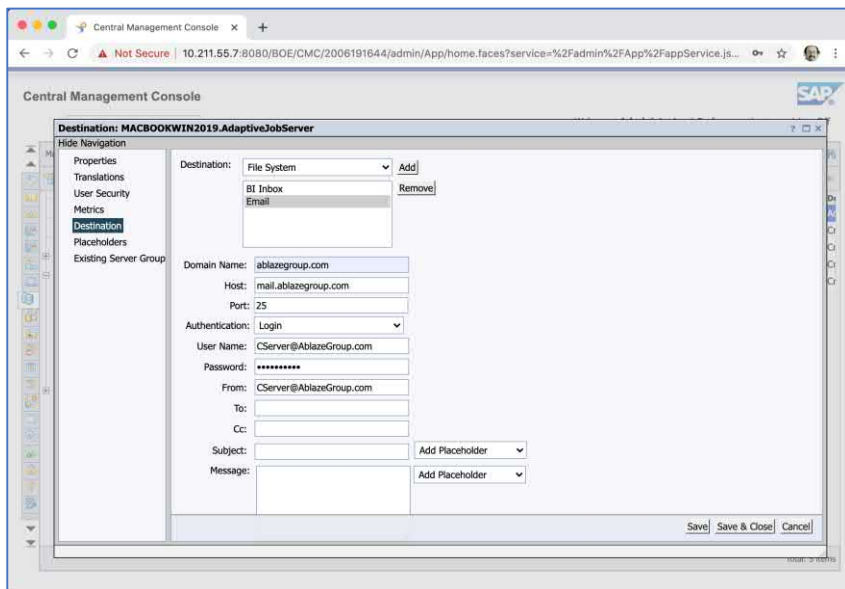
<http://<ServerNameOrIPAddress>:8080/BOE/BI>





## Configuring an E-Mail Server

One of the most powerful features of SAP Crystal Server 2020 is automated distribution of reports. Both individual reports, as well as custom integrations of multiple reports (referred to as Publications), require configuration of a standard SMTP e-mail server within the CMC. Launch the CMC and select Servers within the Organize category on the main menu. Select Crystal Reports Services within the left navigation pane. In the resulting server list, RIGHT-CLICK on the Adaptive Job Server and select Destination from the context menu. Select Email from the Destination drop down list and click **Add**.

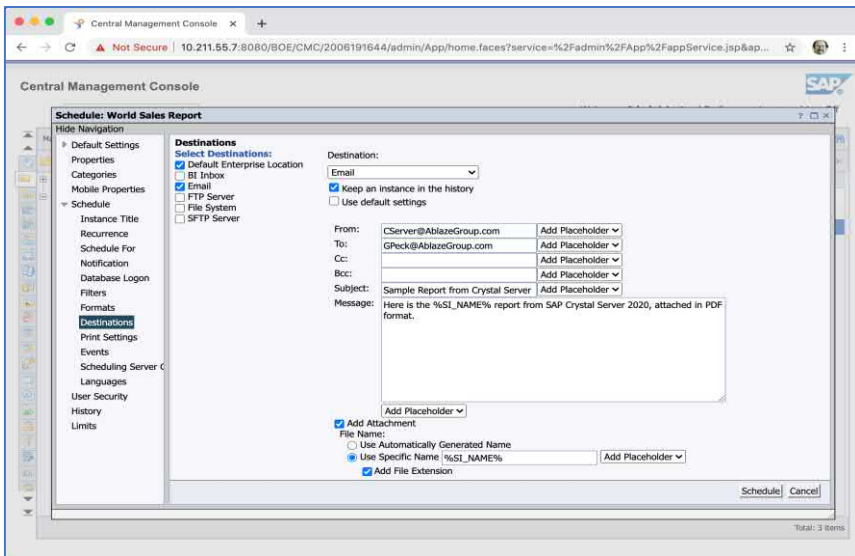


Add items to the Email destination screen based on the particular SMTP e-mail server available to you. Typical items that should be specified are the Host (either the server name or IP address) and the From address (which will be used to indicate where outgoing e-mails come from). Depending on your network and security environment, you may also need to select an Authentication method and supply a User Name and Password required by your e-mail server. You may also need to check Enable SSL, double-check the location for an SSL certificate, and select Connection Security and TLS Version options. You may need to copy a CERTIFICATE.CRT (or other SSL certificate file) to a local folder on the SAP Crystal Server computer. By default, this location is C:\Program Files (x86)\SAP BusinessObjects\SAP BusinessObjects Enterprise XI 4.0\win64\_x64.

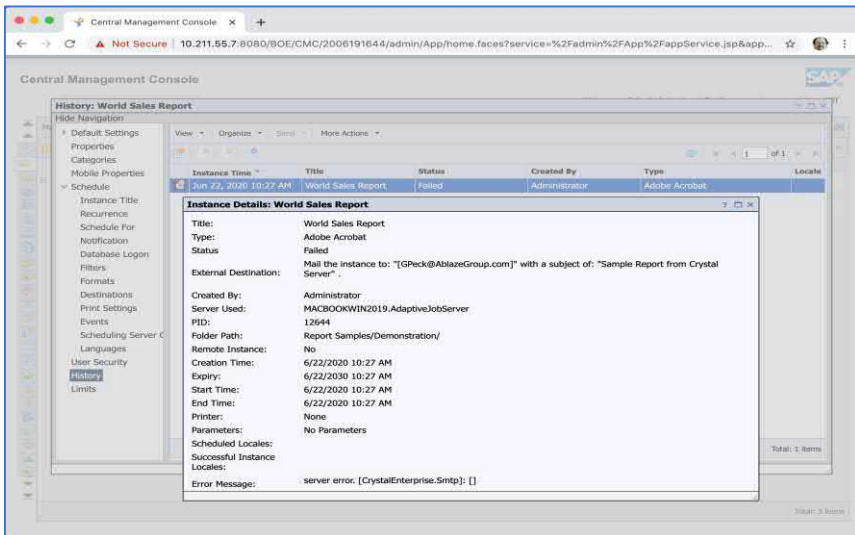
Once you've configured a SMTP server, test it for proper operation by scheduling one of the bundled sample reports to be e-mailed to yourself. From either the menu drop-down list, or main CMC menu, select Folders. Navigate to the Reports Samples -> Destination folder and RIGHT-CLICK on one of the existing reports (for example, World Sales Report). Select Schedule from the context menu. In the schedule navigation pane on the left, select Formats. Select PDF from the drop-down list. In the schedule navigation pane on the left, select Destinations.

Ensure that Email is checked (you may leave the Default Enterprise Location option checked as well). Select Email in the destination drop down list. Complete the e-mail destination screen with From, To, Subject, and other necessary options to send a PDF attachment to a standard e-mail message. Click **Schedule** in the lower right to schedule the report to run.





The report history list will appear and a new report "instance" will be schedule to run immediately. The history list will periodically refresh as the instance proceeds. If the instance completes with a Failed status, click the word Failed to display more information about the issue.



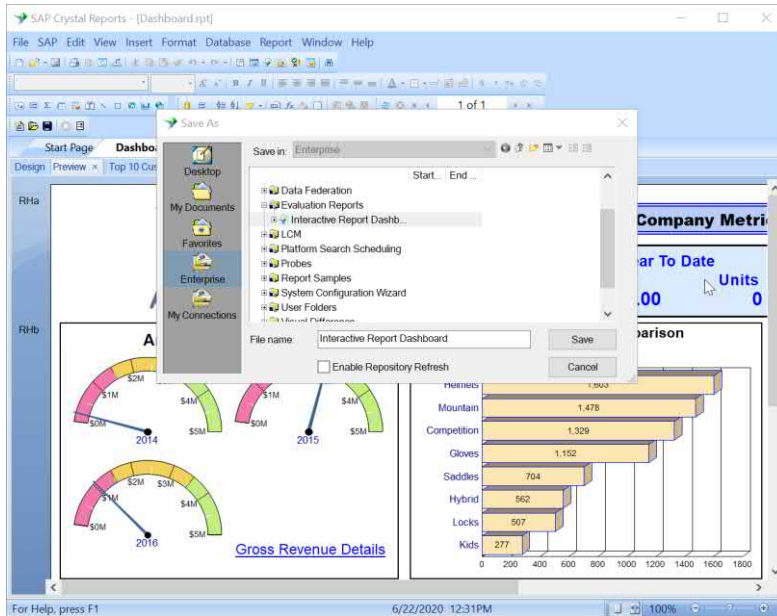
If necessary, return to the Adaptive Job Server Email destination screen to adjust one or more SMTP server properties. Continue to adjust, and reschedule the sample report, until the e-mail destination schedule appears with a Success status.



## Publishing Crystal Reports

Part of a comprehensive SAP Crystal Server 2020 evaluation includes publishing and running your own reports. Several steps are required to accomplish this:

- Create any necessary data sources. Remember that SAP Crystal Server needs to connect to the same data source your copy of SAP Crystal Reports connects to. While some data sources (such as OLE DB) don't require any special pre-definition on Crystal Server, others (in particular, ODBC data sources) must be configured identically on Crystal Server as they are on your Crystal Reports development computer. Ensure that any necessary database drivers and ODBC data source names are created on Crystal Server before publishing or running reports.
- Publish Reports from SAP Crystal Reports 2020, BI Launchpad or CMC. There are several methods of publishing reports you've designed with SAP Crystal Reports 2020 or Crystal Reports for Enterprise to SAP Crystal Server. You may Save As and select the Enterprise Folder option within Crystal Reports itself.



Or, you may use the BI Launchpad or CMC to add a Crystal Report to a selected folder. For example, you may select the desired folder in the BI Launchpad, click the + icon, and select Upload Document. Then, navigate on your local computer to the desired Crystal Reports .rpt file and upload it to BI Launchpad.

Upload document to Evaluation Reports

Choose a file to upload  
Dashboard.rpt

Title  
Interactive Report Dashboard

Description  
For daily sales and marketing analysis

Keywords

Crystal Reports options  
 Use description and keywords from report  
 Keep saved data

> Assign to Category






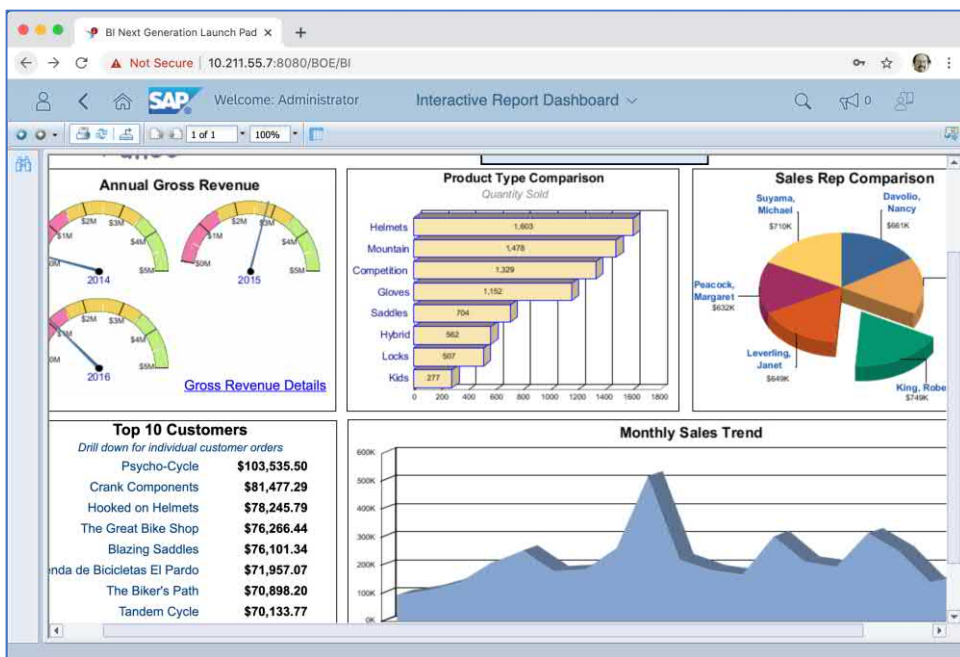
- Run the report on demand and/or schedule. Once a report has been added to Crystal Server, it's time to evaluate the various methods of sharing it with an audience, either in real time, or through an automated schedule.

## Evaluating On-Demand and Scheduled Reporting


Once your own reports are published, it's time to evaluate the different ways of bringing pixel-perfect reporting and interactive data analysis to your audience. There are two broad approaches to viewing Crystal Reports on SAP Crystal Server: on-demand, or via a schedule. Both are probably best evaluated with the SAP Crystal Server end-user interface, BI Launchpad.

## Interacting with On-Demand Reports

After logging in to BI Launchpad, navigate to the desired report via the Folder, Categories, or Documents option. To view the report interactively, just click its name. Or, you may click  and select View from the context menu. You may be prompted for database credentials or parameter values. After supplying them, the report will appear in a viewer window.





Try various approaches to interacting with the report to gain insight into your organization's data:

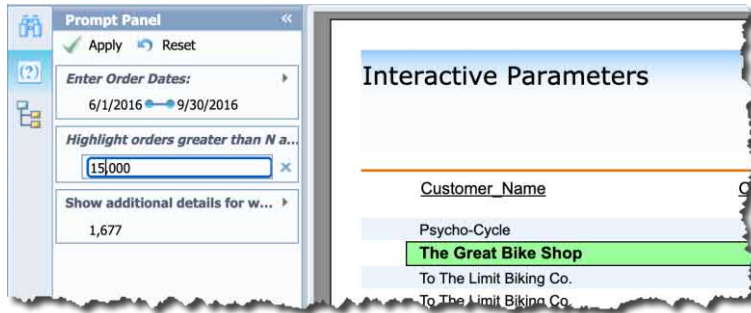
- Page Navigation.  3 of 8. Click page advance buttons, or type a page number in directly.
- Drill Down. When you hover your mouse over a report group name or chart element, the mouse cursor will exhibit a drill down icon. If the report is designed to present it, you may also see a tooltip indicating that you may drill down. Click to display a new drill down view specific to the initial chart element you clicked. This will replace the original report view. Depending on how the report is designed, you may be able to drill down again (multiple levels of drill down is a powerful Crystal Reports feature). As you continue to drill deeper, the drill hierarchy will appear at the top of the report viewer.



You may click on any entry in the drill hierarchy to navigate back to that level.



- **Interactive Parameters.** If the report you are viewing is designed with parameter fields, you may change virtually any aspect of the report (filters, appearance, and so forth) “on the fly” with the prompt panel. Display the prompt panel by clicking  on the left side of the report viewer. The parameter panel will appear to the left of the report, displaying all report parameters. Click any desired parameter to change its value. Once you've made desired changes, click  to supply the updated parameters to the report.



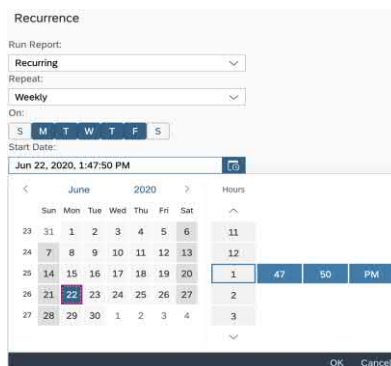
## Scheduling

Interactive on-demand report viewing in any web browser is a very powerful feature of SAP Crystal Reports Server. However, it may present inefficiencies in certain situations, based on your particular business environment. For example, viewers must possess a Crystal Server license and must log in and navigate to the desired report. They may prefer an alternative method to analyze the report, such as via an e-mail attachment. Also, real time interactive report viewing may place significant burden on the source database by submitting repeated query requests, an understandable side effect of real time analysis.

SAP Crystal Server 2020 features the ability to schedule reports to run on a regular basis (for example, every day at midnight, each Monday morning at 6 a.m., or on the last day of each month). The resulting “instances” of these scheduled reports may be distributed in a variety of file formats via e-mail (or other distribution methods, such as FTP server or to a fixed file location on your network). Or, viewers may combine the flexibility of interactive report analysis (drill down, group tree navigation, and so forth) with the benefit of pre-schedule reports by viewing a report instance interactively in their browser. This permits a report to query the underlying data source only once when scheduled (daily at midnight, for example). But, the resulting report instance can be interactively viewed by a large number of viewers any time during the day without impacting the source database.

To schedule a report, navigate to it via the Folder, Categories, or Documents option. Click  and select Schedule from the context menu. Choose desired options from the resulting schedule screen.

- **Recurrence (General area)** Choose how often you want the report to run. Explore the widely flexible options.



- Prompts (Report Features area). If the report is designed with parameter fields, you may supply values for one or more prompts (you must supply values if default prompts are not already provided). You may schedule the same report more than once, selecting different prompt values for each instance.

Prompts	
Interactive Parameters <span style="float: right;">Edit Values...</span>	
Name	Value
Order Dates	[Jun 1, 2016..Jun 30, 2016]
Highlighting	<u>10,000.00</u>
Order Details	1,677.00

- Destination (General area). The Default Enterprise Location destination, selected by default, will place an “instance” of the report in the report’s history list every time it runs. This provides a historical picture of various instances throughout time (for each day, week, and so forth, that the report was scheduled). You may add additional destinations before you schedule (Email, FTP server, and so forth). Click **Add** and check one or more additional destinations that you’d like to use. You may then select each destination in the resulting Select Destinations screen and specify individual properties for each.

Select Destinations

Select a destination: Default Enterprise Location Email

Default Enterprise Location

Email

**Email**

**Delivery Details**

Keep instance in history

Use default settings

**System Details**

From:  Title

To:  Email Address

Cc:  Title

Bcc:  Title

Subject:  Add Placeholder

Message:  Title

Confirm Cancel

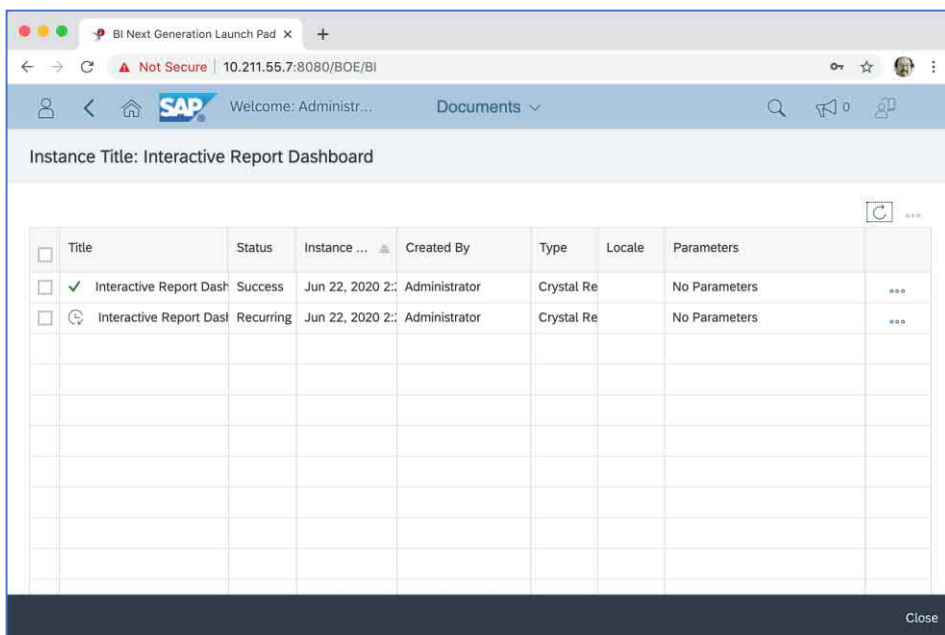
- Format (Report Features area). Consider how your reporting audience will view the resulting scheduled instance. If they will be viewing the instances within the BI Launchpad, you’ll probably want to leave the default Crystal Reports format set. This will permit drill down, and other interactive Crystal Reports features, to be used when viewing the instance. However, you may be scheduling the report to be distributed to additional destinations, such as Email. In this case, you’ll want to consider an alternate format, such as PDF. Make the desired choice from the Format drop down list.







Once you're finished making scheduling choices, click **Schedule** in the lower right. The report history list will appear showing the "instance" you just created. If you schedule a report to only run once right now, only one instance will appear with a Pending or Running status. Otherwise, one or more instances will appear with Recurring or Pending statuses. Once a scheduled instance runs, you will see a Success or Failed status.



If your viewing audience wishes to interactively view a report instance, they need only navigate to the desired report and click **...**. From the resulting context menu, they may then select History to view the entire history list and view any desired instance, or View Latest Instance to see the most recently successful instance.



## Purchasing and Adding a License Key

Once you've performed a thorough evaluation of SAP Crystal Server 2020, you'll want to purchase a permanent, non-expiring license key. You may purchase license keys in combinations of Named User Licenses (NUL) or Concurrent Access Licenses (CAL), depending on the combination of interactive or non-interactive viewers you plan to serve, as well as the number of simultaneous interactive users you plan to accommodate. Don't worry if you don't make the perfect choice the first time around – you may purchase licenses in any combination at various times, incrementally adding capacity as needs grow. And, you'll never need to reinstall software to change license keys – you only need to make changes in the CMC. Visit [CrystalReports.com](https://CrystalReports.com) for license and pricing options.

Once you have obtained a full, non-expiring license key, add it to the CMC. From the CMC main menu (or menu drop down), select License Keys. You'll notice the existing expiring evaluation product key you added when you initially installed the product. Type the new license key into the Add Key field and click **Add**. The new key will be added to the CMC and you'll notice the new resulting set of Named and Concurrent licenses below. You may then select the initial expiring license key and remove it by clicking **Delete**.

The screenshot displays the SAP Central Management Console (CMC) interface. At the top, there is a navigation bar with the SAP logo and a user welcome message: "Welcome: Administrator | Preferences | Help | Log Off". Below this, a dropdown menu is set to "License Keys". The main content area is titled "SAP Crystal Reports Server" and contains a section for "Currently deployed license keys (Select a key to see its licensing information.)". This section features an "Add Key" input field containing the license key "ZZZZ-RRRRRR-UUUUUU-TTTTTT-33" and an "Add" button. Below the input field is a table with one row containing a placeholder key "XXXXX-YYYYYY-ZZZZAA-BBBBBB-CC (Product code)" and a "Delete" button. A note below the table states: "(Changes will take effect after you click 'Add' or 'Delete'.)".

Below the license key management section is the "SAP Crystal Reports Server License Key Information" section, which includes a table with the following data:

License Metrics	Selected Key	Total (All keys)
Named Users:	1	1
Concurrent Sessions:	-	0
CPU Metric:	-	0
Expires:	2020-08-18	
Publication Recipients:	-	0

Additional text next to the Concurrent Sessions and CPU Metric rows reads: "Concurrent session based licenses (CSBL) can only be used if the total number of concurrent sessions is limited." and "CPU license keys unlock unlimited access."



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