



2727 N Plaza Dr.
Rapid City, SD 57702
Phone 605-348-6529 Fax 605-342-1160

Invoice

Number: **409147**

Date: 3/16/2023

Bill-To

City of Deadwood-Historic Preservation
Attn: Accounts Payable
108 Sherman Street
Deadwood, SD 57732 USA

Ship-To

Deadwood City Of-Historic
Preservation
108 Sherman Street
Deadwood, SD 57732 USA

Source: SO No. 261595

Acct. No.	A/R Cust. No.	Acct. ID	Customer PO	Reference	Ship Via	Terms
7517	7517	7517				Net 30

****Build new Azure Infrastructure for ArcGIS.**

12/30/2022 JG: Logged into the admin account for Azure and set it up with MFA. Replied to emails for Cindy, Jessica, and Zach on setup and looked into the tax exempt for Cindy.

12/30/2022 JG: Got an email from Cindy that this is set up. Called and remoted into her computer to give the admin user subscription ownership. Logged in and called Zach at Ferber. We walked through the initial setup of the environment until we got to VMs. With the free version, there are several things we cannot do. Called Cindy, got into her computer, and upgraded to the standard subscription. Purchased the b4ms reserved instance but had issues with the D4s instance. Expanded the regional vCPU quota and waited a bit to see if it would allow us access. Will give it more time. Built up the b4ms VM and tied down RDP to our and Ferber's IP address only. Will work with Zach more on this Tuesday to finish up.

01/03/2023 JG: Logged into the Azure portal and was able to use the Ds4 series now. Added that to the reservations and called Zach. Worked with him to get the geoevent VM built up and modified the NSG to lock down RDP. Got into both servers and got them set up to communicate with each other through the firewall and set proper time. Got into Zach's computer and walked him through setting up the inbound rules similar to AWS inbound on both VMs NSGs. Made sure that everything could communicate. Brought in the wildcard cert on both servers and set the self-signed cert for ESRI to work properly. Setup a resource lock at the subscription level. Zach will take it from here and will contact me if he has any questions.

01/03/2023 JG: Set up all recommended alerts to go to Zach's email and the hpadmin email address at City of Deadwood. Let Zach know. Built documentation on the setup of Azure and included pertinent information to City of Deadwood.

01/04/2023 JG: Logged in and checked on the reservation for the DS4_V2. It did consume the VM as expected. Made sure everything looked correct and let Zach know.

01/06/2023 JG: Zach emailed that he needs something turned on in the marketplace but that is not how we set up these servers and not how Microsoft recommends they are set up. Called Zach and explained that and he thinks we should probably rebuild this using the ArcGIS image so that he gets the most support from ESRI. Rebuilt the portal VM but once we got into the image builder, it wasn't the same as what some of the documentation said it was. Told Zach to contact ESRI because this has all software installed on it and it seems to be a single instance. We may need another instance, but the documentation is not clear. Updated our documentation with the current build for now.

01/06/2023 JG: Got on a call with ESRI engineers and Zach; we explained what we are trying to accomplish with this setup. He said that how we had it setup initially is fine and we can go back to that setup to make sure we have Server 2022 and not 2019 like their images have, and to make sure it's a brand new VM image. Built the environment back up the way we had it and set up IIS on the servers. Installed the Enterprise builder software, but it does not seem to be the proper way to set this up even though that is the link that we were sent. Zach responded to an email that we just received at 4:05pm from the ESRI engineer letting us know we could reach out for help with the install. Zach is going to work with him and reach me back if he needs assistance.

01/09/2023 JG: Checked on cost analysis to make sure that everything is performing as it should for now and still set up and ready for a call with ESRI at 10am tomorrow morning.

01/10/2023 JG: Got logged into the Azure portal and into the two VMs before the Zoom. Got into the Zoom with Vincent from ESRI and got started while Zach finished up something things he needed to do. Uninstalled the arcgis software that is on these servers. Downloaded the new software separately as this was his most recommended way.

(* denotes repair item)



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While we waited for the uninstall, we checked through settings on the old servers. Zach reached out to Kevin and let him know the site will be down for a while so we can upgrade the old software to the 10.9 version that we have loaded on the new servers. Started the upgrade on the old servers. While that was installing, I installed the Portal for ArcGIS, created a new subnet that is the same as AWS suggested by ESRI and changed over the subnets on both servers. Set a static through Azure for the Portal server so it has the same IP as the one in AWS. Recreated the self-signed certs so they match the new IPs.

01/10/2023 JG: Got back on the Zoom with Zach and Vincent and they have the Portal for ArcGIS upgraded and are working on Server now. The Portal for ArcGIS completed, and I installed all the remaining software required for the portal server. Setup a storage account and a file share and set it up on the new portal and old AWS portal server to transfer data to the new servers. Zach is going to stay on the line with Vincent as long as possible, and we will resume on Thursday with anything remaining.

01/11/2023 JG: Zach messaged that the E drive has to be D to make this other software that is being used for the migration work properly. Called Zach and did a screenshare. Moved the paging file and then rebooted the server. Changed the drive letters around and then walked through the removal process of the software. Zach will finish removing the software as they want it to live on C, which is not recommended but since it was on C on the old servers, Vincent wants it on C on these servers as well.

01/12/2023 JG: Called Zach and did a screen share with him. Enabled the paging file on the portal server and then changed the C to D on the geoevent server as well. Installed the software on the geoevent server. Noticed that portaladmin was being used for the service account; changed all of that to arcgis instead and restarted the services. Had to change permissions on all the folders to make this work right. Got on a call with Vincent and started trying to setup the portal site but we kept running into redirect issues with the site. Changed the Azure DNS to Google DNS for the servers and restarted the server. I also changed the location of the external DNS names for GIS.cityofdeadwood.com. Now it will not go to the site with the IP at all. Vincent recommended that we uninstalled Portal for ArcGIS again and reinstall. Zach is going to take it from here and let us know when the software is reinstalled.

01/13/2023 JG: Zach messaged that Vincent from ESRI thinks we need to rename the VM because there is a bug that has been reported in the software when the server has the name portal in it. It is not as simple in Azure to just rename, must be rebuilt. Copied out what we needed and rebuilt the VM. Setup the proper NSG rules, setup the self-signed cert, changed DNS records, setup the wildcard cert, copied back the folders we stored on the geoevent server for this folder and Zach will start the install of the software again. Updated all documentation.

01/13/2023 JG: Zach called and isn't able to get the web adaptor to install. Had to install the IIS management server and scripting tools as well. Got all of that installed and now the web adaptors are installing.

01/17/2023 JG: Zach called and is wondering how to map the storage account shared drive to the new Azure portal server. Logged into the portal and copied out the script to map the drive. Sent to Zach and then helped him manually migrate the archives.cityofdeadwood.com site to the new portal server as well.

01/20/2023 JG: Got an email from Zach needing assistance with some questions from ESRI. Emailed him back answering the questions. Logged into the Portal to see if I could figure out how the arcgis server and portal are federated, but I can't find that information.

01/23/2023 JG: Zach messaged that they need access to AWS from Azure using PostGreSQL. Got on a call with him and said he won't be able to access it that way from Azure, but we did install PostGreSQL and then tried to back up the database and restore on the new server, but it would not restore. Zach is going to reach out to ArcGIS to finish this process.

01/24/2023 JG: Got on a call with Zach and ESRI needs to make sure that all the users in PostGre are setup with the proper permissions. Got into PostGRE and the deadwood database did export successfully. Imported that and modified some permissions. Found that we need to change the file name to back up and then import, so I blew away the old database and created a new one and then restored. Seems to be restoring properly. Installed SQL server and took a backup of the archives database on the old server and then restored it on the new one and setup the proper permissions. However, the site is not working and even after trying to modify the web.config file, could not get it to work right. He is going to reach out to the vendor that helped Linda design it initially.

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01/24/2023 JG: Zach called and said that they had to reinstall the PostGRE software because his password isn't working but they were also unable to get it to work after that creating the geodatabase through ArcGIS Pro. Got into his computer with him and uninstalled both PostGRE software, deleted folders and reinstalled. Setup the geodatabase using ArcGIS Pro and that was successful now. Created the database users according to the documentation from ArcGIS. Tried to restore the database and Zach will monitor. He will reach out to ESRI again if the restore is not working.

01/25/2023 JG: Zach messaged that he talked to the site creators, and they said that what we did to the config files is the only thing that needs to be changed. Got into his computer again and we fixed the archive user in sql and setup windows and SA auth and now we can connect using the archive user into the sql server. Setup the tcp/ip port and then allowed the sql port through the firewall. Tested the archive site internally and now it's working. Externally, it's not yet. Allowed port 4433 inbound on the windows firewall and thats working now as well. Started looking into the postgresql database and worked on trying to upgrade the AWS server to postgres12 from 9.6 but after running the upgrade command, we cannot get the 9.6 service to start. Started working on the Azure server again and did a manual pg_restore from the command line and it imported a lot more information than we had before. Now Zach has more data to work with and is going to reach back out to ESRI.

01/25/2023 JG: Zach called and he needs to restore the old geoevent server back to the snapshot we created yesterday. Got into his computer and walked through restoring the drives from the snapshot. Got back into the server and everything is back to the way it was yesterday. He is waiting to hear back from ArcGIS for the portal and PostgreSql settings.

01/26/2023 JG: Zach called and needs to get an export to a csv from ArcGIS Pro of the PostGRE database. This service will not start. Tried to stop everything using this service and then start it but couldn't get it to work. Performed a restore from the 1/10 snapshot so that the service is started, and Zach will take it from here.

01/27/2023 JG: Zach called for assistance getting the xml to import properly. Kept running into an error. It wants to import into a database with all the users already created. Imported it into the Deadwood database and it does not appear to have doubled the files in the database at all. He will look through it and tie the ArcGIS services to it and see if things are functioning properly from there.

01/27/2023 JG: Zach called and needs some help pointing the Verizon Network fleet connector. He just needs to use the full fqdn. Chose to use a different port so cleaned up port 6180 in the NSV as well.

01/27/2023 JG: Zach said that Verizon is still erroring. Got on a call and looked at the old server. It was pointing to the name of the old server but via http. Now that we have this setup as https only, found the geoevent.cityofdeadwood.com dns name and he will test that instead.

01/31/2023 JG: Zach emailed yesterday about the network fleet site still not working. Went out to the site and it's looking at a self-signed cert. Emailed Zach back and he called. Did a screen share and went through several options to get the wildcard or the other self-signed cert we created to work but they all failed. Let Zach know that the wildcard is preferred but did create another self-signed cert with the Azure internal DNS name as well. Tested that but it also fails because it's self-signed, not a trusted external CA. He is going to chat with ESRI and find out where these settings need to be changed.

02/01/2023 JG: Zach emailed about the archives site not working for City of Deadwood. Got on a call with him and tried it on my end and it works fine for me too. Got into their server and noticed there are internal DNS records setup pointing to the old servers. Updated those to reflect the new IP addresses and cleared DNS cache. Zach had them test and it's working for them now. Looked through certificates with Zach and comparing to the other server, they were using the original self-signed certificate but I don't think that is accurate. Got on a call with support from Esri and we installed the wildcard and used that on the portal server but the geoevent server is using a name that is different than an external DNS name. The internal self-signed certificate would not support the external site name since it is self-signed. Esri support is going to look into this further.

02/02/2023 JG: Zach needs assistance with the internal vs external URLs for the geoevent server. Zach called and I spoke with him about the differences of the internal vs external with the wildcard and renaming the ArcGIS machine name to geoevent.cityofdeadwood.com might resolve all the issues for this server as well.

02/07/2023 JG: Zach needs some assistance on the name of the geoevent server. Got on a call with him and ESRI

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TECHNOLOGIES

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wants him to change the dns name in Azure of the host but if we do that, we will lose access and it won't be the name of the physical machine or the website that he is trying to access. He will explain this to ESRI. Moved the cemeteries site from the Mt Moriah AWS VM. Setup backups for the Azure VMs. Zach is going to work with ESRI from here. 02/08/2023 JG: Got on a call with ESRI and Zach to discuss Azure DNS vs the cityofdeadwood.com DNS settings and the difference between them. ESRI tech gave Zach some steps to reinstall with the dns name we want to use so we can use the wildcard for that site as well.

02/10/2023 JG: Zach called and rebuilt a couple of things according to ESRI's recommendations but now he is running into issues. Looked through the network fleet connector with him and into the password prompts in Portal, but we aren't able to find anything causing the issue on the server side of things. Checked the backups and we just created those on Tuesday and rebuilt some of this on Sunday. He will work with ESRI more and let me know if he needs assistance.

02/21/2023 JG: Got an email from Zach about ports not being open outbound. Logged into the portal and sent him a screenshot of all ports being allowed out to the internet. Maybe there is a different IP that isn't specific to the internet that is missing. Will work with Zach on this when he gets back in touch.

02/22/2023 JG: Zach called, and I remoted in and to his computer. Went through adding the ports ESRI says they need in the Portal servers firewall since that is what he is trying to connect to. Set up firewall monitoring on that server. Looked through how this fleet connector is supposed to be setup and how to connect to a data store and added a new setup for a data store instead of the arcgis enterprise he had setup. Found that the NSG is blocking the IP since the site is external. Opened the port in the NSG and now we have denied in the firewall monitoring log on the portal server for port 6443 as well. Opened that port and now it is connected, and the data store shows connected as well. Zach will continue from here to see if he can get it to work properly.

03/01/2023 JG: Got on a call with Zach to discuss decommissioning the servers from AWS, except the Mt Moriah web server for now. Zach will call back if he needs further assistance.

Qty.	Description	Total
41.50	IS Billable Labor	\$7,262.50
	Item Total:	\$7,262.50
	Sales Tax:	\$0.00
	Invoice Total:	\$7,262.50
	No Payments Received	
	Total Due after payments:	\$7,262.50
	Invoice Balance as of: 3/16/2023	\$7,262.50

NOTICE:

- * A 20% restocking fee may be applied to unopened returns.
- * A 1.5% monthly finance charge, with a \$5.00 minimum, may be assessed on past due balances.
- * A 40% fee may be added to any account sent to collections.

(* denotes repair item)